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A hospital based study on comparative assessment of sonosalpingography (SSG) and diagnostic laparoscopy for determination of tubal patency in cases of primary and secondary subfertility

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Abstract
Background: Subfertility is defined as one year of unprotected intercourse without conception. This study evaluates the efficacy of sonosalpingography (SSG) as an alternative to Diagnostic laparoscopy (D'Lap) in assessment of tubal patency in patients with primary/secondary subfertility.
Objective: To find out whether Sonosalpingography, which is a less invasive method, can be used for assessment of tubal factor in cases of primary and secondary subfertility initially instead of Diagnostic laparoscopy with chromopertubation.
Methods and Materials: The study is conducted in the Dept. of Obstetrics and Gynaecology, Govt. KMCH among women with primary/secondary subfertility attending Gynaec OP. SSG is done on 7th or 8th day of the menstrual cycle. Diagnostic laparoscopy with chromopertubation was performed under general anesthesia on the following day to evaluate pelvic pathology and tubal patency.
Results: Of the 23 tubal blocks detected by SSG, 14 were primary and 9 were secondary subfertility cases. Of the actual 20 tubal blocks detected by D'Lap, 12 were primary and 8 were secondary subfertility cases. It was found that SSG has a sensitivity of 97% and specificity of 90% and a diagnostic accuracy of 96%.
Conclusion: SSG offers a much less invasive method of diagnosing tubal pathology while maintaining a high sensitivity and specificity similar to that of laparoscopic chromopertubation.

Keywords: sonosalpingography, diagnostic laparoscopy, determination, tubal patency

Introduction
Subfertility is defined as one year of unprotected intercourse without conception. This condition is classified as primary subfertility, in which there has been no previous pregnancies, and secondary subfertility, in which a prior pregnancy had occurred, though not necessarily a live birth. It affects about 10–15% of couples in the reproductive age group, making it an important component of the practices of many physicians. This study evaluates the efficacy of sonosalpingography (SSG) as an alternative to Diagnostic laparoscopy in assessment of tubal patency in patients with primary/secondary subfertility.

Review of literature
Saline infusion sonosalpingography (SIS)
Parsons and Lense in 1993 were the first to develop the technique of using saline as a contrast agent to view the lesions inside the uterine cavity. It has now widely used and is referred to as sonosalpingography (SSG) or saline infusion sonohysterography (SIS). It is a very valuable technique used for the detection of any structural abnormalities such as polyps, submucous myomas and adhesions. Soares *et al*.: "he evaluated the diagnostic accuracy of SIS in uterine cavity pathology in 65 sub-fertile patients, thus comparing its results with that of hysterosalpingography (HSG) and transvaginal USG. Hysteroscopy was the gold standard and SIS had the same diagnostic accuracy for endometrial hyperplasia and polypoid lessons". Gronlund *et al*.: "Using hysteroscopy as the standard, he assessed the diagnostic value of SIS in the evaluation of metrorrhagia and infertility. SIS had the same sensitivity and specificity with lesser side effects as that of hysteroscopy".

Laparoscopy

It is the gold standard technique for diagnosing peritoneal and tubal disease. It allows visualization of all pelvic organs and permits detection of periovarian and peritubal adhesions, intramural and subserosal uterine fibroids, and endometriosis. Chromopertubation involves the transcervical instillation of a dye, such as indigo carmine or methylene blue. Direct laparoscopic visualization of the dye coming through the fimbrial openings of the tubes is diagnostic of tubal patency. This technique allows assessment of the external architecture of the tubes and the visualization of the fimbria.

Aim of the study

To find out whether Sonosalpingography, which is a less invasive method, can be used for assessment of tubal factor in cases of primary and secondary subfertility initially instead of Diagnostic laparoscopy with chromopertubation which is associated with significant morbidity and even some mortality.

Period of study: September 2013 to September 2014

Place of study

Pregynaec ward, Ultrasound room and Gynaec OT Department of obstetrics and Gynaecology.
Govt. Kilpauk medical college hospital Chennai.

Materials and Methods

Inclusion criteria

All patients with primary/secondary subfertility attending gynaec OPD in the age group of 18 to 40 years, not with below mentioned exclusion criteria.

Exclusion criteria

- All established cases of hydrosalpinx as the tubal flow may give a false impression of tubal patency in SSG.
- Pregnancy and PID
- All medical contraindications for Diagnostic laparoscopy sample size is 170.

Method

The study is conducted in the Dept. of Obstetrics and Gynaecology, Govt. KMCH among women with primary/secondary subfertility attending Gynaec OP. After getting informed consent for the study, patients were evaluated by

1) History taking
2) General examination
3) Pelvic examination.

