

## Comparison of Hysterosalpingography and Diagnostic Laparoscopy in the assessment of tubal patency for the investigation of subfertility

Submitted in : 19/5/2010

Accepted in: 22/9/2010

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### ABSTRACT

**Background and Objectives:** Infertility is common in our community . Infertility has become nowadays not only a medical, but a social problem as well .Fallopian tube problem is among one of the common causes of infertility. Hysterosalpingography and laparoscopy are used as a screening test for diagnosis of tubal patency .Hysterosalpingography is an out patient X-ray procedure, has for many years been an invaluable procedure for the assessment of tubal pathology and intra-uterine pathology .Laparoscopy is an invasive procedure used since 1944 by Raoul Palmer,of Paris for gynecological examination. We aimed in this paper to explore the role of hystrosalpingography in the evaluation of tubal patency in the diagnosis of the cause of female infertility in our society and to reduce the need for laparoscopy .

**Methods:** One hundred fifty seven infertile women with fallopian tubes problem out of one thousand three hundred fifty patients who underwent HSG had given consent to undergo Laparoscopy in Sulaimania Maternity Teaching Hospital and in Hatwan Private Hospital during 2<sup>nd</sup> may. 2007 to 3<sup>rd</sup> may. 2008. For infertility not less than 2 years duration

**Results:** 1350 infertile patients with age range ( 20 – 39 ys ) underwent HSG, 157 patients show pathology of the fallopian tubes. Diagnostic laparoscopy was performed for them after the HSG procedure to confirm the abnormalities diagnosed by HSG. ,The results showed non insignificant difference P value, the HSG gave 92,4% sensitivity and 100% specificity, while laparoscopy showed 100% sensitivity and 100% specificity .

**Conclusions:** We conclude the feasibility of using HSG as a diagnostic method for investigating tubal patency in subfertile women when compared to the use of diagnostic laparoscopy .

**Key words:** Infertility, Hystrosalpingography ( HSG ),Diagnostic Laparoscopy

### INTRODUCTION:

Tubal factors are responsible for up to 30% of female infertility <sup>1,2</sup>. The currently available modes of investigations to check tubal patency include Hysterosalpingography ( HSG ), & Diagnostic Laparoscopy with chromopertubation <sup>1,3</sup>. Hysterosalpingography is a radiological out patient examination, has for many years been an invaluable procedure used to examine the uterine cavity and the patency of the fallopian tubes <sup>1,3,4</sup>. common

to diagnose the causes of infertility <sup>5,6</sup>. The primary role of HSG is in the evaluation of the fallopian tubes <sup>6-8</sup>. It is observed the number of HSG examination has increased dramatically in our practice,, since a large number of infertile women referred for HSG by our gynecologist, and HSG become a commonly preformed examination due to recent advances and improvement, as well as increasing popularity of reproductive medicine, resulting in more successful in vitro fertilization and trend toward women delaying pregnancy until later life, <sup>5</sup>.

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Laparoscopy is a surgical procedure that allows visualization of the pelvic organs including the area of the uterus, fallopian tubes and ovaries<sup>3</sup>. Owing to the non invasive nature and low cost, HSG is usually used as a first line approach in assessment of the morphology and the patency of the fallopian tubes<sup>6-10</sup>. So nowadays infertility unites in maternity hospital is overcrowded by those couples seeking advices and dreaming in holding baby soon. This made searching for best methods of infertility investigations a primary goal on the doctors part. One of these investigations is hysterosalpingography<sup>11-13</sup>. The accuracy of HSG to demonstrate the tubal pathology a study done by Swart et al, in demonstrates, 65 % of sensitivity and 83 % of specificity (swart et, al 1995). We aimed in this paper to evaluate the role of HSG, also to demonstrate its sensitivity and specificity in the diagnosis of the causes of female infertility prior to

#### **SUBJECTS AND METHODS:**

laparoscopy and compared to diagnostic laparoscopy.

