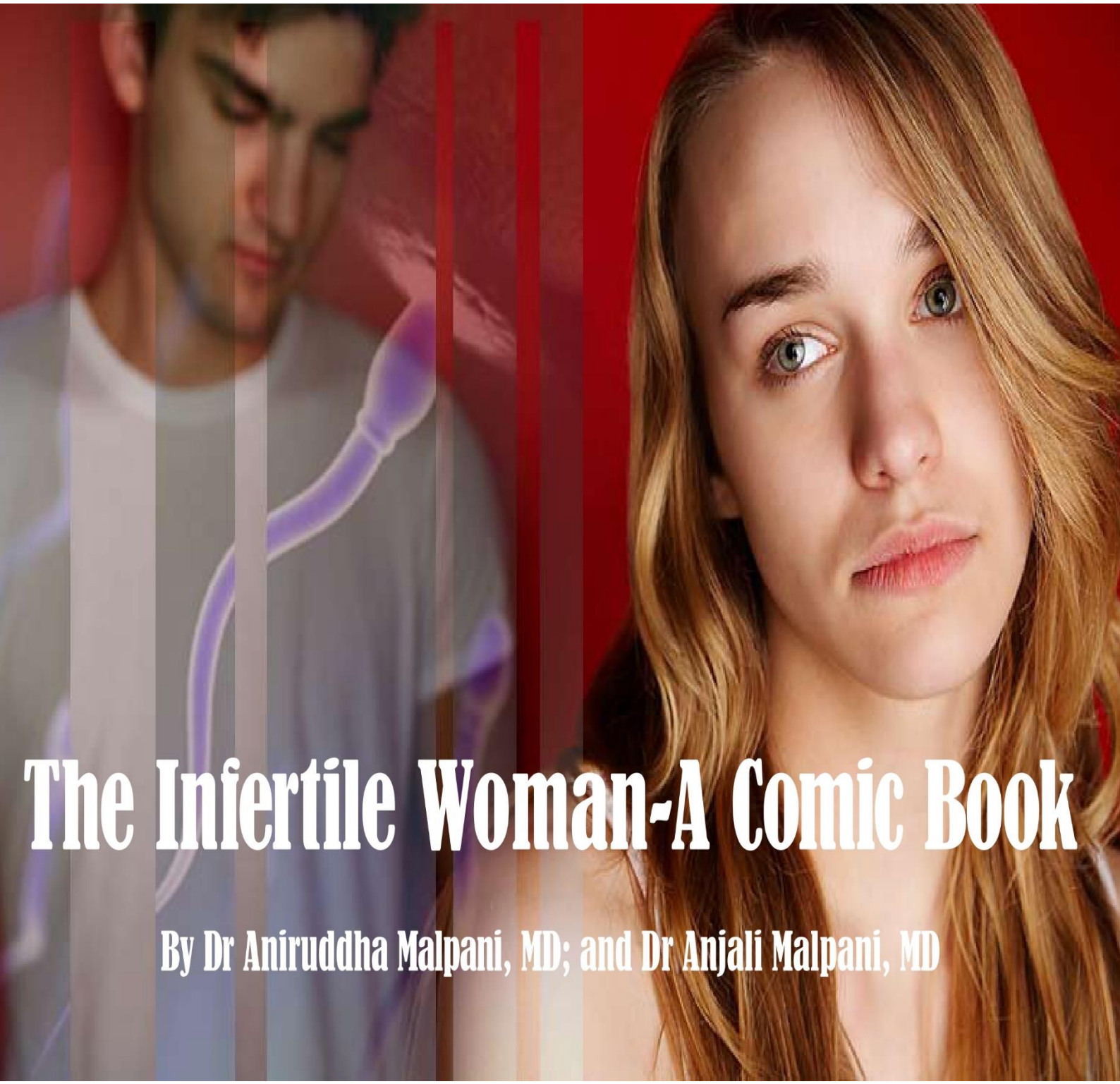


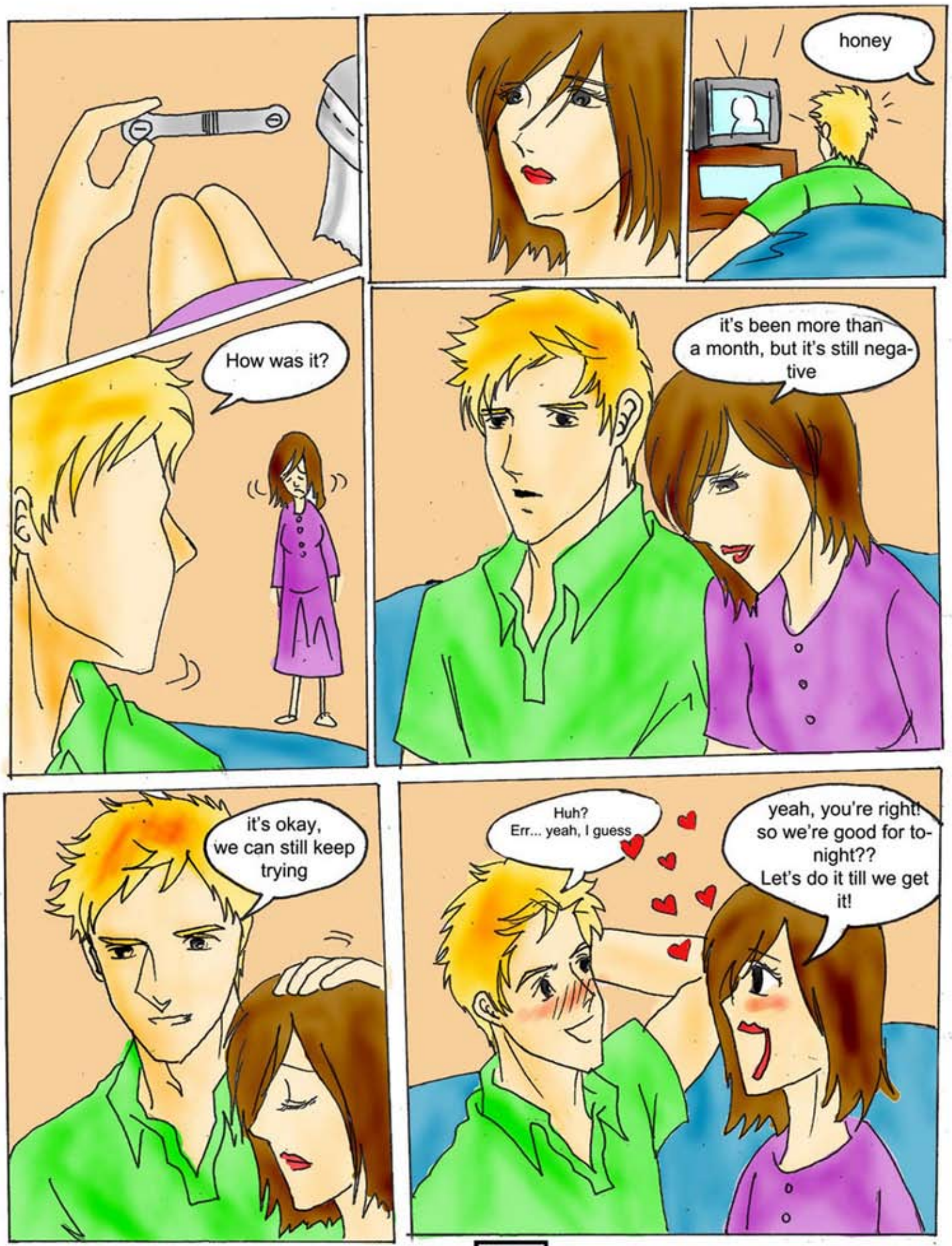
The Infertile Woman-A Comic Book

By Dr Aniruddha Malpani, MD; and Dr Anjali Malpani, MD

Table of Contents

Table of Contents

Chapter 1A Do you have an infertility problem? When to start worrying!

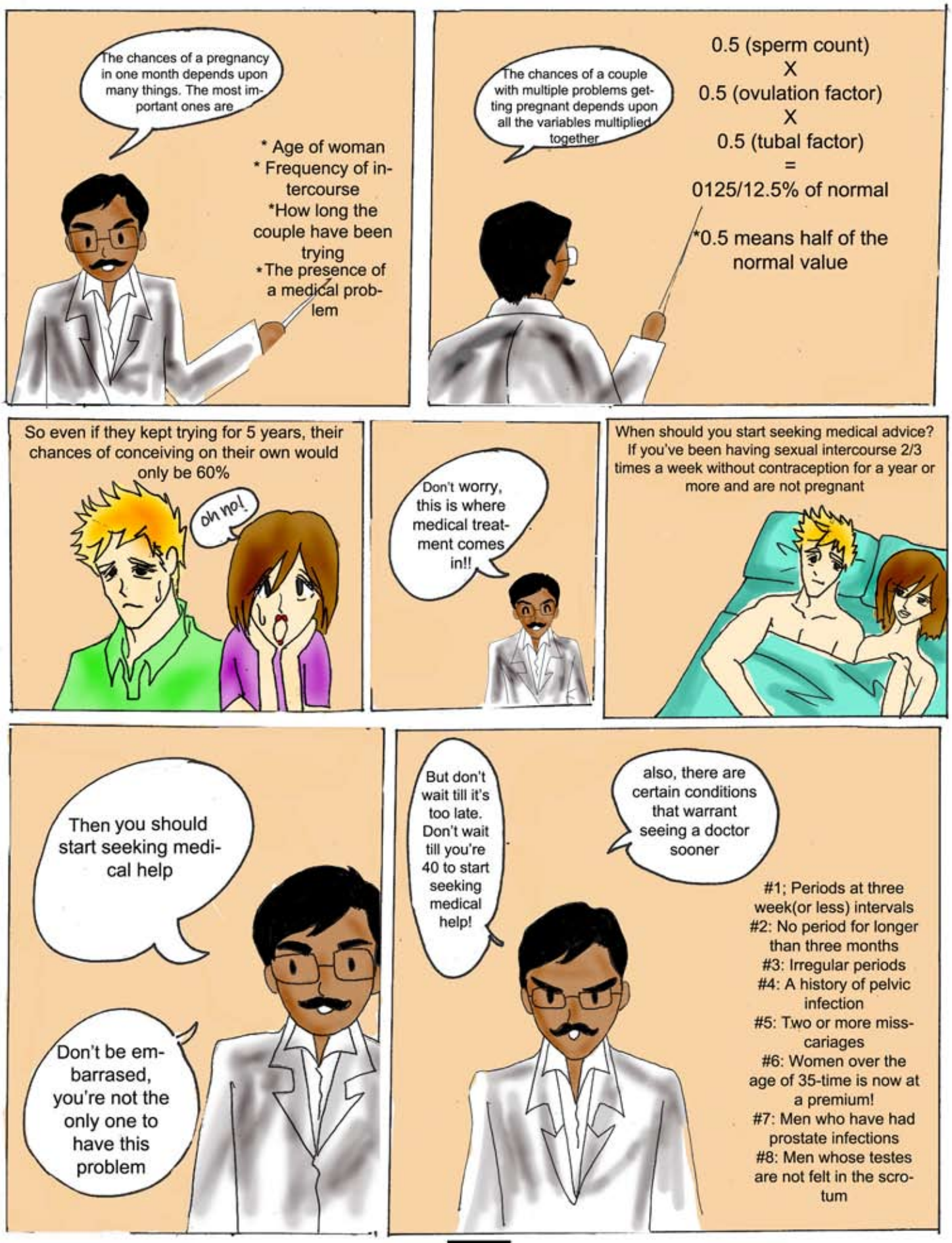


For more information on this chapter, go here:
http://www.drmalpani.com/book/chapter1a.html

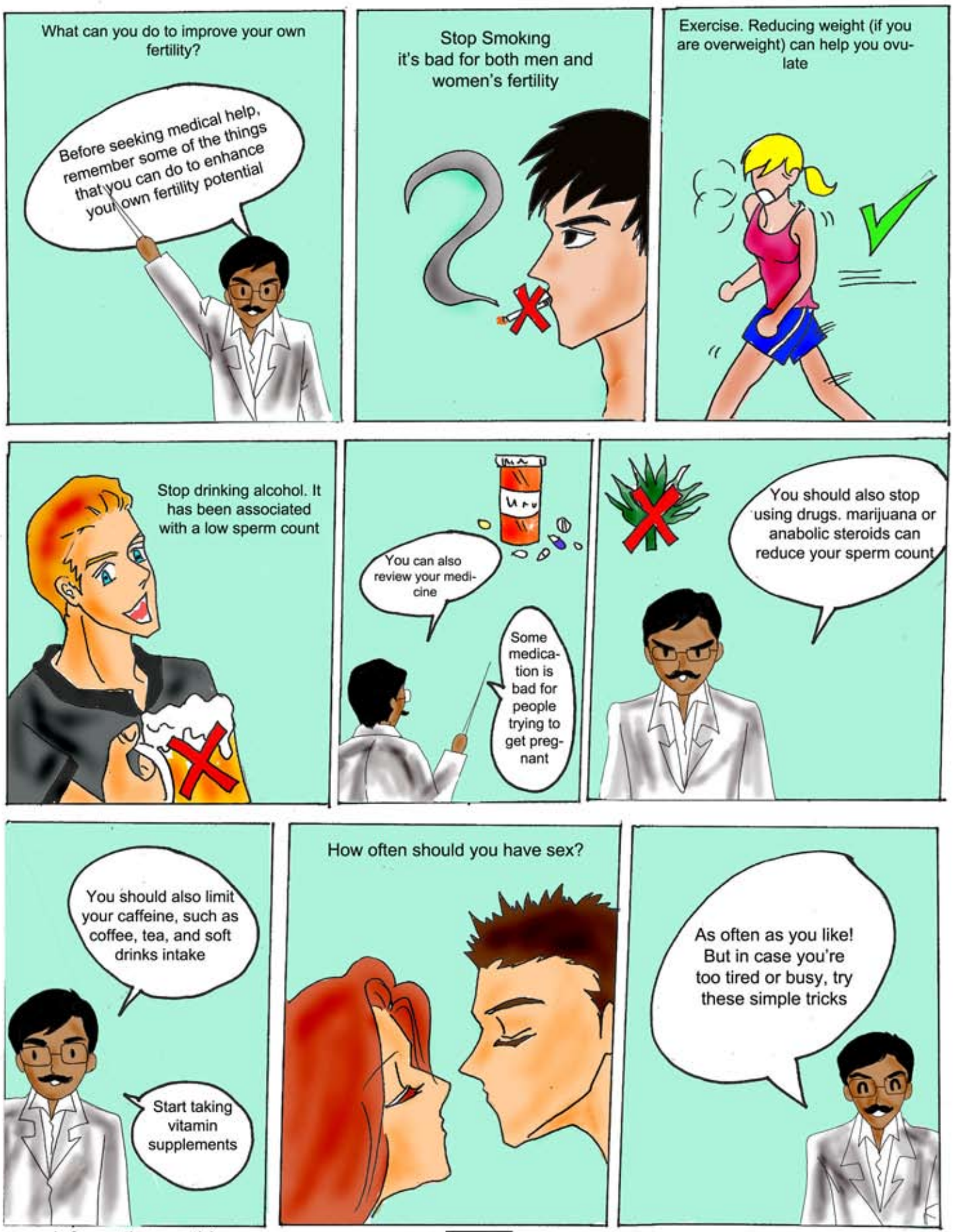
Chapter 1A Do you have an infertility problem? When to start worrying!

For more information on this chapter, go here:
http://www.drmalpani.com/book/chapter1a.html

Chapter 1A Do you have an infertility problem? When to start worrying!

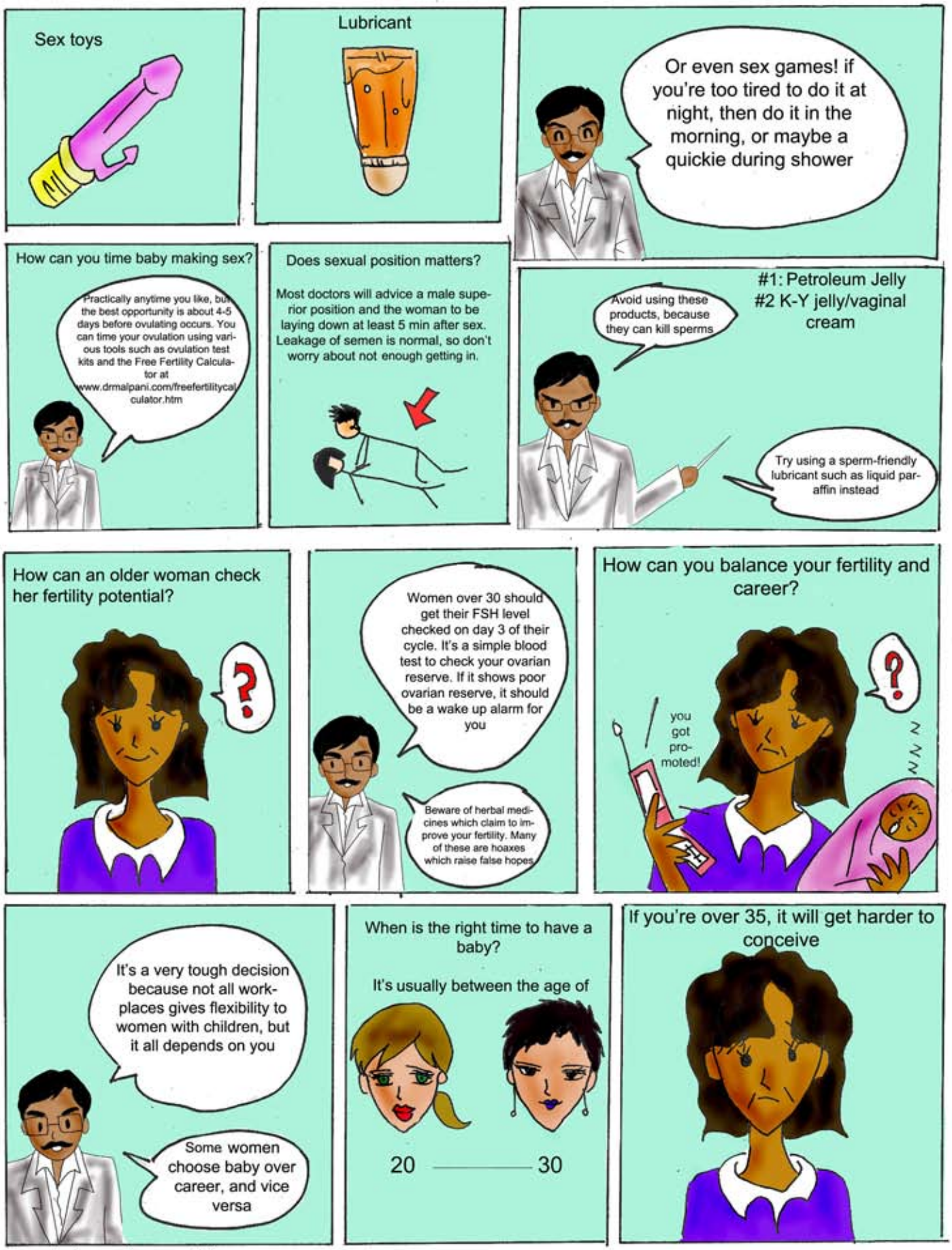


For more information on this chapter, go here:
http://www.drmalpani.com/book/chapter1a.html

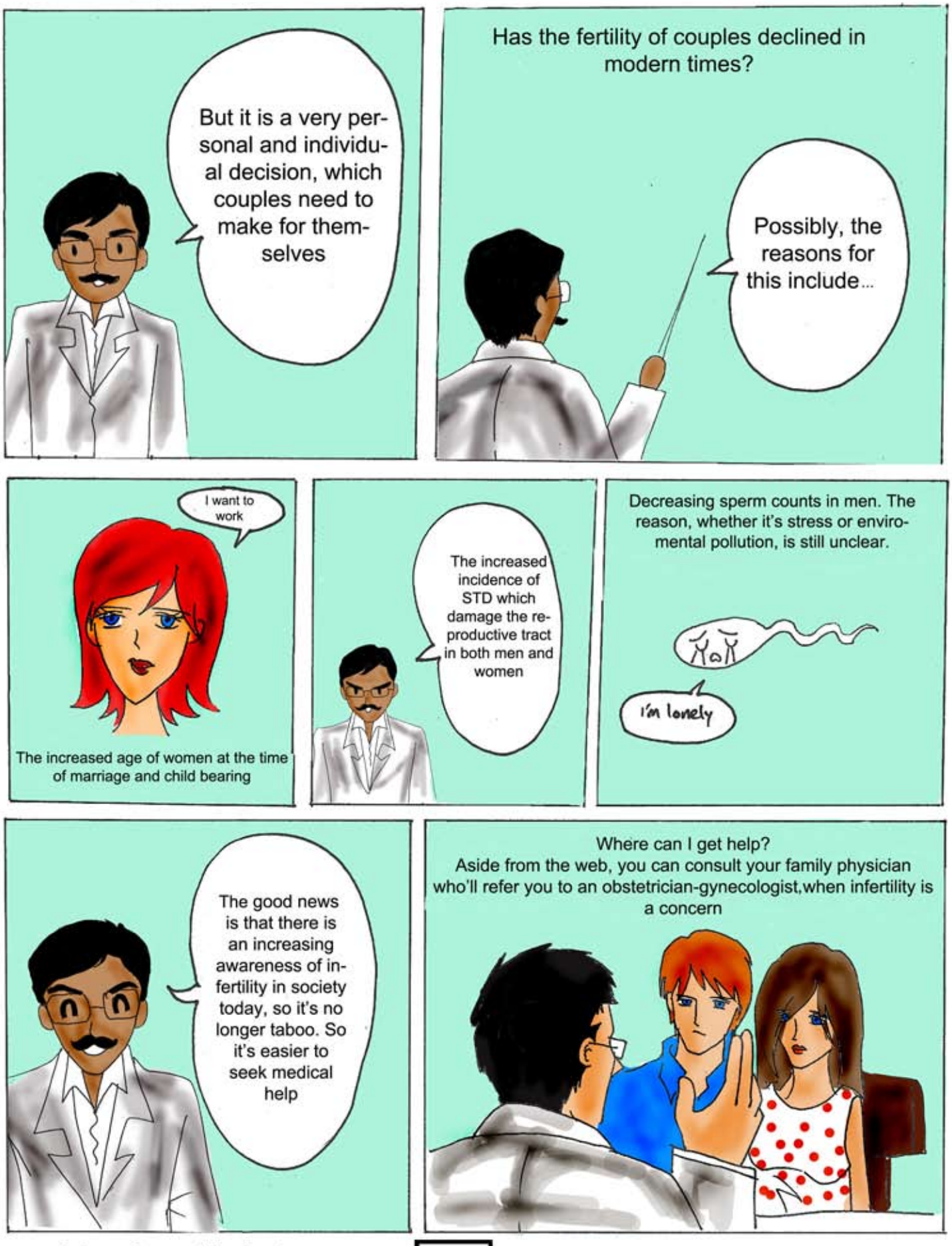


For more information on this chapter, go here:
http://www.drmalpani.com/book/chapter1b.html

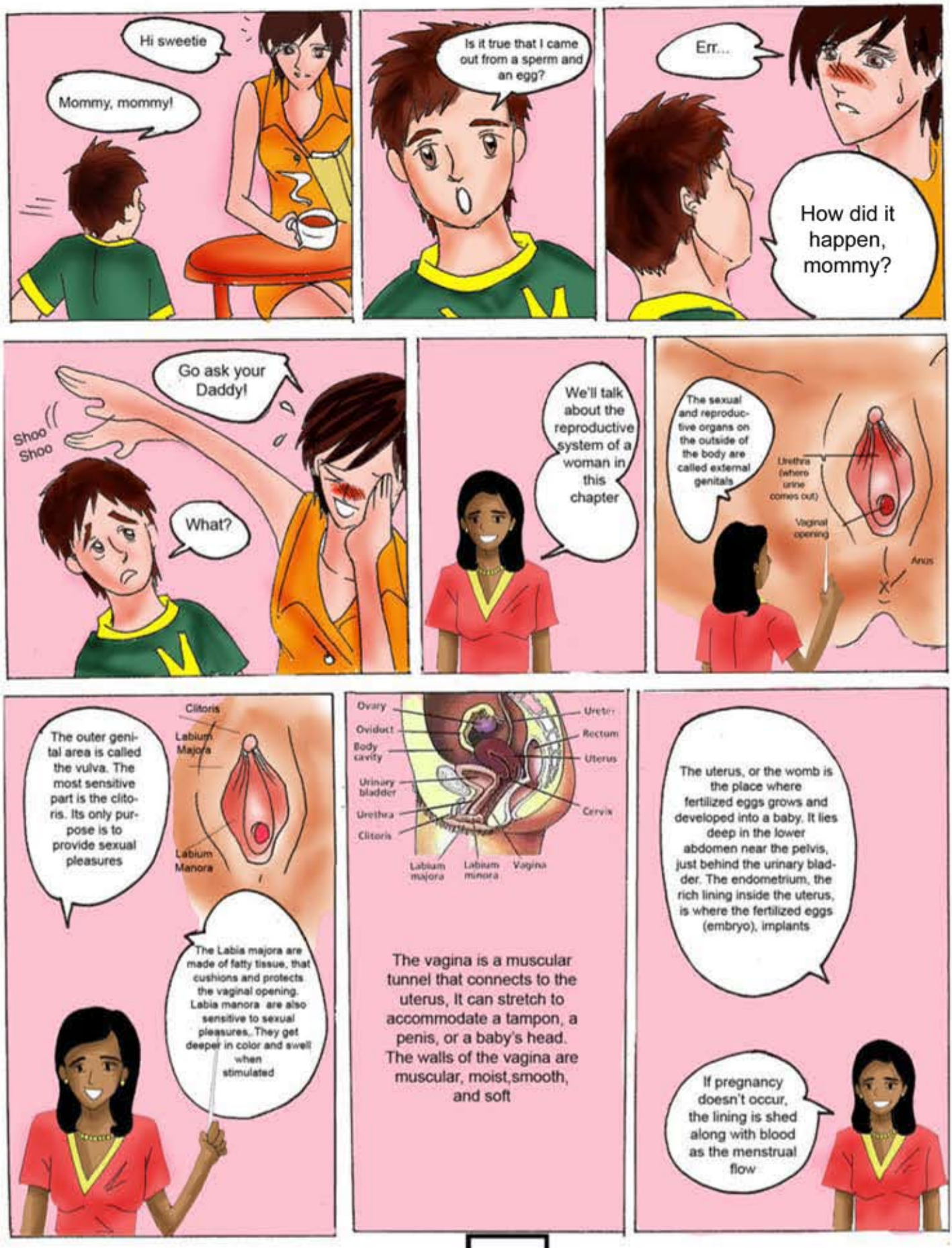
Chapter 1B Do you have an infertility problem? When to start worrying!



For more information on this chapter, go here:
http://www.drmalpani.com/book/chapter1b.html



For more information on this chapter, go here:
http://www.drmalpani.com/book/chapter1b.html



For more information on this chapter, go here:
http://www.drmalpani.com/book/chapter2a.html

Now I shall explain the menstrual cycle and its role in fertility

The menstrual cycles is the time from the beginning of one period to the next one. Day 1 is the day the menstrual flow starts. Usually the cycle lasts about 28-35 days, but 3-6 weeks is still considered normal

During the cycle, the uterus gets ready for pregnancy. Due to hormones, the lining grow thick to prepare the fertilized egg, but if pregnancy doesn't occur, the uterus must get rid of the lining so it can grow a new one for the next cycle

The old lining passes out of the uterus through the vagina as the menstrual flow

It consists of

1. The shed uterine lining
2. Blood (this comes from blood vessels which are torn when lining is shed)
3. The degenerated fertilized egg

If the menstrual flow is heavy, there might be clots in it. Sometimes the uterine lining is shed as large fragments.

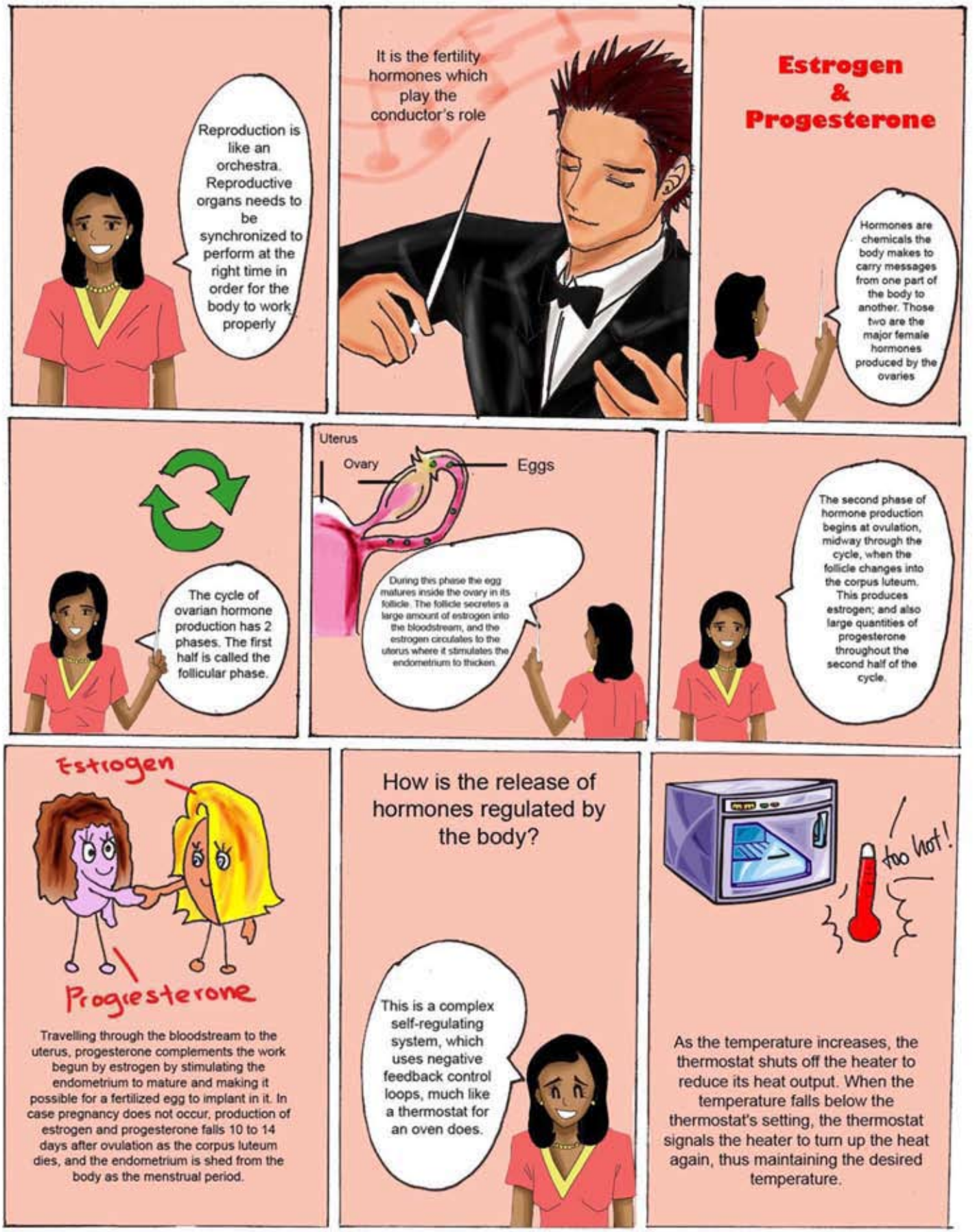
These may look like bits of pregnancy tissue to some women, who think they are miscarrying

Many infertile women are obsessed with their menstrual periods- If it's too light, too much, or too little

But remember that menstrual flow has no connection to your fertility. So you shouldn't worry too much about it

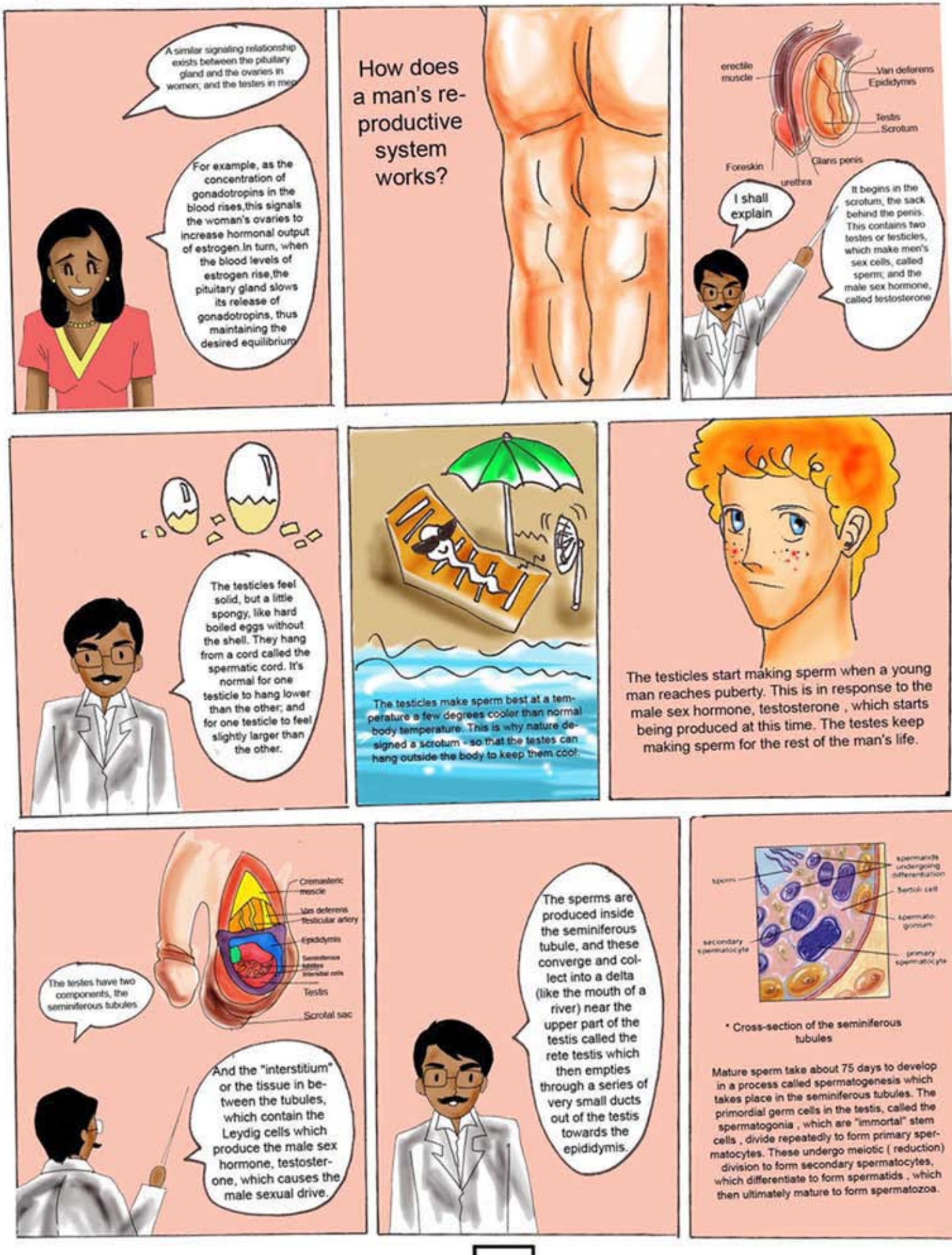
For more information on this chapter, go here:
http://www.drmalpani.com/book/chapter2a.html

Chapter 2B How Babies are Made- The Basics



For more information on this chapter, go here:
http://www.drmalpani.com/book/chapter2b.html

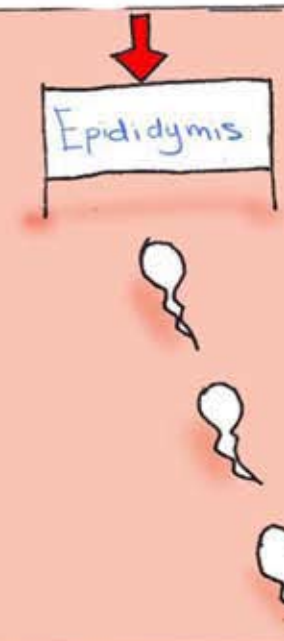
Chapter 2B How Babies are Made- The Basics



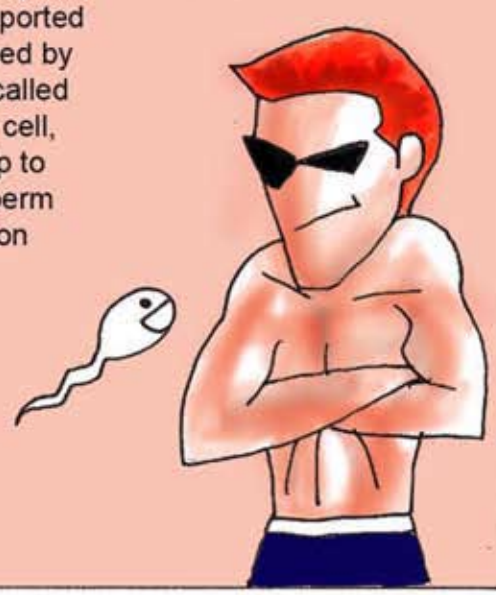
For more information on this chapter, go here:
http://www.drmalpani.com/book/chapter2b.html

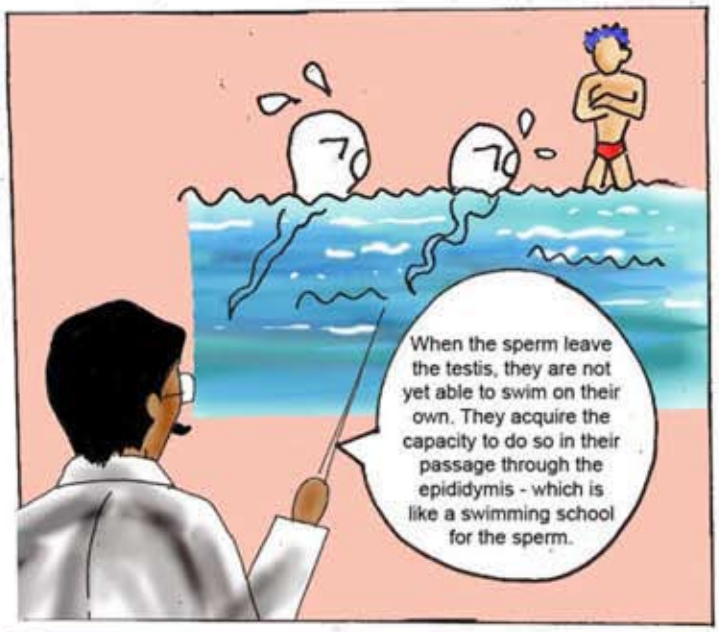
Chapter 2B How Babies are Made- The Basics

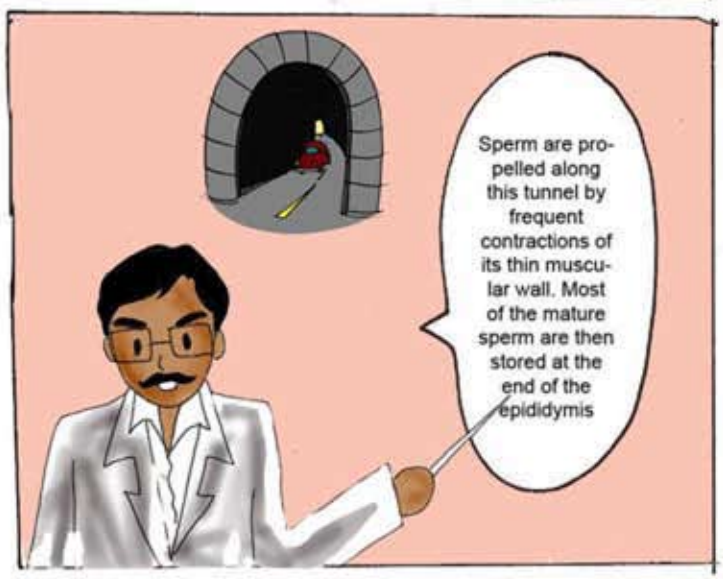
Sperm production takes place as though it were on an assembly line - with the more mature sperms being passed along toward the center of the tubule from where they swim towards the efferent ducts of the testis towards the epididymis.

