

Original Article**Re-emerging role of HSG Vs laparoscopy for infertility work –up at rural hospital set up**

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ABSTRACT

Background: Infertility is a common gynaecological problem presently encountered in Indian population whose incidence is rising year by year. To assess tubal patency we can use laparoscopy or HSG (Hysterosalpingography) or both. As laparoscopy is considered as gold standard, still HSG should be the first line investigation before undergoing laparoscopy for intrauterine and intratubal pathology.

Aims: The purpose of this study is to find out sensitivity, specificity, positive predictive value and negative predictive value of HSG. To compare findings of HSG and laparoscopy during work up of infertility couples having tubal factors of infertility.

Materials and Methods: After taking consent from the women, hysterosalpingography was done followed by laparoscopy after 3 months. Results of both investigations were compared.

Results: The sensitivity of HSG is 93.3%, specificity is 91.1%, positive predictive value is 77.7% and negative predictive value is 97.6%.

Conclusion: HSG is a very safe, non invasive and cost effective investigation which can be used as a first line test for the diagnosis of tubal patency, especially in rural set up.

Keywords: HSG, laparoscopy, infertility

INTRODUCTION

Infertility is a common & rising gynaecological problem presently encountered in Indian population. It affects 10-15 % of couples in the reproductive period [1]. Tuboperitoneal factors are responsible for 25-35% of reproductive couples [2]. To assess tubal patency we can use laparoscopy or HSG or both. In Indian scenario where the burden of population over the health care system is too large, HSG comes up as an economical as well as non-invasive tool to screen up the patients not only for infertility but also various pathologies involving tubes and uterus. Laparoscopy is generally accepted as gold standard in diagnosing tubal pathology and other abnormalities of uterus and the fallopian tubes. In the rural set up there is a desperate need of a test which should be non-invasive, economic and accurate with minimum side effect and which can work in limited facilities.

MATERIAL AND METHODS

Study area and sample size: The present study entitled was conducted in the Department of

Obstetrics & Gynaecology, Index Medical College Hospital and Research Centre, Indore (M.P.) during the period of June 2014 to May 2015. We studied 70 cases of infertile couples after taking written informed consents. It is a retrospective, observational study.

Inclusion Criteria:

- Age group 20 to 35 years.
- Women having regular menstruation.
- Normal male partner with semen analysis.

Exclusion criteria:

- Age > 35 years.
- Undergone HSG previously.
- Unovulation despite clomiphene citrate.
- Acute PID, history of oophorectomy, salpingectomy, endometriosis.

Methodology

Based on the inclusion & exclusion criteria 70 patients were selected. The nature and purpose of the study was explained to the patient. HSG is a procedure whereby a radio-graphic study of the interior of the utero- tubal anatomy is made using a

contrast media. Out of 70 patients who underwent HSG, 10 conceived spontaneously, so they were excluded from the study. Remaining 60 infertile couples underwent laparoscopy after HSG. Laparoscopy is performed under general anaesthesia in a standard manner and chromopertubation test was done to confirm finding of HSG. All HSG's were performed in outpatient clinic of department of radiology between 7th to 10th days of menstrual cycle. Tubal-occlusions (one – sided tubal occlusions or two sided tubal occlusions) were taken up as a single entity. Additional abnormalities of the uterine cavity were recorded as well. Tubal occlusions detected at HSG were compared with occlusions detected at laparoscopy. Sensitivity, specificity, positive predictive value, negative predictive value of HSG in the diagnosis of tubal occlusion was calculated regarding laparoscopy as the reference standard.

Ethical clearance

This study was a retrospective analysis of all the patients visited the hospital for routine diagnosis and treatment purpose, so ethical clearance is not obtained.