One thousand three hundred fifty infertile women were interviewed at infertility units in sulaimania, 600 were complaining of primary infertility and 750 complaining of secondary infertility underwent Hystrosalpingography (HSG) in Sulaimania Maternity Teaching Hospital and in Hatwan Private Hospital during 2<sup>nd</sup> may. 2007 to 3<sup>rd</sup> may. 2008.., The duration of infertility was not less than 2 years, among those 157 patients found to have fallopian tubes problems, 157 were randomly selected to do for them diagnostic laparoscopy to confirm the fallopian tubes pathology and to compare the result with HSG findings. HSG was performed to all the patients at 10<sup>th</sup> days of the menstrual cycle, starting with irrigation of the vagina by using antiseptic solution, then bimanual examination of the uterus first, casco speculum is inserted to visualize the cervix clearly & holding the

and direction of the uterus, screw cannula fixed in the cervical os through which iodine containing contrast media is injected to visualize the uterine cavity and the fallopian tubes then taking films. fig 1, show unilateral blocked tube and in fig 2 show bilateral blocked tubes ( please these figs are of the patients with HSG performed in my clinic and in hospital ). Laparoscopy was performed by gynecologist Dr. Amanj in addition with assistants' in maternity hospital & in Hatwan private hospital immediately after menses, the patient should be in supine position under effect of general anesthesia, cleaning and sterilizing of both abdomen from the nipple down to the mid thigh and vagina, Sims speculum introduced into the vagina, so that the cervix should be appeared clearly, meanwhile three small incisions around 1-2 cm done, one of them below umbilicus and two on either side of right and left iliac fossa, through these incisions three probes introduced in to the abdominal cavity. One of them passed through the incision below umbilicus is containing camera, the other two named moriland probe is passed through the other two incisions are for handling. Meanwhile catheter is passed through cervix named blue dye catheter through which dye is forced in to the uterine cavity to the fallopian tubes in order to see the patency of the fallopian tube which is at the same time seen by the camera. fig 3 show the uterus and fallopian tubes ( the fig is of a patient to home laparoscopy performed in hospital ).

#### **RESULT:**

All our patients were complaining of infertility, the duration was not less than 2 years. The total number undergo HSG was ( 1350 patients), 600 patients complaining of primary infertility and 750 complaining of secondary infertility as shown in fig 1. 157 patients showed fallopian tubes problems and each patient with two fallopian tubes so the total number of fallopian tubes examined was 314 tubes

undergo diagnostic laparoscopy as well . Age was between 20 - 39 years. The HSG findings shown in table 1, 184 ( 59% ) fallopian tubes show pathology and in laparoscopy 199 ( 63% ) fallopian tubes show pathology as shown in table 2 ,( note the suspect sign of peritubal adhesion was confirmed by laparoscopy )Comparison between HSG findings and laparoscopic findings show the P value between the two studies is of no significant as show in table 3 .

Table 4 show the sensitivity and spasticity of the two procedured in HSG it gives 92,4% sensitivity with 100% specificity, laparoscopy show 100% sensitivity and 100% specificity . The distribution of diagnostic laparoscopy and diagnostic HSG shown a little difference . We demonstrate that routine use of diagnostic HSG prior to diagnostic laparoscopy did not result in a significant effect on the incidence of confirming tubal patency, compared with routine use of diagnostic laparoscopy with out HSG .