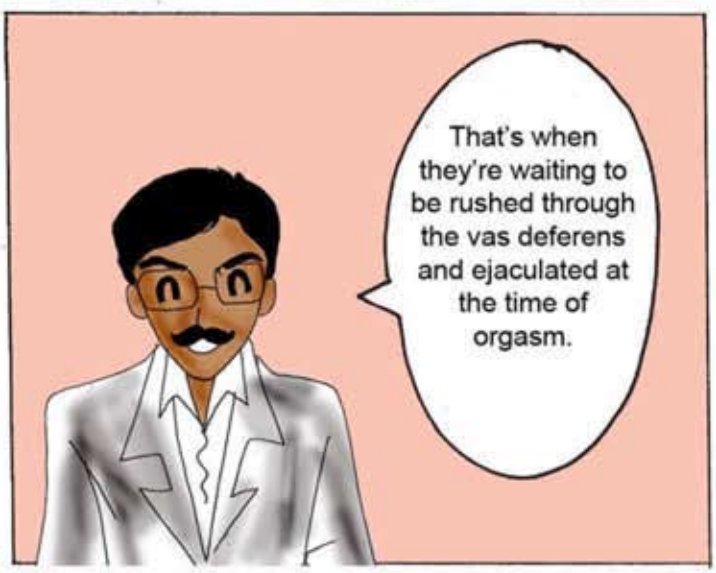


The spermatogenic cells are supported and nourished by large cells called the Sertoli cell, which help to support sperm maturation

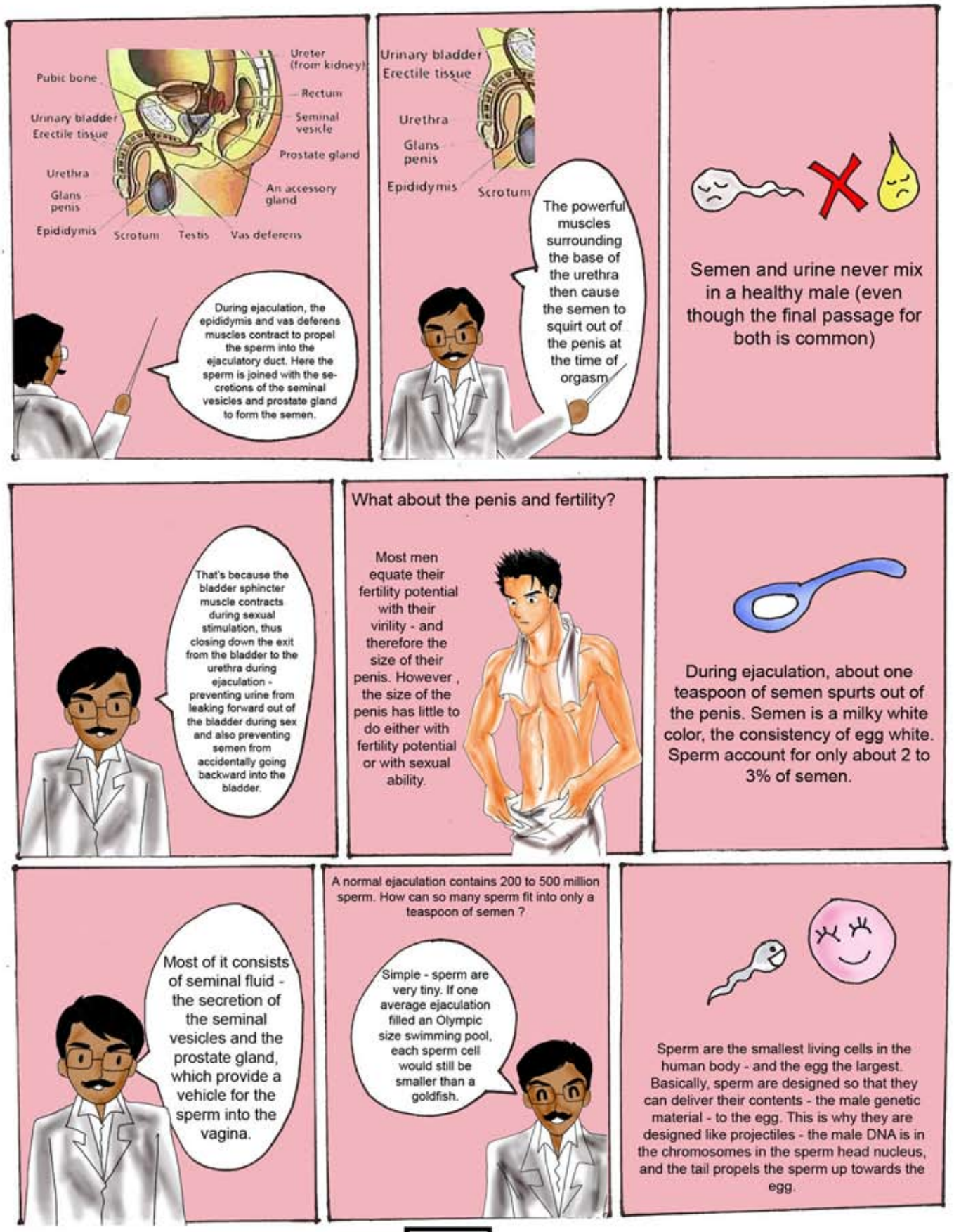




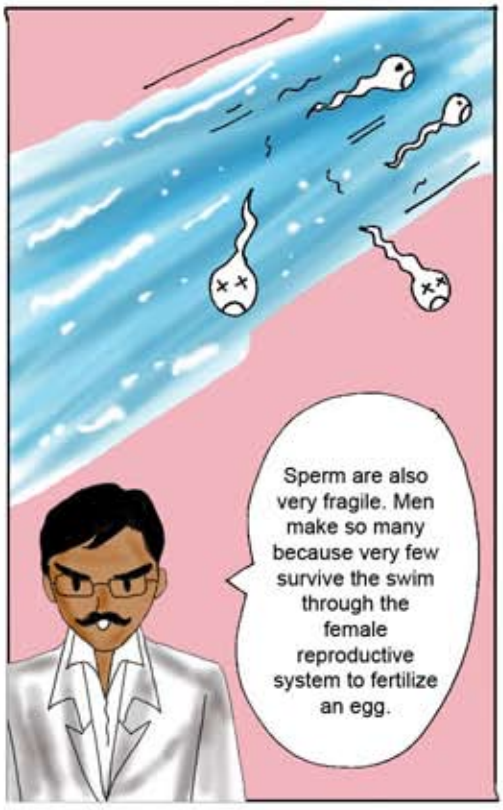


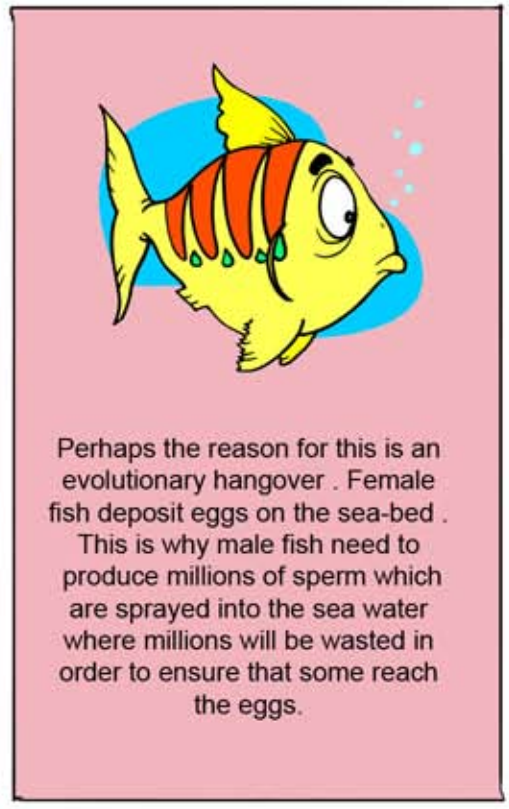


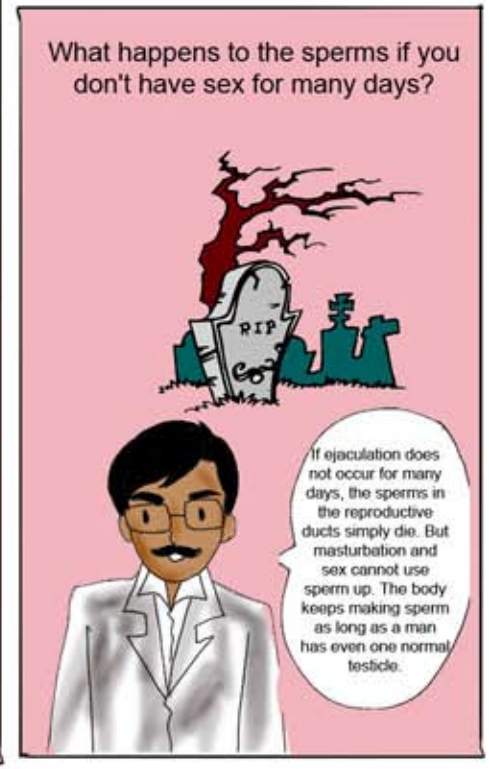
For more information on this chapter, go here:
http://www.drmalpani.com/book/chapter2b.html

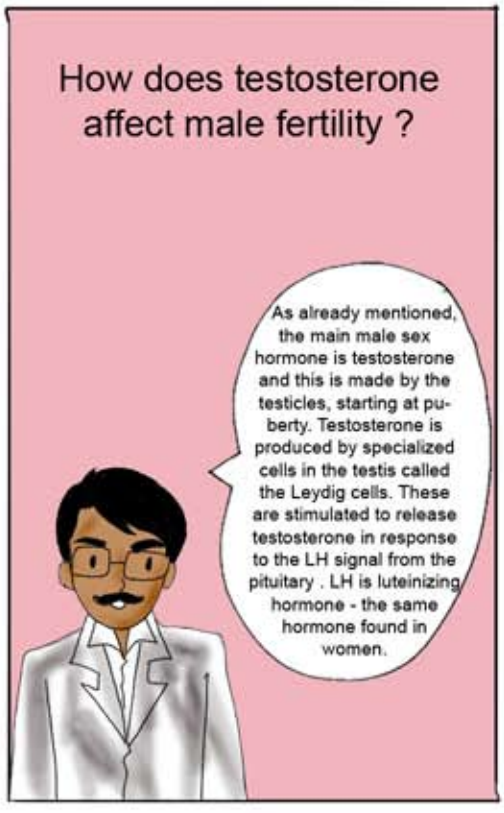


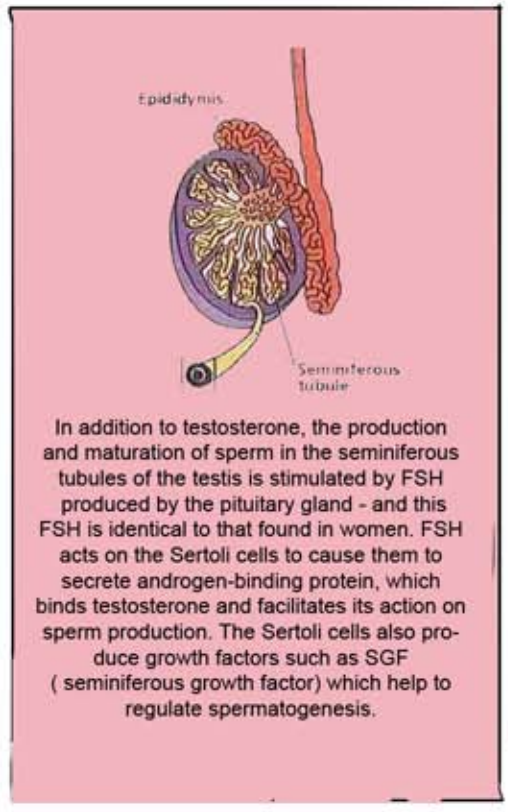
For more information on this chapter, go here: http://www.drmalpani.com/book/chapter2c.html

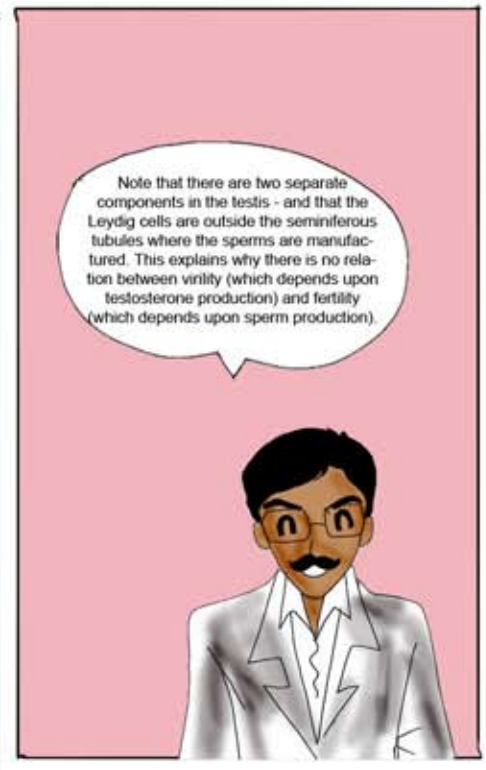






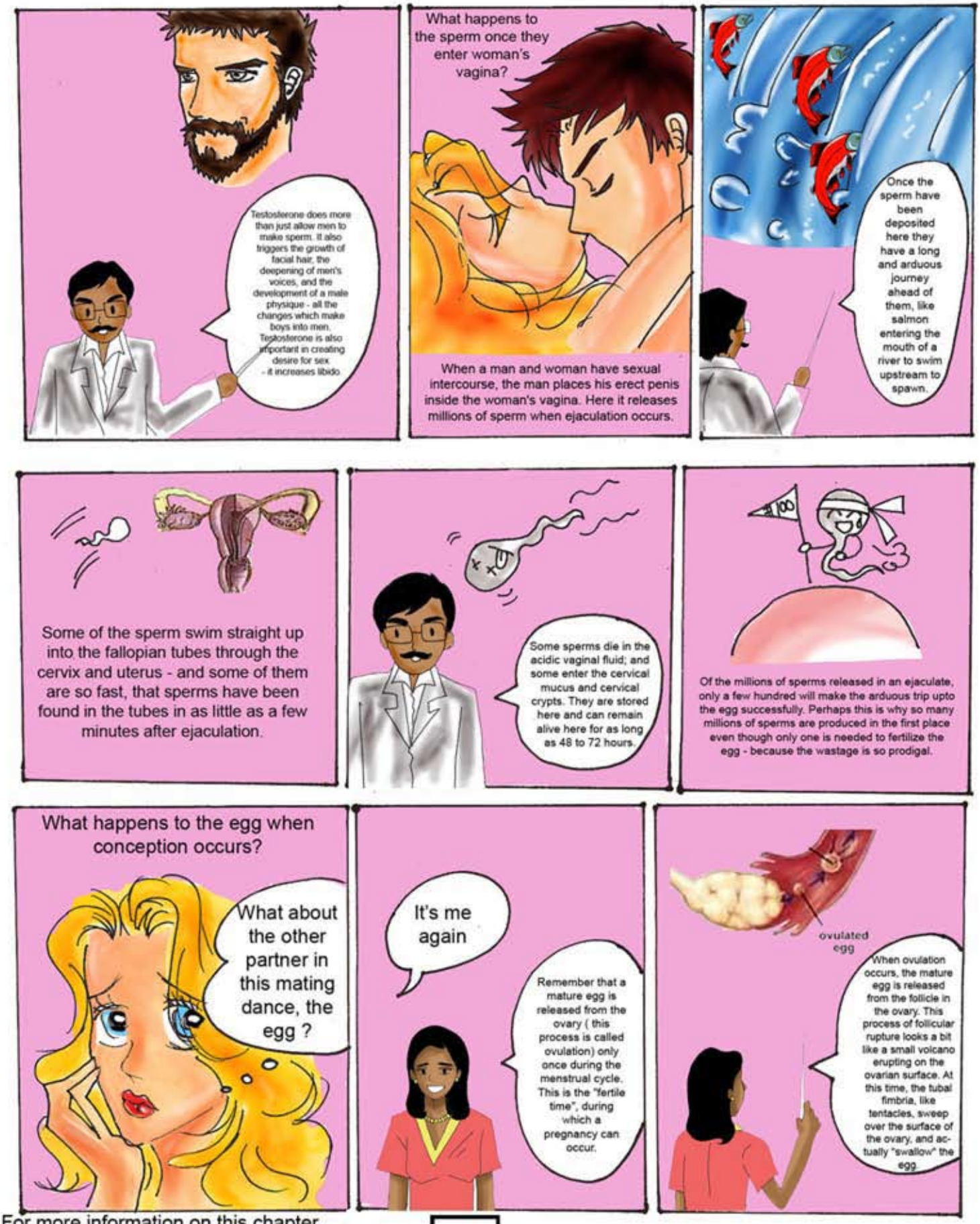






For more information on this chapter, go here: http://www.drmalpani.com/book/chapter2c.html

Chapter 2D How Babies are Made-The Basics

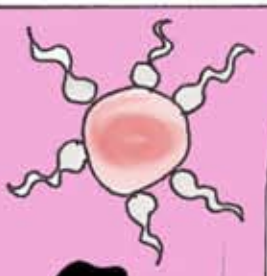


For more information on this chapter, go here:
http://www.drmalpani.com/book/chapter2d.html

The egg has a shell, called the zona pellucida, which looks like the ring around Saturn. It is surrounded by a cluster of nest cells called the corona cells which serve to nurture the egg. They form the cumulus oophorus which is a sticky gel which protects the egg and also helps the beating of the hair-like cilia of the fallopian tube to propel the egg towards the uterus - like a conveyor-belt. The egg must now wait in the protective confines of the fallopian tube, for a sperm to swim up and reach it. An egg remains alive for about 24 hours, and if fertilization does not occur, it dies.

Of the few hundred sperm which reach the egg, only one will successfully fertilize it. The process of fertilization is truly the primeval mating dance - the fertilization tango - when the mother's chromosomes (in the egg) and the father's chromosomes (in the sperm) fuse together to create a new life - one which is totally different from all others, because of its unique genetic composition

During the time the sperm spend in the female reproductive tract, while swimming towards the egg, they acquire the capacity to fertilize it - a process called capacitation. When the sperms reach the corona cells they become hyperactivated - they start beating their tails in a frenzy. This is useful because it provides the mechanical energy the sperm head needs to burrow its way through the outer shell of the egg called the zona

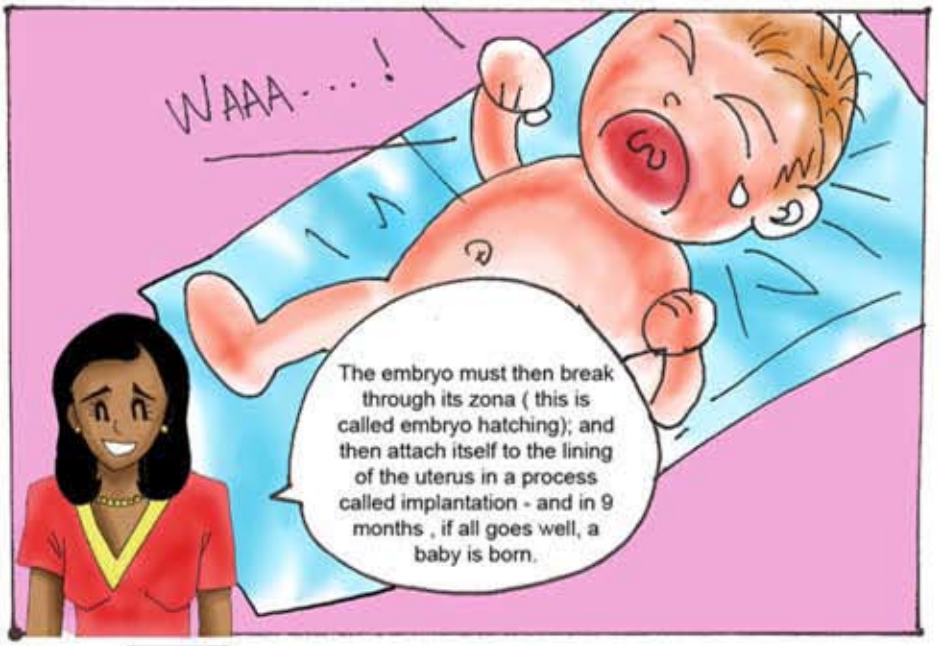


The sperms disperse the cumulus oophorus (and so far it's a team effort) and when they reach the egg, they first bind to the zona. A chemical is released here by the sperms in a process called the acrosomal reaction.

The acrosomal enzymes dissolve the zona pellucida by making a tiny hole in it, so that one sperm can swim through and reach the surface of the egg. When this happens, the egg transforms its cell membrane into an impenetrable barrier, thus preventing other sperm from entering it.Once one sperm is the winner, all the other sperm are locked out!

The genetic material of the sperm (the male pronucleus) and the genetic material of the egg (the female pronucleus) then fuse - to form an embryo. A new life has now begun, with a unique DNA signature. This single cell then divide into 2 cells.

These cells in turn then continue to divide rapidly during their passage through the fallopian tube (which nurture and propels it) into the uterus. This journey takes about 3 to 5 days. By the time the embryo reaches the uterus, it has become a ball of over 100 cells called a blastocyst



The embryo must then break through its zona (this is called embryo hatching); and then attach itself to the lining of the uterus in a process called implantation - and in 9 months , if all goes well, a baby is born.

For more information on this chapter, go here:
http://www.drmalpani.com/book/chapter2d.html

Chapter 3 Finding Out What's Wrong--The Basic Medical Tests

What are the basic medical tests needed to assess fertility ?

* Eggs
* Sperm
*Fallopian tubes
* The uterus

In order to understand why pregnancy doesn't occur , we need to examine only the four critical areas which are needed to make a baby

The tests, which often seem endless, will actually fall into examining one of these four areas. In 40% , the problem will be with the man; in 40% with the woman; in 10% both partners will have a problem; and in 10%, no cause can be identified (unexplained infertility)

Before starting with tests, the doctor takes a detailed medical history from the couple, and also performs a physical examination for both of them, to determine if this can provide clues as to the cause of the problem. The doctor will need to find out details about your menstrual cycle, as well as your sexual habits and past history of surgery or illness, so you should be prepared to answer these questions.

Many clinics give patients a form to fill out, so that they can provide all this information. A physical examination can also provide the doctor with useful information, and he will look specifically for important clinical findings such as abnormal hair growth, excessively oily skin, or the presence of a milky discharge from the breast.

How are these basic infertility tests done ?

For most couples, investigations are needed to establish a diagnosis. These specialized tests constitute the infertility workup and they can be completed efficiently in one month . Timing the procedures properly during the menstrual cycle is important.

The couple must be seen together and the first test which should be done is a semen analysis because this is a simple and inexpensive test.

The day the bleeding starts is called Day 1, and the semen analysis to check the husband's sperm count and motility can be done on Day 3-4 , after requesting him to abstain from ejaculation for at least 3 days

The wife's blood is then tested for measuring the levels of four key reproductive hormones: prolactin, LH (luteining hormone) , FSH (follicle stimulating hormone) , TSH (thyroid stimulating hormone). These should be done between Day 3-5 of the cycle

We then do a hysterosalpingogram (an X-ray of the uterus and tubes) after the menstrual bleeding has stopped - between Day 5-7, to confirm her uterus and tubes are normal. . These three basic tests allow us to check whether the eggs, sperm, uterus and tubes are normal.

Chapter 3 Finding Out What's Wrong--The Basic Medical Tests

For more information on this chapter, go here:
http://www.drmalpani.com/book/chapter3.html

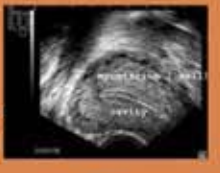
Chapter 4A Ultrasound- Seeing with S0und

How is ultrasound (sonography) used for treating infertility ?

Ultrasound has helped to simplify infertility treatment considerably . Ultrasound uses high frequency sound waves much like SONAR machines (used in ships for detecting submarines underwater.) The high frequency sound waves are bounced off the pelvic organs; and the reflected sound waves are received by the probe (transducer) . A computer is used to reconstruct the waves into real-time images on the monitor.

In the old days, ultrasound for infertility was done through the abdomen. This required you to fill up your bladder (till it was ready to burst !) so that the sound waves could be transmitted into the pelvis. However, the standard ultrasound technique today for infertility is vaginal ultrasound (endovaginal scanning) in which a long, slim, slender probe is inserted into the vagina and used for imaging the pelvic organs. This gives much sharper and clearer pictures, since the probe is much closer to the pelvic structures.

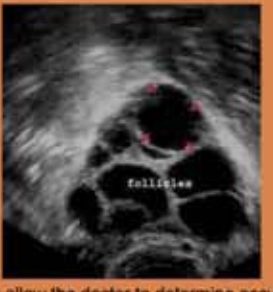
What can you see on ultrasound?



Ultrasound scan of the uterus, showing a normal endometrium, which appears as a triple band in the center of the uterus

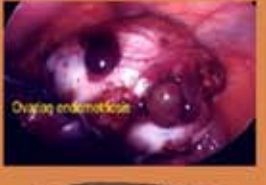
Ultrasound scans give clear pictures of the uterus and the ovaries. It allows the doctor to look for fibroids; ovarian cysts; and ectopic pregnancies. It is also excellent for early diagnosis of pregnancies. However, the ultrasound scan is not very good for assessing whether or not the tubes are normal.

How is ultrasound used for follicular scanning to monitor ovulation ?

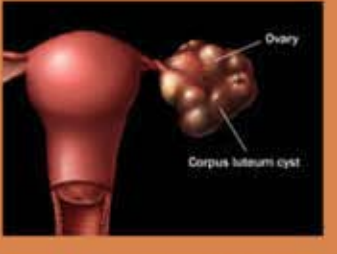


Ovulation scans allow the doctor to determine accurately when the egg matures; and when you ovulate. Daily scans are done to visualize the growing follicle, which looks like a black bubble on the screen. Most women can see the follicle clearly for themselves. The scans also monitor the thickness and texture of the uterine lining - the endometrium. Since the endometrium grows in response to the estrogen produced by the follicles, the doctor can get a good idea of how much estrogen you are producing (and thus the quality of the egg) based on the thickness and brightness of the endometrium on the ultrasound scan.

What if an ovarian cyst is found on ultrasound scans ?

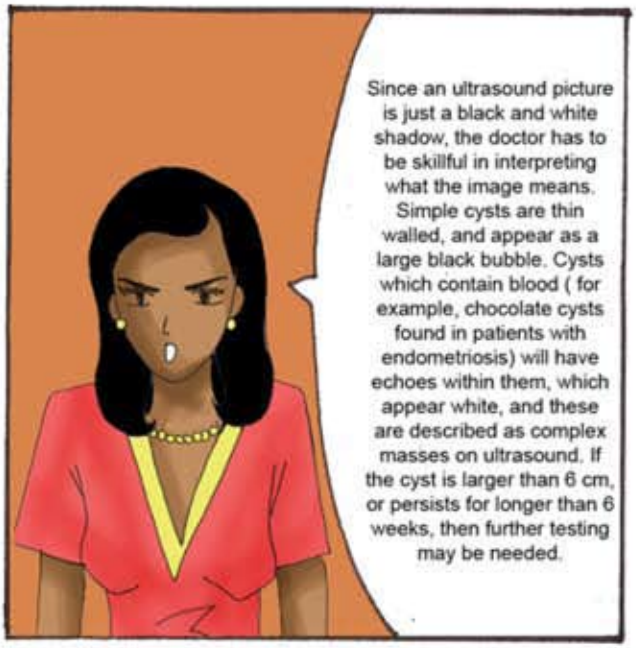


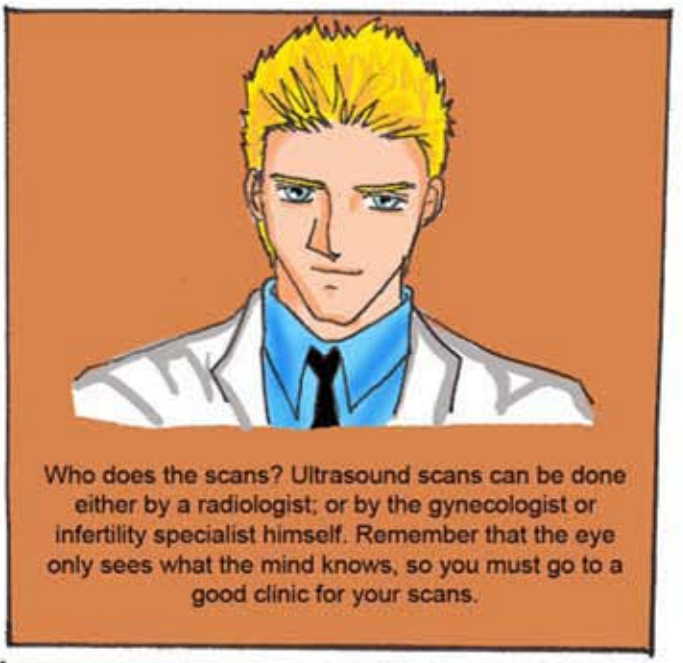
One of the commonest findings on an ultrasound scan is an ovarian cyst. A cyst is a collection of fluid surrounded by a thin wall (a fluid-filled sac) that develops in the ovary. Typically, ovarian cysts are functional (not disease-related) and disappear on their own. During ovulation, a follicle may grow , but fail to rupture and release an egg. Instead of being reabsorbed, the fluid within the follicle persists and forms a follicular cyst.

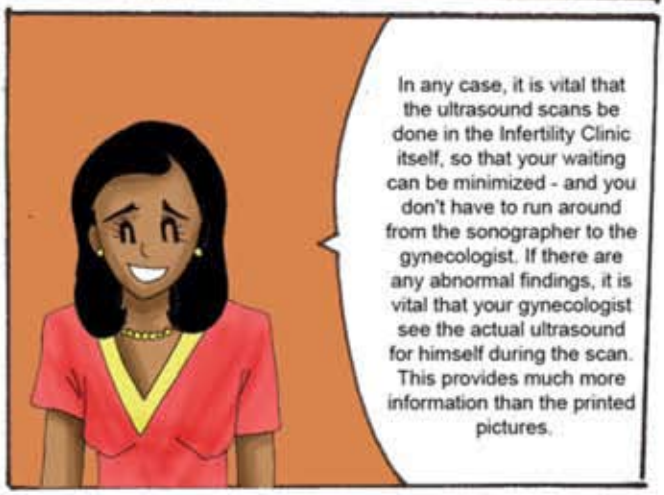


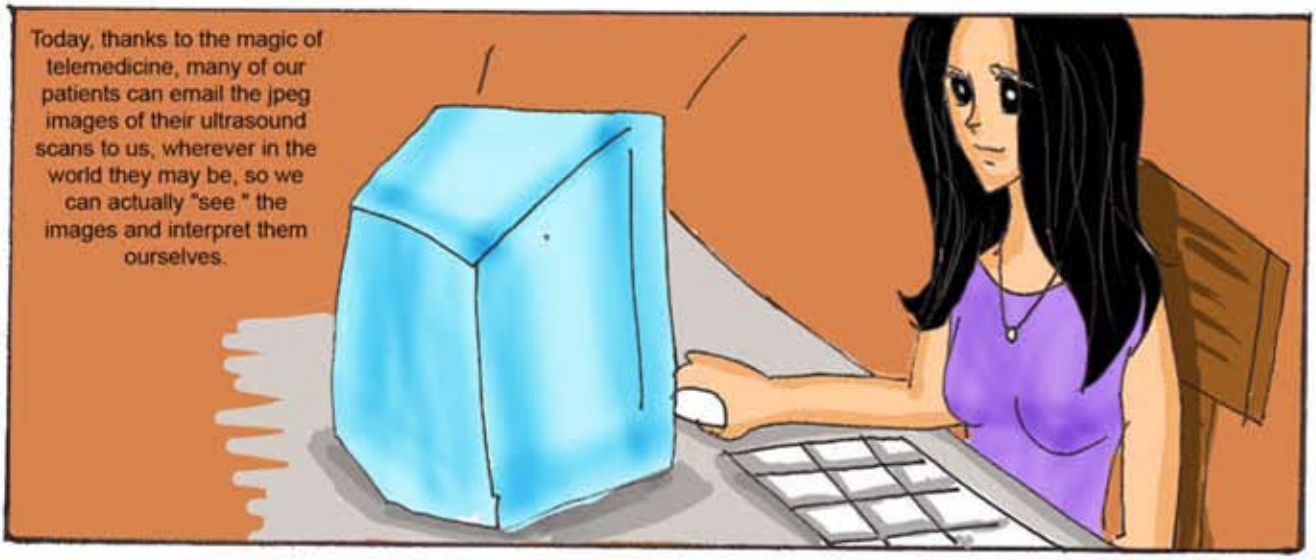
The other type of functional cyst is a corpus luteum cyst, which develops when the corpus luteum fills with blood. Functional ovarian cysts are common and usually resolve on their own. Do not confuse them with other pathological conditions involving cystic ovaries, specifically polycystic ovarian disease, endometriotic cysts, or ovarian tumours.

For more information on this chapter, go here:
http://www.drmalpani.com/book/chapter9a.html

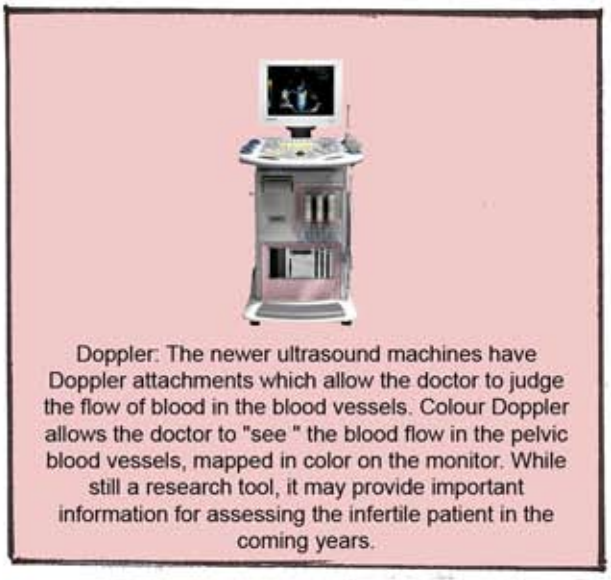


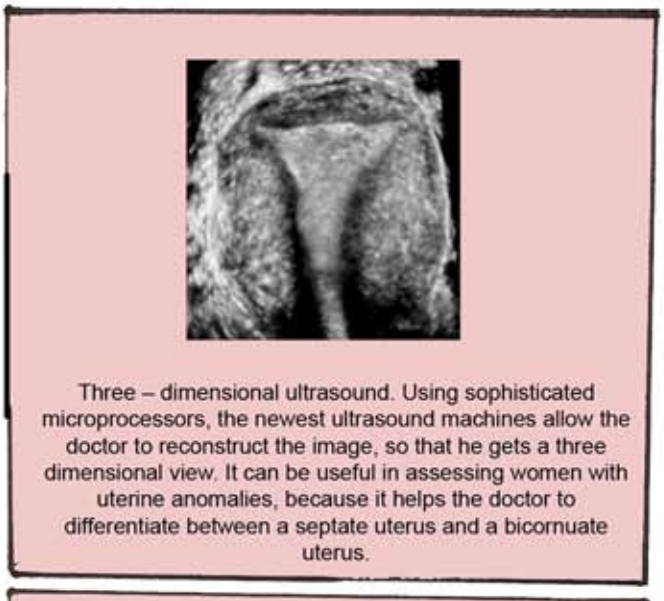


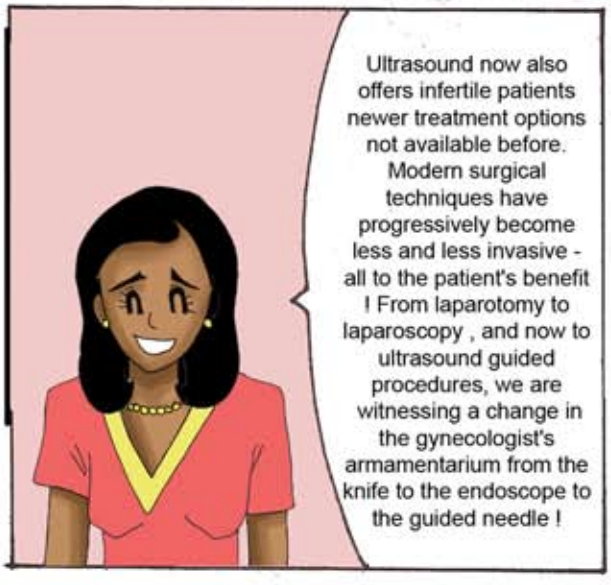


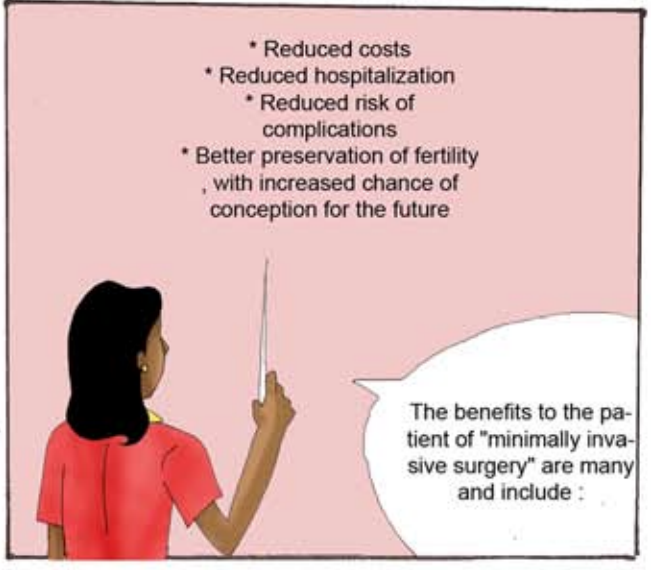


For more information on this chapter, go here:
http://www.drmalpani.com/book/chapter9a.html

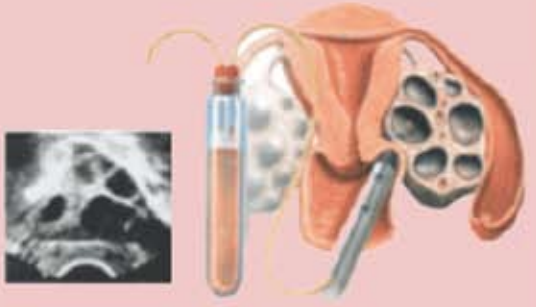




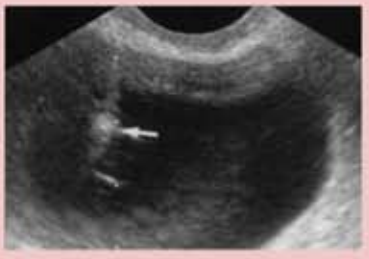




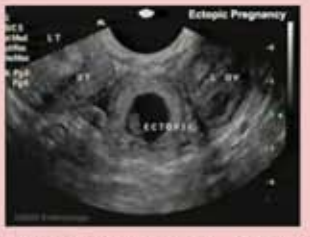
Ultrasound-guided procedures can be used to treat a variety of problems seen in the infertile woman:



Egg pickup for IVF - The use of vaginal ultrasound for egg pickup has made egg retrieval a short, simple and inexpensive procedure, which can be performed in a day-care unit, under sedation and local anesthesia

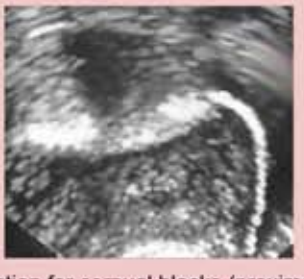


Ovarian cyst aspiration. An ovarian cyst is a very common condition in which fluid collects in the ovary. However, cysts which are more than 5 cm in size need to be treated, as they can cause problems (eg twisting and rupture). Normally, surgery had to be done to remove these cysts and often this damaged the surrounding normal ovary as well. With ultrasound-guidance, we can empty the contents (usually clear fluid) by sucking it out. This empties the cyst, which often does not recur.

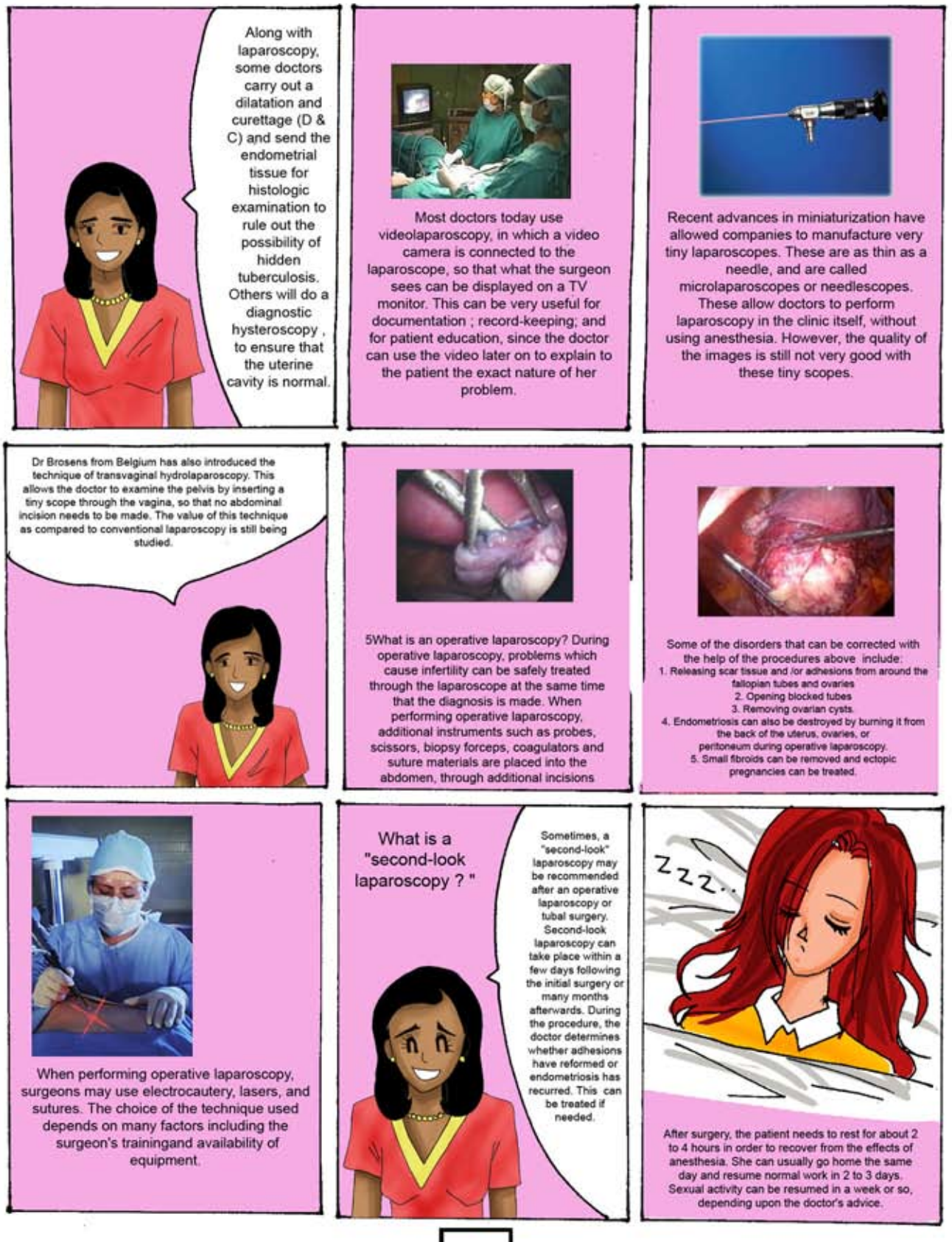


Treatment of ectopic pregnancy . With technological advances (ultrasound and beta-HCG blood tests) the diagnosis of tubal pregnancy can be made very early, usually before rupture. In advanced tubal pregnancies, potassium chloride can be injected direct into the heart of the baby in the ectopic gestational sac, thus killing it and preventing it from growing

Ultrasound-guided tubal embryo and gamete transfer for IVF and GIFT techniques. Techniques have been devised to pass a special catheter set into the fallopian tubes through the vagina under ultrasound guidance, so as to place the embryos or the gametes in the fallopian tube. Since the tube offers a better environment for the embryos than the uterine cavity, it is believed that this will improve pregnancy rates.



Tubal recanalisation for cornual blocks (proximal tubal obstruction). Often cornual blocks are due to the presence of mucus plugs and amorphous debris in the tubal lumen. Ultrasound guided tubal catheterization can effectively treat the blocked tubes in some of these patients.



For more information on this chapter, go here:
http://www.drmalpani.com/book/chapter10a.html

A common problem which patients face in practice is that many doctors will insist on repeating the laparoscopy. One reason for this is that doctors feel that they need to do the laparoscopy for themselves, because they cannot "trust" another doctor's judgment. This is, of course a major problem for patients, who suffer repeated (and unnecessary) laparoscopies. Having a video record should help to minimize this

What happens if your laparoscopy was normal and the second doctor wants to repeat it anyway?

Sometimes doctors have little to offer in the way of effective treatment and since there is nothing else to do, they suggest a repeat laparoscopy to which the hapless patient is forced to agree. Ask the doctor what information he hopes to get by doing the repeat laparoscopy and how this will change your treatment. If you feel the doctor wants to do a laparoscopy for no very good reason, refuse. It's a surgical procedure after all - and it's your body.

Let's do it one more time

No, thank you

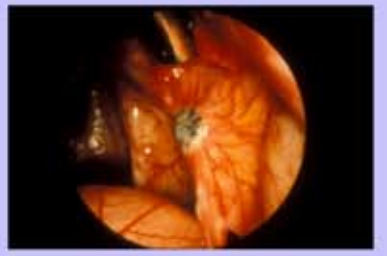
Thinking it over

One benefit of laparoscopy is that in addition to allowing the accurate diagnosis of possible problemsoperative laparoscopy can also be done in the same sitting to correct the problem. However, we feel that the routine use of laparoscopy is not called for in treating infertile patients, since a HSG can provide similar information at much less risk and expense. We use the procedure very sparingly in our practise.

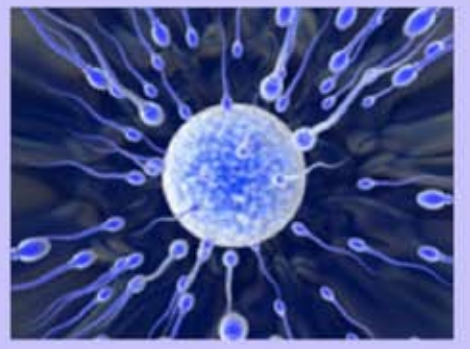
What happens after the laparoscopy ?

At the follow-up visit, discuss with the doctor what he found at the time of the laparoscopy and also how to proceed on the basis of the findings. There are three possible courses of action:

Normal findings: Such findings are the commonest result and can be very assuring ! These help to confirm the diagnosis of "unexplained infertility".



Abnormal findings, such as peritubal adhesions or endometriosis, which could be corrected at the time of laparoscopy itself. Perhaps the doctor may suggest a second look laparoscopy or HSG to document that the problem has been corrected . Medical treatment may be advised to try to correct a residual problem (e.g. danazol for endometriosis).A quandary may arise when the laparoscopy reveals a finding which may be of no importance to your fertility . For example , the doctor may detect small fibroids, early endometriosis, or an ovarian cyst. These are common disorders and are often found in fertile women as well. They do not need to be "treated" : they may be red herrings, which do not affect fertility. In fact, unnecessary surgery to correct these can aggravate your infertility.



Abnormal findings: which could not be corrected during the laparoscopy: For treatment of these problems, the doctor may advise IVF (for example, for patients with irreparably damaged fallopian tubes).

For more information on this chapter, go here:
http://www.drmalpani.com/book/chapter10b.html

* Mild nausea
* Pain in the neck and shoulder due to the gas inside the abdomen, which irritates the phrenic nerve and causes "referred pain" perceived in the shoulder
* Pain in the areas where the instruments were passed through the abdominal wall
* A scratchy throat and hoarse voice if a breathing tube was used during general anesthesia
* Cramps, like menstrual cramps
* Discharge like a menstrual flow for a day or two
* Muscle aches

After the operation, there may be some discomfort. This may include:

Most of these minor symptoms will disappear within a day or two after surgery. The abdomen may feel swollen for a few days. Any unusual or peculiar symptoms should be reported at once to the doctor. To really appreciate the benefits of laparoscopy, remember that the alternative used to be open surgery (laparotomy) which involved a large abdominal incision, a four to six day hospital stay, and four to six weeks of postoperative recovery time.

What are the complications of laparoscopy ?

While doctors may term laparoscopy as being "minor" surgery, remember that for the patient all surgery is major ! The risk of laparoscopy are minimal. But certain conditions increase the possibility of complications. These include: previous abdominal surgery ; infection in the abdomen, a large growth or tumor , and obesity.

Complications among young, healthy women under going laparoscopy are rare and occur only in about three out of 1000 cases. These can include injuries to the bowel, a blood vessel or the bladder. Most often, these injuries occur when the laparoscope is placed through the navel. If such an injury occurs during the procedure, the physician can perform major surgery and correct the damage through a longer abdominal incision. Sometimes, complications may arise after surgery. If postoperative bleeding or pain is excessive or if high fever develops, the doctor should be informed.

Do you use multiple punctures?

If you find a problem, will you correct it at the same time?

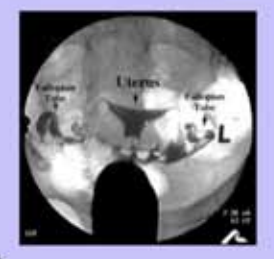
How many laparoscopies have you done?

Do you use a video for recording the operation?

How can I be sure my doctor will perform the laparoscopy properly ?

In order to choose the best doctor for performing your laparoscopy, you need to ask the following questions. A good doctor has a lot of experience in performing laparoscopies; uses multiple punctures, so he can assess the pelvis properly; and always provides documentation (in the form of a video, CD or DVD) so the findings can be reviewed by another doctor.

Which is better - a laparoscopy or a HSG ?



In our practise, we prefer using an HSG to document tubal patency, because it is much less expensive; is non-surgical; and provides a visual record , which doctors can refer to later on. Some doctors still believe that the HSG and laparoscopy are complementary procedures, and may do both.. HSG provides information only about the inside of the tubes and uterine cavity, whereas in laparoscopy, not only can tubal patency be determined, but endometriosis and tubal adhesions (which do not show up on HSG) can also be diagnosed. However, while a laparoscopy offers chance to diagnose and treat these problems , it is still unsure whether surgically correcting these problems actually helps to improve the patient's fertility !

For more information on this chapter, go here:
http://www.drmalpani.com/book/chapter10b.html

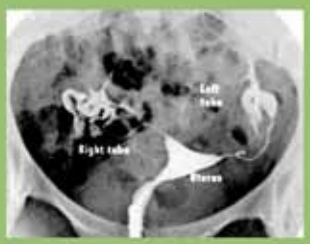
What is hysteroscopy ?

The uterus

Hysteroscopy, as the name suggests (hystero = uterus; scopy = to see), is a surgical procedure in which a telescope is inserted inside the uterus to examine the uterine lining.

