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Research Article

Comparative study of sonosalpingography versus hysterosalpingography for tubal patency test

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ABSTRACT

Background: Various tubal pathologies accounts for 10% aetiological factors in infertility couples. Easy availability and accessibility of ultrasonography definitely can prove superior to conventional method of diagnosis of tubal patency in such patient. Aims and objectives of the study were to test the sensitivity and specificity of sonosalpingography (SSG) for tubal patency test in cases of infertility patients attending to our OPD and to compare the result of sonosalpingography v/s HSG.

Methods: In a non randomised prospective control trial of 50 women complaining of infertility, suspected tubal pathologies underwent various radiological modalities. Sonosalpingography and hysterosalpingography was performed in all cases.

Results: By using binomial proportion test there is no significant difference between results of SSG compare to HSG. Acceptability was 100% in SSG compared to 96% in HSG.

Conclusions: Various modalities are suggested to evaluate tubal patency test in infertile women. Among those laparoscopic chromopertubation is gold standard method, but for initial workup as cost effectiveness acceptability, accessibility is concerned SSG is always superior to HSG.

Keywords: SSG, HSG

INTRODUCTION

Tuboperitoneal factors are responsible for about 30-40% of female infertility in India. The prevalence of pelvic inflammatory disease, genital tract tuberculosis, and chronic infection is quite common in our country so the incidence of tubal factor in infertile women is high. Rubin described the tubal insufflation test in 1920 by using CO₂. Various methods have been developed for evaluation of tubal factors; Hysterosalpingography (HSG) and laparoscopic chromopertubation are widely used. Recently the newer technique of sonohysterosalpingography popularly known as Sonosalpingography (SSG) is evolved. Sonosalpingography is a new procedure in the examination of the passage of the uterine tube.^{1,2} It was first used by Dr. Richman from the United States. He

quoted that sonosalpingography utilizing saline as a contrast medium is a reliable, simple and well-tolerated method to assess tubal patency in an outpatient setting. In addition, the procedure can be performed without prophylactic antibiotics using a regular pediatric Foley's urinary catheter instead of an expensive hysterosalpingography catheter.¹⁻⁵

This study is to bring into focus the value of pelvic sonogram in accessing tubal patency in order to overcome the radiation hazard associated with hysterosalpingogram reduce the cost of examination and encourage it at first-line office based procedure for diagnosis of female infertility.⁷ Sonosalpingography has been suggested as the first-line method to study tubal patency.⁹ This study is to bring in order to study the

applicability and accessibility of this method at our institution.^{3,4}

Sonosalpingography is a simple office procedure which should be used in the preliminary assessment of the uterine cavity and the fallopian tubes. Its use will reduce the need for hysterosalpingography.⁸

METHODS

In our non randomised prospective control trial 50 women with history of primary and secondary infertility attending our gynaecological OPD over a period of 1 year since June 2015 to June 2016 were included.

Patient's detail history was taken clinical examination was done and baseline investigation according to infertility protocol including semen analysis of male partner was done in all cases

SSG and HSG both were done on 8th and 9th day of menstrual cycle after taking proper consent. Patient not willing to participate in the study/ with suspected history of genital Koch's/ with significantly abnormal semen analysis were excluded in study.

Procedure

After taking informed written consent and explaining procedure to patient, under all aseptic precaution with the help of cusco's speculum paediatric Foley's catheter no.8 inserted into the uterus just above the internal OS. Catheter inflated with 2-3 ml of normal saline to block retrograde spill.

Maintain gentle traction to catheter speculum removed. 5 to 20ml of normal saline is instilled in uterine cavity slowly and continuously. It is monitored by transvaginal transducer of 7.5 MHz. Endometrial cavity flow, flow in fallopian tube and collection in cul-de-sac were observed and recorded. Interruptions of flow in tubes formation of hydrosalpinx at some part are considered as tubal block. Presence of free fluid in cul-de-sac with flow in tubes considered as patency of tube or tubes.

