

A Vaginal Ultrasound as Part of the Basic Infertility Investigation



**Southern Ontario
Fertility Technologies**

Introduction

The **basic infertility investigation** is done at S.O.F.T. when you begin your treatment and is usually arranged right after your initial consultation. It is the same for almost every couple being investigated for infertility. Although it cannot always detect the cause of the infertility, it does ensure that no major areas have been overlooked.

A basic infertility investigation involves testing of three things: the woman's hormone status (day 3 blood work), a test of the Fallopian tubes, and a sperm count. **Almost without exception, the whole basic infertility investigation is completed in one cycle.** Sometimes the cause of the infertility is obvious. For example, if the man has no sperm or the woman has no cycle. However, we will still recommend all three aspects of the investigation. Once the basic infertility investigation is completed, there are not a lot of other effective investigations. One other test that we have recently introduced is the **initial screening vaginal ultrasound**. It is usually done right after your hysterosalpingogram when you come back to the clinic to review your treatment.

A Vaginal Ultrasound

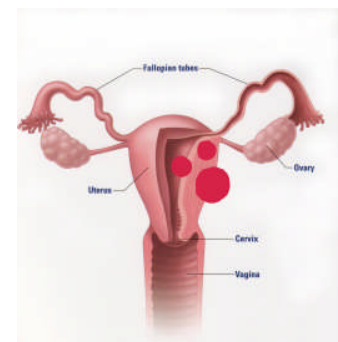
A vaginal ultrasound is very useful in infertility because it allows a very detailed examination of the uterus and ovaries. A vaginal ultrasound involves the use of a vaginal probe and is best done with an empty bladder.

When you have a hysterosalpingogram at the hospital, you will be asked to return to the S.O.F.T. clinic to discuss the results and formulate a plan for your infertility investigations. This is usually when we arrange the infertility directed vaginal ultrasound.

What Information This Test can Tell Us

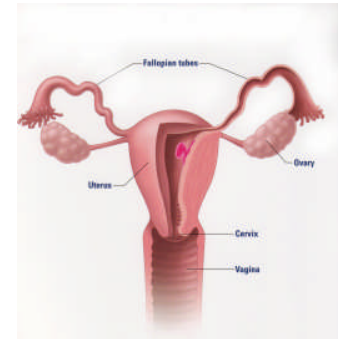
During the baseline vaginal ultrasound several things will be evaluated. Uterine size and shape can be assessed, as can the presence of fibroids, polyps and adenomyosis. Abnormalities in this kind of ultrasound are rare in the general population ($\leq 5\%$) but a recent study of this kind of ultrasound used as a screening test in the infertility population found 40% of women had some abnormal finding. Not all of these findings are significant as far as infertility but some are important. Some uterine abnormalities can be diagnosed by this ultrasound as well; especially if the findings of the hysterosalpingogram are taken into account.

Fibroids are benign growths of the muscle layer of the uterus. They are not generally significant as far as infertility or recurrent pregnancy loss except if they protrude into the endometrial cavity or are extremely large. Fibroids are formally called leiomyoma. These can be classified according to their position in relationship to the uterine muscle wall. Fibroids which are totally contained within the muscle wall are classified as intramural; fibroids that protrude from the outside surface of the uterus are termed subserosal; and fibroids which protrude into the cavity of the



uterus are classified as submucosal. It is only the submucosal fibroids which we feel can have negative effects on fertility or implantation (therefore pregnancy losses). The only other fibroids that give us any concern are extremely large ones regardless of their position. This classification is depicted diagrammatically in the picture on the previous page.

Polyps are benign growths of the endometrial layer. Just how important they are to fertility depends on their size. Usually if a polyp is more than 5 millimeters in diameter, we will make arrangements to remove it. A normal ultrasound does not always show a polyp well but combined with what we saw on the hysterosalpingogram, we can usually make an accurate diagnosis and if there is any doubt, we may do an additional test called a saline (salt water) infusion sonohysterogram (which we will explain later in this information sheet). A polyp is depicted in the diagram to the right.



Adenomyosis is a condition where the endometrium extends in little pockets into the myometrium. It probably is not detrimental to fertility but can cause heavy and/or painful periods. Unfortunately, there is no treatment for adenomyosis short of hysterectomy, but the pain and heavy bleeding can be improved by symptomatic treatment.