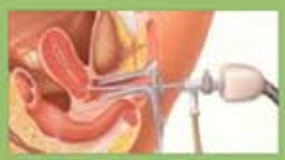
1. submucous (internal) fibroids
2. scarring (adhesions or synechiae)
3. endometrial polyps
4. uterine septa and other congenital malformations

This procedure can assist in the diagnosis of various uterine conditions which can cause infertility, such as:

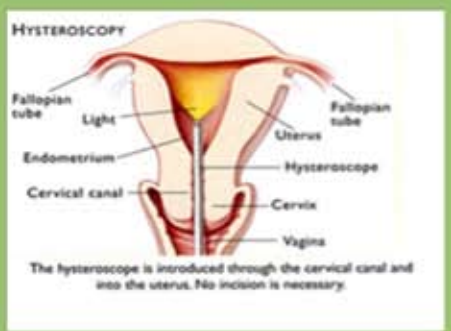


Before performing hysteroscopy, a hysterosalpingogram (an x-ray of the uterus and fallopian tubes) may be performed to provide additional information about the cavity which can be useful during surgery. Many doctors will also do a vaginal ultrasound as a diagnostic aid. Diagnostic hysteroscopy is usually conducted on a day-care basis with either general or local anesthesia and takes about thirty minutes to perform.

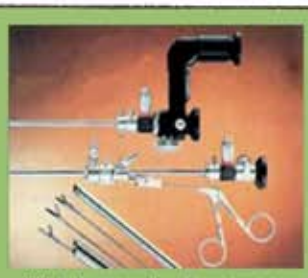
How is hysteroscopy performed ?



The first step of hysteroscopy involves cervical dilatation - stretching and opening the canal of the cervix with a series of dilators. Once the dilatation of the cervix is complete, the hysteroscope, which is a narrow lighted telescope, is passed through the cervix and into the lower end of the uterus. A clear solution (Hyskon or glycine) or carbon dioxide gas is then injected into the uterus through the instrument. This expands the uterine cavity, clears blood and mucus away, and enables the surgeon to directly view the internal structure of the uterus.



The doctor systematically examines the lining of the cervical canal; the lining of the uterine cavity; and looks for the internal openings of the fallopian tubes where they enter the uterine cavity - the tubal ostia. Some doctors may do a curettage (a surgical scraping of the inside of the uterine cavity) after the hysteroscopy and send the endometrial tissue for pathologic examination.



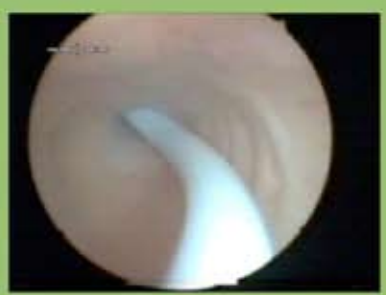
What is operative hysteroscopy ?

Operative hysteroscopy can treat some of the abnormalities found during diagnostic hysteroscopy. Operating instruments such as scissors, biopsy forceps, electocautery instruments, and graspers can be placed into the uterine cavity through a channel in the operative hysteroscope. Fibroid tumors, scar tissue (synechiae or adhesions), and polyps can be removed. Congenital abnormalities, such as a uterine septum, may also be corrected through the hysteroscope.

For more information on this chapter, go here:
http://www.drmalpani.com/book/chapter11a.html

What is hysteroscopic tubal cannulation ?

A relatively new method for treating proximal tubal obstruction (cornual blocks, where the tubes are blocked at the utero-tubal junction) is that of hysteroscopic tubal cannulation. This kind of block is sometimes because of mucus plugs or debris which plug the tubal lining It is possible to pass a fine guide-wire through the hysteroscope into the tubes, and thus remove the plug or debris and open the tubes - thus opening the tubes with "minimally invasive surgery"!

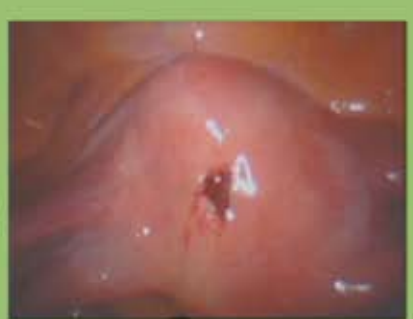


Another advance has been the development of falloposcopy in which a very fine flexible telescope is passed into the tube through the hysteroscope, so as to visualize the interior of the entire tube.

After a hysteroscopy, patients often have cramping similar to that experienced during a menstrual period; and some vaginal staining for several days. Regular activities can be resumed within one or two days after surgery. Sexual intercourse should be avoided for a few days or for as long as bleeding occurs.

What are the complications of hysteroscopy ?

Complications occur very rarely during hysteroscopy. In a few cases, infection of the uterus or fallopian tubes can result. Occasionally, a hole may be made through the back of the uterus - a perforation. However, this is usually not a serious problem because the perforation closes on its own.When extensive operative hysteroscopy is planned, diagnostic laparoscopy is performed at the same time to reduce the risk of accidental uterine perforation. Other possible complications include allergic reactions



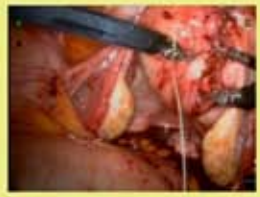
For more information on this chapter, go here:
http://www.drmalpani.com/book/chapter11a.html

What are uterine(endometrial) polyps ?

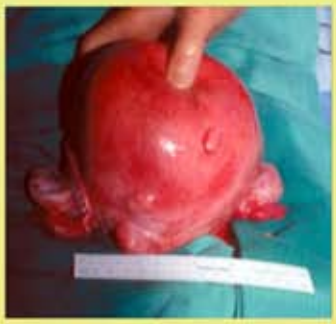
Endometrial or uterine polyps are soft, fingerlike growths which develop in the lining of the uterus (the endometrium). They are hormonally dependent and increase in size depending upon the estrogen level. They can be detected on an ultrasound scan if this is done mid-cycle, when estrogen levels are maximal. They are easily missed if the scan is not done at the right time of the menstrual cycle. Polyps are an uncommon but important cause of infertility, and can easily be removed during hysteroscopic surgery.

Fibroids (myomas or leiomyomas), are the commonest problem found in the uterus . However, this is rarely a cause of infertility, and is usually an incidental finding of little importance. Fibroids are common benign smooth muscle tumors which arise in the wall of the uterus, and may be single or multiple. About 25% of all women over the age of 35 have fibroids.

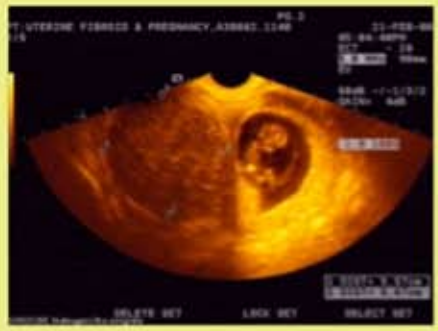
Most fibroids develop in the wall of the uterus (intramural) or protrude outside of the uterine wall (subserous fibroids), and these can usually be left alone, since they do not hinder fertility, and do not cause problems during pregnancy. Unnecessary surgery to remove the fibroid can cause more harm than good because it often creates adhesions, which causes the tubes to get blocked.



However, if fibroids are very large, they may need surgical removal. This is called a myomectomy. A GnRH analog injections can be given prior to surgery to shrink the fibroid and make surgery technically easier. When performed by an expert, it is a safe and effective procedure which can be accomplished with minimal blood loss. However, sometimes because of uncontrollable bleeding the surgeon may be forced to remove the entire uterus (a procedure called a hysterectomy), and this is obviously a disaster for the infertile woman !



The standard technique for removing a fibroid is through open surgery (laparotomy). It is now also possible to remove fibroids through the laparoscope, but laparoscopic myomectomy does not allow for optimal reconstruction of the uterus. Submucous fibroids are an important cause of infertility, because they interfere with embryo implantation by acting as a foreign body. These are best removed by an operative hysteroscopy. While surgery can remove the fibroid, they can recur again, and most doctors advise the patient to try to conceive as soon as possible after surgery.



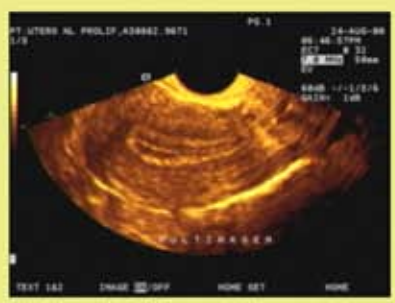
Fibroids may grow larger during the pregnancy, but usually pregnancy and delivery are uneventful. In rare cases, after a myomectomy, uterine rupture may occur during pregnancy or delivery, and this complication may result in severe blood loss, fetal loss and even maternal death.

For more information on this chapter, go here:
http://www.drmalpani.com/book/chapter11b.html

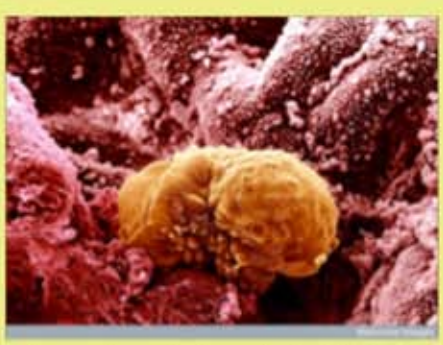
Because of the potential for catastrophic results, it is recommended that women have cesarean deliveries in the following circumstances:
1) when the myomectomy involved full-thickness incision of the uterine wall or
2) when myomectomy was complicated by infection which may have weakened the uterine wall or
3) when there is doubt regarding the adequacy or extent of the uterine repair

The uterus was often a neglected organ in the infertility workup, partly because we did not have the tools to study it properly. Hysteroscopy, hysterosalpingography and vaginal ultrasound are all complementary procedures for evaluating the uterine cavity in the infertile woman. The HSG is good for looking for polyps, adhesions and septa which appear as "filling defects" on the X-ray. Vaginal ultrasound (especially 3-D and contrast hysterosonography) is excellent for detecting submucosal fibroids or polyps.The major advantage of hysteroscopy is it offers the chance of treating the problem as well !

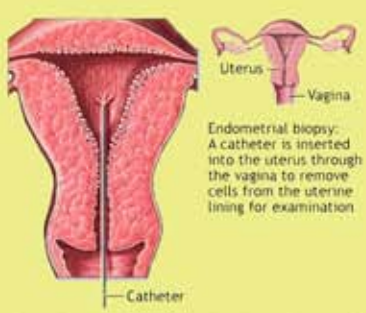
We are now developing newer techniques to study the uterus. One of our major areas of ignorance today is the complex process of embryo implantation. It is obvious that the endometrium has a key role to play in this process, in which the embryo has to attach itself to the endometrium and invade into it.



At present, the tools we have to study endometrial function and receptivity are very crude. They transvaginal ultrasound, to assess the endometrial thickness and texture, but this provides limited evidence of endometrial function. Colour Doppler ultrasound has also been used to assess endometrial blood flow (perfusion), but its utility is limited.



Since embryo-endometrium interaction is a biochemical process, a lot of study has been done on the role of the molecules involved in this process. Normal endometrium contains various cell adhesion proteins called integrins, which allow the embryo to interact with it. Studies have shown that the endometrium of some infertile women is deficient in some of these integrins

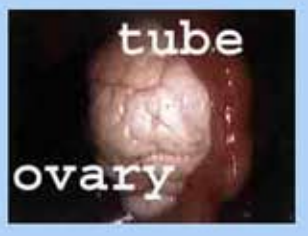


Thus, testing the endometrium for beta integrin can be a useful marker for uterine receptivity. This test involves doing an endometrial biopsy at a specific point in the menstrual cycle, and evaluating this with special staining techniques, but is only available on a research basis so far.

WHAT ARE THE FALLOPIAN TUBES ?

THE FALLOPIAN TUBES ARE THE PASSAGES THROUGH WHICH THE EGG IS CONDUCTED FROM THE OVARY INTO THE UTERUS. THEY ARE ABOUT 10 CMS LONG AND THE OUTER END OF EACH TUBE IS FUNNEL SHAPED, ENDING IN LONG FRINGES CALLED FIMBRIAE. THE FIMBRIAE CATCH THE MATURE EGG AND CHANNEL IT DOWN INTO THE FALLOPIAN TUBE WHEN RELEASED BY THE OVARY

THE TUBE IS A MUSCULAR HIGHLY SPECIALIZED STRUCTURE CAPABLE OF COORDINATED MOVEMENT. THE EGG AND SPERM MEET IN THE OUTER HALF OF THE FALLOPIAN TUBE, CALLED THE AMPULLA. FERTILIZATION OCCURS HERE, AFTER WHICH THE EMBRYO CONTINUES DOWN THE TUBE TOWARD THE UTERUS. THE UTERINE END OF THE TUBE, CALLED THE ISTHMUS, ACTS LIKE A SPHINCTER AND PREVENTS THE EMBRYO FROM ENTERING THE UTERUS UNTIL IT IS READY FOR IMPLANTATION.

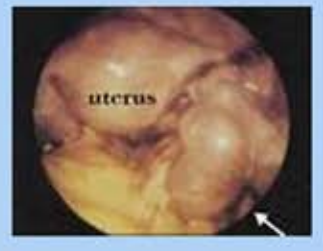


THE TUBE IS MUCH MORE COMPLEX THAN A SIMPLE PIPE. IT IS LINED WITH MICROSCOPIC HAIR LIKE PROJECTIONS CALLED CILIA WHICH PROPEL THE EGG AND EMBRYO ALONG THE TUBE. THE TUBAL LINING ALSO PRODUCES A FLUID THAT NOURISHES THE EGG AND EMBRYO DURING THEIR JOURNEY IN THE TUBE.

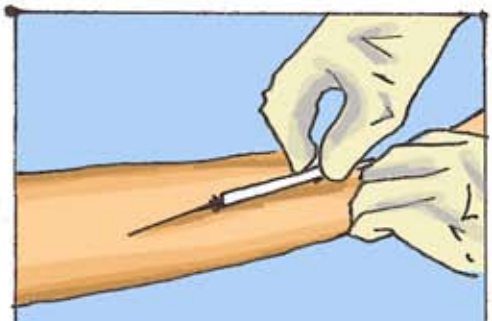
HOW DO TUBAL DISEASES CAUSE INFERTILITY ?

* SEXUALLY TRANSMITTED DISEASES (E.G. GONORRHEA, CHLAMYDIA)
* INFECTION AFTER CHILDBIRTH, MISCARRIAGE, TERMINATION OF PREGNANCY (MTP) OR IUD (INTRAUTERINE DEVICE) INSERTION
* POST-OPERATIVE PELVIC INFECTION (E.G. PERFORATED APPENDIX, OVARIAN CYSTS)
* SEVERE ENDOMETRIOSIS
* TUBERCULOSIS

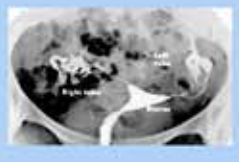
TUBAL ABNORMALITIES ACCOUNT FOR BETWEEN 25% AND 50% OF CAUSES OF INFERTILITY .TUBAL DAMAGE USUALLY OCCURS THROUGH PELVIC INFECTION , AND THIS IS CALLED PELVIC INFLAMMATORY DISEASE (PID). OFTEN, WE CANNOT FIND OUT THE CAUSE FOR THE INFLAMMATION. HOWEVER, SOME OF THE CAUSES INCLUDE :



BESIDES CAUSING BLOCKED TUBES, PELVIC INFLAMMATORY DISEASE CAN ALSO PRODUCE BANDS OF SCAR TISSUE CALLED ADHESIONS, WHICH CAN ALTER THE FUNCTIONING OF THE FALLOPIAN TUBES. PID CAN BE A SILENT DISEASE, AND MOST WOMEN WITH TUBAL DAMAGE BECAUSE OF PID ARE COMPLETELY UNAWARE THAT THEY HAVE THIS DISEASE. PELVIC TUBERCULOSIS IS STILL A FAIRLY COMMON CAUSE OF TUBAL DAMAGE IN INDIA.

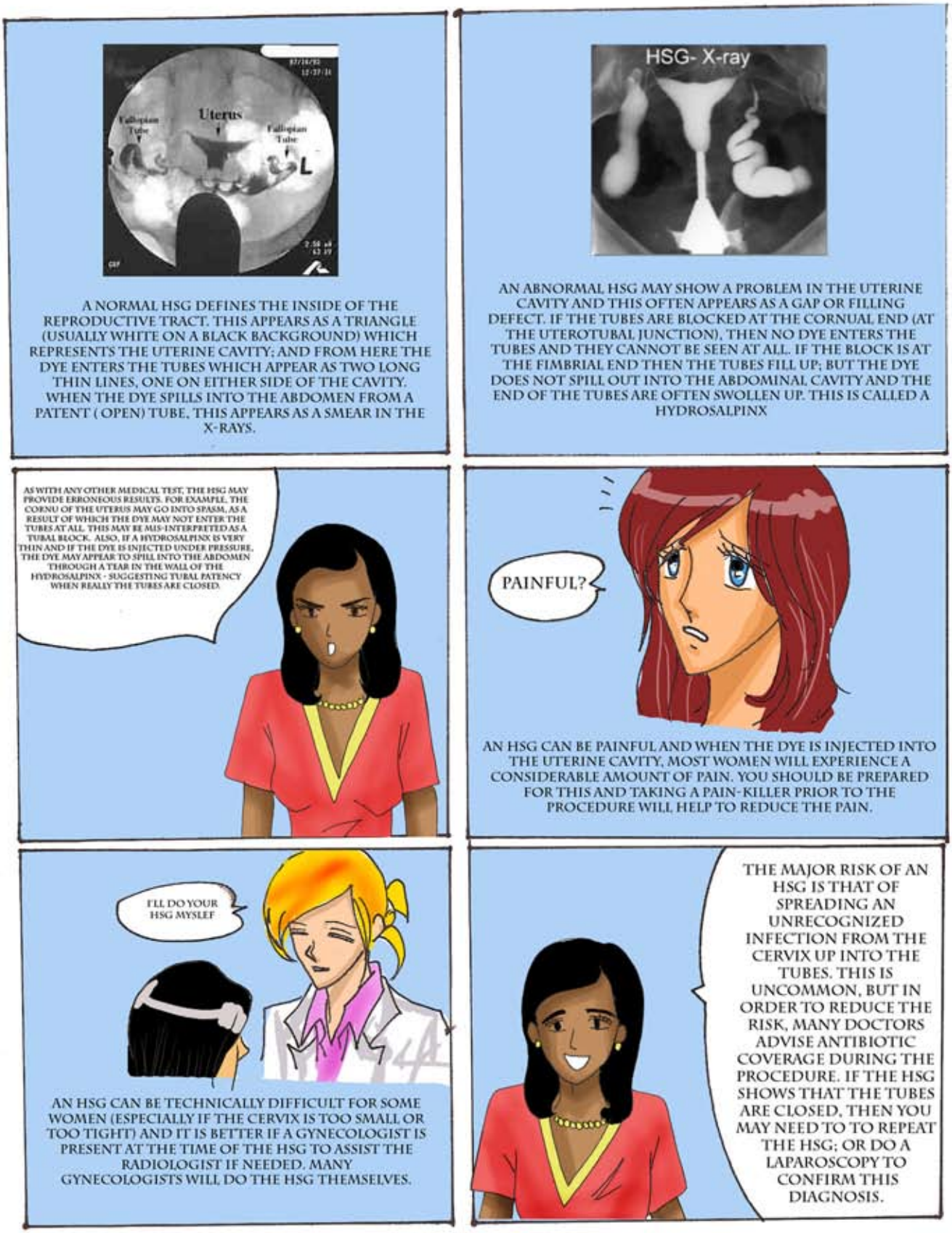


BLOOD TESTS FOR CHLAMYDIAL ANTIBODIES: SINCE AN INFECTION WITH CHLAMYDIA IS THE COMMONEST REASON FOR TUBAL DISEASE IN THE WEST, SOME DOCTORS TEST THE BLOOD FOR ANTIBODIES AGAINST CHLAMYDIA . WOMEN WHO HAVE ANTIBODIES AGAINST CHLAMYDIA HAVE BEEN EXPOSED TO THIS INFECTION IN THE PAST, AND ARE CONSIDERED TO BE AT HIGHER RISK FOR TUBAL DAMAGE.



HYSTEROSALPINGOGRAM (UTEROTUBOGRAM) OR HSG IS A SPECIALIZED X-RAY OF THE UTERUS AND TUBES. AN HSG IS DONE AFTER THE MENSTRUAL FLOW HAS JUST STOPPED - USUALLY ON DAY 6 OR 7 OF THE PERIOD, AT WHICH TIME THE LINING OF THE UTERUS IS THIN. THE PATIENT IS GIVEN AN ANTIBIOTIC AND A PAIN-KILLER BEFORE THE PROCEDURE A RADIO-OPAQUE DYE IS THEN INJECTED INTO THE UTERINE CAVITY THROUGH THE CERVIX USING A CANNULA. THE PASSAGE OF THE DYE INTO THE UTERINE CAVITY AND THEN INTO THE TUBES AND FROM THERE INTO THE ABDOMEN CAN BE SEEN; AND X-RAY PICTURES TAKEN. THESE PROVIDE A PERMANENT RECORD.

For more information on this chapter, go here:
http://www.drmalpani.com/book/chapter12a.html



For more information on this chapter, go here:
http://www.drmalpani.com/book/chapter12a.html

LAPAROSCOPY. THIS IS STILL THE GOLD STANDARD FOR MAKING A DIAGNOSIS OF TUBAL DISEASE.

WHAT ARE THE LIMITATIONS OF DIAGNOSING TUBAL DISEASE ?

THE TROUBLE WITH BOTH HSG AND LAPAROSCOPY IS THAT THEY ONLY PROVIDE INFORMATION AS TO WHETHER OR NOT THE TUBE IS OPEN OR CLOSED. WHILE A CLOSED TUBE WILL NEVER WORK, THEY DO NOT PROVIDE ANY INFORMATION ON HOW WELL AN APPARENTLY OPEN TUBE WORKS. REMEMBER, THAT JUST BECAUSE A TUBE IS PATENT DOES NOT NECESSARILY MEAN THAT IT WORKS! ANOTHER LIMITATION IS THAT THEY WILL RARELY PROVIDE ANY INFORMATION AS TO WHY THE TUBES ARE BLOCKED. OCCASIONALLY, HOWEVER, THIS CAN BE SUSPECTED BY OTHER SIGNS

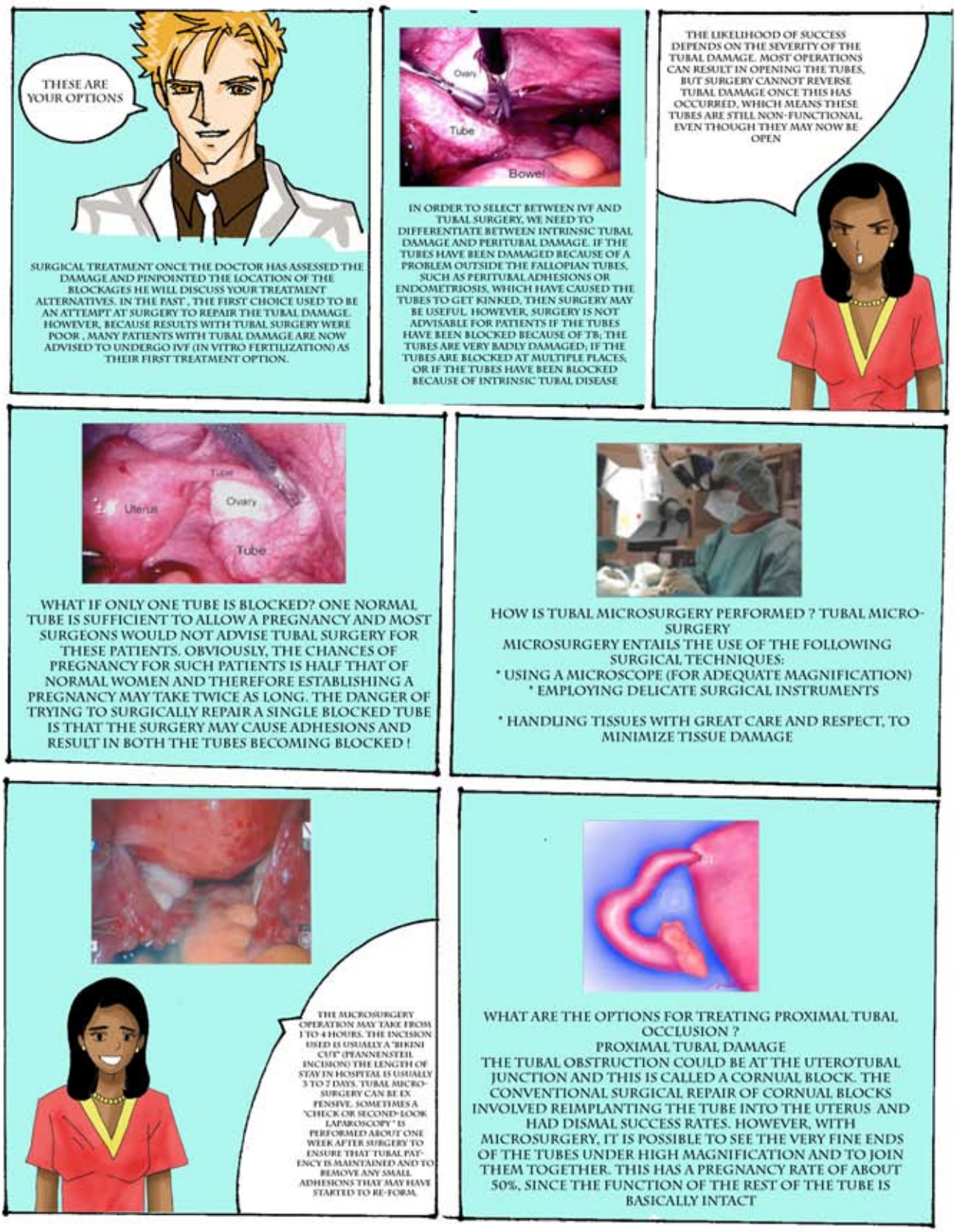
FLUOROSCOPIC GUIDED PROCEDURES: USING AN IMAGE INTENSIFIER, AND TECHNIQUES BORROWED FROM CORONARY ANGIOPLASTY, RADIOLOGISTS CAN NOW INSERT SPECIAL CATHETERS UNDER FLUOROSCOPIC GUIDANCE INTO EACH OF THE TUBES. THIS IS CALLED SELECTIVE SALPINGOGRAPHY; AND ALLOWS MUCH BETTER VISUALIZATION OF EACH TUBE. IT ALSO ALLOWS THE RADIOLOGIST TO TREAT CORNUAL BLOCKS DUE TO MUCUS PLUGS BY TUBAL CANNULATION.

SONOSALPINGOGRAPHY: UNDER ULTRASOUND GUIDANCE, WITH COLOUR DOPPLER FACILITIES IF AVAILABLE, THE GYNECOLOGIST CAN INJECT FLUID INTO THE TUBES THROUGH THE CERVIX AND SEE THE FLOW OF THE FLUID INTO THE TUBES AND ABDOMEN ON THE ULTRASOUND SCREEN. THIS IS A SIMPLE TEST WHICH A GYNECOLOGIST CAN DO IN THE CLINIC TO JUDGE IF THE TUBES ARE NORMAL AND CAN BE REASSURING IF POSITIVE.

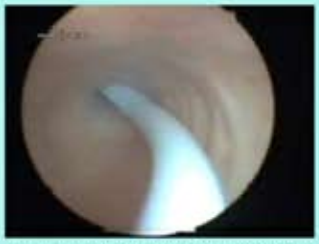
TUBOSCOPY: AT THE TIME OF LAPAROSCOPY, THE DOCTOR CAN INSERT A FINE TELESCOPE INTO THE FALLOPIAN TUBE THROUGH ITS FIMBRIAL END, TO INSPECT THE INNER LINING OF THE TUBE, TO JUDGE WHETHER OR NOT IT IS HEALTHY.

FALLOPOSCOPY WAS PIONEERED BY DR KERIN OF USA. IN THIS METHOD, A VERY FINE FLEXIBLE FIBEROPTIC TUBE IS GUIDED THROUGH THE CERVIX AND UTERUS INTO EACH FALLOPIAN TUBE, THUS ALLOWING THE DOCTOR TO ACTUALLY VISUALIZE THE INNER LINING OF THE ENTIRE LENGTH OF THE FALLOPIAN TUBE.THIS CAN PROVIDE USEFUL INFORMATION ABOUT THE EXTENT OF TUBAL DAMAGE, AND THE POSSIBILITY FOR SUCCESSFUL REPAIR

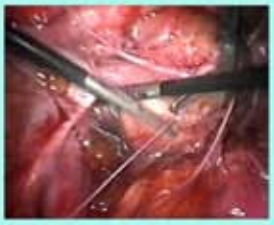
For more information on this chapter, go here:
http://www.drmalpani.com/book/chapter12a.html



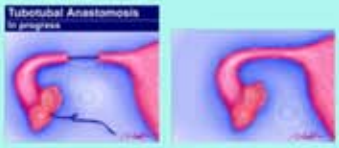
For more information on this chapter, go here:
http://www.drmalpani.com/book/chapter12b.html



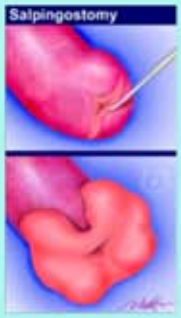
DOCTORS HAVE REALIZED THAT A NUMBER OF PATIENTS HAVE CORNUAL BLOCKS BECAUSE OF THE PRESENCE OF MUCUS PLUGS AND DEBRIS IN THE VERY FINE CORNUAL SEGMENT OF THE TUBES. NEWER NONSURGICAL METHODS HAVE NOW BEEN DEVISED TO TREAT THIS. THESE INVOLVE THE PASSAGE OF A FINE GUIDE WIRE INTO THE CORNUAL END OF THE TUBE THROUGH THE UTERUS. THIS IS CALLED A "BALLOON TUBOPLASTY" OR "CORNUAL RECANALISATION," AND CAN BE DONE UNDER ULTRASOUND GUIDANCE;
HYSTEROSCOPIC GUIDANCE; OR FLUOROSCOPIC (X-RAY) GUIDANCE. THIS IS A SIGNIFICANT ADVANCE, SINCE IT SAVES PATIENTS THE NEED FOR MAJOR SURGERY; AND ALSO HAS EXCELLENT PREGNANCY RATES



SALPINGOLYSIS THIS PROCEDURE ENTAILS DIVISION OF ADHESIONS SURROUNDING THE TUBES. WHEN NO OTHER DAMAGE IS APPARENT, SUCCESS RATES MAY BE AS HIGH AS 65%. THIS IS BEST DONE LAPAROSCOPICALLY

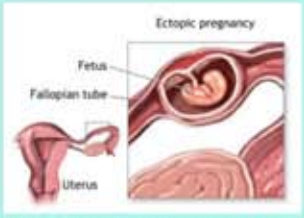


TUBAL REANASTOMOSIS THESE INCLUDE A VARIETY OF PROCEDURES WHICH INVOLVE REMOVING THE DAMAGED PORTION OF THE TUBES AND REJOINING THE HEALTHY ENDS OF THE TUBE TOGETHER . SUCCESS RATES VARY ACCORDING TO THE AREA OF DAMAGE BUT ARE USUALLY WITHIN THE RANGE OF 20 - 50%.THE CHANCES OF SUCCESS ARE HIGHER WHEN THE DEFECT OCCURS IN THE MIDDLE SECTION OF THE TUBE



DISTAL TUBAL DAMAGE IF THE TUBES HAVE BEEN SEVERELY DAMAGED AND HAVE FORMED A HYDROSALPINX (IN WHICH THE FIMBRIAE STICK TO ONE ANOTHER AND THE TUBE IS CLOSED OFF) THE SURGERY REQUIRED IS CALLED NEOSALPINGOSTOMY. IN WHICH THE SURGEON OPENS THE HYDROSALPINX AND CREATES A NEW OPENING FOR THE REPAIRED TUBE. WHILE THIS IS TECHNICALLY EASY, SUCCESS RATES ARE VERY POOR (ABOUT 5 %) BECAUSE THE FUNCTIONING OF THE FIMBRIAE RARELY RETURNS TO NORMAL.

IF THE DAMAGE IS LESS SEVERE (FIMBRIAL AGGLUTINATION, IN WHICH THE FIMBRIAE ARE STUCK TO ONE ANOTHER; OR PHIMOSIS, IN WHICH THE TUBE IS NARROWED, BUT OPEN), THEN SURGICAL REPAIR IS MORE SUCCESSFUL, WITH PREGNANCY RATES BEING ABOUT 50%.



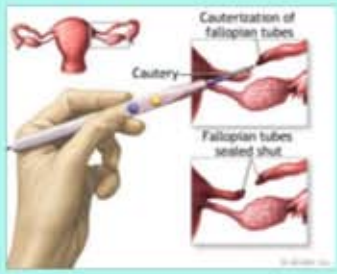
WHAT ARE THE RISKS OF TUBAL SURGERY ?

THE RISK OF HAVING AN ECTOPIC (TUBAL) PREGNANCY IS INCREASED FOLLOWING TUBAL SURGERY. FALLOPIAN TUBES WHICH HAVE BEEN OPERATED ON MAY HAVE A DAMAGED INNER LINING, AND THIS CAN IMPAIR THE MOVEMENT OF THE EMBRYO DOWN THE TUBE FOLLOWING TUBAL SURGERY, THE DIAGNOSIS OF A PREGNANCY SHOULD BE MADE AS SOON AS POSSIBLE TO RULE OUT THE POSSIBILITY OF AN ECTOPIC PREGNANCY.

THE BEST CHANCE OF SUCCESS IS WITH THE FIRST SURGICAL OPERATION; THEREFORE, YOU NEED TO GO TO A SPECIALIZED CENTRE. THE CHANCES OF SUCCESS WILL DEPEND UPON THE EXTENT OF TUBAL DAMAGE AND ALSO ON THE SKILL OF THE S URGEON. MOST WOMEN WHO ARE GOING TO GET PREGNANT AFTER TUBAL SURGERY WILL CONCEIVE WITHIN A FEW MONTHS AFTER THE SURGERY

IF THE PATIENT HAS NOT CONCEIVED WITHIN ONE YEAR AFTER THE SURGERY, THEN FOLLOW-UP TESTING IN THE FORM OF AN HSG AND / OR LAPAROSCOPY IS ADVISABLE, TO DETERMINE WHETHER THE FALLOPIAN TUBES ARE STILL OPEN. IF THE FIRST SURGERY HAS BEEN UNSUCCESSFUL, THE CHANCE OF SUCCESS AS A RESULT OF REOPERATION IS VERY LOW, AND IVF IS THE ONLY TREATMENT CHOICE FOR SUCH PATIENTS.

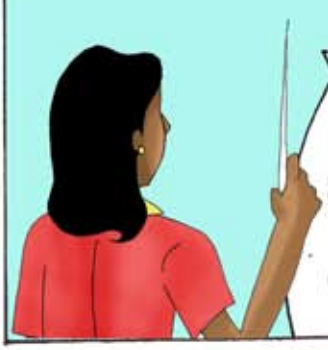
WITH OPERATIVE LAPAROSCOPY, IT IS NOW POSSIBLE TO OPEN DAMAGED TUBES THROUGH THE LAPAROSCOPE, THUS SAVING THE PATIENT MAJOR SURGERY. A HYDROSALPINX CAN BE REPAIRED BY OPENING IT WITH A LASER OR CAUTERY AND THEN KEEPING IT OPEN WITH SUTURES: AND EVEN THE COMPLICATED OPERATION OF TUBAL REANASTOMOSIS HAS BEEN PERFORMED BY EXPERIENCED SURGEONS THROUGH THE LAPAROSCOPE (USING SUTURES OR SPECIAL ADHESIVE GLUE). HOWEVER, THE RESULTS WITH THIS SURGERY ARE POOR, BECAUSE THESE TUBES ARE DAMAGED AND DO NOT FUNCTION PROPERLY EVEN AFTER THE SURGERY.



HOW CAN A TUBAL LIGATION BE REVERSED ? IN WOMEN, STERILIZATION FOR FAMILY PLANNING IS USUALLY DONE THROUGH AN OPERATION CALLED TUBAL LIGATION, WHICH IS USUALLY CARRIED OUT THROUGH THE LAPAROSCOPE. THE AIM OF THE OPERATION IS TO BLOCK THE TUBES AND PREVENT THE SPERM AND EGG FROM MEETING EACH OTHER.

WHY DO WOMEN ASK FOR REVERSAL ? THE VAST MAJORITY OF COUPLES ARE VERY HAPPY WITH STERILIZATION. THE COMMONEST REASON WHY SOME WOMEN ASK FOR A REVERSAL IS BECAUSE THEIR CHILD DIES OR BECAUSE THEY HAVE REMARRIED AND WISH TO BEAR THEIR NEW HUSBAND'S CHILD.

WHAT CAN BE DONE?



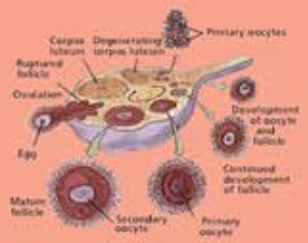
IF THERE IS A REASONABLE AMOUNT OF NORMAL TUBE LEFT, THEN IT MAY BE POSSIBLE TO PERFORM TUBAL MICROSURGERY TO REJOIN THE TUBES. THUS, PATIENTS WHO HAVE HAD A TUBAL LIGATION DONE THROUGH THE LAPAROSCOPE, USING FALOPE RINGS (SILASTIC BANDS) OR CLIPS, HAVE AN EXCELLENT CHANCE OF ACHIEVING A PREGNANCY AFTER MICROSURGICAL REVERSAL OF THE LIGATION, BECAUSE THESE METHODS CAUSE MINIMAL TUBAL DAMAGE. PREGNANCY RATES CAN BE AS HIGH AS 75% IN FAVORABLE CASES.

AFTER REVIEWING THE OPERATIVE NOTES, A LAPAROSCOPY MAY BE ADVISED, SO THAT THE EXACT STATE OF THE FALLOPIAN TUBES CAN BE ASSESSED. SOME SKILLED SURGEONS CAN EVEN PERFORM THIS TYPE OF TUBAL REANASTOMOSIS THROUGH THE LAPAROSCOPE (USING SUTURES OR SPECIAL ADHESIVE GLUE). IF, UNFORTUNATELY, THE PATIENT HAS HAD BOTH TUBES COMPLETELY REMOVED OR IF THE TUBES ARE VERY BADLY DAMAGED, THEN THE ONLY CHANCE OF SUCCESS WILL BE WITH IVF.

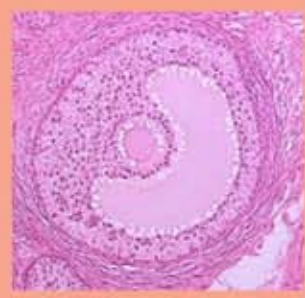
MOST PATIENTS WHO WILL CONCEIVE AFTER TUBAL REANASTOMOSIS WILL DO SO WITHIN 1 YEAR. IF THEY DO NOT, THEN THE NEXT STEP FOR THEM WOULD BE IVF.

HOW DOES OVULATION OCCUR NORMALLY ?

NORMALLY, ONE OF THE OVARIES RELEASES A SINGLE MATURE EGG EVERY MONTH, AND THIS IS CALLED OVULATION. WOMEN MAY NOTICE PELVIC DISCOMFORT (CALLED MITTELSCHMERZ) AT THE TIME OF OVULATION . THE PRESENCE OF REGULAR PERIODS, PREMENSTRUAL TENSION AND DYSMENORRHOEA (PERIOD PAINS) USUALLY INDICATE THAT THE MENSTRUAL CYCLES ARE OVULATORY.



EGGS ARE STORED IN THE OVARIES IN FOLLICLES. FOLLICLES EXIST IN TWO MAJOR CATEGORIES - GROWING AND NON-GROWING (PRIMORDIAL). EGGS IN THE PRIMORDIAL FOLLICLE ARE IN A VERY IMMATURE FORM. THEY ARE NOT CAPABLE OF BEING FERTILIZED BY A SPERM UNTIL THEY UNDERGO MATURATION WHICH CULMINATES IN THEIR RELEASE FROM THE OVARY AT THE TIME OF OVULATION. EGG MATURATION AND OVULATION IS STIMULATED BY TWO HORMONES SECRETED BY THE PITUITARY - FOLLICLE STIMULATING HORMONE (FSH) AND LUTEINIZING HORMONE (LH) .



EVERY MONTH, AT THE START OF THE MENSTRUAL CYCLE, IN RESPONSE TO THE FSH PRODUCED BY THE PITUITARY GLAND, ABOUT 30-40 PRIMORDIAL FOLLICLES START TO GROW. OF THESE, ONLY ONE MATURES TO FORM A LARGE FLUID-FILLED STRUCTURE, CALLED A GRAAFIAN FOLLICLE WHICH CONTAINS A MATURE EGG, WHILE THE OTHERS DIE (A PROCESS CALLED ATRESIA). THE MATURE EGG IS RELEASED FROM THE FOLLICLE WHEN THE FOLLICLE RUPTURES IN RESPONSE TO A SURGE OF LH PRODUCED BY THE PITUITARY.

AFTER OVULATION HAS OCCURRED, THE FOLLICLE FROM WHICH THE EGG HAS BEEN RELEASED FORMS A CYSTIC STRUCTURE CALLED THE CORPUS LUTEUM. THIS IS RESPONSIBLE FOR PROGESTERONE PRODUCTION IN THE SECOND HALF OF THE CYCLE.

MOST WOMEN WHO HAVE REGULAR PERIODS HAVE OVULATORY CYCLES. WOMEN WHO FAIL TO OVULATE OR WHO HAVE ABNORMAL OVULATION USUALLY HAVE A DISTURBANCE OF THEIR MENSTRUAL PATTERN. THIS MAY TAKE THE FORM OF COMPLETE LACK OF PERIODS (AMENORRHOEA), IRREGULAR OR DELAYED PERIODS (OLIGOMENORRHOEA) OR OCCASIONALLY A SHORTENED CYCLE DUE TO A DEFECT IN THE SECOND PART (LUTEAL PHASE) OF THE CYCLE.

DETECTING OVULATION - WHEN DO YOU OVULATE? MENSTRUAL PERIOD TIMING (CALENDAR METHOD) TO DETERMINE THE LENGTH OF THE MENSTRUAL CYCLE, ONE NOTES THE DATE OF THE BEGINNING OF THE MENSTRUAL PERIOD (FIRST DAY OF FLOW) FOR TWO CONSECUTIVE PERIODS, AND THEN COUNTS THE DAY FROM ONE DATE TO THE NEXT. KEEPING TRACK OF THE LENGTH OF MENSTRUAL CYCLES WILL HELP DETERMINE THE APPROXIMATE TIME OF OVULATION, BECAUSE OVULATION USUALLY OCCURS 14 DAYS BEFORE THE NEXT PERIOD BEGINS .

THE ROUGH RULE TO CALCULATE THE APPROXIMATE DATE OF OVULATION IS : NMP MINUS 14 DAYS, WHERE NMP IS THE (EXPECTED) DATE OF THE NEXT MENSTRUAL PERIOD. THIS IS BECAUSE THE LUTEAL PHASE FOR MOST WOMEN IS 14 DAYS LONG. KEEPING TRACK OF THE MENSTRUAL CYCLE BY CHARTING CAN INDICATE OTHER OVULATORY DISTURBANCES . FOR EXAMPLE, IF A MENSTRUAL CYCLE THAT IS NORMALLY 28 DAYS STARTS TO OCCUR EVERY 35 OR 40 DAYS, THIS MAY MEAN THAT OVULATION IS DISTURBED, AND AN EVALUATION IS NEEDED.

IS BBT CHARTING OF ANY USE ?

BASAL BODY TEMPERATURE (BBT) CHART
DURING THE LUTEAL PHASE OF THE CYCLE, THE CORPUS LUTEUM PRODUCES THE HORMONE PROGESTRONE, WHICH ELEVATES THE BASAL BODY TEMPERATURE. WHEN THE BASAL BODY TEMPERATURE HAS GONE UP FOR SEVERAL DAYS, ONE CAN ASSUME THAT OVULATION HAS OCCURRED. HOWEVER, IT IS IMPORTANT TO REMEMBER THAT THE BBT CHART CANNOT PREDICT OVULATION - IT CANNOT TELL YOU WHEN IT IS GOING TO OCCUR !

BBT CHARTS ALLOW YOU TO DETERMINE FOR YOURSELF IF YOU ARE OVULATING THE ONLY EQUIPMENT REQUIRED IS A SPECIAL BBT THERMOMETER.

For more inofrmation on this chapter, go here:
http://www.drmalpani.com/book/chapter13a.html

1. THE CHART STARTS ON THE FIRST DAY OF MENSTRUAL FLOW. ENTER THE DATE HERE.
2. EACH MORNING IMMEDIATELY AFTER AWAKENING, AND BEFORE DOING ANYTHING ELSE, THE THERMOMETER IS PLACED UNDER THE TONGUE FOR AT LEAST TWO MINUTES. THIS MUST BE DONE EVERY MORNING, EXCEPT DURING THE PERIOD.
3. ACCURATELY RECORD THE TEMPERATURE READING ON THE GRAPH. INDICATE DAYS OF INTERCOURSE WITH A CROSS.
4. NOTE ANY OBVIOUS REASON FOR TEMPERATURE VARIATION SUCH AS COLDS, OR FEVER ON THE GRAPH ABOVE THE READING FOR THAT DAY.

GENERAL INSTRUCTIONS FOR KEEPING A BASAL BODY TEMPERATURE CHART INCLUDE THE FOLLOWING :

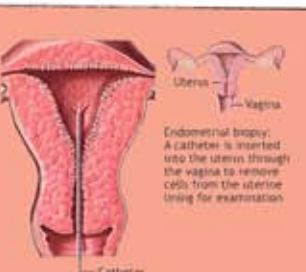
THE MAJOR LIMITATION OF THE BBT IS THAT IT DOES NOT TELL YOU IN ADVANCE WHEN YOU ARE GOING TO OVULATE - THIS IS WHY ITS UTILITY IN TIMING SEX DURING THE FERTILE PERIOD IS SMALL. INTERPRETING THE BBT CHART CAN BE TRICKY FOR MANY PATIENTS - RARELY DO THE CHARTS LOOK LIKE THOSE YOU SEE IN TEXTBOOKS!

