N. J. Obstet. Gynaecol Vol. 1, No. 2, p. 71 - 73 Nov-Dec 2006

SHORT REVIEW

Sonosalpingography

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Sonosalpingography is the ultrasonic visualization of the fallopian tubes using ultrasound echo enhancing (contrast) agents. This test is used as a basic screening test for evaluating tubal patency in all infertile cases and helps in screening cases for laproscopy[1]. Sonosalpingography also known as Sion Test uses transvaginal sonography to confirm the tubal patency by visualizing the spill of fluid from the fimbrial end of fallopian tubes. Normally the fallopian tubes are isoechoic and are not visualized unless pathological or surrounded by fluid. We propose to perform this test not as a substitute for hysterosalpingography or laparoscopy but as a noninvasive, cheap, outdoor screening procedure in patients of infertility.

The basic technique consists of a routine transvaginal ultrasound examination followed by a direct visualization of the cervix with a speculum. Following cleansing of the cervix using a sterile agent under aseptic technique a soft flexible catheter (8 Fr.) is inserted into the uterine cavity (Fig. 1).

This technique is common to all procedures, regardless of the contrast agent chosen. A balloon catheter is preferred as it is less likely to dislodge and creates a better seal at the internal cervical os. Following the insertion of the catheter, the speculum is removed and the transvaginal ultrasound probe reinserted. Under ultrasound control the echo-enhancing agent (we use a combination of Ciplox, hylase and Dexamethasone) is instilled in small aliquots. Tubal patency is assessed by direct imaging of flow within segments of each tube. Patency is confirmed by free spillage of the agent into the peritoneal cavity [4].

Color Doppler imaging can be helpful but is not essential to assess the flow of the echo enhancing agent in the tube and spillage into the peritoneal cavity (waterfall sign — seen as a bruit of color) [3] (Fig. 2, 3).

Sonosalpingography can also be used to evaluate the endometrium besides the fallopian tubes. The injection of fluid into the endometrial canal (uterine cavity) after deflating the Foley's balloon, improves visualization of masses such as polyps and sub mucus fibroids. Adhesions (synechae) can also be well seen (Fig. 4, 5).

We have done 'Sion Procedure' in patients of suspected pelvic factors. In this we flooded the pelvis with 200-300 ml. of same fluid via Foley's catheter where tubes are patent and visualized the fallopian tubes and rest of the pelvis for adhesions.

Figure 1. *Foleys placed in uterine cavity.*

Figure 2. *Free spill color bruit.*

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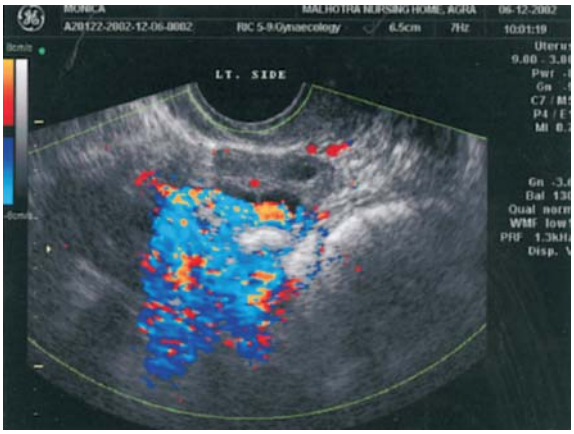

Figure 3. *Color bruit.*

Figure 4. *Sonohysterography shows a Polyp in uterine cavity*

In addition pelvic structures and ovaries can be assessed at the same sitting and problems like polycystic ovaries can be diagnosed (Fig. 6).

The indication for the investigation is screening for tubal patency as part of the preliminary work up in infertility, either primary or secondary. The contraindications are similar to X-Ray HSG i.e current infection, menstruation and possible pregnancy. For this reason the author takes precaution of performing this investigation prior to ovulation (6-9 days). If the chosen agent is Echovist (Schering Health Care) hereditary galactosemia is a contraindication[2].

The complications of ultrasound salpingography are procedure related and contrast related. In the first group the complications are directly related to the discomfort and pain of the instrumentation. This is similar to X-ray HSG. However there is a procedure failure due to the technical difficulties of either visualization or canalization between 2%-8%.

Contrast related pain using Echovist is reported by many workers to be less than with HSG, although few have indicated a higher incidence of nausea and vasovagal reactions, which appears to be most common in those with patent tubes. This may be related to higher osmolarity of Echovist-200 compared to conventional X-Ray contrast agents. Agitated saline appears less painful, probably again because of the low osmolarity of the injected solution[5].

Conclusion

Sonosalpingography is therefore an excellent procedure for evaluation of tubal patency and endometrium and has a lot of advantages over Hysterosalpingography. There is no radiation exposure and no iodinated contrast agents. However SSG does not tell about the site of block of fallopian tubes for which HSG is good. Laparoscopy has its additional advantage of having a therapeutic value also.

Figure 5. *Sonohysterography normal cavity*

Figure 6. *Poly cystic ovary*

Table 1. *Comparision of 3 Procedures*

factors to be assessed	HSG	Laproscopy	SSG
Cervix			
— Congenital abnormalities	+	-	+
— Cervicitis	-	-	+
Uterus			
— Congenital anomalies	+	Hysteroscopy	+
— Myometrium	-	-	+ +
— Endometrium	-	-	+ +
Tubes			
— Morphology	+	+	+
— Mobility	-	+	+
— Patency	+	+	+
Ovaries			
— Morphology	-	+	+
— Follicles	-	+	+ +
— Adhesions	-	+ +	+
Pouch of Douglas	-	+	+
Cost/Time	+ +	+ + +	+
Radiation / GA	+	+	-
Therapeutic Value	-	+ +	+

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