RESULTS

Table 1: Age group distribution.

Age	Primary infertility N	Secondary infertility N
20-25	08	01
26-30	10	05
31-35	14	07
>36	02	04

Table 1 shows age wise distribution of patient in which youngest one was 23 yrs and oldest was 39 yrs old with mean age of 32 yrs. In 74% of the patient reason for performing diagnostic test for tubal patency was primary infertility and in 26 % it was secondary infertility.

Table 2 and 3 shows the analysis of data obtained after performing both the test in all patient n =50. By using binomial proportion test there is no significant difference between results of SSG compare to HSG.

Table 2: Comparison of the two tests for all patients (n=50).

	Bilateral patent tubes	Bilateral tubal blockage	Right side tubal block	Left side tubal block
Sonosalpingography	39 (96%)	4	3	4
Histerosalpingography	37 (90%)	5	3	5

Table 3: Distribution of cases according to site of tubal blockage.

Site of obstruction	SSG	HSG
Cornual block	2	2
Mid segment block	3	5
Fimbrial block	6	6
Patent tubes	39	37

Table 4 shows that tubal pathologies like hydrosalpinx, Tubo-ovarian mass, Endometriosis fibroid and polyp were better detected by SSG.

Table 4: Associated pelvic pathology detected in the study.

Pelvic pathology	SSG	HSG
Hydrosalpinx	3	2
Tuboovarian mass	3	0
Endometriosis	2	0
Fibroid uterus	2	0
Endometrial polyp	1	0

DISCUSSION

Various studies already proved that among different diagnostic methods of tubal patency 'laparoscopic' is

best. As along with tubal patency it can diagnose various pelvic pathologies, but it has few disadvantages like

1. It's an invasive procedure.
2. Skilled surgeon is required.
3. It is expensive.
4. It is associated with morbidity and mortality.

Second most common technique used to diagnose tubal patency is hysterosalpingography which is associated with following disadvantages.

1. Insertion of HSG cannula is painful and sometimes traumatic also.
2. It can cause allergic manifestation to drugs used for it.
3. Some contraindications like acute PID, cervicitis known case of genital Koch's are there.

As development, updation and wide use of ultrasonography, nowadays transvaginal ultrasonography has become popular for evaluating many gynaecological pathologies.⁹⁻¹¹ SSG, a term coined in 1993, not used widely even it's a non-invasive so we decided to compare it with widely used conventional method HSG.¹²

Results and analysis of our study showed that SSG is equally sensitive and specific in diagnosing tubal patency with no significant difference by using binomial proportion test.

We found certain advantages in techniques of SSG:

1. It is outpatient procedure and can be perform while doing first routine ultrasound of infertile women, hence cost effective also.
2. It helps in diagnosis of various uterine and tubal pathologies.
3. There are no radiation hazards.
4. No allergic reaction.
5. No anesthesia is required.
6. If done in all aseptic precautions there is no infectious morbidity.

Hence the study clearly shown that SSG can be used as baseline investigation in all infertile women. It is equally efficient method as HSG with many advantages.

Gold standard laparoscopy can restricted to selective patients and can be performed after detailed initial workup.¹³

To review few other studies which concluded similar facts are, SSG can be used as an initial investigation for infertile patients and laparoscopy can be deferred for 6 months. Meanwhile endocrinological and immunological causes are ruled out and then if required laparoscopy may be done.¹⁴

RCOG recommends that where appropriate expertise is available, screening for tubal occlusion using HyCoSy should be considered, Due to good degree of statistical comparability and concordance of conventional HyCoSy with HSG and laparoscopy and dye test, National Institute for Health and Clinical Excellence has recommended HyCoSy as a suitable outpatient procedure.¹⁵

CONCLUSION

SSG can be used as screening method in infertile women for tubal patency as it is cost effective outpatient procedure. It has many advantages and minimal disadvantages as compared to conventional procedure (HSG).

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Ethical approval: The study was approved by the Institutional Ethics Committee

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