ALSO, KEEPING A BBT CHART CAN BE VERY STRESSFUL - TAKING YOUR TEMPERATURE THE FIRST THING YOU DO WHEN YOU GET UP IN THE MORNING IS NOT MUCH FUN. WHAT IS WORSE IS THAT YOU START TO LET THE BBT CHART DICTATE YOUR SEX LIFE. WE ADVISE OUR PATIENTS NEVER TO CHART THEIR BBTS - WE FEEL THEY ARE JUST A WASTE OF TIME

MANUFACTURERS HAVE NOW INCORPORATED A MICROPROCESSOR ALONG WITH THE DIGITAL THERMOMETER, TO CREATE AN ELECTRONIC FERTILITY MANAGEMENT DEVICE , CALLED THE BIOSELF FERTILITY INDICATOR. THIS MAKES CALCULATION OF THE 'FERTILE DAYS' MUCH EASIER, BECAUSE IT COMBINES BOTH THE BASAL BODY TEMPERATURE AND CALENDAR METHOD OF OVULATION PREDICTION.

WHAT ABOUT USING FERTILITY SOFTWARE PROGRAMS ?

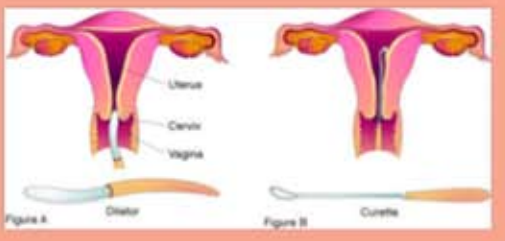
FERTILITY SOFTWARE PROGRAMS NEWER SOFTWARE PROGRAMS (EASILY AVAILABLE ON THE INTERNET) , SUCH AS CYCLEWATCH, HELP YOU LEARN ABOUT YOUR BODY'S FERTILITY SIGNS BY GIVING YOU THE TOOLS TO DOCUMENT AND ANALYZE YOUR OBSERVATIONS. YOU CAN ALSO USE OUR FREE ONLINE FERTILITY CALCULATOR AT (HTTP://WWW.DRMALPANI.COM/FREEFERTILITYCALCULATOR.HTM) TO DETERMINE WHEN YOU OVULATE !



OF WHAT USE IS AN ENDOMETRIAL BIOPSY ?

ENDOMETRIAL BIOPSY
DURING THIS PROCEDURE, A SMALL AMOUNT OF ENDOMETRIUM FROM INSIDE THE UTERINE CAVITY IS EXTRACTED SURGICALLY AND SENT FOR PATHOLOGIC EXAMINATION UNDER A MICROSCOPE. THIS IS USUALLY DONE JUST BEFORE THE PERIOD BEGINS. IT CAN BE DONE IN THE DOCTOR'S OFFICE IT DOES CAUSE DISCOMFORT DURING THE PROCEDURE (ABOUT AS MUCH AS A SEVERE MENSTRUAL CRAMP) AND AN ANALGESIC CAN BE TAKEN A HALF-HOUR PRIOR TO THE PROCEDURE.

WHEN EXAMINING THE ENDOMETRIAL BIOPSY, THE PATHOLOGIST LOOKS FOR THE INFLUENCE OF THE ESTROGEN AND PROGESTERONE HORMONES ON THE ENDOMETRIAL GLANDS. IF PROGESTERONE HAS BEEN PRODUCED IN THAT CYCLE, THE ENDOMETRIAL GLANDS SHOW SECRETORY CHANGES . IF NO PROGESTERONE AT ALL HAS BEEN PRODUCED, THEN THE ENDOMETRIUM WILL BE REPORTED AS BEING PROLIFERATIVE (UNDER THE INFLUENCE OF ONLY ESTROGEN) - WHICH SUGGESTS THAT THE CYCLES ARE ANOVULATORY (I.E., OVULATION DID NOT OCCUR IN THAT CYCLE). BECAUSE AN ENDOMETRIAL BIOPSY IS PAINFUL AND PROVIDES LIMITED INFORMATION, FEW DOCTORS USE IT ANYMORE.



OF WHAT USE IS A D&C (CURETTAGE) ?
CURETTAGE
A CURETTING USED TO THE COMMONEST PROCEDURE DONE FOR INFERTILE PATIENTS. THE CORRECT TECHNICAL TERM FOR CURETTING IS D AND C - DILATATION AND CURETTAGE - WHICH MEANS THE CERVIX IS STRETCHED (DILATED) AND THE UTERINE CAVITY SCRAPED (CURETTED) TO COLLECT THE ENDOMETRIUM) . THIS IS AN OBSOLETE PROCEDURE FOR AN INFERTILE WOMAN, AND CAN ACTUALLY BE HARMFUL

SINCE THIS ENDOMETRIUM CAN BE OBTAINED MUCH MORE EASILY, SAFELY AND CHEAPLY WITH AN ENDOMETRIAL BIOPSY (IN WHICH ONLY A STRIP OF ENDOMETRIUM IS REMOVED) THERE SHOULD RARELY BE ANY NEED TO DO A D&C FOR AN INFERTILE WOMAN. PATIENTS HAVE OFTEN HAVE REPEATED D&CS - AND THESE CAN ACTUALLY DAMAGE THE CERVIX AND EVEN BLOCK THE TUBES, IF INFECTION OCCURS AFTER SURGERY. THE ONLY POSSIBLE ROLE FOR A D&C TODAY IS WHEN TUBERCULOSIS OF THE UTERUS IS SUSPECTED.

HOW DOES TESTING FOR PROGESTERONE HELP ?

BLOOD TEST FOR PROGESTERONE
THE PROGESTERONE LEVEL IN THE BLOOD MAY BE MEASURED TO CONFIRM THAT OVULATION HAS TAKEN PLACE. THIS TEST IS DONE ON DAY 21 OF THE CYCLE (ABOUT 1 WEEK AFTER THE EXPECTED DATE OF OVULATION) . A NORMAL LEVEL IS BETWEEN 10 NG/ML - 20 NG/ML AND INDICATES THAT THE CORPUS LUTEUM IS PRODUCING ENOUGH PROGESTERONE, AND IS GOOD RETROSPECTIVE EVIDENCE THAT OVULATION OCCURRED. A VERY LOW LEVEL MEANS THAT THE CYCLE WAS MOST PROBABLY ANOVULATORY. AN INTERMEDIATE LEVEL MAY SUGGEST A LUTEAL PHASE DEFECT (IN WHICH THE CORPUS LUTEUM DOES NOT SECRETE ENOUGH PROGESTERONE).

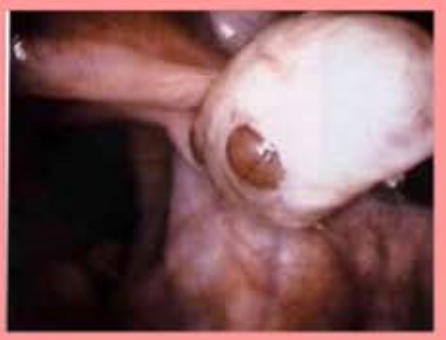
HOW CAN I FIND OUT WHEN I AM OVULATING AND USE THIS INFORMATION TO TRACK MY FERTILE TIME ?

THE FOLLOWING SYMPTOMS AND TESTS CAN BE USED IN ORDER TO DETERMINE WHEN YOU OVULATE. THEY PROVIDE INFORMATION WHICH CAN BE USED TO IDENTIFY THE "FERTILE PERIOD" PROSPECTIVELY.

HOW CAN I USE CERVICAL MUCUS MONITORING TO MONITOR MY OVULATION ?
CERVICAL MUCUS (BILLING'S METHOD)
BY CHECKING YOUR CERVICAL MUCUS DAILY YOU CAN DETERMINE WHEN YOU OVULATE. JUST BEFORE OVULATION, YOUR CERVICAL MUCUS IS THIN, PROFUSE, CLEAR AND STRETCHY, LIKE RAW EGG WHITES. AFTER OVULATION, THE MUCUS BECOMES THICK, TACKY, SCANTY AND STICKY. YOU CAN LEARN TO APPRECIATE THIS CHANGE IN YOUR MUCUS (BY SEEING AND FEELING IT) .

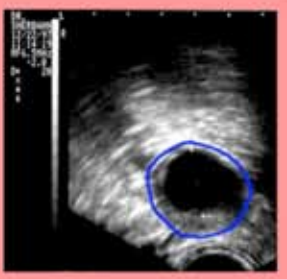
ABDOMINAL PAIN
APPROXIMATELY 25 PERCENT OF WOMEN MAY EXPERIENCE A PAIN ON ONE SIDE OF THE ABDOMEN THAT IS ASSOCIATED WITH OVULATION. THIS IS CALLED MITTELSCHMERZ (A GERMAN WORD, WHICH MEANS MIDCYCLE PAIN) AND IS USUALLY RELATED TO THE RELEASE OF AN EGG FROM THE RUPTURING FOLLICLE. IT IS A GOOD IDEA TO MARK THE DATE WHEN IT OCCURS SINCE THIS INFORMATION IS HELPFUL IN DETERMINING WHEN OVULATION OCCURS.

For more inofrmation on this chapter, go here:
http://www.drmalpani.com/book/chapter13a.html



HOW IS ULTRASOUND USED TO MONITOR OVULATION ?

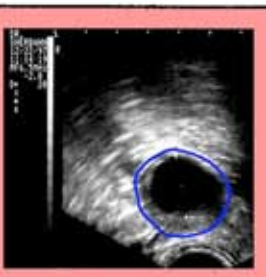
EGGS EGG DEVELOPWITHIN A FOLLICLE IN THE OVARY. THE FOLLICLE IS A THIN-WALLED STRUCTURE CONTAINING FLUID AND THE EGG IS ATTACHED TO ITS WALL. USUALLY, ONLY ONE FOLLICLE DEVELOPS PER MONTH. THIS FOLLICULAR GROWTH CAN BE MONITORED BY ULTRASOUND, USUALLY DONE WITH A VAGINAL PROBE, WHICH PROJECTS AN IMAGE OF THE OVARY ONTO A SCREEN.



THE FOLLICLE APPEARS AS A CIRCULAR FLUID-FILLED BUBBLE ON THE SCREEN, AND CAN BE SEEN WHEN IT IS ABOUT 7 TO 8 MM IN SIZE. IT GROWS AT ABOUT 1 TO 2 MM PER DAY, AND IS READY FOR OVULATION WHEN IT MEASURES 18 TO 25 MILLIMETERS IN DIAMETER. FOLLOWING OVULATION, THE FOLLICLE USUALLY DISAPPEARS FROM THE SCAN PICTURE COMPLETELY AND THIS IS THE BEST EVIDENCE OF OVULATION.

OFTEN, AT THE SAME TIME, FLUID CAN ALSO BE DETECTED IN THE PELVIS BEHIND THE UTERUS - THIS IS THE FOLLICULAR FLUID WHICH IS RELEASED WHEN THE FOLLICLE RUPTURES. DEFECTS DETECTABLE BY ULTRASOUND ARE F OLLICLES THAT DO NOT GROW AT ALL, OR DO NOT GROW TO A BIG ENOUGH SIZE, OR OCCASIONALLY FOLLICLES THAT DO NOT RUPTURE AT THE APPROPRIATE TIME. THIS IS CALLED LUF = LUTEINIZED UNRUPTURED FOLLICLE SYNDROME.

SINCE ULTRASOUND ALLOWS ASSESSMENT OF FOLLICULAR DEVELOPMENT, IT IS ESPECIALLY USEFUL FOR PATIENTS HAVING TIMED INTERCOURSE OR HAVING OVULATION REGULATED WITH FERTILITY DRUGS. IT IS USUALLY DONE ON A DAILY BASIS, FROM ABOUT THE 11TH DAY OF THE CYCLE.



FOLLICLE TRACKING ON ULTRASOUND USUALLY TAKES ABOUT 5 MINUTES TO PERFORM. NO PREPARATION IS NEEDED; EXCEPT THAT THE BLADDER MUST BE EMPTIED BEFORE THE SCAN. ASK TO SEE THE PICTURE OF THE FOLLICLE ON THE MONITOR - AND YOU SHOULD BE ABLE TO SEE THE GROWTH OF THE FOLLICLE AND ITS RUPTURE FOR YOURSELF ON THE SCREEN.

OLDER OBSOLETE ULTRASOUND MACHINES USED ABDOMINAL PROBES . THESE REQUIRE THAT THE PATIENT HAVE A FULL BLADDER, SO THAT THE SOUND WAVES CAN REACH THE OVARY. NOT ONLY ARE THEY MUCH MORE UNCOMFORTABLE FOR THE PATIENT BUT THE QUALITY OF THE PICTURES IS ALSO MUCH POORER AS COMPARED TO THE VAGINAL SCAN.

HOW DO I USE OVULATION PREDICTION KITS (OPK) ?

COMMERCIALLY AVAILABLE OVULATION PREDICTION KITS (OPK)
OVULATION PREDICTION TEST KITS (OPK) ARE AVAILABLE OVER THE COUNTER . IF YOU LIVE IN INDIA, YOU CAN ALSO BUY THEM FROM OUR ONLINE STORE. THESE KITS DETECT LH WHICH IS PRODUCED IN LARGE QUANTITIES SHORTLY BEFORE OVULATION AND CAN BE FOUND IN THE URINE . ONCE THE LH SURGE HAS OCCURRED, OVULATION USUALLY TAKES PLACE WITHIN 12 TO 44 HOURS. URINE TESTING IS STARTED ABOUT TWO DAYS PRIOR TO THE EXPECTED DAY OF OVULATION AND CONTINUES UNTIL THE TEST BECOMES POSITIVE. THE URINE SHOULD BE COLLECTED AT THE SAME TIME EVERY DAY

IF YOUR MENSTRUAL CYCLES ARE IRREGULAR, TESTING SHOULD BE TIMED ACCORDING TO THE EARLIEST AND LATEST POSSIBLE DATES OF OVULATION. FOR EXAMPLE, IF YOUR CYCLE RANGES BETWEEN 27 AND 34 DAYS, YOU COULD POSSIBLY OVULATE BETWEEN DAYS 13 AND 20. THEREFORE, TESTING SHOULD BEGIN ON DAY 11 AND CONTINUE UNTIL OVULATION IS INDICATED OR THROUGH DAY 20. OCCASIONALLY, OVULATION MAY NOT OCCUR IN A PARTICULAR CYCLE. IF THE OVULATION PREDICTION TEST HAS BEEN TIMED AND PERFORMED ACCURATELY AND HAS NOT TURNED POSITIVE, YOU SHOULD DISCONTINUE TESTING AND BEGIN AGAIN WITH YOUR NEXT MENSTRUAL CYCLE. PERSISTENT FAILURE OF THE TEST TO TURN POSITIVE MAY INDICATE A PROBLEM WITH REGARD TO OVULATION.

For more information on this chapter, go here:
http://www.drmalpani.com/book/chapter13b.html

ONCE A TEST HAS REGISTERED POSITIVE, INDICATING THAT OVULATION IS ABOUT TO TAKE PLACE, IT IS NO LONGER NECESSARY TO CONTINUE TESTING. REMAINING TESTS IN A KIT MAY BE SAVED AND USED IN THE FOLLOWING MENSTRUAL CYCLE IF PREGNANCY DOES NOT OCCUR.

OVULATION PREDICTION KITS OFFER THE ADVANTAGE THAT THEY ALLOW YOU TO PREDICT WHEN OVULATION WILL OCCUR - THUS MAXIMISING THE CHANCES THAT INTERCOURSE WILL BE TIMED AT YOUR MOST FERTILE PERIOD. THEY CAN ALSO BE DONE IN THE PRIVACY OF YOUR OWN HOME.

A NEWER DEVICE, THE CLEARPLAN EASYTM FERTILITY MONITOR, IS A PALM-SIZED, ELECTRONIC SYSTEM, THAT PROVIDES INFORMATION ABOUT FERTILITY STATUS BY INTERPRETING THE LEVELS OF TWO HORMONES, ESTROGEN AND LUTEINIZING HORMONE, IN THE URINE. YOU NEED TO TEST YOUR URINE FOR THE PRESENCE OF THESE, USING DIP STICKS, AND THE INFORMATION IS THEN INPUT INTO THE SYSTEM, WHICH USES IT TO CALCULATE YOUR FERTILE DAYS.

HOW CAN I USE THE NEW POCKET MICROSCOPES TO TRACK OVULATION ?

SALIVARY FERNING

ANOTHER WAY OF MONITORING OVULATION USES A POCKET MICROSCOPE, TO CHECK FOR THE PHENOMENON OF "SALIVA FERNING." YOU NEED TO LET YOUR SALIVA DRY ON A GLASS SLIDE, AND THEN EXAMINE IT UNDER THE DEVISE, TO CHECK FOR FERNING. PRIOR TO OVULATION, THE SALIVA SHOWS THE PRESENCE OF CRYSTALLISATION OR FERNING WHEN IT DRIES, AND THIS SUGGESTS THAT OVULATION WILL OCCUR SOON. THOUGH THESE DEVICES ARE NOW COMMERCIALLY AVAILABLE, THEIR RELIABILITY IS STILL UNCLEAR.

WHAT BLOOD TESTS CAN BE USED TO PREDICT OVULATION ?

THE GROWING FOLLICLE SECRETES THE HORMONE ESTRADIOL IN INCREASING AMOUNTS AND ITS BLOOD LEVEL RISES RAPIDLY SEVERAL DAYS PRIOR TO OVULATION. IF OVULATION IS BEING INDUCED THROUGH FERTILITY DRUGS, ESTRADIOL BLOOD TESTS MAY BE DONE ON A DAILY BASIS IN ORDER TO DETERMINE IF THE DEVELOPING FOLLICLES ARE GROWING PROPERLY. NORMALLY, THE ESTRADIOL BLOOD LEVELS SHOULD INCREASE RAPIDLY (AS A RULE OF THUMB, THEY DOUBLE EVERY 24 HOURS).

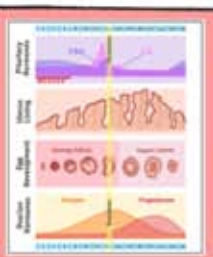
MY PERIOD'S ABNORMAL...

WHAT HAPPENS WHEN OVULATION IS ABNORMAL ?

ABNORMAL OVULATION

ABNORMALITIES OF OVULATION MAY APPEAR IN SEVERAL WAYS. MENSTRUAL CYCLES SHORTER THAN 21 DAYS OR LONGER THAN 35 DAYS ARE OFTEN ASSOCIATED WITH ANOVULATION. IN ADDITION, PATIENTS MAY SKIP MENSTRUAL PERIODS FOR TIME INTERVALS OF THREE MONTHS OR MORE AND THIS IS CALLED OLIGOMENORRHEA (INFREQUENT PERIODS) . IF THE PERIODS STOP ENTIRELY, THIS IS CALLED AMENORRHEA.

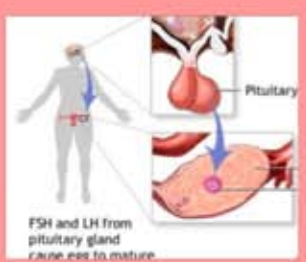
MANY HORMONAL SYSTEMS WORK TOGETHER TO PRODUCE REGULAR MENSTRUAL PERIODS, AND THE BLOOD LEVELS OF THE HORMONES THAT MAKE UP THESE SYSTEMS NEED TO BE TESTED IN ORDER TO DETERMINE THE REASON FOR THE OVULATORY DISORDERS.



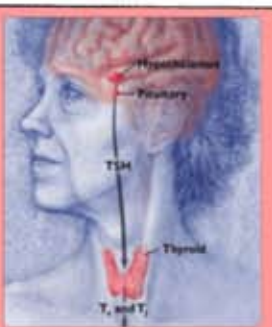
WHAT ARE THE BLOOD TESTS WHICH ARE USED TO DIAGNOSE PROBLEMS WITH OVULATION?

THE HORMONE BLOOD TESTS, WHICH ARE USUALLY DONE ON THE THIRD DAY OF YOUR CYCLE, INCLUDETHE FSH LEVEL: THE FSH LEVEL GIVES A GOOD IDEA OF THE OVARIAN RESERVE (OVARIAN FUNCTIONAL CAPACITY) - AN INDEX OF THE NUMBER OF EGGS REMAINING IN THE OVARIES. A HIGH FSH LEVEL SUGGESTS THAT THE OVARY HAS EITHER FAILED OR HAS STARTED TO FAIL.

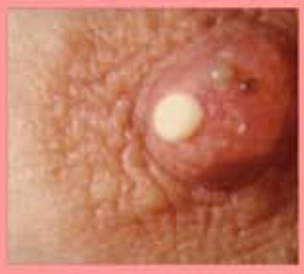
OVARIAN RESERVE CAN ALSO BE ASSESSED BY MEASURING THE LEVELS OF THE OVARIAN HORMONE INHIBIN AND AMH (ANTIMULLERIAN HORMONE) IN THE BLOOD. LOW LEVELS OF INHIBIN AND AMH SUGGEST POOR OVARIAN FUNCTION. A VERY LOW FSH LEVEL SUGGESTS HYPOGONADOTROPIC HYPOGONADISM. THIS TERM MEANS THAT THE OVARY IN THESE PATIENTS IS NOT WORKING PROPERLY BECAUSE OF INADEQUATE PRODUCTION OF FSH BY THE PITUITARY GLAND. HOWEVER, IN MOST ANOVULATORY PATIENTS, THE FSH LEVEL WILL BE IN THE NORMAL RANGE, AND THIS CAN BE REASSURING.



IITHE LH LEVEL: THIS IS THE OTHER GONADOTROPIN HORMONE PRODUCED BY THE PITUITARY; AND PROVIDES MUCH THE SAME INFORMATION THE FSH LEVEL DOES. THE LH:FSH RATIO IS NORMALLY 1:1. IF, HOWEVER, THE LH LEVEL IS MUCH HIGHER THAN THE FSH LEVEL, THIS SUGGESTS A DIAGNOSIS OF POLYCYSTIC OVARIAN DISEASE.



THYROXINE AND TSH. THESE TEST FOR THYROID FUNCTION. THE THYROXINE LEVEL IS HIGH IN PATIENTS WITH OVERACTIVE THYROID GLANDS (HYPERTHYROIDISM). IN PATIENTS WITH DECREASED THYROID FUNCTION (HYPOTHYROIDISM), THE TSH LEVEL IS INCREASED.



PROLACTIN: PROLACTIN IS A HORMONE PRODUCED BY THE PITUITARY GLAND THAT INDUCES LACTATION OR MILK FORMATION. HIGH PROLACTIN LEVELS (HYPERPROLACTINEMIA) CAN INTERFERE WITH OVULATION . A MILKY DISCHARGE FROM THE NIPPLE , NOT RELATED TO PREGNANCY OR NURSING , IS CALLED GALACTORRHEA, AND THIS NEEDS TO BE INVESTIGATED. IN SOME WOMEN, THE REASON FOR A HIGH PROLACTIN LEVEL CAN BE A SMALL TUMOUR IN THE PITUITARY GLAND. THIS IS CALLED A PROLACTINOMA OR MICROADENOMA, AND THE DOCTOR MAY ADVISE YOU HAVE AN X-RAY OF THE SKULL (OR EVEN A CT SCAN OR MRI SCAN) TO RULE OUT THIS POSSIBILITY.HYPERPROLACTINEMIA CAN BE EASILY TREATED WITH A MEDICINE CALLED BROMOCRYPTINE, WHICH IS A DOPAMINE AGONIST MEDICATION ; OR CABERGOLINE, WHICH IS USUALLY TAKEN TWICE A WEEK.

WHAT IS OVARIAN FAILURE ?

OVARIAN FAILURE IS A DISEASE IN WHICH THE OVARIES FAIL TO PRODUCE EGGS. OVARIAN FAILURE MAY BE GENETIC (FOR EXAMPLE, IN GIRLS WITH TURNER'S SYNDROME, A CHROMOSOMAL DISORDER) OR MAY BE ACQUIRED (FOR EXAMPLE, FOLLOWING RADIATION OR CHEMOTHERAPY FOR CANCERS)OVARIAN FAILURE IS DIAGNOSED BY FINDING A HIGH FSH LEVEL. IN SUCH PATIENTS IT IS NOT POSSIBLE TO STIMULATE OVULATION BECAUSE THEY DO NOT HAVE ANY EGGS.. THE ONLY EFFECTIVE MEDICAL TREATMENT FOR THESE PATIENTS IS THE USE OF DONOR EGG IVF . HOWEVER, IN A VERY SMALL PROPORTION OF THESE PATIENTS, OVULATION CAN RESUME SPONTANEOUSLY

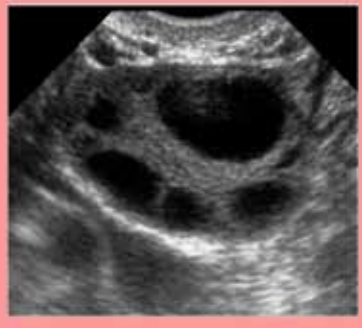
WHAT FORMS OF TREATMENTS ARE AVAILABLE FOR INDUCING OVULATION?

THE MOST COMMONLY PRESCRIBED MEDICINES FOR INDUCTION OF OVULATION INCLUDE THE FOLLOWING:

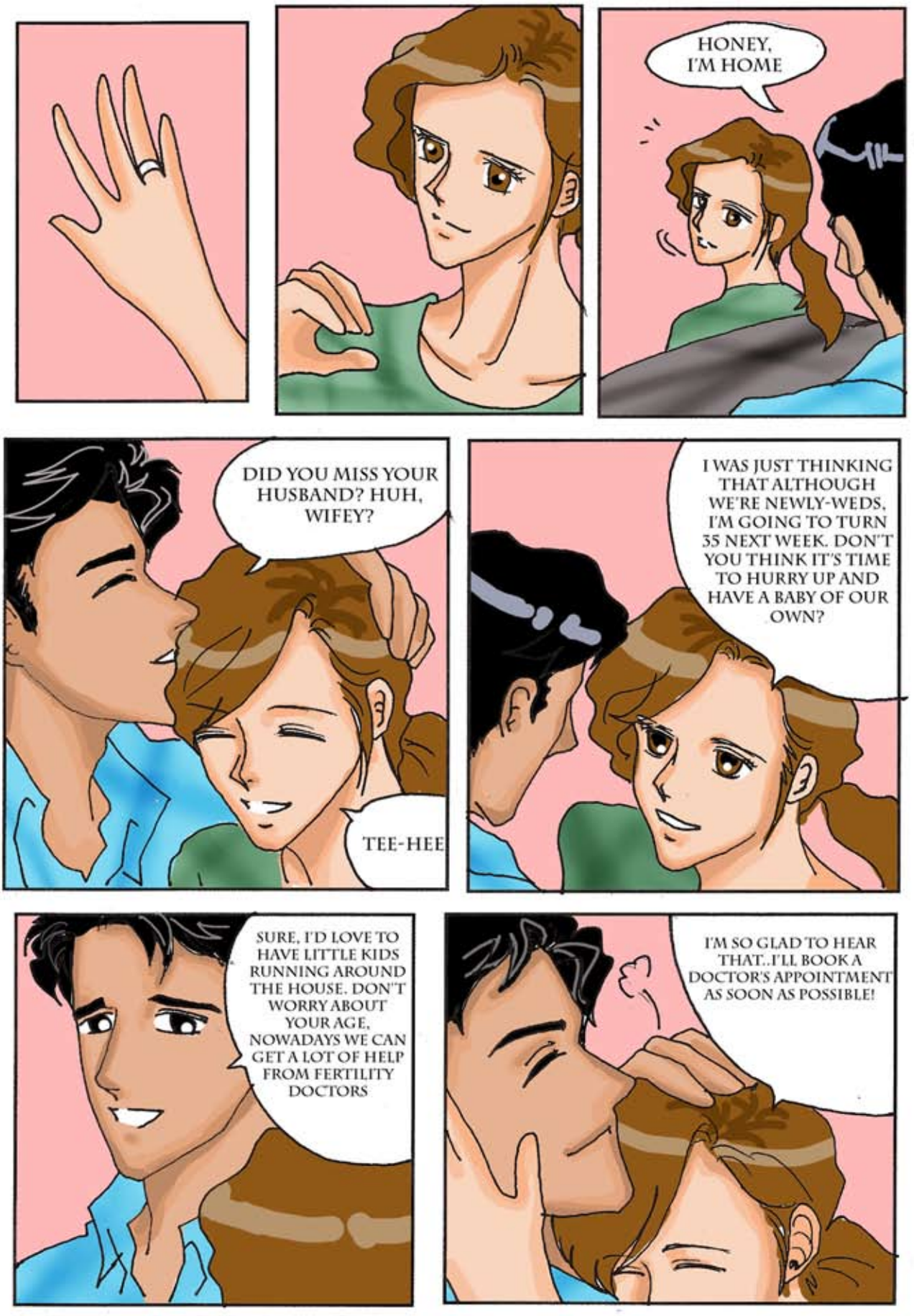
*CLOMIPHENE CITRATE,
*HUMAN MENOPAUSAL GONADOTROPHIN (HMG)
* FOLLICLE STIMULATING HORMONE (FSH)
*HCG (HUMAN CHORIONIC GONADOTROPIN)
*BROMOCRIPTINE
* GNRH (GONADOTROPIN RELEASING HORMONE)
*GNRH ANALOGUE.

FOR WOMEN WITH HYPOGONADOTROPIC HYPOGONADISM (LOW FSH AND LH LEVELS), THE TREATMENT OF FIRST CHOICE IS HMG. THIS IS EFFECTIVE REPLACEMENT THERAPY; AND EXCELLENT PREGNANCY RATES CAN BE ACHIEVED IN THESE WOMEN.

FOR WOMEN AFFECTED HYPERPROLACTINEMIA, THE DRUG OF FIRST CHOICE IS BROMOCRIPTINE. FOR MOST OTHER WOMEN, THE DRUG OF FIRST CHOICE IS CLOMIPHENE - THE "WORKHORSE" OF OVULATION INDUCTION. IF THIS DOES NOT WORK, THEN HMG IS RESORTED TO. HCG (HUMAN CHORIONIC GONADOTROPIN) IS GIVEN TO TRIGGER OFF THE RELEASE OF THE EGG. IN PATIENTS WITH HIGH ANDROGEN LEVELS (HIGH BLOOD LEVELS OF MALE HORMONES), DEXAMETHASONE , WHICH IS A STEROID, CAN BE USED AS AN ADJUNCT, SINCE THIS SUPPRESSES ANDROGEN PRODUCTION.

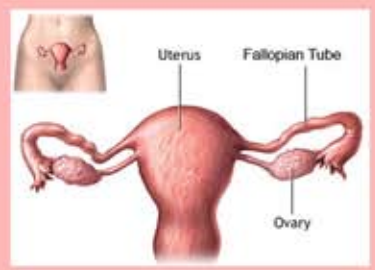


OFTEN OVULATION INDUCTION REQUIRES AN INVESTMENT OF TIME, MONEY, ENERGY AND EMOTION BEFORE A SATISFACTORY RESPONSE IS ACHIEVED. AFTER ALL, EVERY WOMAN IS DIFFERENT AND THERE CAN BE NO STANDARD "FORMULAE". CAREFUL MONITORING OF THE RESPONSE TO OVULATION INDUCTION IS THE KEY TO THERAPY - AND THIS USUALLY INVOLVES DAILY ULTRASOUND SCANS AND/OR BLOOD TESTS. IT IS OFTEN A TEDIOUS PROCESS - WHICH MAY INVOLVE "TRIAL AND ERROR" TO TAILOR THE THERAPY TO THE INDIVIDUAL PATIENT'S OVULATORY RESPONSE. WITH THE TREATMENTS AVAILABLE TODAY, HOWEVER, CORRECTING OVULATORY DYSFUNCTION IS ONE OF THE MOST REWARDING AND SUCCESSFUL OF INFERTILITY TREATMENTS.



HOW DOES AGE AFFECT FERTILITY IN THE WOMAN ?

MOST INFERTILITY SPECIALISTS DEFINE AN OLDER WOMAN AS ONE WHO IS MORE THAN 35 YEARS, BUT THIS IS AN ARBITRARY NUMBER. A WOMAN'S FERTILITY DOES NOT FALL OFF AT A PARTICULAR AGE, BUT STARTS DECLINING GRADUALLY AFTER THE AGE OF 30. AFTER 35, THE DROP IS FAIRLY DRAMATIC; AND AFTER 38, IT'S EVEN MORE SO. HOWEVER, THERE IS NO MAGIC NUMBER AT WHICH FERTILITY DISAPPEARS AND THIS DECLINE IS A PROGRESSIVE IRREVERSIBLE PROCESS.



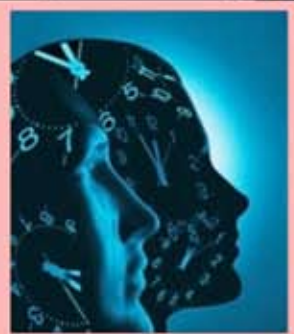
IN THE PAST, IT WAS ASSUMED THAT AS THE WOMAN GOT OLDER, HER ENTIRE REPRODUCTIVE SYSTEM STARTED FAILING. HOWEVER, TODAY WE KNOW THAT THE UTERUS AND THE FALLOPIAN TUBES REMAIN RELATIVELY UNAFFECTED BY AGE; AND THAT THE REASON FOR THE DECLINE IN FERTILITY IS THE DIMINISHED NUMBER OF EGGS LEFT IN THE OVARY.

EVERY GIRL IS BORN WITH A FINITE NUMBER OF EGGS, AND THEIR NUMBER PROGRESSIVELY DECLINES WITH AGE. A MEASURE OF THE REMAINING NUMBER OF EGGS IN THE OVARY IS CALLED THE "OVARIAN RESERVE"; AND AS THE WOMAN AGES, HER OVARIAN RESERVE GETS DEPLETED. THE INFERTILITY SPECIALIST IS REALLY NOT INTERESTED IN THE WOMAN'S CALENDAR (OR CHRONOLOGICAL AGE) , BUT RATHER HER BIOLOGICAL AGE - OR HOW MANY EGGS ARE LEFT IN HER OVARIES.

WHAT ARE THE TESTS FOR MEASURING OVARIAN RESERVE ?

THESE TESTS ARE BASED ON MEASURING THE FSH LEVEL IN THE BLOOD ON DAY 3. . A HIGH LEVEL SUGGESTS POOR OVARIAN RESERVE; AND A VERY HIGH LEVEL IS DIAGNOSTIC OF OVARIAN FAILURE. A TEST THAT CAN PROVIDE EARLIER EVIDENCE OF DECLINING OVARIAN FUNCTION IS THE CLOMIPHENE CITRATE CHALLENGE TEST (CCCT). THIS IS SIMILAR TO A " STRESS TEST " OF THE OVARY; AND INVOLVES MEASURING A BASAL DAY 3 FSH LEVEL; AND A DAY 10 FSH LEVEL , AFTER ADMINISTERING 100 MG OF CLOMIPHENE CITRATE FROM DAY 5 TO DAY 9.

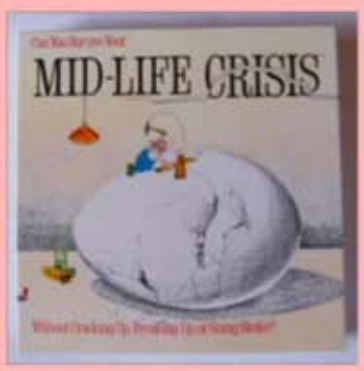
IF THE SUM OF THE FSH LEVELS IS MORE THAN 25, THEN THIS SUGGESTS POOR OVARIAN FUNCTION, AND PREDICTS THAT THE WOMAN IS LIKELY TO HAVE A POOR OVARIAN RESPONSE (SHE WILL MOST PROBABLY GROW FEW EGGS, OF POOR QUALITY) WHEN SUPEROVULATED. ANOTHER TEST WHICH HAS BEEN RECENTLY DEVELOPED IS THE MEASUREMENT OF THE LEVEL OF THE HORMONES, INHIBIN B AND AMH , IN THE BLOOD. LOW LEVELS OF INHIBIN B AND AMH (WHICH ARE PRODUCED BY " GOOD " FOLLICLES) SUGGESTS A POOR OVARIAN RESERVE. HOWEVER, JUST BECAUSE A TEST RESULT IS NORMAL DOES NOT MEAN THAT THE QUALITY OR NUMBER OF THE EGGS WILL BE GOOD - THE FINAL PROOF OF THE PUDDING IS ALWAYS IN THE EATING !



THE MENOPAUSE IS THE TIME AT WHICH THE MENSES CEASE, WHEN THE EGGS IN THE OVARIES ARE FINALLY DEPLETED. HOWEVER, THE QUALITY OF EGGS STARTS DECLINING ABOUT 10 YEARS BEFORE THE MENOPAUSE STARTS. DR JANSEN CALLS THIS THE "OOPAUSE" DURING WHICH FERTILITY PROGRESSIVELY DECLINES SILENTLY BECAUSE OF DETERIORATION IN THE QUALITY OF THE EGGS.

WHAT IS THE RELATIONSHIP BETWEEN INFERTILITY AND THE MIDLIFE CRISIS ?

MANY WOMEN IN THEIR LATE 30S AND EARLY 40S HAVE POSTPONED MARRIAGE OR CHILDBEARING TO OBTAIN THEIR EDUCATION, ESTABLISH THEMSELVES IN CAREERS, AND BECOME FINANCIALLY SECURE. THE PASSAGE OF TIME, HOWEVER, ALTERS THE WAY MANY WOMEN FEEL ABOUT MOTHERHOOD BY CHANGING THEIR PERCEPTIONS ABOUT THEMSELVES AS WELL AS ABOUT THE WORLD AROUND THEM. ADDITIONALLY THESE CHANGES MAY ALSO HAVE TO DO WITH HAVING A NEW SENSE OF MATURITY AS WELL AS A FEELING OF ACCOMPLISHMENT. THUS, AS WOMEN—AND MEN—FEEL MORE SECURE ABOUT THEMSELVES, THEIR FEELINGS AND IDEAS ABOUT CHILDREN AND PARENTHOOD MAY ALSO CHANGE.

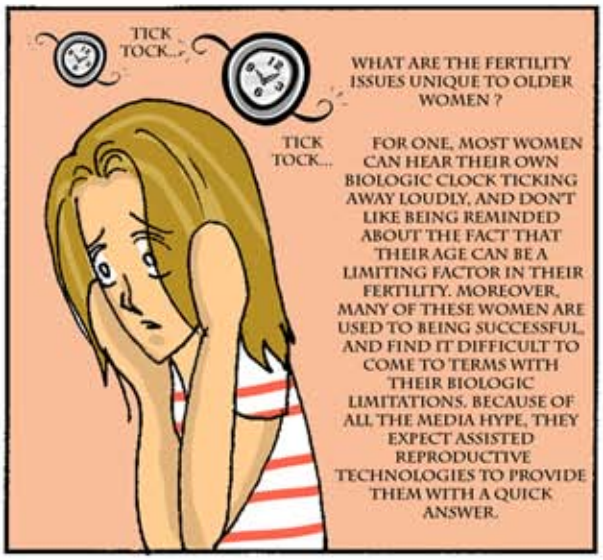


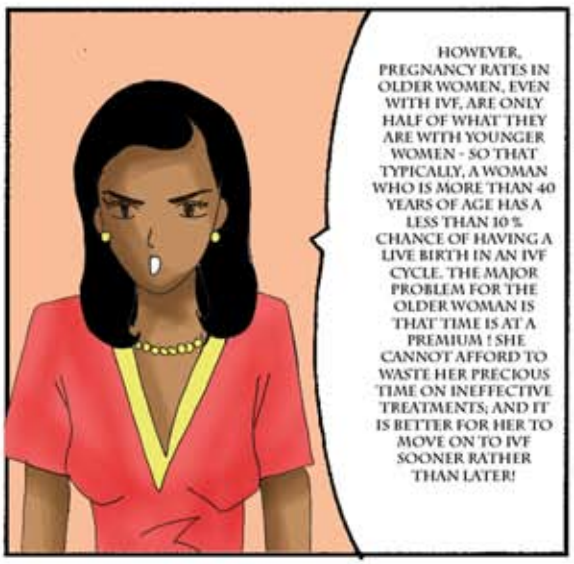
AS A COUPLE MOVES INTO MIDLIFE, THEY MUST BEGIN COMING TO TERMS WITH THEIR OWN MORTALITY. FOR MANY, PARENTHOOD IS A PART OF SUCCESSFULLY COMPLETING AN IMPORTANT STAGE IN LIFE. AS COUPLES BEGIN TO SEE AND UNDERSTAND THE PASSAGE OF THEIR OWN LIVES, THE NEED TO PASS ALONG LIFE EXPERIENCES TO NEW GENERATIONS ENHANCES THE MEANING OF LIFE.

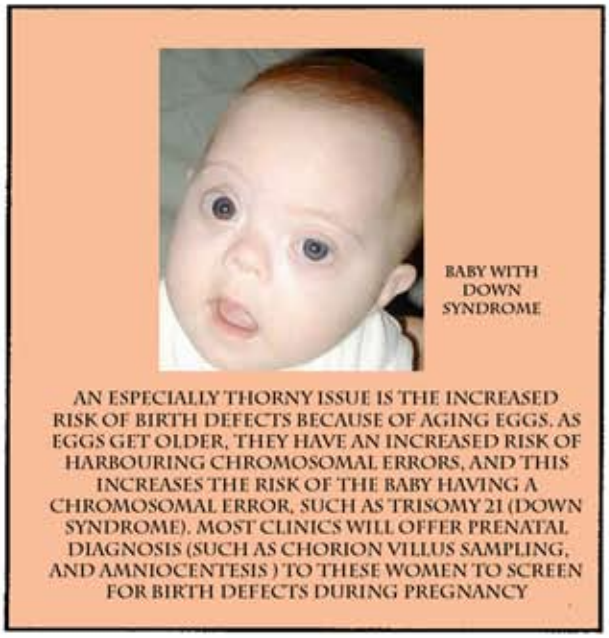
MEN AND WOMEN IN MIDLIFE, WHO HAVE FINALLY MADE THE DECISION TO HAVE CHILDREN , MAY FIND TO THEIR DISMAY THAT THEY ARE FREQUENTLY THWARTED BY THE INABILITY TO CONCEIVE OR BYRECURRENT MISCARRIAGES. FOR WOMEN, THE REALITIES OF THE BIOLOGIC CLOCK CANNOT BE OVERLOOKED. AT THIS POINT, MANY COUPLES ARE FACED WITH DUAL CRISES WHICH CAN COMPOUND THEIR PROBLEMS—INFERTILITY , AS WELL AS A MIDLIFE CRISIS - THE DEVELOPMENTAL LIFE CHANGES THAT NORMALLY OCCUR IN THE MIDDLE YEARS.

THIS IS WHY WE SUGGEST THAT WOMEN WHO ARE MORE THAN 30 WHO WISH TO POSTPONE CHILDBEARING SHOULD GET THEIR FSH LEVELS CHECKED ON DAY 3 OF THEIR CYCLE. THIS IS A SIMPLE BLOOD TEST WHICH ALLOWS THE DOCTOR TO CHECK YOUR OVARIAN RESERVE (THE QUANTITY AND QUALITY OF THE EGGS IN YOUR OVARIES). A HIGH LEVEL SUGGESTS POOR OVARIAN RESERVE AND SHOULD BE A WAKE-UP ALARM THAT YOUR BIOLOGICAL CLOCK IS TICKING AWAY RAPIDLY.

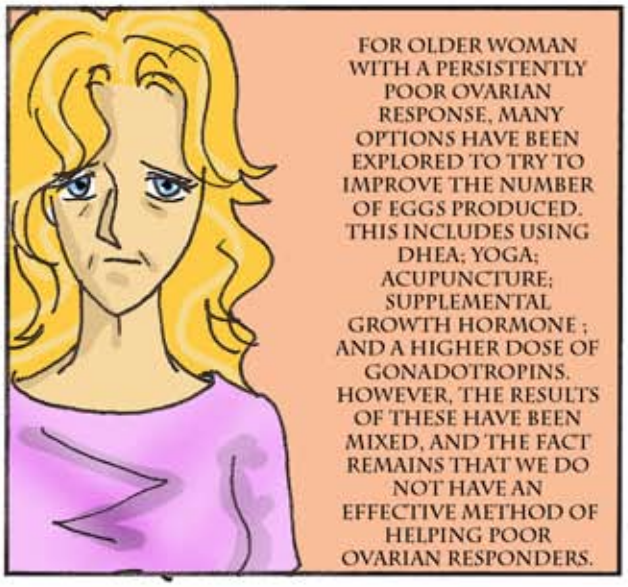
AS WOMEN REACH MENOPAUSE, THEY BEGIN TO REALIZE THAT THE OPTION OF CONCEIVING AND BEARING A CHILD IS CLOSED TO THEM. JUST AS THE ARRAY OF OTHER LIFE CHOICES BEGINS TO NARROW, THE LOSS OF THIS ABILITY TO CHOOSE TO HAVE A CHILD CAN RESULT IN SADNESS AND DEEP DISAPPOINTMENT. THE REALIZATION OF THIS "MISSED OPPORTUNITY" CAN ALSO LEAD TO SELF-RECRIMINATION AND DEPRESSION.