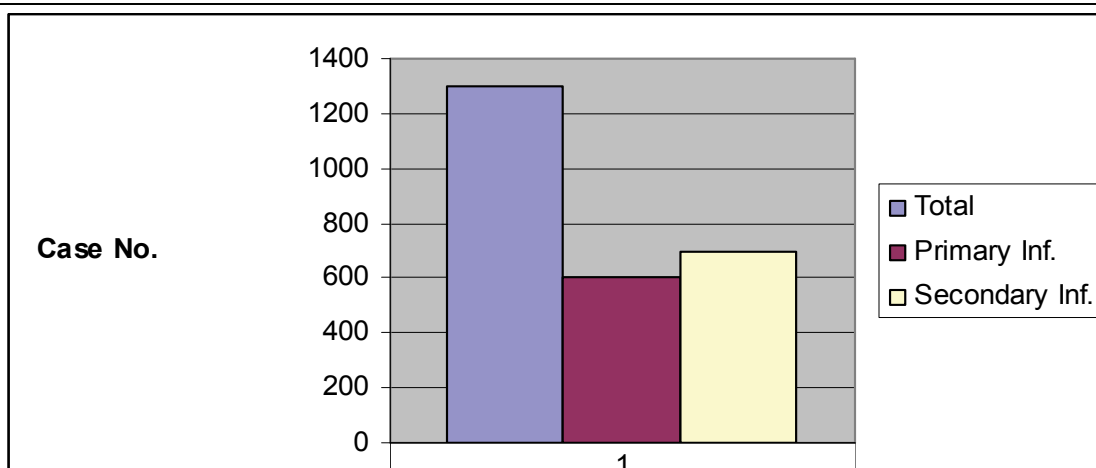
**Figure 2:** HSG show bilateral blocked fallopian tubes



**Figure 1:** HSG show left fallopian tube blocked



**Figure 3:** showing laparoscopy



**Figure 4:** showing types of infertility

**Table 1:** showing HSG findings .

HSG findings	No, of fallopian tubes	%
Blocked tubes	109	48,2
Hydrosalpinx	40	50,0
Suspect peritubal adhesion	30	46,2
Suspect spasm	5	41,7

**Table 2:** show laparoscopic findings

HSG findings	No, of fallopian tubes	%
Blocked tubes	109	48,2
Hydrosalpinx	40	50,0
Suspect peritubal adhesion	30	46,2
Suspect spasm	5	41,7

**Table 3:** showing comparison between HSG and Laparoscopy findings.

Pathological conditions	Tests		P value
	Laparoscopy N(%)	HSG N (%)	
Blocked tube	117(51.8)	109(48.2)	0.711
Partial blocked	7(58.3)	5(41.7)	0.211
Peritubal adhesion	35(53.8)	30(46.2)	0.172
Hydrosalpinx	40(50.0)	40(50.0)	0.612

**Table 4:** showing sensitivity and specificity of HSG and Laparoscopy

Options	Laparoscopy(%)	HSG(%)
Sensitivity	100	92.4
Specificity	100	100

**DISCUSSION:**

our study on 157 infertile women in Sulaimania teaching maternity Hospital and in Hatwan private Hospital complaining of fallopian tubes problems undergo HSG and diagnostic laparoscopy for the diagnosis of the tubal patency the result show that there were no significant difference between the two procedure in the accuracy and sensitivity , while the accuracy of HSG to demonstrate the tubal patency done by Swart et al, was 65% of sensitivity and 83% of specificity in 1995 while in our study HSG give 92% sensitivity and 100% specificity so this difference is due to decreased anxiety of the patient and explain the procedure to the patient before the procedure and need an expert doctor to perform the HSG . So we have shown that HSG can be a good alterative for laparoscopy , there by the patient is spared for more expansive . complicated and risky diagnostic method ( laparoscopy ) , knowing that HSG is more acceptable by

**CONCLUSION :**

patients in our society . Our conclusion in this paper we evaluate the feasibility of using HSG as a diagnostic method for investigating tubal patency when compared to use of diagnostic laparoscopy .So radiological method play an important rule in the diagnosis the causes of infertility .Note SPSS method is

**ACKNOWLEDGMENT:**

used in statistic assessment . We want to express hour thanks to colleagues all gynecologists for their cooperation.Additional thanks to Dr. Abdulfattah H. Hawrami M.Sc. Community

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Medicine for his statistic assessment.

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