RESULTS

Table 1: Comparative findings of HSG and Laparoscopy

Laparoscopy	HSG (%)		Total
	Test Positive	Test Negative	
Non Patent (Diseased)	14	1	15
Patent (Non diseased)	4	41	45
Total	18	42	60

Total 70 patients were taken for study. All of them underwent HSG. Out of them 10 patients conceived within 3 months were excluded from the study. Hence the total numbers of cases were 60, who underwent diagnostic laparoscopy after three months. The results obtained were as shown in table 1. Among 60 patients, laparoscopy showed tubal blockage in 15 (25%) patients while HSG of these 15 patients showed blockage in 14 patients. Remaining 45 patient's (75%) tube were patent in laparoscopy of whose HSG had shown patency in 41 patients.

Sensitivity of HSG is 93.33% and specificity is 91.11%.

Positive predictive value is 77.77% and Negative predictive value is 97.61%.

DISCUSSION

Recently the role of HSG in the evaluation of infertility has become a matter of discussion. Hysterosalpingography is frequently used in the examination of the uterine cavity and tubal patency for patients with infertility. Diagnostic laparoscopy with advanced laproscopic techniques that enhances its popularity plays an important role in the evaluation of infertility. However it was reported that evaluation of infertility without diagnostic laparoscopy is inadequate [3]. Diagnostic potentials of HSG and laparoscopy were compared in a study including 420 patients in North Carolina in USA and it was claimed that HSG is sufficient as laparoscopy in the diagnosis of tubal patency and obstruction; however, laparoscopy was superior in the examination of peritubal adhesions and other pelvic pathologies [4].

In a study by Tvarijonaviciene et al [5], sensitivity of 84.1 % and specificity of 59% were calculated when tubal occlusion was defined as any abnormality of tubal patency. When definition of tubal occlusion was limited to two sided occlusion the sensitivity and specificity were 89.5% & 90% respectively [5]. In our study we found sensitivity of HSG to be 93.33% and specificity was 91.11%. Diagnostic value of HSG and laparoscopy in hundred and two infertile women was evaluated by Vasiljevic et al [6] and the concordant finding by HSG and laparoscopy in unilateral tubal blockage were found in 61.5 % of cases, and in bilateral tubal blockage in 70.4 % women. The total concordant findings by HSG and laparoscopy in tubal blockage were found in 65.7% of cases. Results of the two above studies are consistent with our findings.

Despite the fact that laparoscopy seems to be a better predictor for infertility than HSG, we postulates that HSG should keeps its place in the diagnostic work-up for infertility. When comparing HSG and laparoscopy, we should keep in mind that both procedures provide more information about condition of the fallopian tubes than alone. Whereas HSG provides information on the status of the intrauterine cavity, laparoscopy allows inspection of the intra-abdominal cavity, for instance to see if endometriosis is present. The later has become especially important, since it was recently shown that laparoscopic treatment of endometriosis improves fertility prospects by 13% (Marcoux et al., 1997) [7]. On the clinical value of HSG and laparoscopy, one should consider issues other than solely tubal pathology. However, such an analysis is beyond the scope of this study. When focusing on tubal pathology, we conclude that laparoscopy should not be considered as perfect in the diagnosis

of tubal pathology. Lavy et al [8] concluded that it is unnecessary to apply laparoscopy if HSG is normal or reveals suspicious unilateral tubal obstruction and therapy scheme does not alter in 95% of patients. However, laparoscopy is more beneficial for the patients with suspicious bilateral tubal pathology and alters therapy scheme. For tubal patency HSG was found to be satisfactory. However, some factors such as cornual spasm were held responsible for false positive tubal obstruction detected by HSG, while laparoscopy confirmed tubal patency for the same cases.

CONCLUSION

It can be concluded that HSG is a very safe, non invasive and cost effective investigation which can be used as a first line test for the diagnosis of tubal patency especially in rural set up where laparoscopy trained professionals and equipments are at scarcity. Though laparoscopy is the gold standard in diagnosing tubal patency, taking in consideration the cost and the patient load especially in rural area all patients should be first subjected to HSG first followed by laparoscopy.

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