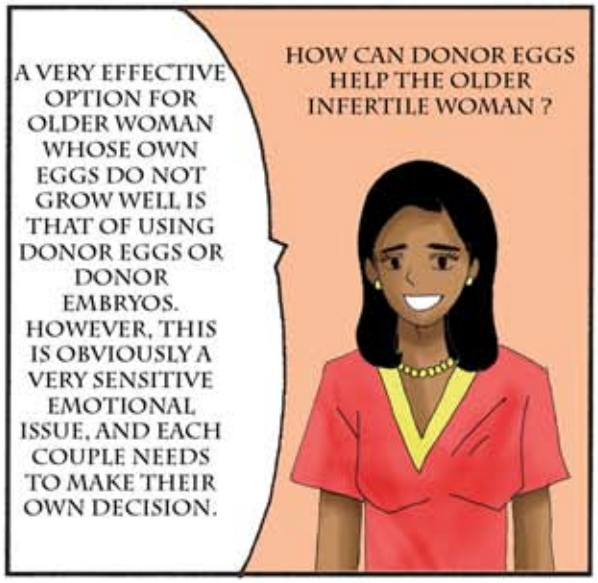


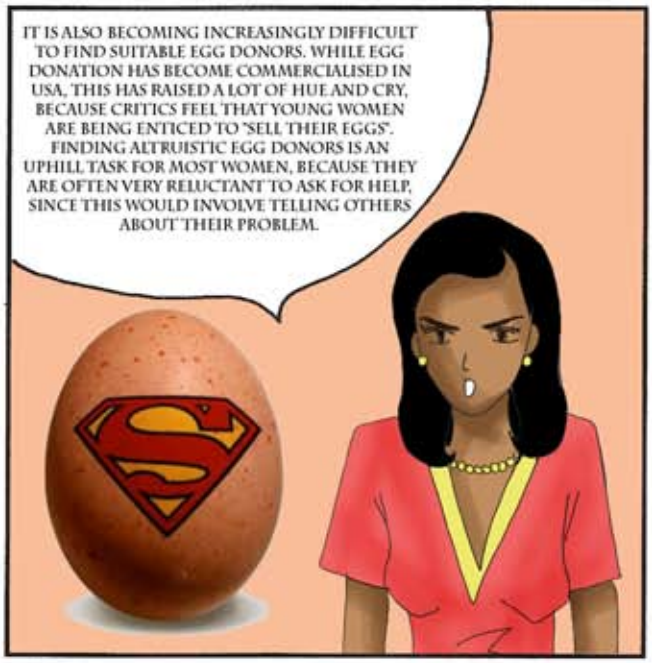


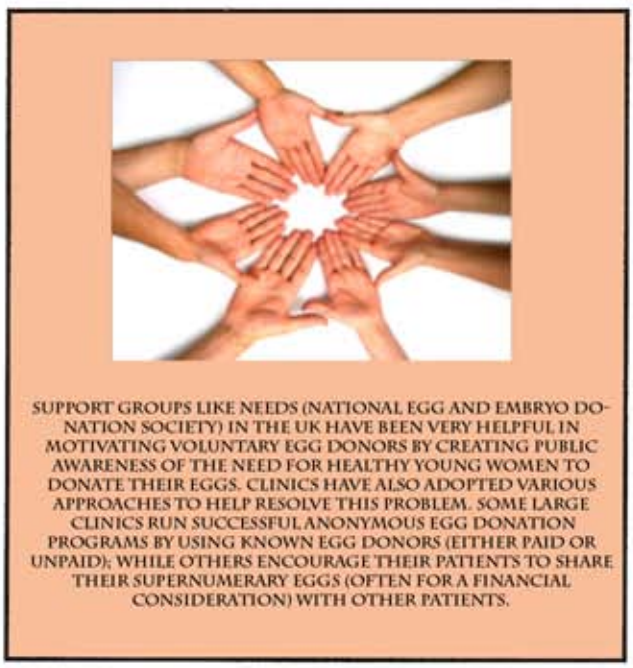


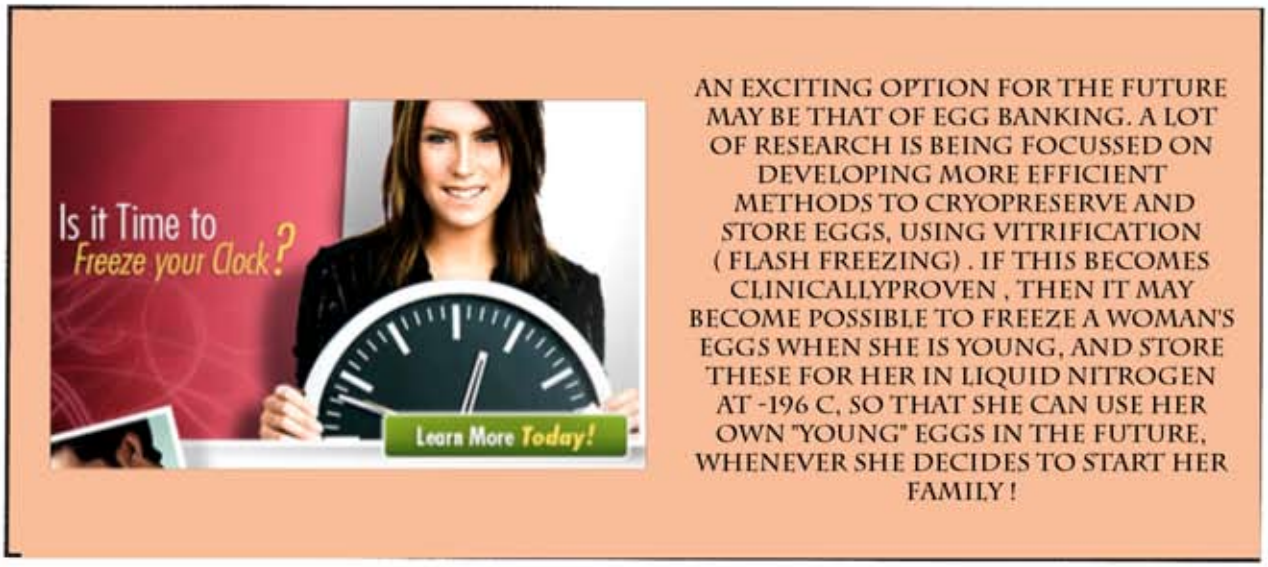
For more information on this chapter, go here:
http://www.drmalpani.com/book/chapter14b.html











For more information on this chapter, go here:
http://www.drmalpani.com/book/chapter14b.html

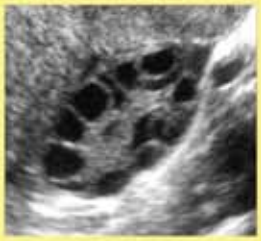
WHAT IS PCOD (POLYCYSTIC OVARIAN DISEASE) ?

PATIENTS SUFFERING FROM POLYCYSTIC OVARIAN DISEASE (PCOD) HAVE MULTIPLE SMALL CYSTS IN THEIR OVARIES (THE WORD POLY MEANS MANY). THESE CYSTS OCCUR WHEN THE REGULAR CHANGES OF A NORMAL MENSTRUAL CYCLE ARE DISRUPTED. THE OVARY IS ENLARGED AND PRODUCES EXCESSIVE AMOUNTS OF MALE HORMONES, CALLED ANDROGENS. THIS EXCESS, ALONG WITH THE ABSENCE OF OVULATION, MAY CAUSE INFERTILITY. OTHER NAMES FOR PCOD ARE POLYCYSTIC OVARIAN SYNDROME (PCOS) OR THE STEIN-LEVENTHAL SYNDROME.

HOW IS PCOD DIAGNOSED ?

PCOD CAN BE EASY TO DIAGNOSE IN SOME PATIENTS. THE TYPICAL MEDICAL HISTORY IS THAT OF IRREGULAR MENSTRUAL CYCLES, WHICH ARE UNPREDICTABLE AND CAN BE VERY HEAVY ; AND THE NEED TO TAKE HORMONAL TABLETS (PROGESTINS) TO INDUCE A PERIOD.

PATIENTS SUFFERING FROM PCOD ARE OFTEN OBESE AND MAY HAVE HIRSUTISM , (EXCESSIVE FACIAL AND BODY HAIR) AS A RESULT OF THE HIGH ANDROGEN LEVELS. HOWEVER, REMEMBER THAT NOT ALL PATIENTS WITH PCOD WILL HAVE ALL OR ANY OF THESE SYMPTOMS.

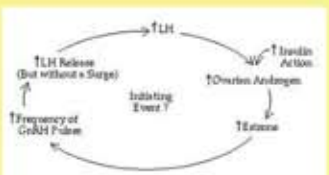


THIS DIAGNOSIS CAN BE CONFIRMED BY VAGINAL ULTRASOUND, WHICH SHOWS THAT BOTH THE OVARIES ARE ENLARGED; THE BRIGHT CENTRAL STROMA IS INCREASED ; AND THERE ARE MULTIPLE SMALL CYSTS IN THE OVARIES. THESE CYSTS ARE USUALLY ARRANGED IN THE FORM OF A NECKLACE ALONG THE PERIPHERY OF THE OVARY. (IT IS IMPORTANT THAT YOUR DOCTOR BE ABLE TO DIFFERENTIATE MULTICYSTIC OVARIES FROM POLYCYSTIC OVARIES.)

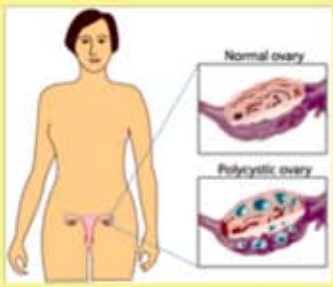
BLOOD TESTS ARE ALSO VERY USEFUL FOR MAKING THE DIAGNOSIS. TYPICALLY, BLOOD LEVELS OF HORMONES REVEAL A HIGH LH (LUTEINISING HORMONE) LEVEL; AND A NORMAL FSH (FOLLICLE STIMULATING HORMONE) LEVEL (THIS IS CALLED A REVERSAL OF THE LH : FSH RATIO, WHICH IS NORMALLY 1:1); AND ELEVATED LEVELS OF ANDROGENS (A HIGH DEHYDROEPIANDROSTERONE SULPHATE (DHEA-S) LEVEL)

WHAT IS THE CAUSE OF PCOD ?

WE DON'T REALLY UNDERSTAND WHAT CAUSES PCOD, THOUGH WE DO KNOW THAT IT OFTEN RUNS IN FAMILIES. PATIENTS WITH PCO HAVE PERSISTENTLY ELEVATED LEVELS OF ANDROGENS AND ESTROGENS, WHICH SET UP A VICIOUS CYCLE. OBESITY CAN AGGRAVATE PCOD BECAUSE FATTY TISSUES ARE HORMONALLY ACTIVE AND THEY PRODUCE ESTROGEN WHICH DISRUPTS OVULATION . PCO PATIENTS ALSO HAVE INSULIN RESISTANCE (HIGH LEVELS OF INSULIN IN THEIR BLOOD, BECAUSE THEIR CELLS DO NOT RESPOND NORMALLY TO INSULIN).



WHAT IS OCCULT PCOD ?



WHILE SOME WOMEN WITH PCOD WILL HAVE ALL THE CLASSIC SYMPTOMS AND SIGNS, MANY HAVE WHAT WE CALL "OCCULT PCOD". THIS MEANS THAT THEY MAY BE THIN, HAVE REGULAR PERIODS , NO HIRSUTISM AND NORMAL LOOKING OVARIES ON ULTRASOUND, BUT STILL HAVE PCOD. THIS PROBLEM IS DETECTED ONLY WHEN THESE PATIENTS ARE SUPEROVULATED, AT WHICH TIME THEY OVER-RESPOND BY PRODUCING A LARGE NUMBER OF FOLLICLES. INTERESTINGLY, MANY OF THESE PATIENTS PRESENT WITH RECURRENT PREGNANCY LOSS (RECURRENT MISCARRIAGES) , AND OFTEN THEIR DOCTOR DOES NOT MAKE THE CORRECT DIAGNOSIS FOR THEM.

HOW IS PCOD TREATED ?

TREATMENT TREATMENT OF PCOD FOR THE INFERTILE PATIENT WILL USUALLY FOCUS ON INDUCING OVULATION TO HELP THEM CONCEIVE. WEIGHT LOSS: FOR MAN PATIENTS WITH PCOD, WEIGHT LOSS IS AN EFFECTIVE TREATMENT - BUT OF COURSE, THIS IS EASIER SAID THAN DONE!REFERRAL TO A DIETITIAN OR A WEIGHT CONTROL CLINIC MAY BE HELPFUL. INCREASED PHYSICAL ACTIVITY IS AN IMPORTANT STEP IN LOSING WEIGHT. AEROBI ACTIVITIES SUCH AS WALKING JOGGING OR SWIMMING ARE ADVISED. TRY TO FIND A PARTNER TO DO THIS WITH, SO THAT YOU CAN HELP EACH OTHER TO KEEP GOING.

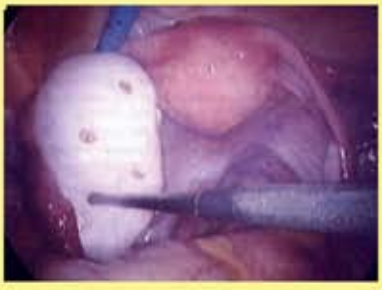
HOW CAN OVULATION BE INDUCED IN PATIENTS WITH PCOD ?

OVULATION INDUCTION: THE DRUG OF FIRST CHOICE FOR WOMEN WITH PCOD IS METFORMIN (THIS MEDICINE IS ALSO USED FOR TREATING PATIENTS WITH DIABETES.) MANY PATIENTS WITH PCOD ALSO HAVE INSULIN RESISTANCE -AND HAVE RAISED LEVELS OF INSULIN IN THEIR BLOOD (HYPERINSULINEMIA) . STUDIES HAVE SHOWN THAT THESE DRUGS IMPROVE THEIR FERTILITY BY CORRECTING THEIR INSULIN RESISTANCE.

IN THE PAST, THE DRUG OF FIRST CHOICE USED TO BE CLOMIPHENE.YOU NEED TO BE MONITORED (USUALLY WITH ULTRASOUND SCANS) TO DETERMINE IF THE CLOMIPHENE IS HELPING YOU TO OVULATE OR NOT. THE DOCTOR MAY HAVE TO PROGRESSIVELY INCREASE THE DOSE TILL HE FINDS THE RIGHT DOSE FOR YOU. IF CLOMIPHENE DOES NOT WORK, A NEWER ANTI-ESTROGEN CALLED LETROZOLE (WHICH IS ALSO USED FOR TREATING WOMEN WITH BREAST CANCER) CAN BE USED. CLOMIPHENE RESISTANT PCO WOMEN MAY NEED OVULATION INDUCTION WITH HMG (GONADOTROPINS).

OVULATION INDUCTION CAN OFTEN BE DIFFICULT IN PATIENTS WITH PCOD , SINCE THERE IS THE RISK THAT THE PATIENT MAY OVER-RESPOND TO THE DRUGS, AND PRODUCE TOO MANY FOLLICLES. THE THE RISK OF OVARIAN HYPERSTIMULATION SYNDROME (OHSS) AND MULTIPLE PREGNANCY IS OFTEN INCREASED IN PATIENTS WITH PCOD. THE DOCTOR HAS TO FIND JUST THE RIGHT DOSE OF HMG IN ORDER TO INDUCE MATURATION AND RELEASE OF A SINGLE , OR ONLY A FEW FOLLICLES , AND THIS CAN SOMETIMES BE TRICKY.

For more information on this chapter, go here:
http://www.drmalpani.com/book/chapter15.html

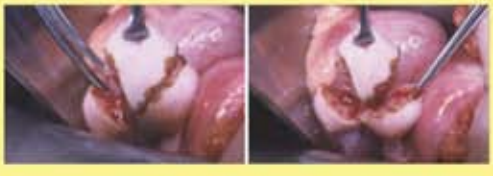


HOW IS SURGERY USED TO TREAT PATIENTS WITH PCOD ?

SURGERY: A RECENT TREATMENT OPTION USES LAPAROSCOPY TO TREAT PATIENTS WITH PCOD. DURING OPERATIVE LAPAROSCOPY, A LASER OR CAUTERY IS USED TO DRILL MULTIPLE HOLES THROUGH THE THICKENED OVARIAN CAPSULE. THIS PROCEDURE IS CALLED LAPAROSCOPIC OVARIAN CAUTERISATION OR OVARIAN DRILLING OR LEOS (LAPAROSCOPIC ELECTROCAUTERISATION OF OVARIAN STROMA) . THIS SHOULD BE RESERVED FOR WOMEN WITH PCOD WHO HAVE LARGE OVARIES WITH INCREASED STROMA ON ULTRASOUND SCANNING. DESTROYING THE ABNORMAL OVARIAN TISSUE HELPS TO RESTORE NORMAL OVARIAN FUNCTION AND HELPS TO INDUCE OVULATION.

FOR YOUNG PATIENTS WITH PCO OVARIES ON ULTRASOUND, IF CLOMIPHENE FAILS TO ACHIEVE A PREGNANCY IN 4 MONTHS TIME, WE USUALLY ADVISE LAPAROSCOPIC SURGERY AS THE NEXT TREATMENT OPTION. THIS IS BECAUSE LEOS HELPS US TO CORRECT THE UNDERLYING PROBLEM; AND ABOUT 80% OF PATIENTS WILL HAVE REGULAR CYCLES AFTER UNDERGOING THIS SURGERY, OF WHICH 50% WILL CONCEIVE IN A YEAR'S TIME, WITHOUT HAVING TO TAKE FURTHER MEDICATION OR TREATMENT. HAVING REGULAR CYCLES WITHOUT HAVING TO TAKE MEDICINES EACH MONTH CAN BE VERY REASSURING TO THESE PATIENTS !

THE SKILL OF THE SURGEON PLAYS A KEY ROLE IN DETERMINING THE OUTCOME OF THE SURGERY . IT IS IMPORTANT THAT THE SURGEON SELECTIVELY DESTROY ONLY THE STROMA, AND NOT THE CORTEX. THE CORTEX OF THE OVARY CONTAINS THE EGGS, AND IF THIS DAMAGED, THEN OVARIAN FUNCTION IS JEOPARDISED, SO THAT THE SURGERY MAY ACTUALLY END UP CAUSING INFERTILITY ! AN ADDITIONAL RISK OF THIS SURGERY IS THAT IT CAN INDUCE ADHESION FORMATION, IF NOT PERFORMED COMPETENTLY.



IN THE PAST, DOCTORS USED TO PERFORM OVARIAN SURGERY CALLED WEDGE RESECTION TO HELP PATIENTS WITH PCOD TO OVULATE. THE RISK OF INDUCING ADHESIONS AROUND THE OVARY AS A RESULT OF THIS SURGERY HAS LED TO THE OPERATION BEING USED AS A LAST RESORT. FOR PATIENTS WHO DO NOT RESPOND TO THE ABOVE MEASURES, OVULATION INDUCTION PLUS INTRAUTERINE INSEMINATION IS THE NEXT STEP.

HOW IS IVF USED FOR TREATING PATIENTS WITH PCOD ?

IF 3 CYCLES OF IUI HAVE FAILED, THEN IVF IS THE BEST TREATMENT OPTION FOR PATIENTS WITH PCOD. HOWEVER, MANY IVF CLINICS HAVE LITTLE EXPERIENCE IN SUPEROVULATING THESE WOMEN, AND THEY OFTEN MESS UP THEIR SUPEROVULATION. BECAUSE THESE WOMEN GROW SO MANY EGGS IN RESPONSE TO THE HMG INJECTIONS USED FOR SUPEROVULATION, AND BECAUSE DOCTORS ARE VERY WORRIED ABOUT THE RISK OF OVARIAN HYPERSTIMULATION, THEY OFTEN END UP TRIGGERING EGG COLLECTION WITH HCG WHEN THE EGGS ARE IMMATURE. THEY CONSEQUENTLY GET LOTS OF EGGS, BUT SINCE MOST OF THESE ARE IMMATURE, FERTILISATION RATES AND PREGNANCY RATES ARE VERY POOR.

IN OUR CLINIC, BECAUSE WE HAVE EXTENSIVE EXPERIENCE IN DEALING WITH WOMEN WITH PCOD (WHICH IS MUCH COMMONER IN THE MIDDLE EAST AND SOUTH INDIA THAN IN THE WEST), WE DO A MUCH BETTER JOB AT GETTING THESE WOMEN TO GROW MANY MATURE EGGS.BECAUSE WE METICULOUSLY FLUSH EACH AND EVERY FOLLICLE AT THE TIME OF EGG COLLECTION, THE RISK OF PCOD PATIENTS DEVELOPING OVARIAN HYPERSTIMULATION IN OUR CLINIC HAS BEEN VIRTUALLY ZERO IN THE LAST 8 YEARS. THE GOOD NEWS IS THAT WITH THE CURRENTLY AVAILABLE TREATMENT OPTIONS, SUCCESSFUL TREATMENT OF THE INFERTILITY IS USUALLY POSSIBLE IN THE MAJORITY OF PATIENTS WITH PCOD.

WHAT IS CERVICAL MUCUS ?

CERVICAL MUCUS IS A JELLY-LIKE SUBSTANCE PRODUCED BY TINY GLANDS IN THE CERVIX CALLED CERVICAL CRYPTS. THE MUCUS CHANGES PREDICTABLY DURING THE MENSTRUAL CYCLE. DURING THE FIRST HALF OF THE CYCLE BEFORE OVULATION, WHEN THE HORMONE ESTROGEN IS PRODUCED IN EVER INCREASING AMOUNTS, THE MUCUS MADE BY THE CERVICAL GLANDS BECOMES WATERY AND COPIOUS. SPERM CAN PENETRATE THE WATERY MUCUS EASILY, AND WHEN INTERCOURSE TAKES PLACE, THEY SWIM THROUGH IT INTO THE UTERUS

AFTER OVULATION THE QUALITY OF THE MUCUS CHANGES BECAUSE THE CORPUS LUTEUM OF THE OVARY NOW STARTS TO MAKE THE HORMONE PROGESTERONE. MUCUS PRODUCED UNDER THE INFLUENCE OF PROGESTERONE IS THICKER, STICKIER AND ITS QUANTITY IS REDUCED. SPERM CANNOT SWIM THROUGH THIS MUCUS, AND IT FORMS A BARRIER TO SPERM ENTRY INTO THE UTERINE CAVITY

EVEN IF INTERCOURSE OCCURS AT THE TIME THE CERVICAL MUCUS IS AT ITS MOST FAVOURABLE, ONLY ABOUT 1 IN EVERY 2000 SPERM ENTER THE MUCUS. THOSE SPERM THAT HAVE ENTERED THE MUCUS CAN SURVIVE THERE FOR LONG PERIODS - CERTAINLY FOR SEVERAL DAYS AFTER INTER-COURSE. ONCE IN THE CERVICAL MUCUS, THEY STEADILY SWIM UPWARDS FROM IT INTO THE UTERUS OVER A PERIOD OF 48 TO 72 HOURS. THUS THE CERVICAL MUCUS ACTS AS A SPERM RESERVOIR, TO BE BANKED ON IF INTER-COURSE DOES NOT TAKE PLACE AT OVULATION. THIS IS WHY YOU DON'T NEED TO HAVE SEX EVERYDAY IN ORDER TO CONCEIVE!

HOW CAN YOU TRACK YOUR MUCUS ?

OBSERVING THE MUCUS
MUCUS FLOWS FROM THE CERVIX DOWN THE WALLS OF THE VAGINA AND CAN BE OBSERVED WHEN IT REACHES THE VULVA. YOU CAN LEARN TO OBSERVE THE CHANGES IN YOUR MUCUS BY BECOMING AWARE OF THE WET, LUBRICATIVE FEELING PRODUCED BY THE MUCUS, AND BY OBSERVING THE MUCUS ITSELF AT THE VULVA. THIS IS CALLED THE BILLING (FERTILITY AWARENESS) METHOD, AND IS VERY USEFUL IN ALLOWING YOU TO DETERMINE WHEN YOU OVULATE.

YOU NEED TO CHART WHAT THE MUCUS LOOKS LIKE AND FEELS LIKE DAILY, FROM THE DAY YOUR BLEEDING STOPS. YOU WILL FIND THE MUCUS PRESENT AT YOUR VAGINAL OPENING - THE VULVA. REMEMBER, YOU DO NOT NEED TO FEEL INSIDE THE VAGINA; THIS WILL SIMPLY CONFUSE THE PICTURE, BECAUSE THE VAGINA IS ALWAYS MOIST. IT IS THE VULVA WHICH IS THE MUCUS (FERTILITY) MONITOR.

IN A TYPICAL 28 DAYS MENSTRUAL CYCLE, AT THE END OF BLEEDING, THE SENSATION YOU EXPERIENCE IS ONE OF DRYNESS AND NO MUCUS IS SEEN OR FELT. THE MUCUS THEN BECOMES THINNER, CLEARER, MORE PROFUSE AND STRETCHY, LIKE RAW EGG WHITE. THE LAST DAY OF THIS FERTILE-TYPE MUCUS IS CALLED THE PEAK OF FERTILITY, BECAUSE IT IS THE MOST FERTILE DAY OF THE CYCLE. OVULATION USUALLY OCCURS WITH 24 HOURS OF THE PEAK MUCUS SIGNAL. THEREFORE, THESE ARE THE BEST DAYS TO HAVE INTERCOURSE IN ORDER TO MAXIMIZE THE CHANCES OF CONCEPTION.

For more information on this chapter, go here:
http://www.drmalpani.com/book/chapter16.html

HOW CAN PROBLEMS WITH CERVICAL MUCUS AFFECT FERTILITY ?

* THERE IS NOT ENOUGH OF IT TO ALLOW THE SPERM TO MOVE EASILY
* THE MUCUS IS TOO THICK AND STICKY
* THE MUCUS IS NOT COMPATIBLE WITH THE HUSBAND'S SPERM.

IN SOME WOMEN, THE CERVICAL MUCUS MAY PREVENT THE SPERM FROM MOVING FREELY INTO THE UTERUS. SUCH A BARRIER MAY BE BECAUSE OF THE FOLLOWING REASONS:

HOW DOES THE DOCTOR TEST YOUR CERVICAL MUCUS ?

TESTS ON THE CERVICAL MUCUS PROBLEMS WITH CERVICAL MUCUS USUALLY CAUSE NO SYMPTOMS. TESTS NEED TO BE DONE TO ASSESS WHETHER THE MUCUS IS NORMAL OR NOT. THE DOCTOR EXAMINES THE CERVIX AND THE CERVICAL MUCUS DAILY FROM ABOUT THE TENTH DAY OF THE PERIOD TO GIVE AN INSLER MUCUS SCORE. HEALTHY CERVICAL MUCUS IS PROFUSE IN VOLUME; VERY STRETCHABLE (UPTO 10 CM IN LENGTH); AND FERNS EASILY.

WHAT IS THE POSTCOITAL TEST (PCT) ?

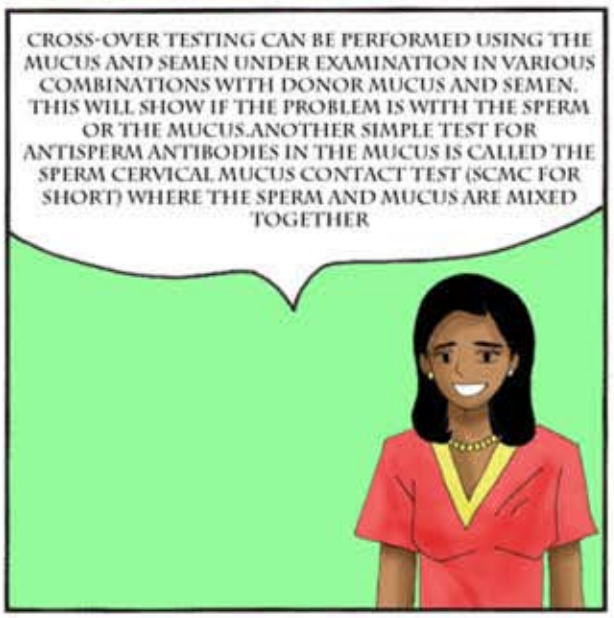
THE POST COITAL TEST (PCT) :- THIS IS ONE OF THE OLDEST TESTS IN INVESTIGATING INFERTILITY. TIMING THE PCT IS CRITICAL, AND IT MUST BE DONE IN THE PREOVULATORY PERIOD, WHEN THE MUCUS IS PROFUSE AND CLEAR. THE GYNAECOLOGIST EXAMINES A SMALL SAMPLE OF THE CERVICAL MUCUS UNDER A MICROSCOPE SOME HOURS AFTER SEXUAL INTERCOURSE.

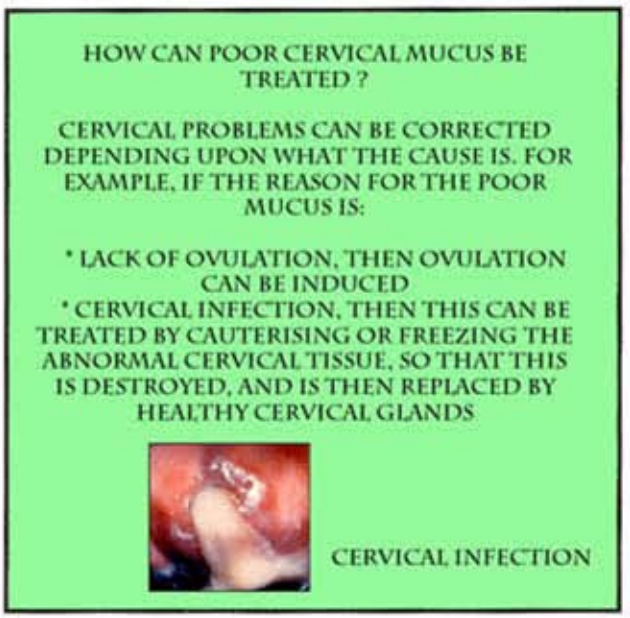
1. THE HUSBAND IS LIKELY TO BE PRODUCING ENOUGH NORMAL SPERM
2. INTERCOURSE RESULTS IN SEMEN BEING DEPOSITED IN THE VAGINA
3. THE CERVICAL GLANDS ARE HEALTHY
4. SUFFICIENT ESTROGEN IS BEING PRODUCED BEFORE OVULATION, SUGGESTING THAT OVULATION IS NORMAL
5. THERE ARE NO ANTIBODIES IN THE MUCUS HOSTILE TO THE SPERM

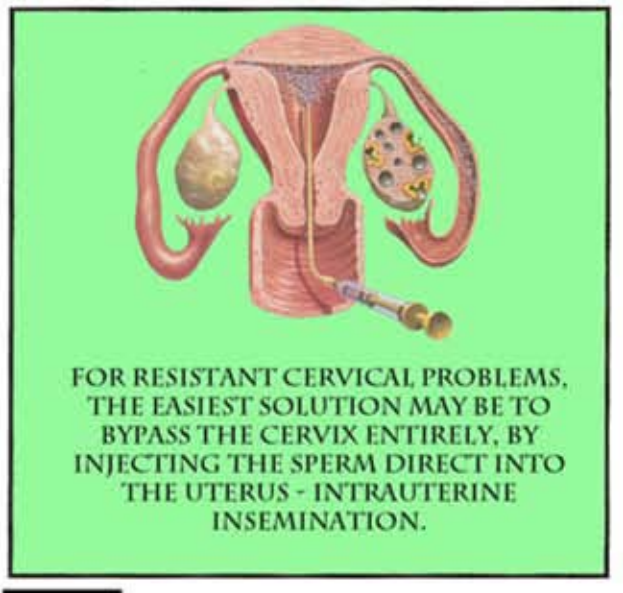
THE TEST IS SAID TO BE POSITIVE IF MANY NORMAL LIVE SPERM ARE SEEN SWIMMING IN THE MUCUS SAMPLE. THE SPERM SHOULD BE SWIMMING IN A FAIRLY STRAIGHT LINE AND REASONABLY VIGOROUSLY. A POSITIVE PCT IS VERY REASSURING AND IMPLIES THAT :

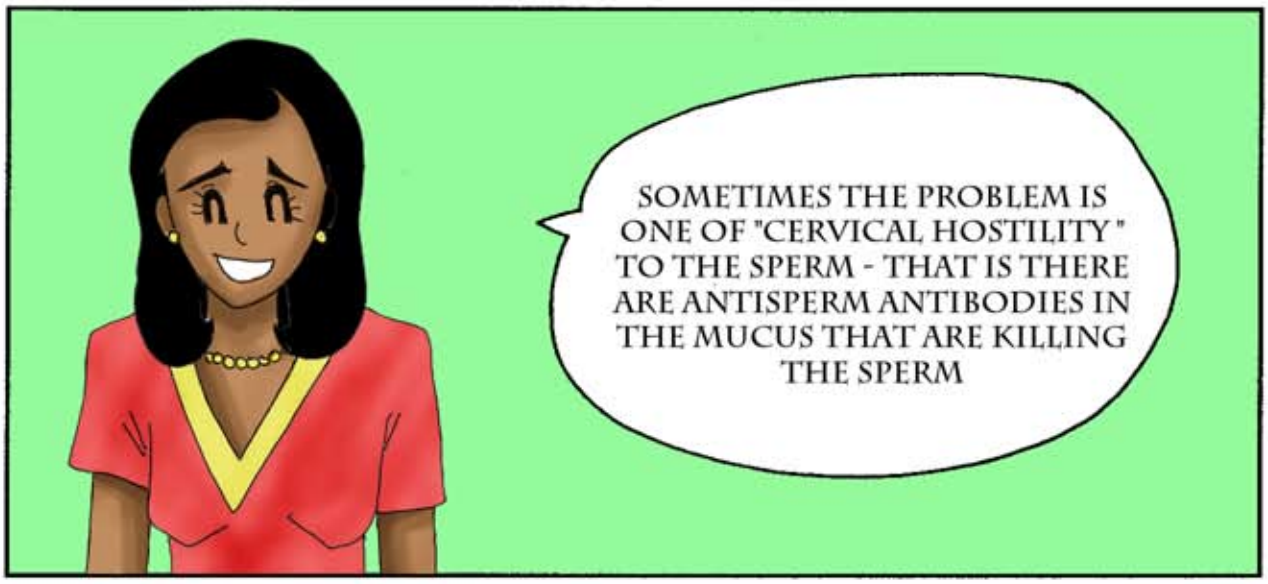
WHAT IF THE PCT IS NEGATIVE (THAT IS, NO SPERM ARE SEEN IN THE MUCUS; OR THEY ARE ALL DEAD)? SOME OF THE REASONS FOR A NEGATIVE TEST ARE:

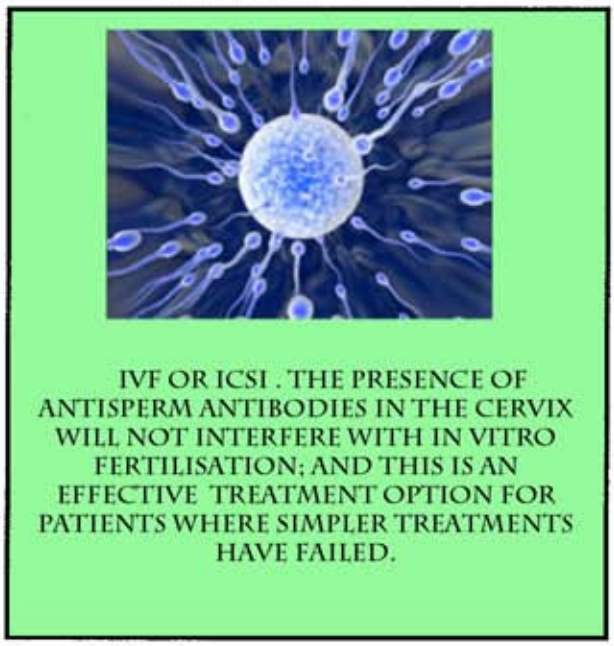
* THE PCT WAS NOT DONE AT THE RIGHT TIME. WRONG TIMING IS THE COMMONEST REASON FOR A NEGATIVE TEST AND CAN EVEN CAUSE
REPEATEDLY NEGATIVE TESTS.
* THERE WAS NO OVULATION THE MONTH OF THE TEST -
* THE SPERM COUNT WAS POOR.
* THERE MAY BE AN ABNORMALITY OF THE CERVIX - FOR EXAMPLE, CHRONIC INFECTION IN THE CERVIX MAY PREVENT PRODUCTION OF ADEQUATE MUCUS; AND SOME WOMEN WITH A SCARRED CERVIX MAY NOT PRODUCE ENOUGH MUCUSS REMOVED TO TREAT CERVICAL DYSPLASIA) OFTEN HAVE THIS PROBLEM.
* THE CERVIX IS PRODUCING ANTIBODIES TO THE SPERM.
* MEDICATIONS SUCH AS CLOMIPHENE, TAMOXIFEN, PROGESTERONES AND DANAZOL - ALL DRUGS USED FOR INFERTILITY PROBLEMS - CAN INTERFERE WITH THE PRODUCTION OF GOOD MUCUS.

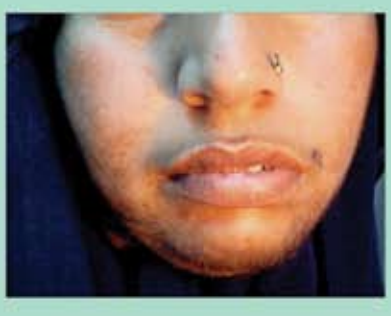








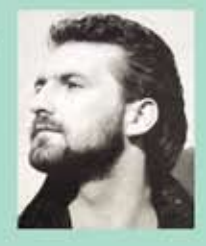




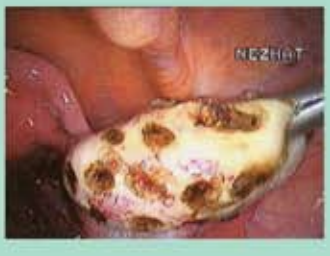
HIRSUTISM: THE GROWTH OF LONG, COARSE HAIR IN THE FACE AND BODY OF WOMEN THAT IS SIMILAR TO MEN

WHAT CAUSES HIRSUTISM?

IT IS OFTEN BECAUSE OF HIGH LEVELS OF MALE HORMONES (CALLED ANDROGENS) IN THE BLOOD



HIRSUTISM OFTEN RUNS IN FAMILIES . ALSO, WOMEN WITH DARKER SKIN ARE MORE PRONE TO HIRSUTISM



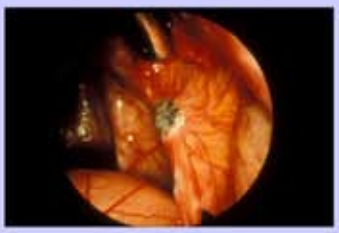
THE MOST COMMON CAUSE IS POLYCYSTIC OVARIAN SYNDROME, WHICH CAN LEAD TO:

MENSTRUAL DISTURBANCE

OBESITY

AND IRREGULAR OVULATION

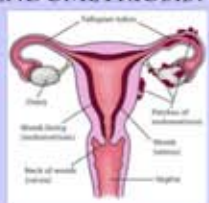
WHAT IS ENDOMETRIOSIS ?



ENDOMETRIOSIS ("ENDO") IS A COMMON DISORDER THAT AFFECTS WOMEN OF REPRODUCTIVE AGE. IT OCCURS WHEN NORMAL ENDOMETRIAL TISSUE (THE LINING OF THE UTERUS) GROWS OUTSIDE THE UTERUS. THIS MISPLACED TISSUE MAY IMPLANT ITSELF AND GROW ANYWHERE WITHIN THE ABDOMINAL CAVITY.

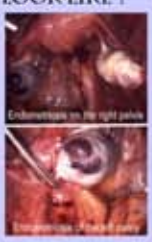
MANY SPECIALISTS FEEL THAT SEVERE ENDOMETRIOSIS IS MORE LIKELY TO BE FOUND IN INFERTILE WOMEN WHO HAVE DELAYED PREGNANCY AND FOR THIS REASON, THE CONDITION IS SOMETIMES LABELED A "CAREER WOMAN'S DISEASE".

WHAT CAUSES ENDOMETRIOSIS?

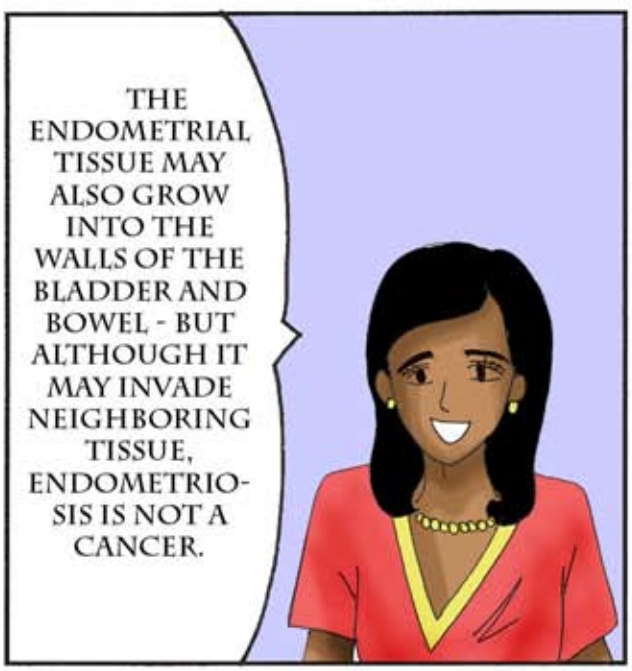


SEVERAL THEORIES EXIST AS TO HOW ENDOMETRIOSIS BEGINS. ONE POSSIBILITY IS RETROGRADE MENSTRUATION, THE BACKWARD FLOW OF THE MENSTRUAL DISCHARGE THROUGH THE FALLOPIAN TUBES INTO THE PELVIS. ACCORDING TO THIS THEORY, THESE ENDOMETRIAL CELLS IMPLANT ON THE OVARIES AND ELSEWHERE IN THE PELVIC CAVITY

WHAT DOES ENDOMETRIOSIS LOOK LIKE ?



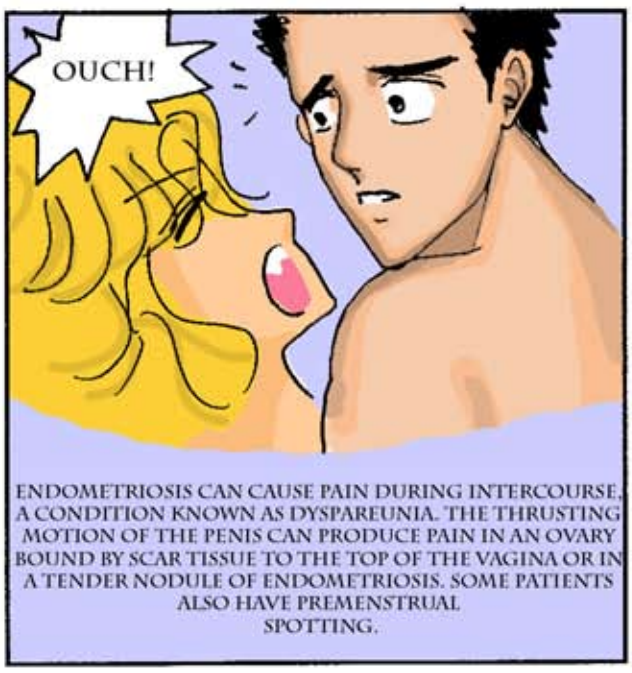
EARLY IMPLANTS LOOK LIKE SMALL, FLAT DARK PATCHES OR FLECKS OF BLUE OR BLACK PAINT ("POWDER-BURNS") SPRINKLED ON THE PELVIC SURFACES. THE SMALL PATCHES MAY REMAIN UNCHANGED, BECOME SCAR TISSUE OR SPONTANEOUSLY DISAPPEAR OVER A PERIOD OF MONTHS. ENDOMETRIOSIS MAY INVADE THE OVARY, PRODUCING BLOOD FILLED CYSTS CALLED ENDOMETRIOMAS. WITH TIME, THE BLOOD DARKENS TO A DEEP, REDDISH BROWN OR TARRY COLOR, GIVING RISE TO THE DESCRIPTION "CHOCOLATE CYST."

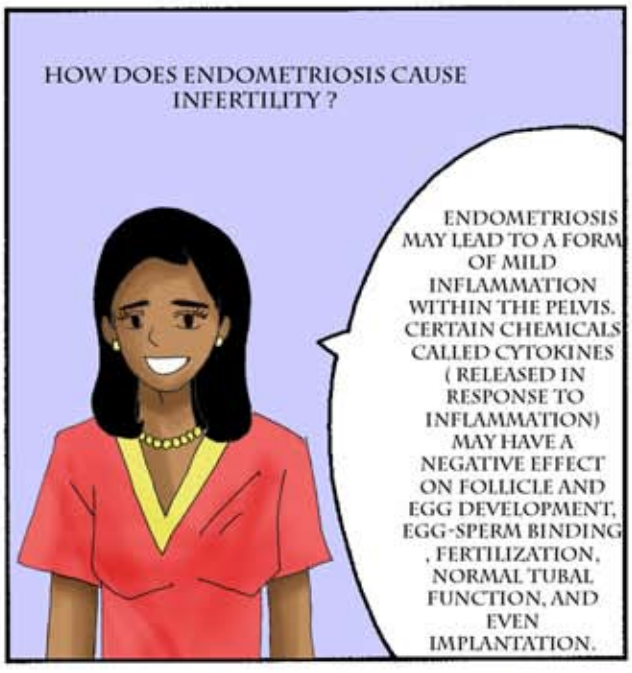


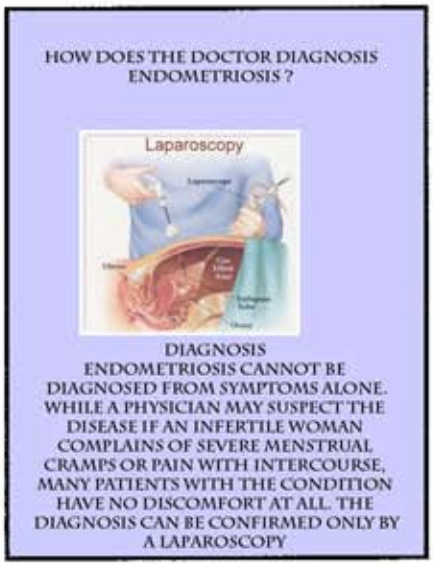
WHAT ARE THE SYMPTOMS OF ENDOMETRIOSIS ?