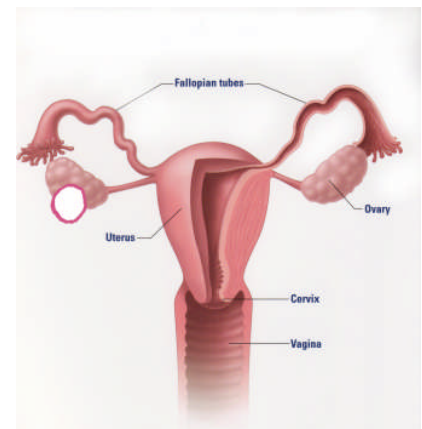
Uterine abnormalities cannot always be diagnosed with a vaginal ultrasound but again when this information is combined with what we see on the hysterosalpingogram.

The ovaries can be extremely well seen with vaginal ultrasound. The size of the ovaries is very important in infertility evaluation.

Larger volumes are often seen with decreased ovulation. The larger volume is often due to multiple small cysts or follicles and this is what gives polycystic ovaries their name. **Smaller** ovarian volumes are often associated with a decreased ovarian reserve or fewer eggs. This assessment is very important in older women. The average age of running out of eggs is 41 years old. The size of the ovaries and the number of small follicles (antral follicles) present helps us to predict how far along this “road” your ovaries are. In fact, the antral follicle count is thought by many infertility experts to be as predictive for the number of eggs left as the day three FSH level.

The **position** of the ovaries can also be important. The ovaries are not seen on the hysterosalpingogram (HSG). Sometimes their position can be inferred by the position of the fallopian tubes which can be seen on the HSG. The position of the ovaries can vary widely and is usually not concerning. However, extremes of position can be an indirect indication of pelvic scarring. Ovaries which are fixed in position and far away from the top of the vagina can make IVF difficult.

Ovarian cysts can usually be seen easily with ultrasound. They are not seen on the hysterosalpingogram. Not all ovarian cysts are bad! As you cycle each month, an egg or eggs are matured in a follicle. A follicle is an ovarian cyst. It can look like any other ovarian cyst except it changes quickly during your cycle and is usually present for only one cycle. The usual size of the follicle can be predicted by the day of your cycle. For example, usually by day 10 of the cycle, one follicle has enlarged to 14 mm in diameter. If this is seen, then



it indicates that you are probably ovulating. If you have been started on medication, there may be more than one follicle and this gives some indication of how you are responding to the medication.

Some ovarian cysts are not positive findings. Sometimes the only indication of endometriosis is an ovarian cyst called an endometrioma which is first seen on this vaginal ultrasound. Sometimes, benign (not cancers) ovarian tumors can also be detected. Of course, the first signs of full blown cancer can also be seen on this ultrasound but this finding would be exceedingly rare.

If the assist is found on ultrasound, at a few months of observation to see if it goes away may be suggested or a laparoscopy may be suggested to establish the diagnosis.

Other **structures in the pelvis** are usually not apparent on ultrasound but there are some circumstances that this may be helpful. If the hysterosalpingogram has demonstrated one tube is open but the other one was not, this usually means that the tube that did not fill is normal but just didn't fill. In fact, 80% of patients with one tube open and one tube closed on hysterosalpingogram are found to have normal fallopian tubes when they proceed to laparoscopy. However, if the hysterosalpingogram has demonstrated one tube open in one tube not, sometimes we can see fluid in that fallopian tube when the ultrasound is done. This is called a hydrosalpinx and would be additional evidence that the tube was damaged.

Sometimes, the pelvic ultrasound will demonstrate a Nabothian cyst on the cervix of the uterus. This cyst is essentially a collection of cervical mucus and causes no symptoms and has no significance to infertility. Also, occasionally we will see cysts of Morgani or para-ovarian cysts. These look a little bit like ovarian cysts but by looking at them carefully we can tell that they are not in the overbearing tissue. These represent fluid in the residual parts of the male reproductive system and have no significance as far as symptoms, health or fertility.

Hysterosonograms

In the near future, we will be starting to perform hysterosonograms at S.O.F.T. The simplest hysterosonogram is a **saline infusion hysterosonograms** and this is the test of choice to confirm pathology within the endometrial cavity.

Hysterosonograms can also be done with contrast material (**contrast hysterosonogram**) to determine if the fallopian tubes are open. Hysterosalpingogram still remain the standard of care as far as demonstrating the tubes to be open but this test may replace it in the future. The advantage of this test is that it could be done at the S.O.F.T. clinic and it avoids any x-ray exposure.

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Southern Ontario Fertility Technologies (S.O.F.T.)

555 Southdale Rd E, Suite 107,

London Ontario, N6E 1A2

Check out our web page at; www.soft-infertility.com