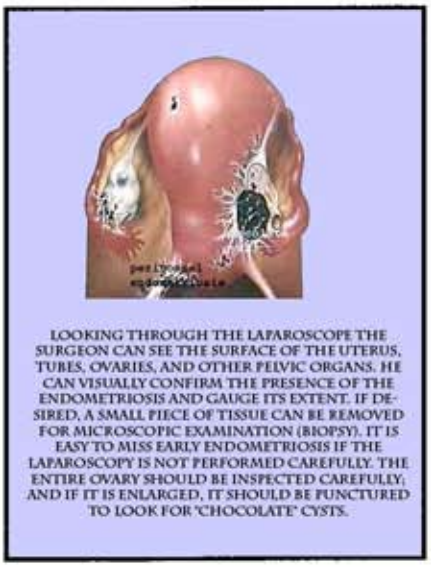
PROGRESSIVELY INCREASING DYSMENORRHEA (PERIODS PAINS OR MENSTRUAL CRAMPING) MAY BE A SYMPTOM OF ENDOMETRIOSIS. THESE ARE CAUSED BY CONTRACTIONS OF UTERINE MUSCLE INITIATED BY CHEMICALS CALLED PROSTAGLANDIN RELEASED FROM THE ENDOMETRIAL TISSUE. A PUZZLING FEATURE OF ENDOMETRIOSIS IS THAT THE DEGREE OF PAIN IT CAUSES IS NOT RELATED TO THE EXTENT OF THE DISEASE. SOME WOMEN WITH EXTENSIVE DISEASE FEEL NO PAIN AT ALL.

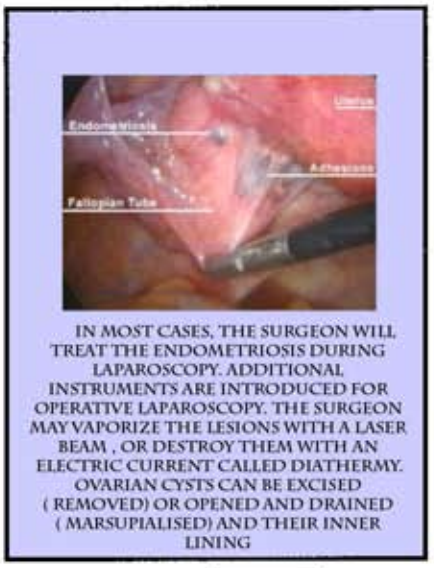
For more information on this chapter, go here:
http://www.drmalpani.com/book/chapter18.html



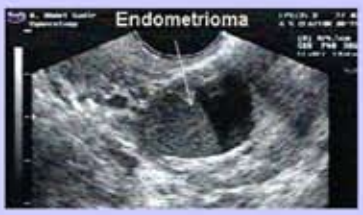








For more information on this chapter, go here:
http://www.drmalpani.com/book/chapter18.html



OTHER IMAGING TECHNOLOGIES, SUCH AS ULTRASOUND, COMPUTERIZED TOMOGRAPHY (CT) OR MAGNETIC RESONANCE IMAGING (MRI) MAY BE USED TO GET MORE INFORMATION ABOUT THE EXTENT OF THE DISEASE. HOWEVER, THESE PROCEDURES ARE USEFUL ONLY FOR IDENTIFYING ENDOMETRIOTIC CYSTS IN THE OVARY.

WHAT MEDICATIONS ARE USED FOR TREATING ENDOMETRIOSIS ?

ONE WAY IS BY HORMONE TREATMENT. THE GOAL OF HORMONAL TREATMENT IS TO SIMULATE PREGNANCY OR MENOPAUSE, TWO NATURAL CONDITIONS KNOWN TO INHIBIT THE DISEASE. IN EACH CASE, THE NORMAL ENDOMETRIUM IS NO LONGER STIMULATED TO GROW AND REGRESS WITH EACH MONTHLY CYCLE, AND MENSTRUATION CEASES. THE GROWTH OF MISPLACED ENDOMETRIAL TISSUE USUALLY WILL SUPPRESSED AS WELL.

TO SIMULATE THE HORMONAL ENVIRONMENT OF PREGNANCY, BIRTH CONTROL PILLS ARE PRESCRIBED. TO BE EFFECTIVE AGAINST ENDOMETRIOSIS, THE PILLS MUST BE TAKEN CONTINUOUSLY WITHOUT PAUSING FOR WITHDRAWAL BLEEDING. THIS STATE IS SOMETIMES CALLED PSEUDOPREGNANCY.

THE HORMONE DERIVATIVE DANAZOL IS THE MEDICATION MOST FREQUENTLY USED TO TREAT ENDOMETRIOSIS. DURING TREATMENT WITH DANAZOL, ESTROGEN LEVELS ARE REDUCED TO THE LOW LEVELS CHARACTERISTIC OF NATURAL MENOPAUSE. THIS STATE IS SOMETIMES CALLED PSEUDOMENOPAUSE. UNFORTUNATELY, LARGE ENDOMETRIOTIC CYSTS OF THE OVARY ARE GENERALLY RESISTANT TO THE DRUG

ANALOGUES OF GNRH, THE GONADOTROPIN RELEASING HORMONE, ARE THE NEWEST CLASS OF HORMONES USED FOR ENDOMETRIOSIS TREATMENT. BRAND NAMES INCLUDE LUPRON AND SYNAREL. THESE ANALOGUES SWITCH OFF PRODUCTION OF FSH AND LH FROM THE PITUITARY, THUS INDUCING A MENOPAUSAL STATE. THESE ANALOGS CAN BE GIVEN IN THE FORM OF SPECIAL INJECTIONS CALLED DEPOT PREPARATIONS, ARE GIVEN AT MONTHLY INTERVALS

MEDICAL THERAPY USED TO BE PRESCRIBED IN THE HOPE THAT IT WOULD CAUSE THE ENDOMETRIOSIS TO SHRINK SUFFICIENTLY SO THAT IT WOULD NO LONGER INTERFERE WITH CONCEPTION AFTER THE TREATMENT IS STOPPED. HOWEVER, SINCE PREGNANCY CANNOT OCCUR DURING THE MEDICAL THERAPY OF ENDOMETRIOSIS, AND BECAUSE THE TREATMENT HAS BEEN SHOWN NOT TO BE HELPFUL IN IMPROVING FERTILITY, MEDICAL THERAPY FOR ENDOMETRIOSIS IS NO LONGER ADVISED FOR INFERTILE PATIENTS.

HOW IS SURGERY USED FOR TREATING ENDOMETRIOSIS ?

SURGERY

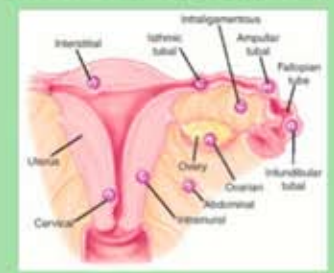
TREATING ENDOMETRIOSIS WITH MEDICINES HAS DEFINITE LIMITATIONS. LARGE CHOCOLATE CYSTS IN THE OVARY DO NOT RESPOND, AND DRUGS CANNOT REMOVE SCAR TISSUE. THIS IS WHY SURGERY MAY BE NEEDED TO IMPROVE FERTILITY BY REMOVING ADHESIONS, LESIONS, NODULES OR ENDOMETRIOMAS.

HOW IS IVF USED FOR TREATING ENDOMETRIOSIS ?

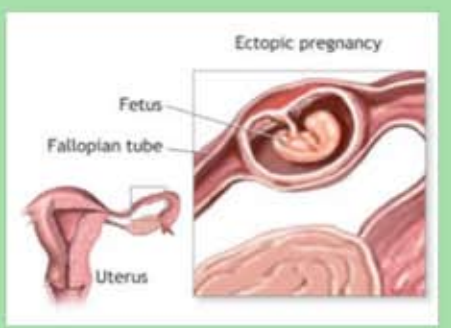
IVF

TREATMENT CANNOT "CURE" ENDOMETRIOSIS - BUT IT CAN CONTROL IT. IF AN INFERTILE WOMAN WITH ENDOMETRIOSIS FAILS TO CONCEIVE EVEN AFTER SURGICAL TREATMENT, THE NEXT OPTION IS SUPEROVULATION WITH INTRAUTERINE INSEMINATION, SINCE THE FALLOPIAN TUBES IN THESE PATIENTS ARE USUALLY OPEN. IF THIS FAILS, THEN IVF (IN VITRO FERTILIZATION) CAN BE VERY USEFUL. HOWEVER, THE OVARIAN RESPONSE IN SOME OF THESE PATIENTS CAN BE POOR, ESPECIALLY IF THEY HAVE LARGE CHOCOLATE CYSTS, OR HAVE HAD SURGERY FOR THESE CYSTS. THE BEST STRATEGY TO MAXIMIZE CHANCES OF CONCEPTION IS TO SELECT A SPECIALIST WHO IS FAMILIAR WITH THE LATEST DEVELOPMENTS IN ENDOMETRIOSIS MANAGEMENT.

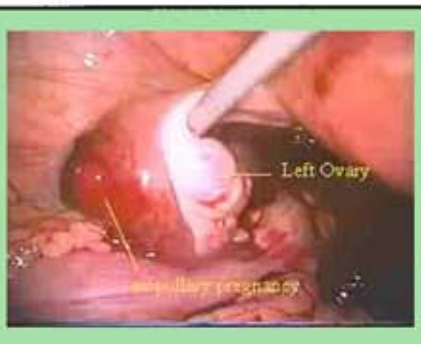
WHAT IS AN ECTOPIC PREGNANCY ?



AN ECTOPIC PREGNANCY IS ONE WHICH DEVELOPS OUTSIDE THE UTERUS. MOST ECTOPICS ARE FOUND IN THE FALLOPIAN TUBE AND THESE ARE CALLED TUBAL PREGNANCIES. HOWEVER, THEY CAN ALSO OCCUR AT OTHER PELVIC SITES AND THESE INCLUDE: THE OVARY; THE ABDOMEN; AND THE CERVIX.



FERTILISATION NORMALLY OCCURS IN THE OUTER HALF OF THE FALLOPIAN TUBE WHICH IS CALLED THE AMPULLA. THE EMBRYO IS THEN PROPELLED ALONG THE FALLOPIAN TUBE, BY THE BEATING OF THE CILIA WHICH LINE THE TUBE, TOWARDS THE UTERUS. AN ECTOPIC PREGNANCY OCCURS WHEN THE EMBRYO GETS STUCK IN THE FALLOPIAN TUBE AND IMPLANTS HERE, INSTEAD OF MOVING ON TO THE UTERUS.

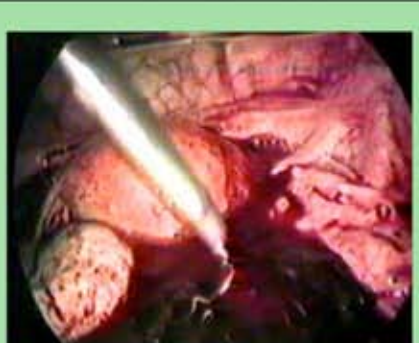


ECTOPIC PREGNANCY OCCURS ONCE IN EVERY ONE HUNDRED PREGNANCIES. THE COMMONEST CAUSE OF A TUBAL PREGNANCY IS TUBAL DAMAGE, WHICH IS MOST OFTEN DUE TO PELVIC INFLAMMATORY DISEASE. IF TUBAL DAMAGE IS SEVERE, THE TUBE GETS TOTALLY BLOCKED, AS A RESULT OF WHICH THE PATIENT IS INFERTILE. HOWEVER, WITH LESS SEVERE INFECTION, THE TUBE REMAINS OPEN, BUT THE TUBAL LINING IS DAMAGED, AS A RESULT OF WHICH THE CILIA CAN NO LONGER FUNCTION EFFECTIVELY

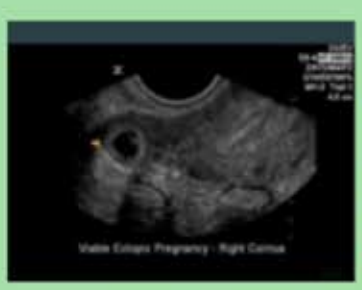
INFERTILE PATIENTS ARE AT INCREASED RISK FOR ECTOPIC PREGNANCIES, FOR UNCLEAR REASONS. PERHAPS THE CAUSE OF THEIR INFERTILITY IS SUBTLE TUBAL DAMAGE. THERE IS ALSO AN INCREASED RISK FOR TUBAL PREGNANCY AFTER IVF, SINCE THE EMBRYO MAY SOMETIMES MIGRATE AFTER EMBRYO TRANSFER FROM THE UTERINE CAVITY TO THE FALLOPIAN TUBE. THE RISK OF ECTOPICS AFTER GIFT IS GREATER THAN WITH IVF.

HOW IS ECTOPIC PREGNANCY DIAGNOSED ?

INITIALLY AN ECTOPIC PREGNANCY MAY APPEAR JUST AS A NORMAL PREGNANCY - WITH A MISSED MENSTRUAL PERIOD AND SYMPTOMS SUCH AS SORE BREASTS AND NAUSEA. PAIN ON THE SIDE OF THE ECTOPIC OCCURS COMMONLY AND MAY BE ASSOCIATED WITH A FEELING OF LIGHT-HEADEDNESS. IF THE TUBE RUPTURES, THIS USUALLY RESULTS IN SEVERE ABDOMINAL PAIN, FAINTING AND SHOCK. MAKING THE DIAGNOSIS ON CLINICAL EXAMINATION IS DIFFICULT, AND THE ONLY SUSPICIOUS FINDING MAY BE PAIN ON INTERNAL EXAMINATION.



A TUBAL PREGNANCY USED TO BE A CATASTROPHE. DIAGNOSIS WAS USUALLY MADE ONLY AFTER THE TUBE HAD RUPTURED - AND EMERGENCY SURGERY WAS REQUIRED TO STOP THE BLEEDING AND SAVE THE MOTHER'S LIFE. OFTEN THIS MEANT REMOVING THE WHOLE TUBE, WHICH WAS OFTEN COMPLETELY DAMAGED. CONSEQUENTLY, THE CHANCES OF A PATIENT'S CONCEIVING AFTER THIS WAS MARKEDLY REDUCED.



VAGINAL ULTRASOUND & BLOOD TEST

TODAY, AN ECTOPIC PREGNANCY CAN BE DIAGNOSED VERY EARLY USING BLOOD TESTS FOR HCG ; AND VAGINAL ULTRASOUND. BETA HCG IS A VERY SPECIFIC "MARKER" FOR PREGNANCY. IF IT IS NEGATIVE, THIS EXCLUDES THE DIAGNOSIS OF AN ECTOPIC PREGNANCY. A POSITIVE HCG LEVEL CONFIRMS THAT THE PATIENT IS PREGNANT, BUT DOES NOT PROVIDE INFORMATION ABOUT THE SITE OF THE PREGNANCY. A VAGINAL ULTRASOUND ALLOWS THE DOCTOR TO LOCATE THE GESTATIONAL SAC OF THE EARLY PREGNANCY. IN A NORMAL INTRAUTERINE PREGNANCY, THE DOCTOR SHOULD BE ABLE TO SEE A GESTATIONAL SAC IN THE UTERINE CAVITY ON VAGINAL ULTRASOUND, IF THE HCG LEVEL IS MORE THAN 2000 MIU/ML (THIS IS CALLED THE DISCRIMINATORY ZONE). HOWEVER, IF THE LEVEL IS MORE THAN 2000 MIU/ML AND THE DOCTOR CANNOT SEE A GESTATIONAL SAC , THIS MEANS THAT THE DIAGNOSIS IS AN ECTOPIC PREGNANCY.

SOMETIMES, DIFFERENTIATING BETWEEN AN ECTOPIC PREGNANCY AND AN EARLY MISCARRIAGE CAN BE DIFFICULT. IN THESE CASES, IF A CURETTAGE SHOWS THAT THERE IS NO PREGNANCY TISSUE IN THE UTERUS (AS TESTED BY HISTO-PATHOLOGIC EXAMINATION) THEN AN ECTOPIC IS SUSPECTED. THE DIAGNOSIS CAN BE CONFIRMED BY LAPAROSCOPY, IF NEEDED, WHICH SHOWS THAT THE PREGNANCY IS IN THE TUBES, WHERE IT APPEARS AS A DARK BLUISH BULGE.

HOW IS ECTOPIC PREGNANCY TREATED ?

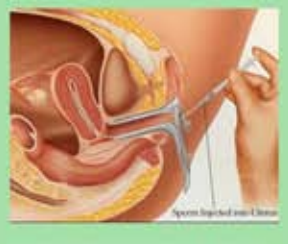
THE MAJOR BENEFIT OF EARLY DIAGNOSIS IS THAT WITH EARLY TREATMENT IT IS POSSIBLE TO SAVE THE TUBE, THUS PRESERVING FERTILITY . IF THE ECTOPIC IS VERY EARLY AND THE HCG LEVELS LOW, ONE CAN CHOOSE TO SIMPLY WAIT AND WATCH AND THE HCG LEVELS MAY FALL ON THEIR OWN BECAUSE THE PREGNANCY IS SPONTANEOUSLY REABSORBED BY THE BODY . MEDICAL TREATMENT IS ALSO POSSIBLE. THIS INVOLVES THE USE OF THE ANTI-CANCER DRUG, METHOTREXATE, WHICH ACTS ON THE RAPIDLY DIVIDING CELLS OF THE TUBAL PREGNANCY AND KILLS THEM. AFTER GIVING AN INTRAMUSCULAR INJECTION OF METHOTREXATE, THE BETA HCG LEVELS NEED TO BE MONITORED REGULARLY, TO ENSURE THEY ARE FALLING, TILL THEY DECLINE TO ZERO.

ULTRASOUND - GUIDED TREATMENT IS ALSO USEFUL FOR TREATING TUBAL PREGNANCIES WHICH HAVE NOT RUPTURED. THIS INVOLVES THE INJECTION OF THE TOXIC CHEMICAL, POTASSIUM CHLORIDE , INTO THE FETUS IN THE TUBE UNDER ULTRASOUND - GUIDANCE. THIS KILLS THE PREGNANCY TISSUE, ALLOWING THE BODY TO REABSORB IT.

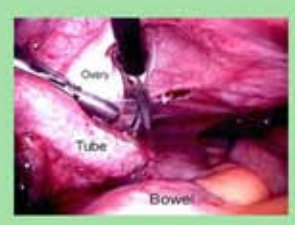
SURGICAL TREATMENT FOR EARLY TUBAL PREGNANCIES CAN BE DONE THROUGH THE LAPAROSCOPE AS WELL; WITH SALPINGOTOMY, THE PREGNANCY CAN BE SELECTIVELY REMOVED AND THE TUBE SAVED.

HOW DOES AN ECTOPIC PREGNANCY AFFECT FUTURE FERTILITY ?

BECAUSE TUBAL DISEASE USUALLY DAMAGES BOTH SIDES, THE CHANCES OF BEING INFERTILE ARE INCREASED. ALSO, THE RISK OF A REPEAT ECTOPIC PREGNANCY ARE INCREASED EVEN IF THE OTHER TUBE SEEMS NORMAL. HOWEVER, ABOUT 60% OF WOMEN WHO HAVE HAD A TUBAL PREGNANCY THE FIRST TIME WILL HAVE A NORMAL PREGNANCY THE NEXT TIME WITHOUT FURTHER TREATMENT. EARLY TESTING DURING THE NEXT PREGNANCY TO RULE OUT A REPEAT ECTOPIC IS ESSENTIAL!



OVULATION INDUCTION



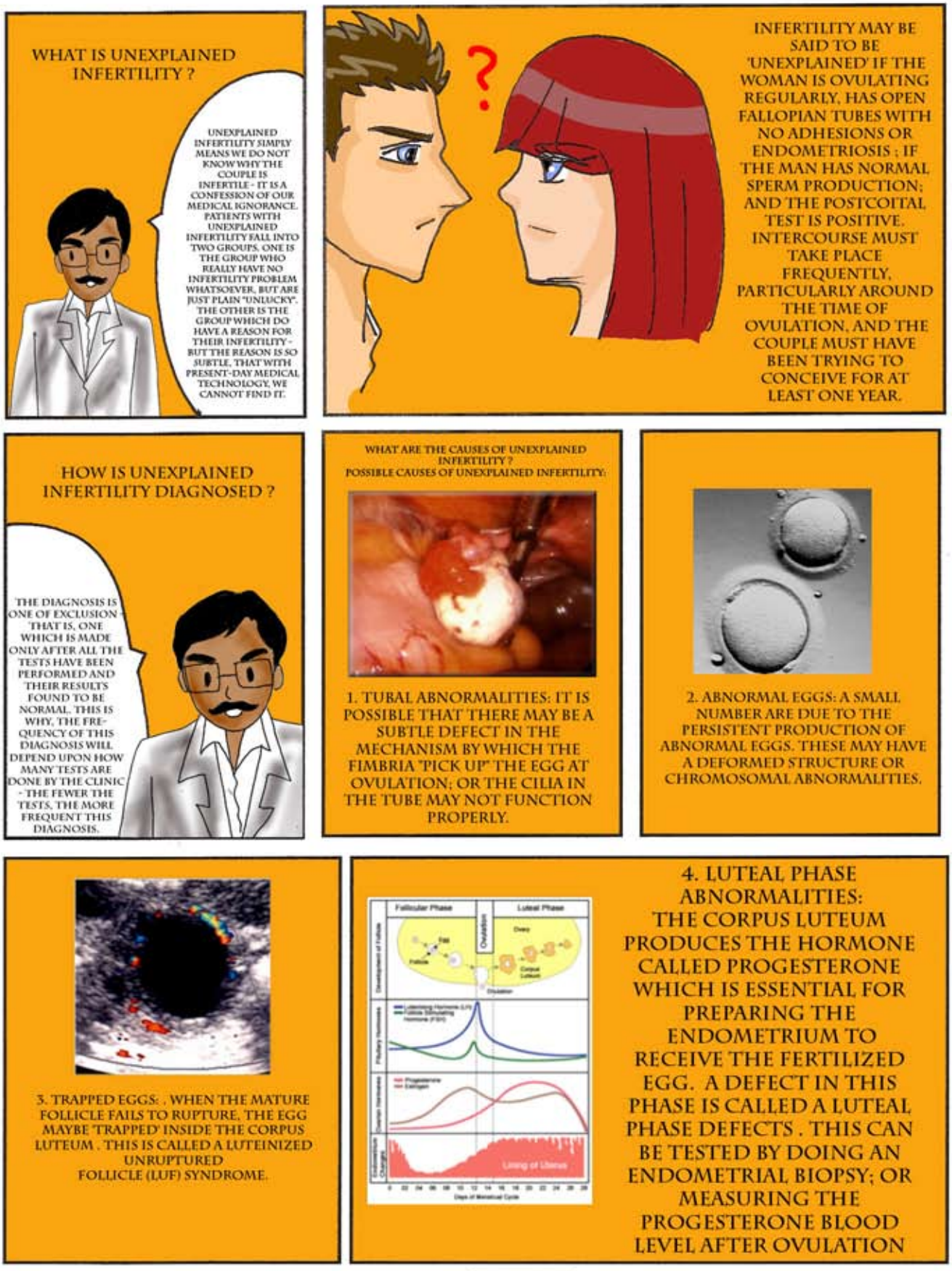
TUBAL SURGERY

LAPAROSCOPIC SURGERY

IVF

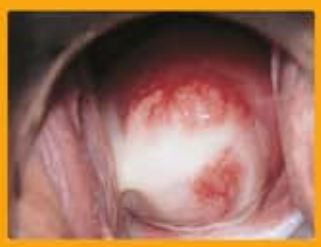
IF PREGNANCY DOES NOT OCCUR WITHIN ABOUT A YEAR OF TRYING, THEN TREATMENT IS NEEDED. TREATMENT OPTIONS FOR FERTILITY WILL DEPEND UPON WHAT SURGERY WAS DONE FOR THE ECTOPIC PREGNANCY; AND WHAT THE CONDITION OF THE OTHER TUBE IS. OFTEN, A SECOND LOOK LAPAROSCOPY IS NEEDED, TO ASSESS TUBAL STATUS. OPTIONS MAY INCLUDE: OVULATION INDUCTION; TUBAL SURGERY; LAPAROSCOPIC SURGERY; AND OFTEN IVF.

HAVING HAD AN UNSUCCESSFUL OUTCOME THE FIRST TIME MAKES GETTING PREGNANT VERY STRESSFUL - ESPECIALLY IF THE TUBAL PREGNANCY ENDED IN A RUPTURE. HOWEVER, WITH THE RIGHT TREATMENT, CHANCES OF HAVING A BABY ARE QUITE GOOD - AFTER ALL, THE FACT AN ECTOPIC PREGNANCY OCCURRED MEANS THAT THE EGGS AND SPERMS ARE GOOD QUALITY!

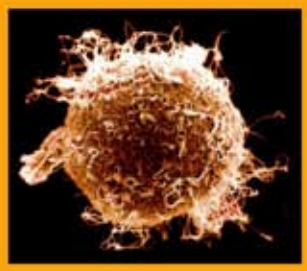


For more information, go here:
http://www.drmalpani.com/book/chapter20.html

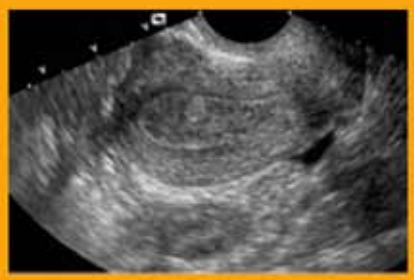
5. IMMUNOLOGICAL FACTORS: ANTIBODIES CAN REACT AGAINST THE MAN'S SPERM, AND KILL THEM, IMMOBILIZE THEM OR MAKE THEM STICK TOGETHER. WOMEN CAN ALSO DEVELOP AN IMMUNE REACTION TO THE COATING OF THEIR OWN EGGS, WHICH CAN PREVENT SPERM FROM ATTACHING TO THEM.



6. INFECTIONS: CERTAIN INFECTIONS HAVE BEEN SHOWN TO BE RESPONSIBLE FOR SOME CASES OF UNEXPLAINED INFERTILITY. FOR EXAMPLE, MYCOPLASMA OR CHLAMYDIA MAY BE PRESENT IN NUMBERS THAT ARE NOT ENOUGH TO SHOW UP IN A CLINICAL EXAMINATION, BUT WHICH NEVERTHELESS CAUSE INFERTILITY. THIS IS WHY SOME DOCTORS USE EMPIRIC THERAPY WITH ANTIBIOTICS.



7. INABILITY OF SPERM TO PENETRATE EGGS: SOME MEN HAVE A COMPLETELY NORMAL SPERM COUNT, BUT THEIR SPERM CANNOT FERTILISE THE EGG. THE ONLY WAY TO MAKE THIS DIAGNOSIS IS BY IVF: IF DONOR SPERM CAN FERTILIZE THE EGGS; BUT THE HUSBAND'S SPERM FAIL TO DO SO, THEN THE DIAGNOSIS IS CONFIRMED.



8.UTERINE FACTOR: SOME WOMEN HAVE AN ABNORMAL ENDOMETRIUM(UTERINE LINING) WHICH DOES NOT ALLOW THE EMBRYO TO IMPLANT . THIS MAY BE BECAUSE OF INADEQUATE UTERINE BLOOD FLOW, OR POOR ESTROGEN RECEPTORS IN THE ENDOMETRIAL CELLS.

9. PSYCHOLOGICAL FACTORS: EMOTIONAL DISTURBANCES MAY HAVE SOME SIGNIFICANCE IN SOME COUPLES. THIS IS UNDERSTANDABLE IF YOU REMEMBER THAT THE WHOLE HORMONAL CYCLE, WITH ITS DELICATE ADJUSTMENTS, IS CONTROLLED FROM THE BRAIN.

HAS ANYTHING BEEN MISSED?

7. PREVIOUS TESTS SHOULD BE CAREFULLY REVIEWED TO ENSURE THAT THE DIAGNOSIS IS IN FACT "UNEXPLAINED" - AND THAT NO TEST HAS BEEN OMITTED OR MISSED. IT MAY SOMETIMES BE NECESSARY TO REPEAT CERTAIN INVESTIGATIONS

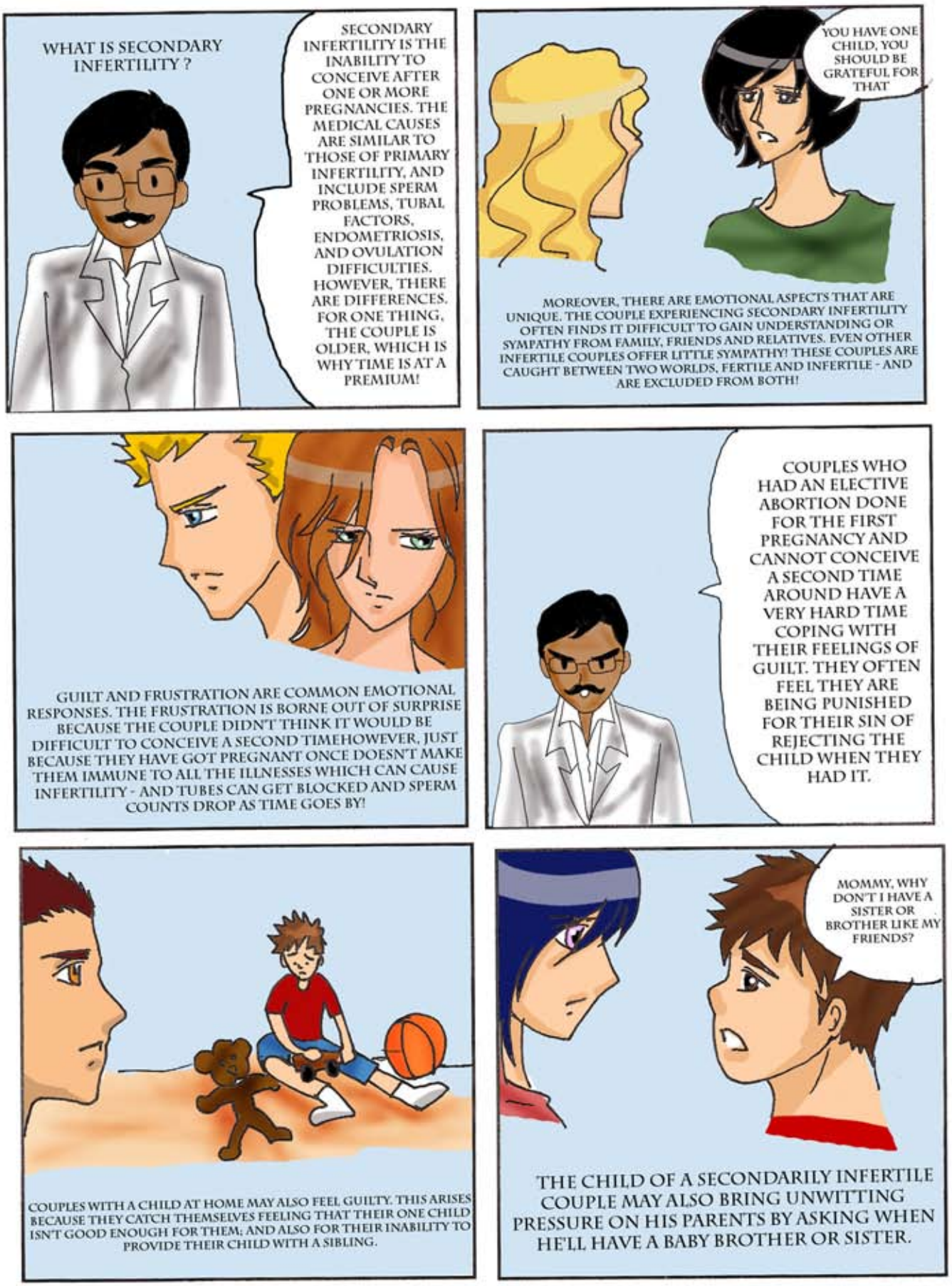
HOW CAN UNEXPLAINED INFERTILITY BE TREATED?

REMEMBER, YOU STILL HAVE A FAIRLY GOOD CHANCE OF GETTING PREGNANT ON YOUR OWN WITHOUT NEEDING ANY TREATMENT AT ALL! IF NO ABNORMALITY IS FOUND, YOUR CHANCE OF GETTING PREGNANT WITHOUT TREATMENT WITHIN 3 YEARS IS ABOUT 1 IN 3. TAKING TREATMENT HELPS TO INCREASE THE CHANCES OF YOUR CONCEIVING - AND ALSO MAKES IT LIKELIER THAT YOU WILL GET PREGNANT SOONER.

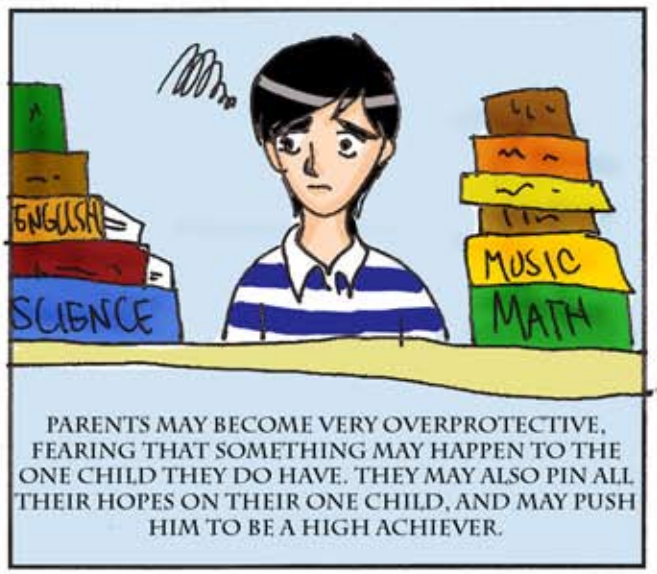
THE TREATMENT OF LUTEAL PHASE DEFECTS IS AS CONTROVERSIAL AS THEIR DIAGNOSIS. THEY CAN BE TREATED BY USING CLOMIPHENE WHICH MAY HELP BY AUGMENTING THE SECRETION OF FSH AND THUS IMPROVING THE QUALITY OF THE FOLLICLE (AND THEREFORE THE CORPUS LUTEUM WHICH DEVELOPS FROM IT). DIRECT TREATMENT WITH PROGESTERONE CAN ALSO HELP LUTEAL PHASE ABNORMALITIES.

MANY PATIENTS ARE WORRIED THAT IF WE ARE NOT ABLE TO FIND THE CAUSE OF THE INFERTILITY, WE WILL NOT BE ABLE TO TREAT THEM. FORTUNATELY, THIS IS NOT TRUE – TODAY, OUR TECHNOLOGY FOR TREATING INFERTILITY IS FAR SUPERIOR THAN OUR TECHNOLOGY FOR MAKING A DIAGNOSIS ! IN ANY CASE, MOST INFERTILE COUPLES ARE NOT REALLY INTERESTED IN A DIAGNOSIS OF WHAT THE PROBLEM IS – THEY ARE MUCH MORE INTERESTED IN FINDING THE SOLUTION TO THEIR PROBLEM - GETTING A BABY !

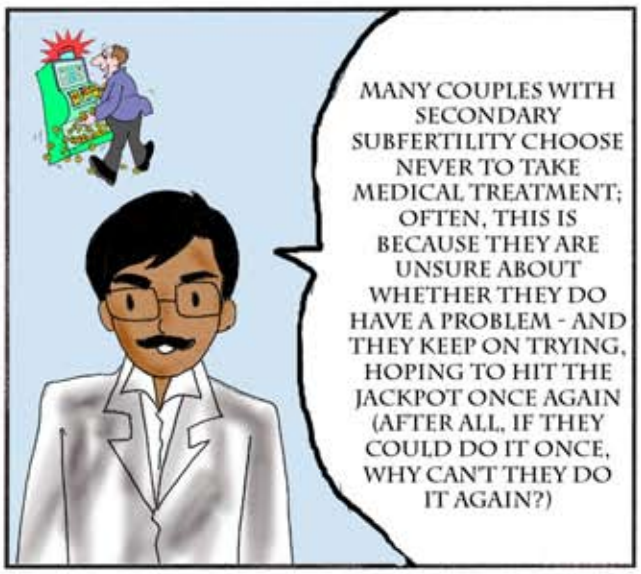
TODAY, WITH ASSISTED REPRODUCTIVE TECHNOLOGY, THE CHANCE OF TREATMENT BEING SUCCESSFUL IS VERY GOOD. INTRAUTERINE INSEMINATION WITH SUPEROVULATION IS THE SIMPLEST APPROACH, AND IT HELPS BECAUSE IT INCREASES THE CHANCES OF THE EGG AND SPERM MEETING; BUT SOME PATIENTS MAY NEED IVF. IVF CAN BE HELPFUL, BECAUSE IT PROVIDES INFORMATION ABOUT THE SPERM'S FERTILIZING ABILITY, AND ALSO ALLOWS THE DOCTOR TO PERFORM IN THE LAB WHAT IS NOT HAPPENING IN THE BEDROOM (WHATEVER THE REASON FOR THIS) .



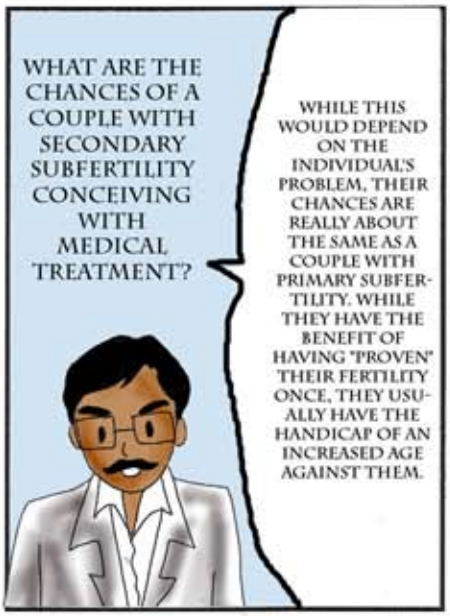
For more information on this chapter, go here:
http://www.drmalpani.com/book/chapter21.html



PARENTS MAY BECOME VERY OVERPROTECTIVE, FEARING THAT SOMETHING MAY HAPPEN TO THE ONE CHILD THEY DO HAVE. THEY MAY ALSO PIN ALL THEIR HOPES ON THEIR ONE CHILD, AND MAY PUSH HIM TO BE A HIGH ACHIEVER.

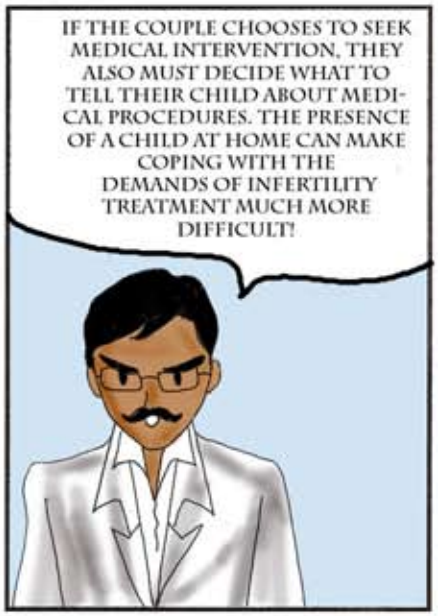


MANY COUPLES WITH SECONDARY SUBFERTILITY CHOOSE NEVER TO TAKE MEDICAL TREATMENT; OFTEN, THIS IS BECAUSE THEY ARE UNSURE ABOUT WHETHER THEY DO HAVE A PROBLEM - AND THEY KEEP ON TRYING, HOPING TO HIT THE JACKPOT ONCE AGAIN (AFTER ALL, IF THEY COULD DO IT ONCE, WHY CAN'T THEY DO IT AGAIN?)

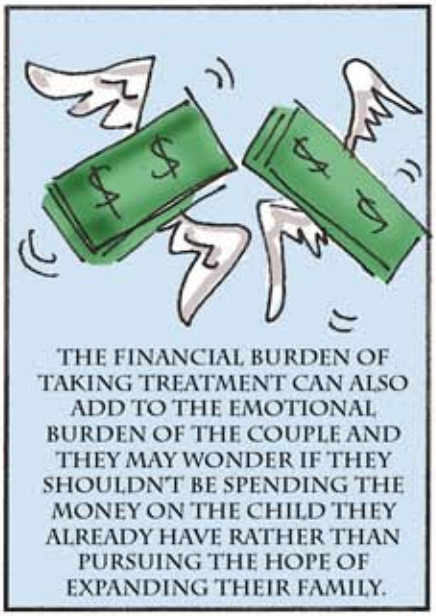


WHAT ARE THE CHANCES OF A COUPLE WITH SECONDARY SUBFERTILITY CONCEIVING WITH MEDICAL TREATMENT?

WHILE THIS WOULD DEPEND ON THE INDIVIDUAL'S PROBLEM, THEIR CHANCES ARE REALLY ABOUT THE SAME AS A COUPLE WITH PRIMARY SUBFERTILITY. WHILE THEY HAVE THE BENEFIT OF HAVING "PROVEN" THEIR FERTILITY ONCE, THEY USUALLY HAVE THE HANDICAP OF AN INCREASED AGE AGAINST THEM.



IF THE COUPLE CHOOSES TO SEEK MEDICAL INTERVENTION, THEY ALSO MUST DECIDE WHAT TO TELL THEIR CHILD ABOUT MEDICAL PROCEDURES. THE PRESENCE OF A CHILD AT HOME CAN MAKE COPING WITH THE DEMANDS OF INFERTILITY TREATMENT MUCH MORE DIFFICULT!



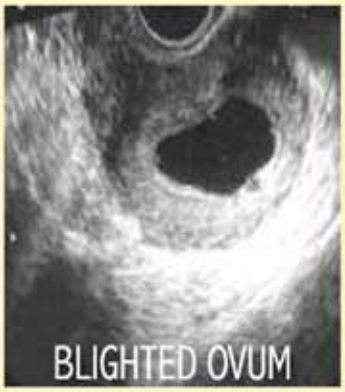
THE FINANCIAL BURDEN OF TAKING TREATMENT CAN ALSO ADD TO THE EMOTIONAL BURDEN OF THE COUPLE AND THEY MAY WONDER IF THEY SHOULDN'T BE SPENDING THE MONEY ON THE CHILD THEY ALREADY HAVE RATHER THAN PURSUING THE HOPE OF EXPANDING THEIR FAMILY.

ADOPTION CAN BE A CHOICE FOR SOME OF THESE COUPLES - BUT IT'S OFTEN MORE COMPLICATED BECAUSE THEY WORRY ABOUT THE POSSIBILITY OF "FAVORITISM" ; AND MAY ALSO FEEL THAT IT IS UNFAIR TO THEIR BIOLOGICAL CHILD TO BRING AN ADOPTED CHILD INTO THE FAMILY.

COMING TO TERMS WITH SECONDARY INFERTILITY IS NO EASIER THAN COMING TO TERMS WITH PRIMARY INFERTILITY - AND IT'S IMPORTANT THAT THE FAMILY OF THE COUPLE WITH SECONDARY INFERTILITY SHARE THEIR FEELINGS TOGETHER AND MAINTAIN A POSITIVE ATTITUDE.

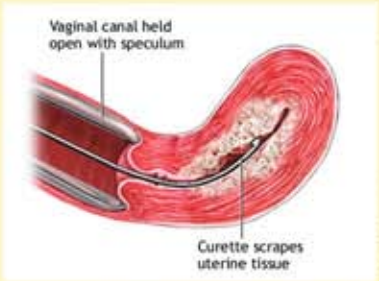
HOW ARE ABORTIONS CLASSIFIED MEDICALLY ?

AN EXTENDED DEFINITION OF INFERTILITY INCLUDES WOMEN WHO CONCEIVE BUT CANNOT CARRY A PREGNANCY TO TERM - WOMEN WHO HAVE REPEATED MISCARRIAGES. THE TECHNICAL TERM FOR THIS IS RECURRENT PREGNANCY LOSS. THIS IS ONE OF THE MOST FRUSTRATING PROBLEMS IN REPRODUCTIVE MEDICINE MEDICINE TODAY , BECAUSE WE STILL DO NOT UNDERSTAND IT WELL. PATIENTS WITH REPEATED MISCARRIAGES HAVE HUNDREDS OF QUESTIONS - AND WE STILL DO NOT HAVE THE ANSWERS !



THE MEDICAL TERM FOR A MISCARRIAGE IS AN ABORTION. MOST MISCARRIAGES START WITH VAGINAL BLEEDING WHICH IS INITIALLY SLIGHT AND PAINLESS. THIS IS CALLED A THREATENED ABORTION, BECAUSE THE PREGNANCY IS THREATENED BY THE BLEEDING. THIS BLEEDING IS FROM THE MOTHER, AND IS NOT FETAL BLOOD. ABOUT HALF THE TIME THIS STOPS SPONTANEOUSLY AND RESULTS IN NO HARM TO THE PREGNANCY. AT THIS STAGE, THE MOST USEFUL TEST IS AN ULTRASOUND SCAN (USUALLY DONE WITH A VAGINAL PROBE). IF A FETAL HEARTBEAT CAN BE SEEN, THIS MEANS THAT THERE IS A 95 % CHANCE THAT THE PREGNANCY WILL PROCEED NORMALLY. ON THE OTHER HAND, IF THE ULTRASOUND SCAN SHOWS THAT THE FETUS HAS NOT DEVELOPED PROPERLY ("BLIGHTED OVUM " OR ANEMBRYONIC PREGNANCY WHEN NO FETUS CAN BE SEEN; OR A MISSED ABORTION OR INTRAUTERINE FETAL DEATH WHEN THE FETUS IS SEEN BUT THE HEART IS NOT BEATING, THEN NOTHING CAN BE DONE TO SAVE THE PREGNANCY.

IN SUCH CASES, THE BLEEDING PROGRESSES, AND THE UTERUS STARTS CONTRACTING. THIS IS FELT AS PAINFUL CRAMPS, AND THE MOUTH OF THE UTERUS (THE CERVIX) OPENS. THIS IS CALLED AN INEVITABLE ABORTION (BECAUSE IT CANNOT BE STOPPED). IF SOME OF THE PREGNANCY HAS ALREADY BEEN PUSHED OUT BY THE CONTRACTIONS, THIS IS CALLED AN INCOMPLETE ABORTION.



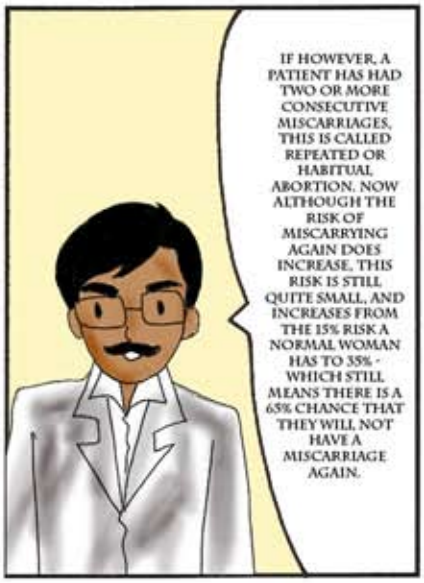
IN PATIENTS WITH A BLIGHTED OVUM, MISSED ABORTION, INEVITABLE OR INCOMPLETE ABORTION, THE TREATMENT IS A UTERINE CURETTAGE (D&C) - A SHORT SURGICAL PROCEDURE WHICH IS PERFORMED TO EMPTY THE UTERUS AND REMOVE THE PREGNANCY TISSUE. A BETTER OPTION IS TO TERMINATE THE PREGNANCY MEDICALLY WITH THE HELP OF DRUGS CALLED RU-486 AND PROSTAGLANDINS.

ABORTIONS WHICH OCCUR IN THE FIRST TWELVE WEEKS OF PREGNANCY ARE CALLED FIRST TRIMESTER ABORTIONS. THOSE WHICH OCCUR BETWEEN THE 13TH TO 20TH WEEKS ARE CALLED SECOND TRIMESTER ABORTIONS.

HOW OFTEN DO ABORTIONS OCCUR ?

ABOUT 20-30% OF ALL WOMEN SPOT, BLEED OR SUFFER CRAMPS DURING THEIR FIRST TWELVE WEEKS OF PREGNANCY, AND ABOUT 10% MISCARRY. THIS FIGURE MAY BE AN UNDERESTIMATE, BECAUSE THERE ARE A NUMBER OF WOMEN WHO MISCARRY UNKNOWINGLY, THINKING THAT THEIR PERIOD WAS LATE OR HEAVY. THE COMMONEST REASON FOR A FIRST TRIMESTER MISCARRIAGE IS A GENETIC DEFECT IN THE EMBRYO.

THIS IS ACTUALLY NATURE'S DEFENSE MECHANISM, TO PREVENT THE BIRTH OF A BABY WITH A BIRTH DEFECT. THE GENETIC ERROR IS A RANDOM EVENT WHICH HAPPENS BY CHANCE , AND OCCURS BECAUSE A GENETICALLY ABNORMAL EGG OR SPERM GETS FERTILISED. THIS IS NOT A SIGN THAT THE COUPLE HAS A HEALTH PROBLEM, BECAUSE MOST OF THEM WILL PROBABLY HAVE A HEALTHY BABY THE NEXT TIME THEY GET PREGNANT , WITHOUT ANY TREATMENT. THIS IS WHY MOST DOCTORS WILL NOT DO ANY TESTING FOR COUPLES WHO HAVE HAD A SINGLE FIRST TRIMESTER MISCARRIAGE - THE TESTING IS USUALLY NOT COST EFFECTIVE, AND RARELY PROVIDES ANY USEFUL INFORMATION.



WHAT ARE SOME OF THE MYTHS ABOUT ABORTIONS ?

MOST WOMEN WHO MISCARRY DO SO ONLY ONCE. THEIR RISK FOR MISCARRYING AGAIN IS NOT INCREASED AND IS THE SAME AS THAT OF A NORMAL WOMAN'S - ABOUT 15%

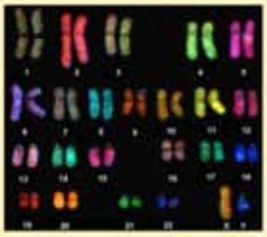
WOMEN WHO ARE OVER THIRTY FIVE ARE NO MORE LIABLE TO MISCARRY

TRAVELLING, LIFTING WEIGHTS AND SEX DOES NOT THREATEN A HEALTHY PREGNANCY. AS THE OLD SAYING GOES, " YOU CANNOT SHAKE A GOOD APPLE OFF A TREE."

IF YOUVE HAD A PREVIOUS MISCARRIAGE, IT IS VERY NORMAL TO BE FRIGHTENED AND WORRIED DURING YOUR NEXT PREGNANCY. IT IS IMPORTANT TO UNDERSTAND THAT EXERCISE, WORKING AND INTERCOURSE DO NOT INCREASE THE RISK OF PREGNANCY LOSS. LIKEWISE, STAYING AT HOME AND RESTING IN BED PROBABLY DO NOT PREVENT MISCARRIAGE.

WHAT ARE THE CAUSES OF REPEATED ABORTIONS ?

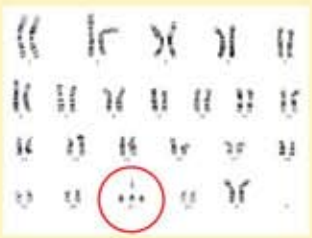
* CHROMOSOMAL ABNORMALITIES
* HORMONE IMBALANCE
* PHYSICAL ILLNESS
* POLYCYSTIC OVARY SYNDROME
* IMMUNE PROBLEMS
* ANTIPHOSPHOLIPID ANTIBODIES
* PROBLEMS IN THE UTERUS
* LIFE STYLE OF THE WOMAN



LET'S DISCUSS THESE IN DETAIL.

HOW DO CHROMOSOMAL ABNORMALITIES CAUSE MISCARRIAGES ?

CHROMOSOMAL ABNORMALITIES AT LEAST 60% OF SPONTANEOUS MISCARRIAGES OCCUR BECAUSE OF A CHROMOSOMAL ABNORMALITY AT CONCEPTION. THIS MEANS THAT A GENETICALLY DEFECTIVE SPERM OR OVUM GIVES RISE TO A GENETICALLY ABNORMALEMBRYO . THE MISCARRIAGE IS NATURE'S DEFENSE MECHANISM, WHICH ABORTS A DEFECTIVE FETUS, RATHER THAN GIVING BIRTH TO A DEFECTIVE BABY. SINCE MOST OF THESE GENETIC DEFECTS ARE CHANCE EVENTS WHICH OCCUR AT RANDOM, , THE RISK OF IT BEING REPEATED AGAIN IN THE NEXT PREGNANCY IS VERY SMALL.



IN ORDER TO ESTABLISH THE DIAGNOSIS OF A GENETIC CAUSE FOR REPEATED PREGNANCY LOSS, A KARYOTYE (STUDY OF THE CHROMOSOMES) OF THE FETAL TISSUE (IF AVAILABLE) MAY BE DONE. FISH (FLUORESCENT IN SITU HYBRIDIZATION) CAN BE USED FOR THIS. IT IS EXPENSIVE, AND OFTEN THE RESULTS MAYBE CONFUSING.

IN ABOUT 5 % OF COUPLES, A CHROMOSOME ABNORMALITY FOUND IN ONE OF THE PARENTS WHICH EXPLAINS THE RECURRENT MISCARRIAGES. THIS IS DETECTED BY DOING A CHROMOSOMAL STUDY ON THE PARENTS'BLOOD. THE COMMONEST PROBLEM IS A STRUCTURAL DEFECT (BREAK OR LOSS OF A PIECE OF THE CHROMOSOME, CALLED A DELETION; A REARRANGEMENT OF A BIT OF A CHROMOSOME, CALLED A TRANSLOCATION) . REMEMBER, HOWEVER, THAT NOT ALL GENETIC PROBLEMS CAN BE DIAGNOSED WITH TODAY'S TECHNOLOGY.

IF THE KARYOTYPE IS NORMAL, THEN THE PATIENT CAN BE REASSURED THAT THE MISCARRIAGES WERE A CHANCE GENETIC EVENT, AND THEY CAN FEEL COMFORTABLE CONTINUING WITH THEIR EFFORTS TO HAVE A BABY. HOWEVER, IF THE KARYOTYPE IS ABNORMAL, THEN GENETIC COUNSELLING SHOULD BE SOUGHT TO DISCUSS THE DEGREE OF RISK. DEPENDING UPON THE INDIVIDUAL PROBLEM, THIS RISK MAY BE ANYWHERE FROM 25% TO 100%. OPTIONS MAY INCLUDE: CONTINUING TO TRY TO CONCEIVE A BABY NATURALLY; ADOPTION; DONOR EGGS (IF THE WIFE HAS THE GENETIC PROBLEM) OR DONOR SPERMS (IF THE HUSBAND HAS THE GENETIC PROBLEM).

HOW DO HORMONAL IMBALANCES CAUSE MISCARRIAGES ?

HORMONE IMBALANCE

PATIENTS MAY MISCARRY BECAUSE THEY HAVE A LUTEAL PHASE DEFECT IN WHICH THE PROGESTERONE HORMONE PRODUCED AFTER THE EGG IS RELEASED IS REDUCED. PROGESTERONE IS THE HORMONE WHICH SUPPORTS THE PREGNANCY. IT HELPS IMPLANTATION OF THE EMBRYO IN THE UTERUS AND IF THIS IS DEFICIENT, THERE CAN BE A PROBLEM WITH THE EMBRYO LODGING ITSELF IN THE UTERINE LINING.

A LUTEAL PHASE DEFECT IS SUSPECTED IF THE MENSTRUAL CYCLES ARE SHORT - ESPECIALLY IF THE LUTEAL PHASE (THE TIME OF THE MENSTRUAL CYCLE BETWEEN OVULATION AND THE NEXT MENSTRUATION) IS SHORTER THAN 12 DAYS. THIS DIAGNOSIS CAN BE CONFIRMED BY A BLOOD TEST (A SERUM PROGESTERONE LEVEL DONE ONE WEEK AFTER OVULATION IS LOW) OR AN ENDOMETRIAL BIOPSY (WHICH WILL SHOW THAT THE ENDOMETRIUM IS "OUT OF PHASE").

THE DOCTOR CAN HELP PROVIDE LUTEAL SUPPORT BY PRESCRIBING PROGESTERONE DURING THE LAST TWO WEEKS OF THE MENSTRUAL CYCLE AFTER OVULATION. IF THE WOMAN IS ALREADY PREGNANT, TREATMENT MAY BE WITH VAGINAL SUPPOSITORIES OF NATURAL PROGESTERONE FOR THE FIRST TWELVE WEEKS OF THE PREGNANCY; OR PROGESTERONE INJECTIONS INTRAMUSCULARLY. HOWEVER, THIS TREATMENT IS CONTROVERSIAL.

WHICH ILLNESSES CAN CAUSE REPEATED ABORTIONS ?

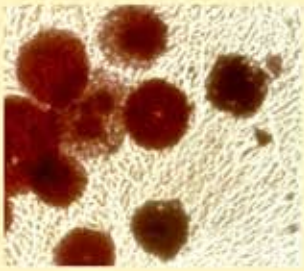
* UNCONTROLLED THYROID DISEASE, ESPECIALLY HYPOTHYROIDISM
* SEVERE HEART, LIVER OR KIDNEY DISEASE
* SYSTEMIC LUPUS ERYTHEMATOSUS (SLE) , AN AUTOIMMUNE ILLNESS IN WHICH THE WOMAN PRODUCES ANTIBODIES AGAINST HER OWN BODY TISSUES.

HEALTH PROBLEMS THAT CAN CAUSE REPEATED MISCARRIAGES ARE:

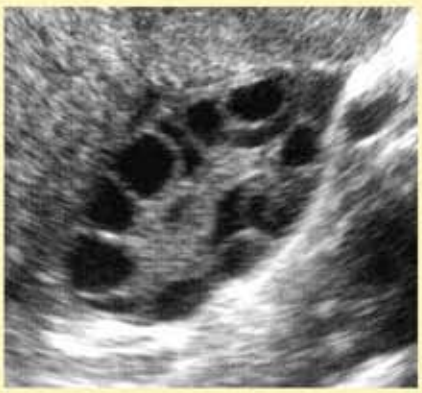
WHAT ABOUT TORCH INFECTIONS?

CERTAIN INFECTIONS CALLED TORCH (WHICH STANDS FOR TOXOPLASMOSIS, RUBELLA, CYTOMEGALOVIRUS AND HERPES) , MAY BE A CAUSE FOR A SINGLE MISCARRIAGE, BUT ARE NOT A CAUSE FOR REPEATED MISCARRIAGES. WHILE A NUMBER OF SPECIALISTS WILL DO THESE TESTS, AND EVEN START TREATMENT BASED ON THE RESULTS, THESE TESTS ARE NOT WORTHWHILE FOR PATIENTS WHO UNDERGO HABITUAL ABORTION. THEY JUST WASTE A LOT OF THE PATIENT'S TIME AND MONEY.

A POSITIVE TORCH TEST SIMPLY MEANS THE PATIENT HAS POSITIVE ANTIBODY LEVELS AGAINST THAT PARTICULAR INFECTION. THUS, A POSITIVE TOXO IGG TEST MEANS THAT THE PATIENT HAS ANTI-TOXOPLASMOSIS ANTIBODIES WHICH PROTECT HER AGAINST A REPEAT TOXOPLASMOSIS INFECTION. THIS MEANS A POSITIVE TEST IS ACTUALLY A GOOD SIGN AND SUGGESTS THAT THE PATIENT IS PROTECTED AGAINST THAT INFECTION BECAUSE SHE HAS BEEN EXPOSED TO THAT INFECTION IN THE PAST. UNFORTUNATELY, MANY DOCTORS DO NOT KNOW HOW TO INTERPRET THESE RESULTS AND SCARE THE PATIENT INTO THINKING THAT THE POSITIVE TEST RESULT MEANS SHE HAS AN ACTIVE INFECTION WHICH CAN CAUSE HER TO MISCARRY AGAIN. IN FACT, SOME DOCTORS WILL EVEN ATTEMPT TO "TREAT" THE "INFECTION" ! THIS WASTES TIME AND CAUSES NEEDLESS DISTRESS. IF YOUR DOCTOR ASKS YOU DO A TORCH TEST AFTER A MISCARRIAGE, YOU SHOULD REFUSE AND FIND A BETTER DOCTOR !



ALTHOUGH INFECTIONS OF THE UTERINE CAVITY (FOR EXAMPLE, DUE TO MYCOPLASMA) ARE THOUGHT TO BE A CAUSE OF RECURRENT PREGNANCY LOSS, SUBSTANTIAL PROOF OF THIS IS LACKING.

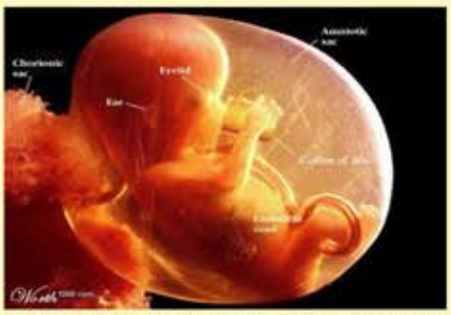


HOW DOES PCOD CAUSE REPEATED MISCARRIAGES ?

IN PCOS, THE OVARIES PRODUCE A LARGE AMOUNT OF THE LH HORMONE. PCOS PATIENTS ALSO HAVE INSULIN RESISTANCE, AND THE HIGH LH LEVELS AND HIGH INSULIN LEVELS HAVE A DETRIMENTAL EFFECT ON THE EGG, SO THAT AT THE TIME OF OVULATION, THE EGG WHICH IS RELEASED IS OVERRIPE AND UNHEALTHY. IF SUCH AN EGG IS FERTILISED, THE EMBRYO IS ALSO LIKELY TO BE UNHEALTHY, AND IS CONSEQUENTLY REJECTED BY THE BODY AFTER 6-8 WEEKS AS A MISCARRIAGE. TREATING THE ABNORMAL INSULIN RESISTANCE IN PCOD PATIENTS WHO HAVE HAD REPEATED MISCARRIAGES WITH METFORMIN HELPS MANY OF THEM TO HAVE HEALTHY BABIES . THE INTERESTING POINT OF THESE STUDIES IS THAT IT TELLS US THAT WE SHOULD ALSO BE FOCUSSING ON WHAT IS HAPPENING AT THE TIME OF FERTILISATION - AND NOT JUST WHAT GOES ON AFTER THE PREGNANCY.

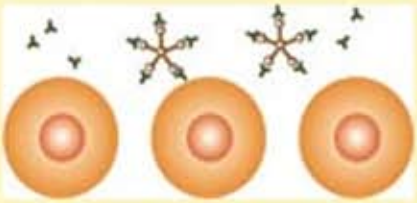
HOW DO IMMUNE PROBLEMS CAUSE REPEATED ABORTIONS ?

THE IMMUNE SYSTEM PLAYS AN IMPORTANT PROTECTIVE ROLE IN MAINTAINING HEALTH THROUGHOUT LIFE, BY DEFENDING AGAINST INFECTION. IT "REJECTS" THE FOREIGN INVADERS (BACTERIA, VIRUSES) WHICH ARE RECOGNISED BY THE BODY AS BEING " OUTSIDERS". SOME DOCTORS BELIEVE THAT INAPPROPRIATE ACTIVATION OF THE MOTHER'S IMMUNE SYSTEM MAY CAUSE EARLY FIRST TRIMESTER MISCARRIAGES



CURRENT THEORY SUGGESTS THAT DURING A NORMAL PREGNANCY, THE FETUS, WHICH CARRIES THE FATHER'S FOREIGN GENES (AND IS THEREFORE IMMUNOLOGICALLY FOREIGN TO THE MOTHER) CAN NEVERTHELESS SURVIVE IN THE MOTHER' UTERUS BECAUSE OF A SPECIAL PROTECTION FROM THE MOTHER'S IMMUNE SYSTEM - THE UTERUS IS A "PRIVILEGED" SITE. THIS IS WHY IT IS NOT "REJECTED" LIKE OTHER FOREIGN TISSUES (SUCH AS KIDNEY TRANSPLANTS) ARE. THIS MEANS THAT NORMALLY THE EMBRYO SOMEHOW STIMULATES A PROTECTIVE MATERNAL IMMUNE RESPONSE WHICH ALLOWS IMPLANTATION AND GROWTH. FOR CERTAIN COUPLES, THIS PROTECTIVE RESPONSE DOES NOT OCCUR, AND THE MATERNAL IMMUNE SYSTEM REJECTS THE FATHER'S FOREIGN MATERIAL IN THE FETUS, RESULTING IN MISCARRIAGE. HOWEVER, BOTH IMMUNE TESTING AND TREATMENT ARE CONTROVERSIAL AND EXPERIMENTAL, AND WE DO NOT THINK THEY ARE OF ANY VALUE.

HOW DO ANTIPHOSPHOLIPID ANTIBODIES CAUSE REPEATED ABORTIONS ?

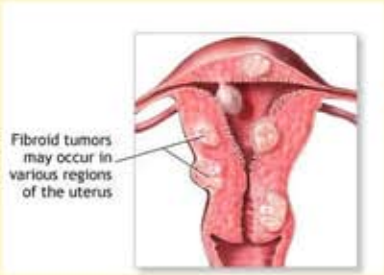


ANTIPHOSPHOLIPID ANTIBODIES
SOME WOMEN PRODUCE ANTIBODIES AGAINST THE CIRCULATING SUBSTANCES THAT CAUSE BLOOD CLOTTING. THESE ARE CALLED LUPUS ANTICOAGULANT OR ANTICARDIOLIPIN OR ANTIPHOSPHOLIPID ANTIBODIES. THEY INHIBIT FETAL DEVELOPMENT (BY BLOCKING OFF THE BLOOD SUPPLY TO THE FETUS BY CAUSING CLOTS IN THE MATERNAL-FETAL CIRCULATION) AND CAUSE MISCARRIAGES. THEIR PRESENCE CAN BE DETECTED BY A BLOOD TEST. TREATMENT IS POSSIBLE, EITHER WITH LOW DOSES OF ASPIRIN (WHICH DECREASES CLOT FORMATION); OR WITH A STEROID (PREDNISONE) WHICH SUPPRESSES THE MOTHER'S IMMUNE SYSTEM; OR WITH LOW-DOSE HEPARIN, AN ANTICOAGULANT.

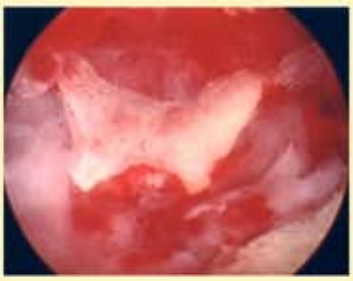
SEPTATE UTERUS AND UNICORNUATE UTERUS

HOW DO UTERINE PROBLEMS CAUSE REPEATED ABORTIONS ?

PROBLEMS IN THE UTERUS
MISCARRIAGES BECAUSE OF UTERINE PROBLEMS USUALLY OCCUR AFTER THE TWELFTH WEEK. THESE COULD BE BECAUSE OF :
A CONGENITAL ABNORMALITY OF THE UTERUS, WHICH THE WOMAN IS BORN WITH, BUT WHICH DOES NOT CAUSE ANY PROBLEMS, UNTIL SHE GETS PREGNANT . THE COMMON TYPES OF UTERINE ANOMALIES INCLUDE: A SEPTATE UTERUS (IN WHICH A WALL DIVIDES THE UTERINE CAVITY); A UNICORNUATE UTERUS, IN WHICH THE UTERUS HAS ONLY ONE HORN , BECAUSE ONLY ONE HALF HAS DEVELOPED PROPERLY; AND A BICORNUATE UTERUS, IN WHICH THE UTERUS HAS TWO HALVES OR HORNS, BECAUSE THE TWO DID NOT FUSE NORMALLY DURING THEIR DEVELOPMENT IN UTERO). UTERINE ABNORMALITIES DO NOT ALLOW THE UTERUS TO GROW NORMALLY TO HOLD AND RETAIN THE PREGNANCY , WHICH IS CONSEQUENTLY EXPELLED.

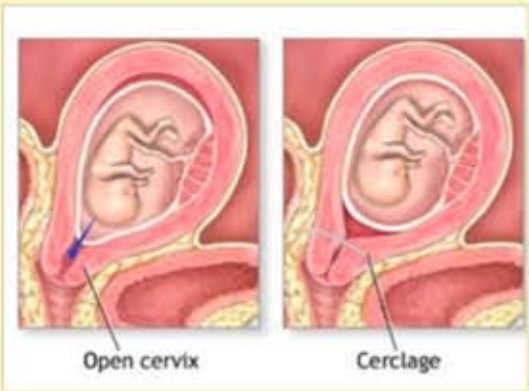


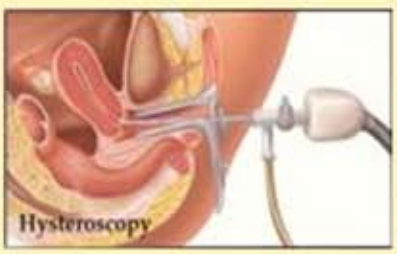
FIBROIDS, WHICH ARE GROWTHS OF SMOOTH MUSCLE TISSUE INSIDE THE UTERUS. WHILE MOST FIBROIDS WILL NOT AFFECT A PREGNANCY, IF THE FIBROID IS VERY CLOSE TO THE LINING OF THE UTERUS (SUBMUCOUS FIBROID), IT WILL INTERFERE WITH THE IMPLANTATION OF THE EMBRYO IN THE UTERUS, AND WILL CAUSE ITS EXPULSION.



INTRAUTERINE ADHESIONS (ASHERMANN'S SYNDROME). THESE AREFIBROUS BANDS OF SCAR TISSUE IN THE UTERUS, WHICH INTERFERE WITH IMPLANTATION OF THE EMBRYO. THEY MAY BE FORMED AFTER A UTERINE CURETTAGE (AFTER AN ABORTION) AND CAN BE DIAGNOSED BY HYSTEROSCOPY OR HYSTEROSALPINGOGRAPHY. THEY CAN BE REMOVED BY HYSTEROSCOPIC SURGERY, ALLOWING UNEVENTFUL PREGNANCIES IN THE FUTURE.

INCOMPETENT OS, IN WHICH THE CERVIX (MOUTH OF THE WOMB) IS WEAKENED. WHEN THE GROWING FETUS PRESSES ON IT, THE WEAKENED CERVIX OPENS, LEADING TO EXPULSION OF THE GROWING FOETUS. THE INSERTION OF A CERVICAL STITCH, CALLED THE SHIRODKAR STITCH AFTER THE INDIAN DOCTOR WHO DISCOVERED THIS CONDITION CAN BE VERY EFFECTIVE. THE CERVICAL STITCH IS A SIMPLE SURGICAL OPERATION, USUALLY DONE AFTER 12 WEEKS OF PREGNANCY AFTER AN ULTRASOUND SHOWS THAT THE BABY IS HEALTHY ; AND IT HELPS BY STRENGTHENING THE WEAKENED CERVIX. THE STITCH IS REMOVED TWO WEEKS BEFORE THE BABY IS DUE, OR WHEN LABOR STARTS, WHICHEVER IS FIRST.





*DIAGNOSIS OF THESE ANATOMIC DEFECTS CAN BE MADE BY HYSTEROSALPINGOGRAPHY OR HYSTEROSCOPY . AN ULTRASOUND EXAMINATION CAN SUGGEST A PROBLEM EXISTS, BUT USUALLY CANNOT PROVIDE A DEFINITIVE DIAGNOSIS. NEWER IMAGING TECHNIQUES SUCH AS 3-D ULTRASOUND OR MRI SCANNING CAN ALSO PROVIDE USEFUL DIAGNOSTIC INFORMATION.

CAN LIFESTYLE FACTORS CAUSE REPEATED ABORTIONS ?

LIFESTYLE
IF PATIENTS ARE REGULARLY EXPOSED TO TOXIC FUMES AND CHEMICALS (EXAMPLE, WORKERS IN CHEMICAL FACTORIES ; OR NURSES AND ANESTHETISTS IN OPERATING ROOMS) THESE COULD DAMAGE THE DEVELOPING FETUS AND CAUSE A MISCARRIAGE. RECENT STUDIES SHOW THAT EVEN MEN EXPOSED TO ENVIRONMENTAL TOXINS CAN CAUSE THEIR PARTNER TO MISCARRY A FETUS (PRESUMABLY BECAUSE THEIR SPERMS ARE DAMAGED BY THE TOXINS).

WHAT ABOUT THE EMOTIONAL ASPECTS OF DEALING WITH REPEATED ABORTIONS ?

HUMAN SOCIETY STILL TENDS TO DISMISS MISCARRIAGE COMPLACENTLY; IT IS A SUBJECT WHICH IS RARELY DISCUSSED. A FOETUS FOR MOST PEOPLE IS A NON-PERSON AND A MISCARRIAGE IS A NON-EVENT. BUT, TO THE WOULD BE PARENTS, THE DEVELOPING FETUS IS A BABY WITH AN IDENTITY, ESPECIALLY IF YOU HAVE SEEN ITS HEART BEATING ON THE ULTRASOUND SCREEN . WHEN THE CHILD IS LOST, IT IS A BEREAVEMENT AND YOUR SENSE OF LOSS, TINGED WITH PAIN, ANGER, ISOLATION AND DEPRESSION, CAN BE PROFOUND - ESPECIALLY WHEN IT FOLLOWS A LONG PERIOD OF INFERTILITY.

AFTER A MISCARRIAGE, IT IS NORMAL TO EXPERIENCE A PERIOD OF GRIEF. FIND SUPPORT FROM EACH OTHER; AND FROM OTHERS WHO HAVE HAD A SIMILAR EXPERIENCE. HEALING DOES HAPPEN IN TIME. FOCUS ON GETTING THROUGH THE GRIEVING RATHER THAN ON THE SUFFERING.

WHAT SHOULD YOU KNOW ABOUT PLANNING YOUR NEXT PREGNANCY AFTER YOU HAVE HAD AN ABORTION ?

AFTER A MISCARRIAGE, MAKING THE DECISION TO GO IN FOR ANOTHER PREGNANCY IS DIFFICULT. COLLECT AS MUCH INFORMATION AS POSSIBLE TO TRY TO FIND OUT THE POSSIBLE CAUSES OF THE LOSS AND WHETHER THIS MIGHT INFLUENCE A FUTURE PREGNANCY.

*HYSTEROSALPINGOGRAM OR HYSTEROSCOPY TO MAKE SURE THERE ARE NO DEFECTS IN YOUR UTERUS (WOMB)
*BLOOD TESTS, SUCH AS SERUM PROGESTERONE, TO RULE OUT A LUTEAL PHASE DEFECT
*BLOOD TESTS FOR ANTIPHOSPHOLIPID ANTIBODIES (LUPUS ANTICOAGULANT)
*THE VDRL (VENEREAL DISEASES REACH LABORATORY) BLOOD TEST, FOR SEXUALLY TRANSMITTED DISEASES
*KARYOTYPE, FOR YOU AND YOUR HUSBAND, TO RULE OUT CHROMOSOMAL ABNORMALITIES.

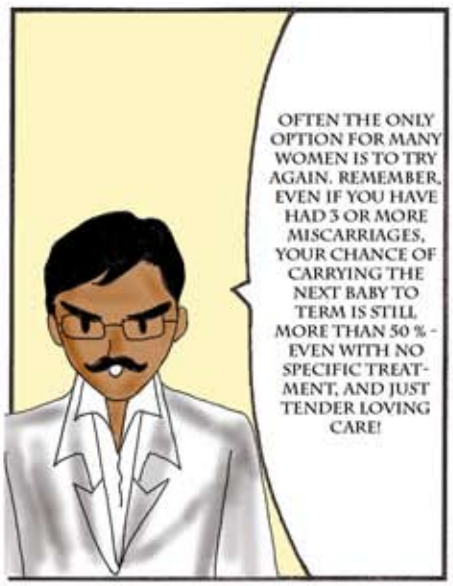
IF YOU HAVE HAD 2 OR MORE MISCARRIAGES, THEN TESTS ARE USUALLY DONE TO TRY TO FIND A CAUSE. THESE INCLUDE THE FOLLOWING:

THE DOCTOR MAY ALSO WANT TO SEND THE ABORTED TISSUE FOR CHROMOSOMAL STUDY, TO FIND OUT IF THE FETUS WAS CHROMOSOMALLY NORMAL OR NOT. OFTEN MANY DOCTORS WILL DO WHAT IS CALLED A "TORCH" TEST - BUT THIS IS A WASTE OF MONEY SINCE IT PROVIDES LITTLE USEFUL INFORMATION. WHEN TO START THE TESTING DEPENDS UPON YOU. WHILE FEW DOCTORS WOULD DO ANYTHING AFTER ONE MISCARRIAGE (SINCE YOUR CHANCE OF HAVING A HEALTHY PREGNANCY EVEN WITHOUT TESTS AND TREATMENT IS BETTER THAT 85%), MOST WOULD START A WORKUP AFTER TWO MISCARRIAGES. OFTEN, NOTHING IS FOUND, AND THIS CAN BE VERY FRUSTRATING TO THE DOCTOR AND PATIENT. BUT DO REMEMBER THAT MEDICAL TECHNOLOGY HAS ITS LIMITATIONS, AND WE STILL DO NOT KNOW A LOT ABOUT THE EARLY EMBRYO AND ITS DEVELOPMENT.

WHAT ARE THE TREATMENT OPTIONS FOR WOMEN WHO HAVE HAD REPEATED ABORTIONS ?

IN OUR EXPERIENCE, WE HAVE FOUND THAT MANY WOMEN WITH RECURRENT PREGNANCY LOSS HAVE OCCULT PCOD (POLYCYSTIC OVARIAN DISEASE) , WHICH IS USUALLY NOT DIAGNOSED CORRECTLY. WE HAVE FOUND THAT THE FOLLOWING EMPIRIC TREATMENT, BASED ON EXPERIENCE, HELPS TREAT MANY WOMEN WHO HAVE EXPERIENCED RECURRENT EARLY PREGNANCY LOSSES: METFORMIN, 1500 MG DAILY; FOLIC ACID, 5 MG DAILY; AND LOW DOSE ASPIRIN, 50 MG DAILY. WHEN THEY CONCEIVE, WE CONTINUE ALL THE ABOVE; AND ALSO ADD 600 MG VAGINAL PROGESTERONE SUPPOSITORIES DAILY TILL 20 WEEKS.

For more information on this chapter, go here:
http://www.drmalpani.com/book/chapter22.html



DECIDING WHEN TO START THE NEXT PREGNANCY IS A DECISION ONLY YOU CAN MAKE. IT TAKES A LOT OF COURAGE AND BOTH OF YOU NEED TO BE READY. YOUR NEXT PREGNANCY PROBABLY WON'T BE AS JOYFUL AS YOU WOULD LIKE. INSIST THAT YOUR PREGNANCY BE MONITORED CAREFULLY. WHENEVER THE SLIGHTEST PROBLEM OCCURS, YOU'LL FEEL VULNERABLE AND TERRIFIED - BUT DON'T PANIC. FIND AN EMPATHETIC AND CARING DOCTOR.

EVERYONE WILL MAKE SUGGESTIONS ABOUT WHAT YOU SHOULD DO TO MAKE YOUR PREGNANCY SUCCESSFUL. THIS CAN BE ANNOYING - BUT REMEMBER THEY ARE DOING IT BECAUSE THEY CARE! THE EASIEST WAY TO HANDLE THIS IS TO LISTEN, AND THEN DO WHAT YOU AND YOUR DOCTOR FEEL IS BEST FOR YOU.

THE EXPERIENCE OF MISCARRIAGE WILL ALSO AFFECT YOUR PARENTING. BONDING WITH YOUR CHILD MAY ALSO BE DELAYED BECAUSE YOU FEEL THE NEED TO PROTECT YOURSELF FROM MORE SORROW - SO YOU WAIT TILL YOU ARE CERTAIN THAT ALL IS SAFE AND SURE WITH YOUR BABY. MOMENTS OF PANIC WILL OCCUR WHEN THE BABY IS ILL OR TOO QUIET OR WITH SOMEONE ELSE. YOU ARE ALSO LIKELY TO TREAT YOUR CHILDREN AS "EXTRA SPECIAL" - AND BE LESS OBJECTIVE THAN OTHER PARENTS.

WHAT ARE THE CHANCES OF HAVING A HEALTHY BABY AFTER REPEATED ABORTIONS ?

IF YOUVE EXPERIENCED RECURRENT MISCARRIAGE, YOU MAY FEEL HOPELESS AND CONFUSED REGARDING A POSITIVE PREGNANCY OUTCOME. REMEMBER THAT NO OBVIOUS CAUSE IS DETECTED IN UPTO 50% OF COUPLES WITH REPEATED PREGNANCY LOSS. THIS CAN BE VERY FRUSTRATING - BOTH TO THE PATIENT AND THE DOCTOR. THE ENCOURAGING NEWS IS THAT THE SPONTANEOUS CURE RATE IS VERY HIGH; AND SUCCESSFUL TREATMENT IS AVAILABLE FOR TREATING CERTAIN UTERINE AND ENDOCRINE CAUSES. YOUR CHANCE OF ACHIEVING A HEALTHY PREGNANCY DESPITE HAVING HAD SEVERAL MISCARRIAGES IN THE PAST IS STILL BETTER THAN 50% - AND THE ONLY "TREATMENT" YOU NEED IS TENDER LOVING CARE !

For more information on this chapter, go here:
http://www.drmalpani.com/book/chapter22.html

WHAT MEDICINES ARE USED FOR TREATING INFERTILITY ?

YOU MUST BE AWARE OF WHAT MEDICINES YOU ARE TAKING AND WHY. IT'S EASY FOR DOCTORS TO PRESCRIBE MEDICINES - BUT IT'S YOUR RESPONSIBILITY TO BE WELL-INFORMED ABOUT YOUR MEDICINES, SO YOU KNOW WHAT TO EXPECT.

1.BROMOCRIPTINE (PROCTINAL, B-CRIP,PARLODEL)
2.CLOMIPHENE (CLOMID, FERTYL, OVOFAR, SEROPHENE)
3. DANAZOL (LADOGAL, DANAZOL)
4. H.M.G. (MENOGON, , REPRONEX, MENOPUR, NUGON,)
5. F.S.H. (GONAL-F, RECAGON, FOLLISTIM)
6. H.C.G. (PREGNYL, PROFASI, OVIDREL)
7. GNRH ANALOGUES (BUSERELIN, SYNAREL, LUPRON, LUCRIN)
8. GNRH ANTAGONISTS (CETRORELIX, ANTAGON)
9. METFORMIN (GLYCIPHAGE, GLU-COPHAGE)

MEDICINES USED IN INFERTILITY TREATMENTS INCLUDE:

HOW IS BROMOCRIPTINE USED FOR TREATING INFERTILITY ?

BROMOCRIPTINE

THIS IS A DRUG WHICH IS USED SPECIFICALLY TO TREAT WOMEN WITH HYPERPROLACTINEMIA - A CONDITION IN WOMEN FAIL TO OVULATE BECAUSE THE PITUITARY IS PRODUCING TOO MUCH OF THE HORMONE CALLED PROLACTIN. BROMOCRIPTINE LOWERS PROLACTIN LEVELS TO NORMAL (THE NORMAL RANGE IN MOST LABORATORIES BEING LESS THAN 20 NG/ML) AND ALLOWS THE OVARY TO GET BACK TO NORMAL.

SIDE EFFECTS: THE DRUG OFTEN CAUSES NAUSEA AND DIZZINESS DURING THE FIRST FEW DAYS OF TREATMENT

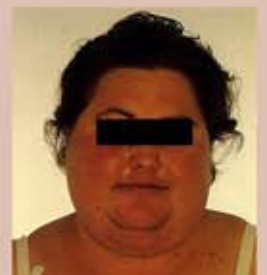
DOSE: A 2.5 MG TABLET IS AVAILABLE ; AND THE STARTING DOSE IS USUALLY 2.5 MG TO 5 MG DAILY - TAKEN AT BEDTIME. AFTER STARTING BROMOCRIPTINE, PROLACTIN LEVELS CAN BE TESTED (AFTER AT LEAST ONE WEEK OF MEDICATION) TO CONFIRM THAT THEY HAVE BEEN BROUGHT DOWN TO NORMAL. IF THE LEVELS ARE STILL ELEVATED, THE DOSE WILL NEED TO BE INCREASED. ONCE NORMAL PROLACTIN LEVELS HAVE BEEN ACHIEVED (AND SOME WOMEN NEED AS MUCH AS 4 TO 6 TABLETS A DAY TO ACHIEVE THIS) THIS IS THEN THE MAINTENANCE DOSE. REMEMBER THAT BROMOCRIPTINE ONLY SUPPRESSES AN ELEVATED PROLACTIN LEVEL WHILE YOU ARE TAKING IT – IT DOES NOT 'CURE' THE PROBLEM. THIS IS WHY THE TABLETS MUST BE TAKEN DAILY UNTIL A PREGNANCY OCCURS, AFTER WHICH THEY SHOULD BE STOPPED.

SOME WOMEN CANNOT TOLERATE BROMOCROPTINE. FOR THESE WOMEN, AN ALTERNATIVE OPTION IS CABERGOLINE, WHICH IS AS EFFECTIVE IN REDUCING HIGH PROLACTIN LEVELS, AND HAS FEWER SIDE EFFECTS.

HOW IS DANAZOL USED FOR TREATING INFERTILITY ?

DANAZOL

THIS IS USED FOR TREATING ENDOMETRIOSIS. IT ACTS BY SUPPRESSING THE BRAIN'S PRODUCTION OF FOLLICLE STIMULATING HORMONES AND HENCE SUPPRESSES OVARIAN FUNCTION. THIS IS SIMILAR TO AN ARTIFICIAL MENOPAUSE AND RESULTS IN THE SHRINKING OF THE ENDOMETRIUM IN THE UTERUS (AND HENCE NO PERIODS); BUT ALSO HOPEFULLY THE MISPLACED PATCHES OF ENDOMETRIUM OUTSIDE THE UTERUS FOUND IN PATIENTS WITH ENDOMETRIOSIS, CAUSING THEM TO DISAPPEAR.



SIDE EFFECTS: HOT FLUSHES, WEIGHT GAIN, ACNE, HIRSUTISM (HAIRINESS). THESE SIDE EFFECTS ARE QUITE TROUBLESOME, AND SOME WOMEN HAVE TO DISCONTINUE THE DRUG BECAUSE OF THESE. USUALLY, WHILE TAKING THE DANAZOL, YOUR PERIODS WILL STOP COMPLETELY - PSEUDOMENOPAUSE.

DOSE: THE STANDARD DOSE USED TO BE 800 MG DAILY (4 TABLETS OF 200 MG EACH). HOWEVER, THE SIDE-EFFECTS AT THIS DOSE ARE CONSIDERABLE, AND MANY DOCTORS HAVE REPORTED GOOD RESULTS WITH DOSES AS LOW AS 200 MG DAILY. THE USUAL COURSE OF TREATMENT IS 6-9 MONTHS AND THE EXTENT OF THE IMPROVEMENT IN ENDOMETRIOSIS IS THEN REVIEWED. WHILE DANAZOL IS USEFUL FOR SUPPRESSING THE LESIONS OF ENDOMETRIOSIS, IT IS NOT USEFUL FOR TREATING ENDOMETRIOSIS IN INFERTILE WOMENBECAUSE IT HAS NOT BEEN SHOWN TO BE HELPFUL IN IMPROVING PREGNANCY RATES.

For more information on this chapter, go here:
http://www.drmalpani.com/book/chapter23.html

HOW ARE STEROIDS USED FOR TREATING INFERTILITY ?

STEROIDS - DEXAMETHASONEIS OFTEN USE AS AN ADJUNCT TO OVULATION INDUCTION TREATMENT, ESPECIALLY IN PATIENTS WITH HIRSUTISM WHO HAVE HIGH LEVELS OF ANDROGENS. IT HELPS BY SUPPRESSING THE PRODUCTION OF ANDROGENS BY THE ADRENAL GLANDS. THE DOSE IS USUALLY A 0.5 MG TABLET, TAKEN DAILY AT BEDTIME. SOME IVF CLINICS ALSO USE STEROIDS AFTER EMBRYO TRANSFER, BECAUSE THEY BELIEVE THIS HELPS TO IMPROVE PREGNANCY RATES BY ENHANCING EMBRYO IMPLANTATION RATES.

HOW IS CLOMIPHENE (CLOMID) USED FOR TREATING INFERTILITY ?

CLOMIPHENE
CLOMIPHENE IS THE DRUG OF FIRST CHOICE FOR INDUCING OVULATION (GROWING EGGS.) IT IS CHEAP, EFFECTIVE, EASILY AVAILABLE AND WELL TOLERATED. IT IS ALSO USED FOR SUPEROVULATING NORMAL WOMEN TO HELP THEM GROW MORE EGGS. CLOMIPHENE IS AN ANTIESTROGEN AND CAUSES THE PITUITARY TO PRODUCE MORE FSH AND LH - THE GONADOTROPIN HORMONES WHICH STIMULATE THE OVARIES.

THE STARTING DOSE IS ONE TABLET (50 MG.) A DAY FOR FIVE CONSECUTIVE DAYS. THE FIRST TABLET CAN BE TAKEN ON DAY 2, 3, 4 OR 5 OF THE CYCLE –IT IS IMPORTANT TO MONITOR THE RESPONSE AS WELL. THIS IS BEST DONE BY SERIAL DAILY VAGINAL ULTRASOUND SCANS. THE OVULATION INDUCED BY CLOMIPHENE OCCURS ABOUT 5 TO 7 DAYS AFTER THE COURSE OF TABLETS IS COMPLETED - THAT IS, DAY 12-16 OF YOUR CYCLE. IF OVULATION FAILS TO OCCUR, THE DOSE CAN BE INCREASED FOR SUBSEQUENT CYCLES, TILL UPTO 200 MG PER DAY. OFTEN HUMAN CHORIONIC GONADOTROPHIN (HCG) IS GIVEN TO TRIGGER OVULATION TO MIMIC THE WOMAN'S NATURAL LH SURGE. CLOMIPHENE INDUCES OVULATION IN APPROXIMATELY 70% OF APPROPRIATELY SELECTED PATIENTS AND HAS A 30-40% PREGNANCY RATE.

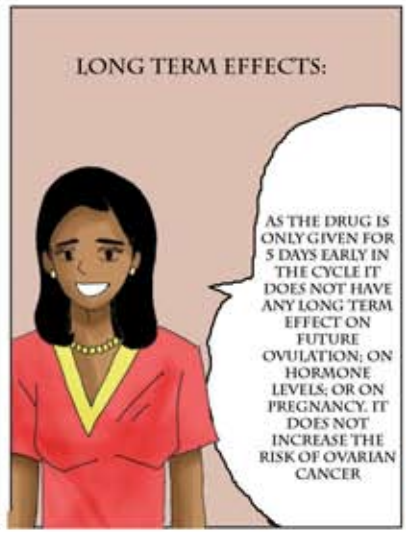
CLOMIPHENE INCREASES A WOMAN'S RISK OF TWIN PREGNANCY BY APPROXIMATELY 10%.THE RISK OF HAVING MORE THAN TWO BABIES IS 1 %. OCCASIONALLY OVARIAN CYSTS OCCUR FOLLOWING CLOMIPHENE ADMINISTRATION. THESE USUALLY DISAPPEAR WHEN THE DRUG IS STOPPED.

SIDE EFFECTS CAN INCLUDE HOT FLUSHES AND MOOD SWINGS EARLY IN THE CYCLE; AND DEPRESSION, NAUSEA AND BREAST TENDERNESS LATER IN THE CYCLE. SEVERE HEADACHES OR VISUAL PROBLEMS, THOUGH RARE, ARE INDICATIONS TO STOP THE MEDICATION.

AS CLOMIPHENE WORKS AS AN "ANTIOESTROGEN" IT CAN HAVE AN ADVERSE EFFECT ON : 1. THE CERVICAL MUCUS MAKING IT THICKER THAN USUAL; AND 2. THE ENDOMETRIUM (UTERINE LINING), CAUSING IT TO BECOME THIN.

For more information on this chapter, go here:
http://www.drmalpani.com/book/chapter23.html

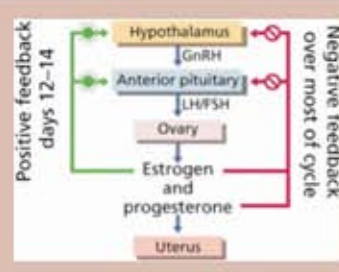
AN ALTERNATIVE OPTION FOR CLOMIPHENE IS THE NEWER ANTI-ESTROGEN, LETROZOLE. THIS DRUG IS ALSO USED FOR TREATING WOMEN WITH BREAST CANCER, AND IS AS EFFECTIVE IS CLOMIPHENE IN INDUCING OVULATION, WITH THE ADVANTAGE THAT IT DOES NOT CAUSE THE ENDOMETRIAL LINING TO BECOME THIN.



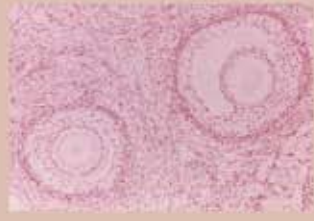
HOW ARE GONADOTROPIN INJECTIONS USED FOR TREATING INFERTILITY ?

GONADOTROPINS

GONADOTROPIN TREATMENT IS "BIG-GUN " THERAPY, AND IS USUALLY RESERVED FOR DIFFICULT ANOVULATORY PROBLEMS. THE TWO GONADOTROPIN HORMONES, FOLLICLE STIMULATING HORMONE (FSH) AND LUTEINIZING HORMONE (LH) ARE PRODUCED IN THE PITUITARY . THESE TWO HORMONES STIMULATE THE OVARY, CAUSING FOLLICLES TO DEVELOP (THIS IS THE PRIMARY ACTION OF FSH - TO STIMULATE FOLLICULAR GROWTH). WHEN IT IS TIME FOR OVULATION, A SUDDEN BURST OF LH IS RELEASED FROM THE PITUITARY (THE LH SURGE) WHICH CAUSES THE EGG TO BE RELEASED FROM THE MATURE FOLLICLE IN THE OVARY.



THIS IS A VERY FINELY TUNED SYSTEM, DESIGNED BY NATURE TO ENSURE THE RELEASE OF A SINGLE MATURE EGG EVERY MONTH. THIS INVOLVES ORCHESTRATING A SYMPHONY OF MESSAGES FROM THE OVARY, THE PITUITARY AND HYPOTHALAMUS. THE MESSAGES ARE TRANSMITTED BY HORMONES - WHICH ARE CHEMICAL MESSENGERS IN THE BLOOD STREAM. IT IS THE MATURE EGG WHICH SIGNALS THE BRAIN THAT IT IS READY FOR RELEASE, AND TRIGGERS OFF ITS OWN OVULATION



HOW DOES NATURE ENSURE THAT ONLY ONE EGG IS RELEASED EVERY CYCLE? ABOUT 30-40 FOLLICLES WILL START GROWING IN RESPONSE TO THE FSH PRODUCED BY THE PITUITARY. HOWEVER, OF THESE FOLLICLES, ONLY ONE IS DESTINED TO GROW (BECOME DOMINANT) AND RUPTURE TO RELEASE ITS MATURE EGG. THE OTHERS WILL DIE - A PROCESS CALLED ATRESIA.

WHAT ARE HMG INJECTIONS AND HOW ARE THEY USED IN INFERTILITY TREATMENT ?

HMG (HUMAN MENOPAUSAL GONADOTROPINS, MENOTROPINS) WHEN THE PITUITARY DOESN'T RELEASE FSH AND LH OR RELEASES THEM IN AN IMPROPER BALANCE, HMG (HUMAN MENOPAUSAL GONADOTROPIN) SUBSTITUTES FOR THEM AND ACTS DIRECTLY ON THE OVARIES TO STIMULATE THE DEVELOPMENT OF THE FOLLICLE. HMG IS A NATURAL PRODUCT CONTAINING BOTH HUMAN FSH AND LH, 75 OR 150 INTERNATIONAL UNITS OF EACH PER AMPULE. BRAND NAMES INCLUDE MENOGON, REPRONEX AND MENOPUR. THIS MATERIAL IS EXTRACTED FROM THE URINE OF POST MENOPAUSAL WOMEN, PURIFIED AND THEN FREEZE DRIED .

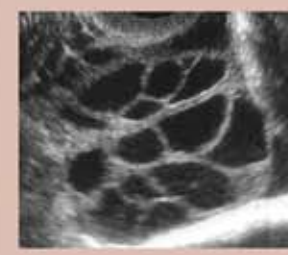
For more information on this chapter, go here:
http://www.drmalpani.com/book/chapter23.html

RECENTLY, BIOTECHNOLOGY (USING RECOMBINANT DNA) HAS BEEN USED TO PRODUCE SYNTHETIC FSH. CHINESE HAMSTER OVARY CELLS HAVE BEEN GENETICALLY ENGINEERED , SO THAT THEY ARE CAPABLE OF QUICKLY PRODUCING, OR "EXPRESSING", COMMERCIAL QUANTITIES OF FSH IN BIOREACTORS . BRAND NAMES INCLUDE: FOLLISTIM AND GONAL-F. WHILE THESE ARE AS GOOD AS THE CONVENTIONAL URINARY GONADOTROPINS, THEY ARE NO BETTER – AND MAY ACTUALLY BE LESS COST-EFFECTIVE, BECAUSE THEY ARE SO EXPENSIVE.

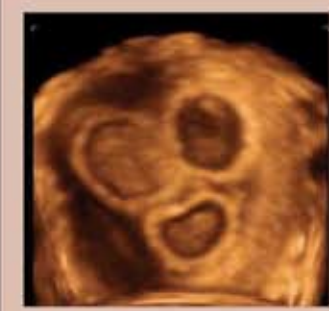
DOSE: MOST WOMEN NEED TO TAKE DAILY INJECTIONS OF HMG OVER A PERIOD OF SEVERAL DAYS EACH MONTH. THE EXACT NUMBER OF DAYS WILL BE DETERMINED BY YOUR PHYSICIAN THROUGH MONITORING YOUR RESPONSE TO THE INJECTIONS. HMG THERAPY USUALLY BEGINS ON DAY 3 TO DAY 5 OF THE MENSTRUAL CYCLE. IF YOU ARE NOT MENSTRUATING, THE INJECTIONS MAY BE STARTED AT ANY TIME. THE HMG DOSE REQUIRED TO PRODUCE MATURATION OF THE FOLLICLE MUST BE INDIVIDUALIZED FOR EACH PATIENT. HMG IS GIVEN BY SUBCUTANEOUS OR INTRAMUSCULAR INJECTIONS .

SIDE EFFECTS: MANY WOMEN WORRY THAT IF THEY TAKE HMG, THIS WILL CAUSE THEM TO "RUN OUT OF EGGS" BECAUSE THE HMG STIMULATES THE MATURATION OF A LARGE NUMBER OF EGGS. HOWEVER, HMG ONLY HELPS TO RESCUE THE EGGS WHICH WOULD OTHERWISE HAVE DIED, SO IT DOES NOT CAUSE YOU TO LOSE OR WASTE YOUR PRECIOUS EGGS !

HMG IS A POTENT DRUG WITH THE POTENTIAL TO CAUSE SIDE EFFECTS. THE MOST COMMON SIDE EFFECT WITH HMG RELATE TO OVERSTIMULATION OF THE OVARY AND EVERY EFFORT IS MADE TO AVOID THIS BY MONITORING THE RESPONSE TO HMG CAREFULLY.



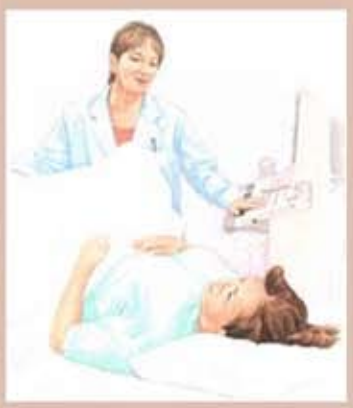
A POTENTIALLY SERIOUS SIDE-EFFECT OF HMG IS THE OVARIAN HYPERSTIMULATION SYNDROME (OHSS) WHICH IS CHARACTERIZED BY ENLARGEMENT OF THE OVARIES ; ACCUMULATION OF FLUID IN THE ABDOMEN; FLUID ACCUMULATION AROUND THE LUNGS ; FLUID IMBALANCE ; AND BLOOD CLOTTING . THIS CAN BELIFE THREATENING. FORTUNATELY, OHSS IS NOT COMMON, OCCURRING IN ABOUT 1 - 3% OF PATIENTS. TREATMENT USUALLY CONSISTS OF BED REST. IF NEEDED, THE EXTRA FLUID IN THE ABDOMEN CAN BE DRAINED TO PROVIDE QUICK RELIEF.



ANOTHER RISK WITH HMG THERAPY IS WHEN IT IS TOO SUCCESSFUL AT PRODUCING EGGS - THUS RESULTING IN MULTIPLE PREGNANCIES, WITH THE RISKS ASSOCIATED WITH THESE. OF THE PREGNANCIES FOLLOWING THERAPY WITH HMG MOST (80%) WILL BE SINGLE BIRTHS. THE MULTIPLE GESTATION RATE IS APPROXIMATELY 20%, THE MAJORITY OF WHICH HAVE BEEN TWINS. ABOUT 5% OF THE TOTAL PREGNANCIES RESULT IN THREE OR MORE CONCEPTUSES.

OTHER ADVERSE REACTIONS THAT HAVE BEEN REPORTED WITH HMG THERAPY ARE MILD AND INCLUDE ALLERGIC SENSITIVITY, PAIN, RASH, SWELLING AT THE INJECTION SITE. MANY WOMEN ARE WORRIED THAT THE HMG WILL CAUSE THEM TO PUT ON WEIGHT.REMEMBER THAT THE HMG IS A "NATURAL" HORMONE WHICH DOES NOT AFFECT YOUR CALORIC BALANCE, AND DOES NOT CAUSE YOU TO BECOME FAT ! HOWEVER, MANY WOMEN DO RESTRICT THEIR PHYSICAL ACTIVITY WHEN TAKING INFERTILITY TREATMENT. THIS CAUSES THEM TO BURN FEWER CALORIES, AND THIS MAY LEAD TO WEIGHT GAIN WHICH THEY THEN ATTRIBUTE MISTAKENLY TO THE HMG INJECTIONS. HMG MAY CAUSE FLUID RETENTION, BUT THIS IS TEMPORARY, AND HMG INJECTIONS HAVE NO LONG-TERM SIDE-EFFECTS, AS THE HORMONE IS PROMPTLY EXCRETED.

For more information on this chapter, go here:
http://www.drmalpani.com/book/chapter23.html



HOW IS HMG THERAPY MONITORED ?

MONITORING HMG THERAPY

PATIENTS ON HMG THERAPY NEED TO BE MONITORED FOR DOSAGE ADJUSTMENT AND PREVENTION OF SIDE EFFECTS. EACH WOMAN'S RESPONSE IS DIFFERENT AND THE DOSE GIVEN NEEDS TO BE ADJUSTED CAREFULLY, USING BLOOD ESTROGEN LEVELS AND ULTRASOUND SCANS. ABOUT 75% OF WOMEN TAKING HMG WILL OVULATE. 20% TO 40% OF PATIENTS RECEIVING HMG WILL BECOME PREGNANT, AS LONG AS THE FALLOPIAN TUBES ARE OPEN AND THE SPERM COUNT IS ADEQUATE.

INTERCOURSE IS ADVISED DAILY OR EVERY OTHER DAY BEGINNING ON THE DAY PRIOR TO THE ADMINISTRATION OF HCG. SOME DOCTORS WILL PERFORM AN INTRAUTERINE INSEMINATION ON THE DAY OF OVULATION TO INCREASE THE CHANCES OF A PREGNANCY. HMG IS EXPENSIVE AND THE COMMONEST USE OF HMG TODAY IS IN IVF TREATMENT WHERE IT IS USED TO STIMULATE SEVERAL EGGS TO GROW (SUPEROVULATION).

HOW ARE FSH INJECTIONS USED FOR TREATING INFERTILITY ?

FSH (FOLLICLE STIMULATING HORMONE) THIS CONTAINS PURE FSH AND NO LH. THE INDICATIONS FOR USE, ADMINISTRATION AND OVARIAN RESPONSE ARE ALMOST IDENTICAL TO HMG. HOWEVER, IT IS MORE EXPENSIVE THAN HMG, AND IS NO BETTER, IN OUR OPINION.

HOW ARE HCG INJECTIONS USED FOR TREATING INFERTILITY ?

HCG (HUMAN CHORIONIC GONADOTROPIN)
HCG IS PRODUCED BY THE PLACENTA DURING PREGNANCY. IT IS VERY SIMILAR TO LH AND IS USED TO TRIGGER OVULATION BY MIMICKING THE NATURAL LH SURGE AT MID CYCLE. IT IS ISOLATED AND PURIFIED FROM THE URINE OF PREGNANT WOMEN. IT IS AVAILABLE AS A STERILE WHITE POWDER CONTAINING 5000 IU OR 10000 IU. THIS POWDER IS DISSOLVED IN A DILUENT AND ADMINISTERED BY IM INJECTION. OVULATION OCCURS 36 HOURS AFTER THE HCG TRIGGER SHOT. RECENTLY, HCG HAS ALSO BEEN MANUFACTURED USING RECOMBINANT DNA TECHNOLOGY, AND THIS IS AVAILABLE UNDER THE BRAND NAME, OVIDREL.

HOW IS GNRH USED FOR TREATING INFERTILITY ?

SYNTHETIC GNRH
SYNTHETIC GNRH STIMULATES THE PITUITARY GLAND TO SECRETE LH AND FSH. IT IS USED TO INDUCE
OVULATION IN SELECTED WOMEN WITH HYPOTHALAMIC DYSFUNCTION. THE HORMONE HAS TO BE GIVEN IN A MANNER WHICH MIMICS THE NATURAL SECRETION OF LHRH, I.E. IN "PULSES" APPROXIMATELY 90 MINUTES APART. THIS IS GIVEN BY MEANS OF A SMALL PUMP PLACED UNDER THE SKIN OF THE ARM OR ABDOMEN.

HOW ARE GNRH ANALOGS USED FOR TREATING INFERTILITY ?

GNRH ANALOGUES
THESE DRUGS MAY BE USED FOR THE TREATMENT OF ENDOMETRIOSIS AND FIBROIDS. THEY WORK BY INITIALLY STIMULATING, THEN SWITCHING OFF (DOWN-REGULATING) THE PITUITARY GLAND, AND ARE ADMINISTERED INTRANASALLY OR BY INJECTION. THEY THUS INDUCE A 'MENOPAUSAL' STATE, ALLOWING THE ENDOMETRIOSIS AND FIBROIDS TO SHRINK, SINCE THERE IS NO FURTHER PRODUCTION OF ESTROGENS. BRAND NAMES INCLUDE BUSERELIN, LUPRON AND LUCRIN.

GNRH ANALOGS ARE MOST COMMONLY USED TODAY AS ADJUNCTIVE THERAPY IN ORDER TO ENHANCE INDUCTION OF OVULATION WITH HMG, ESPECIALLY FOR IVF (IN VITRO FERTILISATION) TREATMENT. YOUR OWN GONADOTROPINS (FSH AND LH) PRODUCED BY YOUR PITUITARY ARE TURNED OFF BY THE GNRH ANALOGUES (THIS IS CALLED PITUITARY DOWNREGULATION) , SO THAT YOUR PHYSICIAN HAS A CLEAN SLATE TO WORK WITH WHEN ADMINISTERING EXOGENOUS GONADOTROPINS TO INDUCE SUPEROVULATION.

HOW ARE GNRH ANTAGONISTS USED FOR TREATING INFERTILITY ?

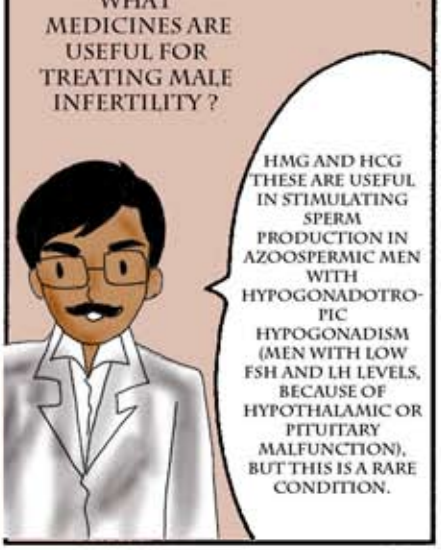
GNRH ANTAGONISTS
MOST IVFCENTRES USED PITUITARY DOWN-REGULATION WITH GONADOTROPHIN-RELEASING HORMONE (GNRH) AGONISTS TO PREVENT PREMATURE LUTEINIZATION. A RECENT OPTION IS THE NEWER GNRH ANTAGONISTS, WHICH CAUSE AN IMMEDIATE BLOCKAGE OF THE GNRH RECEPTORS ON THE PITUITARY GLAND. BRAND NAMES INCLUDE ANATGON AND CETRORIDE.TREATMENT WITH THE ANTAGONIST CAN BE LIMITED TO ONLY THOSE 2-3 DAYS WHEN HIGH OESTRADIOL LEVELS MAY INDUCE APREMATURE LH SURGE. HOWEVER, CLINICAL EXPERIENCE WITH GNRH ANTAGONISTS IN IVF TREATMENT SHOWS NO EVIDENCE THAT THEY ARE ANY BETTER THAN THE TRADITIONAL GNRH ANALOGUES.

For more information on this chapter, go here:
http://www.drmalpani.com/book/chapter23.html

GROWTH HORMONE
SOME WOMEN WILL RESPOND VERY POORLY TO HMG INJECTIONS. THEY GROW FEW OR NO FOLLICLES, INSPITE OF BEING GIVEN LARGE DOSES. IN SOME OF THESE "POOR RESPONDERS" SYNTHETIC GROWTH HORMONE (HGH, HUMAN GROWTH HORMONE) HAS BEEN USED TO TRY TO ENHANCE THE RESPONSE OF THE OVARY TO THE HMG. HOWEVER, THE RESPONSE TO THIS VERY EXPENSIVE DRUG HAS BEEN QUITE DISAPPOINTING, AND IT IS NO LONGER USED.

HOW IS METFORMIN USED FOR TREATING INFERTILITY?

METFORMIN
THE DRUG OF FIRST CHOICE FOR WOMEN WITH PCOD TODAY IS METFORMIN (WHICH IS ALSO USED FOR TREATING PATIENTS WITH DIABETES.) MANY PCO PATIENTS ALSO HAVE INSULIN RESISTANCE – A CONDITION SIMILAR TO THAT FOUND IN DIABETICS, IN THAT THEY HAVE RAISED LEVELS OF INSULIN IN THEIR BLOOD (HYPERINSULINEMIA) , AND THEIR RESPONSE TO INSULIN IS BLUNTED. THIS IMPROVES FERTILITY BY REVERSING THE ENDOCRINE ABNORMALITY AND IMPROVING THE OVULATORY RESPONSE.



TREATMENT OFTEN TAKES MANY MONTHS TO RESTORE THE SPERM QUALITY TO FERTILE LEVELS. COMBINATION TREATMENT IS REQUIRED, USING HCG TO STIMULATE TESTOSTERONE PRODUCTION; AND FSH LATER ON TO STIMULATE SPERM PRODUCTION. WHILE SPERM COUNTS ACHIEVED ARE USUALLY LOW (LESS THAN 10 MILLION PER ML), A SUCCESSFUL PREGNANCY CAN BE ACHIEVED IN 50 % OF CORRECTLY DIAGNOSED PATIENTS.

TESTOSTERONE
THIS IS GIVEN TO SUPPRESS SPERM PRODUCTION IN THE HOPE THAT WHEN MEDICATION IS STOPPED (USUALLY AFTER 5-6 MONTHS), THEN THE SPERM PRODUCTION WILL "REBOUND " TO HIGHER LEVELS THAN ORIGINALLY (TESTOSTERONE REBOUND). THIS FORM OF TREATMENT IS NOW SELDOM USED AS IT MAY FURTHER IMPAIR FERTILITY AND IS HAZARDOUS.

CLOMIPHENE
THIS IS THE MOST COMMONLY PRESCRIBED MEDICINE FOR INFERTILE MEN. ITS USE IS LARGELY EMPIRICAL AND VERY CONTROVERSIAL AS THE RESULTS ARE NOT PREDICTABLE. THIS IS USUALLY PRESCRIBED AS A 25 MG TABLET, TO BE TAKEN ONCE A DAY, FOR 25 DAYS PER MONTH, FOR A COURSE OF 3 TO 6 MONTHS. IT ACTS BY INCREASING THE LEVELS OF FSH AND LH, WHICH STIMULATE THE TESTES TO PRODUCE TESTOSTERONE AND SPERM. HOWEVER, WHILE CLOMIPHENE MAY INCREASE SPERM COUNTS IN SELECTED MEN, IT HASN'T BEEN PROVEN EFFECTIVE IN INCREASING PREGNANCY RATES.

ANTIBIOTICS
JUST AS IN THE FEMALE, ANTIBIOTICS CAN RESOLVE A CHRONIC INFECTION IN THE REPRODUCTIVE TRACT IN THE MALE. THESE ARE VERY COMMONLY MISUSED, BECAUSE NORMAL ROUND CELLS IN THE SEMEN ARE MISDIAGNOSED AS 'PUS CELLS' IN THE LABORATORY. THESE ARE CONSIDERED TO BE DIAGNOSTIC OF A SEMEN INFECTION WHICH NEEDS TO BE "TREATED", EVEN THOUGH THIS IS NOT TRUE.

VITAMINS
THERE IS NO EVIDENCE THAT THEY WORK , BUT MANY DOCTORS GIVE THEM IN ORDER TO " DO SOMETHING".

AYURVEDIC TREATMENT AND OTHER MAGIC POTIONS
EVERYONE SEEMS TO HAVE A "MAGIC POTION" TO CURE LOW SPERM COUNTS - THE TROUBLE IS THAT NO ONE HAS EVER PROVEN THAT ANYTHING WORKS! TAKE ALL CLAIMS WITH A LIBERAL PINCH OF SALT.

WHY IS MEDICAL TREATMENT OF LOW SPERM COUNTS INEFFECTIVE ?

THE PROBLEM WITH THE MEDICAL TREATMENT OF A LOW SPERM COUNT IS THAT FOR MOST PEOPLE IT SIMPLY DOESN'T WORK. AFTER ALL, IF THE REASON FOR A LOW SPERM COUNT IS A MICRODELETION ON THE Y-CHROMOSOME, THEN HOW CAN MEDICATION HELP ? THE VERY FACT THAT THERE ARE SO MANY WAYS OF 'TREATING' A LOW SPERM COUNT EXCEL SUGGESTS THAT THERE IS NO EFFECTIVE METHOD AVAILABLE. THIS IS THE SAD STATE OF AFFAIRS TODAY AND MUCH NEEDS TO BE LEARNT ABOUT THE CAUSES OF POOR PRODUCTION OF SPERM, BEFORE WE CAN FIND EFFECTIVE METHODS OF TREATING IT.

. HOWEVER, PATIENTS WANT TREATMENT, SO THERE IS PRESSURE ON THE DOCTOR TO PRESCRIBE, EVEN IF HE KNOWS THE THERAPY MAY NOT BE HELPFUL . SINCE MOST PEOPLE STILL BELIEVE THERE IS A 'PILL FOR EVERY ILL', THEY EXPECT THAT THE DOCTOR WILL GIVE THEM A MEDICINE (OR AN INJECTION) WHICH WILL INCREASE THEIR SPERM COUNT. NO PATIENT EVER WANTS TO HEAR THE TRUTH THAT THERE IS REALLY NO EFFECTIVE TREATMENT AVAILABLE TODAY FOR INCREASING THE SPERM COUNT.

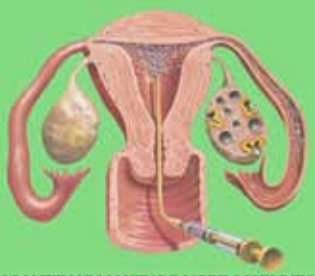
SINCE MOST DOCTORS KNOW THIS, THEY ARE PRESSURISED INTO PRESCRIBING MEDICINES FOR THESE PATIENTS, BECAUSE THEY ARE WORRIED THAT IF THEY DO NOT FULFILL THE PATIENT'S EXPECTATION OF A PRESCRIPTION, THE PATIENT WILL DESERT THEM, AND GO ELSEWHERE. THIS IS WHY THEY OFTEN DO NOT TELL THE PATIENT THE COMPLETE TRUTH. THE DOCTOR ALSO REMEMBERS THE OCCASIONAL ANECDOTAL SUCCESSES (WHO COME BACK FOR FOLLOWUP , WHILE THE OTHERS DESERT THE DOCTOR AND ARE LOST TO FOLLOWUP) . THIS IS WHY PATIENTS WITH LOW SPERM COUNTS ARE PUT ON EVERY TREATMENT IMAGINABLE , WITH LITTLE RATIONAL BASIS - VITAMIN E, VITAMIN C, HIGH-PROTEIN DIETS, PROXEED, HOEMEOPATHIC PILLS AND AYURVEDIC CHURANS. HOWEVER, THE VERY FACT THAT THERE ARE HUNDREDS OF MEDICINES ITSELF PROVES THAT THERE IS NO MEDICINE WHICH WORKS !

MANY DOCTORS JUSTIFY THEIR PRESCRIPTIONS BY SAYING THAT THEY CANNOT HURT. HOWEVER, THIS ATTITUDE CAN BE HARMFUL. IT WASTES TIME, DURING WHICH THE WIFE GETS OLDER, AND HER FERTILITY POTENTIAL DECREASES. PATIENTS ARE UNHAPPY WHEN THERE IS NO IMPROVEMENT IN THE SPERM COUNT AND LOSE CONFIDENCE IN DOCTORS. IT ALSO STOPS THE PATIENT FROM EXPLORING EFFECTIVE MODES OF ALTERNATIVE THERAPY - SUCH AS IVF AND ICSI . TODAY EMPIRIC THERAPY SHOULD BE CRITICISED UNLESS IT IS USED AS A SHORT TERM THERAPEUTIC TRIAL WITH A DEFINED END-POINT.

A WORD OF WARNING. MEDICAL TREATMENT FOR MALE INFERTILITY DOES NOT HAVE A HIGH SUCCESS RATE AND HAS UNPLEASANT SIDE EFFECTS, SO DON'T TAKE IT UNLESS YOUR DOCTOR EXPLAINS HIS RATIONALE. THE TREATMENT IS BEST CONSIDERED 'EXPERIMENTAL' AND CAN BE TRIED AS A THERAPEUTIC TRIAL. MAKE SURE, HOWEVER, THAT SEMEN IS EXAMINED FOR IMPROVEMENT AFTER THREE MONTHS AND THEN DECIDE WHETHER YOU WANT TO PRESS ON REGARDLESS.

IT IS WORTH EMPHASISING HOW SMALL THE LIST FOR MALE INFERTILITY TREATMENT IS - ESPECIALLY AS COMPARED TO FEMALE TREATMENT. THIS SIMPLY REFLECTS OUR IGNORANCE ABOUT MALE INFERTILITY - WE KNOW VERY LITTLE ABOUT WHAT CAUSES IT, AND OUR KNOWLEDGE ABOUT HOW TO TREAT IT IS EVEN MORE PITIABLE !

WHAT IS INTRAUTERINE INSEMINATION (IUI) ?



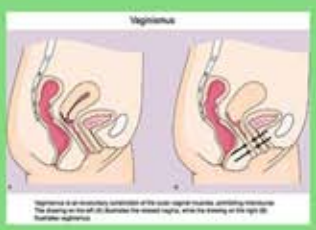
. SOMETIMES NATURE NEEDS HELP TO START A PREGNANCY - AND THE DOCTOR CAN DO THIS BY GIVING THE SPERM A PIGGY BACK RIDE THROUGH A FINE TUBE INTO THE BODY. THIS PROCEDURE IS CALLED INTRAUTERINE INSEMINATION (IUI) OR ARTIFICIAL INSEMINATION WITH HUSBAND'S SPERM (AIH) - AND THIS INCREASES THE CHANCES OF THE EGG AND SPERM MEETING.

WHEN IS IUI USED FOR TREATING INFERTILITY ?

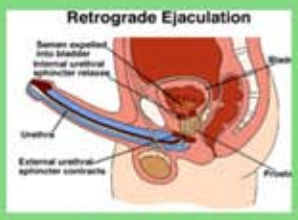
IUI IS USEFUL WHEN:

1.THE WOMAN HAS A CERVICAL MUCUS PROBLEM - FOR EXAMPLE, IT MAYBE SCANTY OR MAYBE HOSTILE TO THE SPERM. WITH AN INTRAUTERINE INSEMINATION (IUI) THE SPERM BYPASS HER CERVIX AND ENTER THE UTERINE CAVITY DIRECTLY.

2. THE MAN HAS ANTIBODIES TO HIS OWN SPERM. THE " GOOD' SPERM WHICH HAVE NOT BEEN AFFECTED BY THE ANTIBODIES ARE SEPARATED IN THE LABORATORY AND USED FOR IUI.



3. IF THE MAN CANNOT EJACULATE INTO HIS PARTNER'S VAGINA. THIS IS USUALLY BECAUSE OF PSYCHOLOGICAL PROBLEMS SUCH AS IMPOTENCE (INABILITY TO GET AND MAINTAIN AN ERECTION) AND VAGINISMUS(AN INVOLUNTARY SPASM OF THE VAGINAL MUSCLES SO THAT VAGINAL PENETRATION IS NOT POSSIBLE); OR ANATOMIC PROBLEMS OF THE PENIS, SUCH AS UNCORRECTED HYPOSPADIAS; OR IF HE IS PARAPLEGIC.



4. THE MAN SUFFERS FROM RETROGRADE EJACULATION IN WHICH THE SEMEN GOES BACKWARD INTO THE BLADDER INSTEAD OF COMING OUT OF THE PENIS.

5.FOR UNEXPLAINED INFERTILITY, SINCE THE TECHNIQUE OF IUI INCREASES THE CHANCES OF THE EGGS AND SPERM MEETING.

6.IF THE HUSBAND IS AWAY FROM THE WIFE FOR LONG STRETCHES OF TIME (FOR EXAMPLE, HUSBANDS WHO WORK ON SHIPS OR WORK ABROAD), HIS SPERM CAN BE FROZEN AND STORED IN A SPERM BANK AND USED TO INSEMINATE HIS WIFE EVEN IN HIS ABSENCE.

HOW IS ARTIFICIAL INSEMINATION PERFORMED ?
METHODS FOR PERFORMING AIH
THERE ARE VARIOUS METHODS OF DOING AIH (ARTIFICIAL INSEMINATION BY HUSBAND). THE CRUDEST AND SIMPLEST TECHNIQUE INVOLVES SIMPLY INJECTING THE ENTIRE SEMEN SAMPLE INTO THE VAGINA BY A SYRINGE. YOU CAN ALSO PERFORM ARTIFICIAL INSEMINATION IN YOUR OWN BEDROOM. THIS IS CALLED SELF-INSEMINATION. HOWEVER, THIS IS A WASTE OF TIME IF USED FOR TREATING AN INFERTILITY PROBLEM. THIS IS ONLY USEFUL IF THE REASON FOR DOING AIH IS THE INABILITY OF THE HUSBAND TO EJACULATE IN THE VAGINA. HOWEVER, A NUMBER OF DOCTORS STILL USE IT AS THEY DO NOT OFFER ANYTHING BETTER.

A REFINEMENT OF THIS TECHNIQUE IS THAT OF USING A SPILT EJACULATE. THE FIRST SQUIRT OF SEMEN WHICH GUSHES FORTH DURING EJACULATION IS RICHEST IN SPERM. THIS IS BECAUSE THE SPERM "SURF" ON THE WAVE OF THE SEMINAL FLUID WHICH CARRIES THEM FORWARD TO THE OUTSIDE WORLD. THE MAN MASTURBATES INTO A 2-PART CONTAINER, SO THAT THE FIRST PART GOES INTO ONE

For more information on this chapter, go here:
http://www.drmalpani.com/book/chapter24.html

HOW IS IUI PERFORMED ?

INTRAUTERINE INSEMINATION (IUI)
IN THIS METHOD, THE SPERMS ARE REMOVED FROM THE SEMINAL FLUID BY PROCESSING THE SEMEN IN THE LABORATORY AND THEY ARE THEN INJECTED DIRECTLY INTO THE UTERINE CAVITY. IT IS NOT ADVISABLE TO INJECT THE SEMEN DIRECT INTO THE UTERUS, AS THE SEMEN CONTAINS CHEMICALS (PROSTAGLANDINS) AND PUS CELLS WHICH CAN CAUSE SEVERE CRAMPING; AND EVEN TUBAL INFECTION.

HOW IS THE IUI TIMED ?

TIMING
TIMING THE IUI IS VERY IMPORTANT - IT MUST BE DONE DURING THE "FERTILE PERIOD". PINPOINTING THE TIME OF OVULATION ACCURATELY USING EITHER VAGINAL ULTRA-SOUND OR OVULATION TEST KITS IS CRUCIAL. IT IS IMPORTANT TO SUPEROVULATE THE WIFE AT THE SAME TIME (WITH CLOMID OR HMG INJECTIONS) , SO THAT SHE PRODUCES MORE THAN ONE EGG. SUPEROVULATION INCREASES THE CHANCES OF CONCEPTION BY IMPROVING THE CHANCES OF THE EGGS AND SPERM MEETING.

THE IUI IS DONE EITHER WHEN OVULATION IS IMMINENT OR JUST AFTER. THE HUSBAND MASTURRATES INTO A CLEAN JAR - PREFERABLY IN THE LABORATORY OR CLINIC ITSELF, AND AFTER AT LEAST THREE DAYS OF SEXUAL ABSTINENCE TO GET OPTIMAL SPERM COUNTS. SOME MEN MAY HAVE CONSIDERABLE DIFFICULTY PRODUCING A SEMEN SAMPLE AT THE APPROPRIATE TIME, BECAUSE OF THE " PRESSURE TO PERFORM". FOR THESE MEN, USING A PREVIOUSLY STORED FROZEN SAMPLE CAN BE HELPFUL. VIAGRA (SILDENAFIL CITRATE) CAN ALSO BE USED TO HELP THEM TO GET AN ERECTION, AS CAN USING A VIBRATOR.

THE BEST SPERM ARE SEPARATED FROM THE REST OF THE SEMINAL FLUID, BY SPECIAL LABORATORY PROCESSING TECHNIQUES. THIS SEPARATION TAKES ABOUT 1 TO 2 HOURS. THE DOCTOR THEN PUTS THE PROCESSED SPERM THROUGH A THIN PLASTIC TUBE (CATHETER) THROUGH THE CERVIX INTO THE UTERUS. THERE MAY BE A BIT OF UTERINE CRAMPING AT THIS TIME; AND SOME DISCOMFORT FOR ABOUT 12 TO 24 HOURS. NO SPECIAL BED REST IS REQUIRED AFTER THE IUI - THE SPERMS CANNOT "FALL OUT" OF THE UTERINE CAVITY. SOME DOCTORS MAY REPEAT THE INSEMINATION AFTER 24 HOURS. WE USUALLY ENCOURAGE OUR PATIENTS TO HAVE INTERCOURSE ON THE NIGHT OF THE IUI, AND FOR 2-3 DAYS AFTER THIS AS WELL, TO MAXIMIZE THE CHANCES OF THE SPERM AND EGG MEETING.

HOW ARE THE SPERM PROCESSED IN THE LABORATORY FOR IUI ?

SPERM PROCESSING:
SPERM PROCESSING ALLOWS THE DOCTOR TO CONCENTRATE THE ACTIVELY MOTILE SPERMS INTO A SMALL VOLUME OF CULTURE FLUID. THIS PROCESSING SHOULD PREFERABLY BE DONE IN THE CLINIC ITSELF, SO THAT TIME IS NOT WASTED IN TRANSPORTING THE SPERM AFTER THE WASH.

LABORATORY TECHNIQUES:
THERE ARE DIFFERENT METHODS OF PROCESSING THE SPERM, AND ALL OF THESE REQUIRE SPECIAL LABORATORY EXPERTISE.

1. THE SIMPLEST METHOD IS THAT OF WASHING THE SEMEN WITH A CULTURE MEDIUM (BY CENTRIFUGING IT AND COLLECTING THE PELLET) BUT THIS IS A POOR TECHNIQUE AND IS NOT RECOMMENDED.
2. THE SWIM-UP METHOD USES A LAYERING TECHNIQUE, IN WHICH A SPECIAL CULTURE MEDIUM IS PLACED ABOVE THE SEMEN IN A TEST-TUBE. THE GOOD QUALITY SPERM WILL SWIM UP INTO THE CULTURE MEDIUM; AND AFTER 45 TO 60 MINUTES, THIS MEDIUM (WITH THE MOTILE SPERMS) IS REMOVED AND INJECTED INTO THE UTERINE CAVITY.

3. THE MORE SOPHISTICATED METHODS TODAY USE A DENSITY GRADIENT COLUMN. THIS METHOD ALLOWS ONE TO SEPARATE THE GOOD QUALITY SPERM FROM THE IMMOTILE SPERM WHICH ARE LIGHTER THAN THE MOTILE SPERMS. IT PROVIDES THE BEST RECOVERY OF MOTILE SPERMS AND IS THE STANDARD TECHNIQUE IN USE TODAY, ESPECIALLY FOR POOR QUALITY SPERM SAMPLES.

For more information on this chapter, go here:
http://www.drmalpani.com/book/chapter24.html

WHAT RECENT ADVANCES HAVE OCCURRED IN IUI TREATMENT ?

OF LATE, DOCTORS HAVE TRIED ADDING VARIOUS CHEMICALS TO THE WASHED SPERM TO TRY TO IMPROVE THEIR MOTILITY, SO AS TO INCREASE THE CHANCES OF THEIR REACHING THEIR GOAL. THESE CHEMICALS INCLUDE CAFFEINE AND PENTOXYFYLLINE AND THEY MAY BE HELPFUL IN SOME PATIENTS.

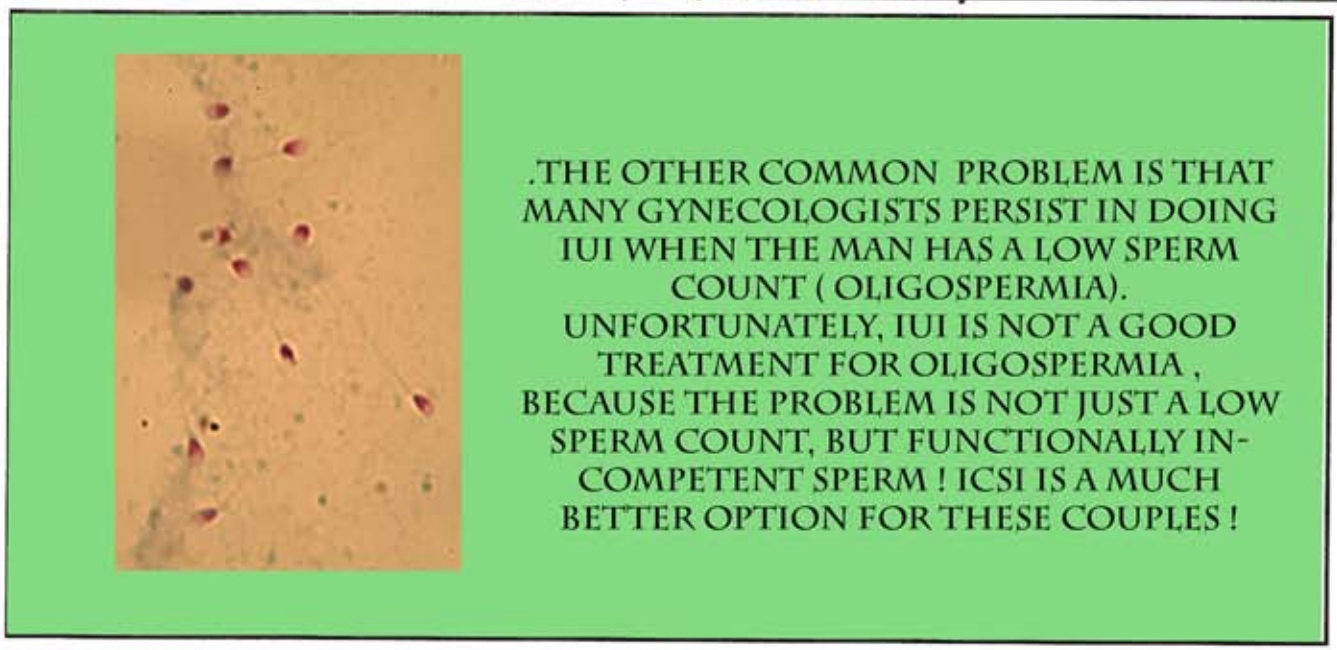
DURING IUI, SPERMS ARE INJECTED INTO THE UTERINE CAVITY IN THE HOPE THAT THEY WILL THEN SWIM UP FROM HERE INTO THE FALLOPIAN TUBES WHERE THEY CAN FERTILIZE THE EGG. TODAY, WITH SPECIALLY DESIGNED CATHETERS (JANSEN-ANDERSON CATHETER SETS), IT IS POSSIBLE TO DO THIS IN THE DOCTOR'S CLINIC. THIS IS AN INTRATUBAL INSEMINATION - ALSO KNOWN AS A SIFT - (SPERM INTRAFALLOPIAN TRANSFER). HOWEVER, PREGNANCY RATES ARE NO BETTER WITH THIS METHOD THAN WITH IUI, WHICH IS WHY IT IS RARELY PERFORMED TODAY

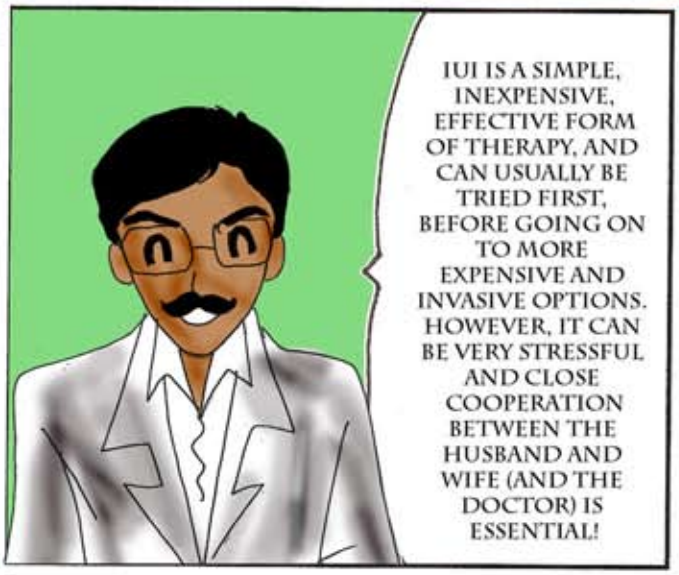
PSYCHOLOGICAL ISSUES
MEN MAY FEEL A LOSS OF SELF-ESTEEM BECAUSE THEY FEEL THAT THEY NEED A DOCTOR'S HELP TO DO WHAT A 'NORMAL MAN' SHOULD HAVE BEEN ABLE TO DO BY HIMSELF. THEY ALSO FEEL GUILTY ABOUT HAVING TO SUBJECT THEIR WIFE TO THE PAIN AND INTRUSION OF INSEMINATION. THE INSEMINATION MAY ALSO MAKE PATIENTS FEEL THAT SOMEONE HAS 'INTRUDED' INTO THEIR SEX LIFE AND THIS MAY AFFECT THEIR INTIMACY.

WHAT IS THE SUCCESS RATE OF IUI TREATMENT?

ONE OF THE RISKS WITH IUI TREATMENT IS THAT OF HIGH ORDER MULTIPLE PREGNANCY. WHEN TOO MANY EGGS ARE GROWN IN YOUNG WOMEN UNDERGOING IUI, THIS IS A REAL RISK.WHILE MANY GYNECOLOGISTS TODAY OFFER IUI TREATMENT, MANY OF THEM ARE NOT SPECIALIZED ENOUGH TO PROVIDE A COMPREHENSIVE SERVICE. THIS OFTEN MEANS THAT PATIENTS NEED TO RUN AROUND FROM THE GYNECOLOGIST TO THE ULTRA-SOUND SCAN CENTER TO THE LAB . NOT ONLY IS THIS VERY TIME CONSUMING AND FRUSTRATING, IT OFTEN MEANS THAT THE CARE BECOMES FRAGMENTED .TRY TO FIND A CLINIC WHICH OFFERS ALL THE SERVICES UNDER ONE ROOF.

ONE OF THE RISKS WITH IUI TREATMENT IS THAT OF HIGH ORDER MULTIPLE PREGNANCY. WHEN TOO MANY EGGS ARE GROWN IN YOUNG WOMEN UNDERGOING IUI, THIS IS A REAL RISK.WHILE MANY GYNECOLOGISTS TODAY OFFER IUI TREATMENT, MANY OF THEM ARE NOT SPECIALIZED ENOUGH TO PROVIDE A COMPREHENSIVE SERVICE. THIS OFTEN MEANS THAT PATIENTS NEED TO RUN AROUND FROM THE GYNECOLOGIST TO THE ULTRASOUND SCAN CENTER TO THE LAB . NOT ONLY IS THIS VERY TIME CONSUMING AND FRUSTRATING, IT OFTEN MEANS THAT THE CARE BECOMES FRAGMENTED .TRY TO FIND A CLINIC WHICH OFFERS ALL THE SERVICES UNDER ONE ROOF.





For more information on this chapter, go here:
http://www.drmalpani.com/book/chapter24.html