- SSG is done on 7th or 8th day of the menstrual cycle, in the USG room of Gynaec OPD premises.
- An informed consent is taken. A transvaginal ultrasound is performed prior to SIS to look for any endometrial polyp and presence of fluid in the pouch of douglas (POD). The vulva and vagina were cleaned with antiseptic solution. Sims speculum is introduced and the anterior lip of cervix is held with vulsellum. A sterile 5F- 8F pediatric foleys catheter is inserted into the uterine cavity. The catheter is prefilled with saline prior to insertion to minimize artefact. The catheter is repositioned so as to snugly fit into the cervical canal to prevent the back flow of saline. The speculum is removed and continuous intravenous drip of normal saline is connected to the catheter. Once adequate distension of uterine cavity is achieved, the cavity is evaluated for presence of any abnormality. Presence of fluid in POD after SIS which is previously absent on ultrasonography is also taken as a sign of tubal patency. At the end of the procedure retrograde leakage, pain and time taken for the procedure are also noted.
- Diagnostic laparoscopy with chromopertubation was performed under general anesthesia on the following day to evaluate pelvic pathology and tubal patency. This was performed by methylene blue dye injection through a cannula. If the methylene blue dye could pass through the distal end of fimbria at least one side, it represented tubal patency (positive test). Whereas the dye could not pass through the distal end of both fimbriae, it represented tubal occlusion (negative test).
- The data are subsequently analyzed to compare the results of the two procedures and to find out the accuracy of Sonosalpingography in comparison with the Diagnostic laparoscopy.

Results

Tubal patency

Of the 23 tubal blocks detected by SSG, 14 were primary and 9 were secondary subfertility cases. Of the actual 20 tubal blocks detected by D'Lap, 12 were primary and 8 were secondary subfertility cases.
It was found that SSG has a sensitivity of 97% and specificity of 90% and a diagnostic accuracy of 96% [1].

Sensitivity	96.67%	92.39% to 98.91%
Specificity	90.00%	68.30% to 98.77%
Positive Likelihood Ratio	9.67	2.59 to 36.01
Negative Likelihood Ratio	0.04	0.02 to 0.09
Disease prevalence	88.24%	82.42% to 92.66%
Positive Predictive Value	98.64%	95.17% to 99.83%
Negative Predictive Value	78.26%	56.30% to 92.54%

Table 1: Tubal patency SSG * type

			Type		
			I	II	Total
Tubal patency SSG	0	Count	14	9	23
		% within tubal patency SSG	60.9%	39.1%	100.0%
		% within Type	11.2%	20.0%	13.5%
		% of Total	8.2%	5.3%	13.5%
	1	Count	111	36	147
		% within tubal patency SSG	75.5%	24.5%	100.0%
		% within type	88.8%	80.0%	86.5%
		% of Total	65.3%	21.2%	86.5%
		Total Count	125	45	170
		% within tubal patency SSG	73.5%	26.5%	100.0%
		% within type	100.0%	100.0%	100.0%
		% of Total	73.5%	26.5%	100.0%

Table 2: Chi square tests

	Value	df	Asymp. Sig. (2-sided)	Exact Sig. (2-sided)	Exact Sig. (1-sided)
Pearson Chi-Square	2.190[a]	1	.139		
Continuity Correction[b]	1.503	1	.220		
Likelihood Ratio	2.046	1	.153		
Fisher's Exact Test				.202	.112
N of Valid Cases	170				

Table 4: Tubal patency lap * type

			Type		Total
			I	II	
Tubal patency lap	0	Count	12	8	20
		% within tubal patency lap	60.0%	40.0%	100.0%
		% within type	9.6%	17.8%	11.8%
		% of Total	7.1%	4.7%	11.8%
	1	Count	113	37	150
		% within tubal patency lap	75.3%	24.7%	100.0%
		% within type	90.4%	82.2%	88.2%
		% of Total	66.5%	21.8%	88.2%
		Total Count	125	45	170
		% within tubal patency lap	73.5%	26.5%	100.0%
		% within type	100.0%	100.0%	100.0%
		% of total	73.5%	26.5%	100.0%

Table 5: Chi square tests

	Value	df	Asymp. Sig. (2-sided)	Exact Sig. (2-sided)	Exact Sig. (1-sided)
Pearson Chi-Square	2.132[a]	1	.144		
Continuity Correction[b]	1.417	1	.234		
Likelihood Ratio	1.980	1	.159		
Fisher's Exact Test				.177	.119
N of Valid Cases	170				

Conclusion

Our study has concluded that since the sensitivity is 96.67%, specificity is 90%, positive predictive value is 98.64 and negative predictive value is 78.26, diagnostic accuracy as estimated by the Wilsons score is 95.88%, SSG can be used as the initial test for the assessment of tubal patency in subfertile patients [2].

Also, among the 170 patients who underwent both procedures, requirement of anaesthesia (164- GA; 6 – Spinal) was 100% for diagnostic laparoscopy and 98% of the patients experienced procedure induced discomfort and post-operative pain [3].

On the other hand, there was no requirement of anaesthesia for SSG. About 1% complained of procedural discomfort and post procedure pain was reported in <1%.

SSG offers a much less invasive method of diagnosing tubal pathology while maintaining a high sensitivity and specificity similar to that of laparoscopic chromopertubation.

References

1. An International Journal of Obstetrics & Gynaecology 1991;8(10):1031-1036.
2. Sankpal RS *et al*. International Journal of Gynecology & Obstetrics 2001;73:125-129.
3. Alborzi S *et al*. International Journal of Gynecology and Obstetrics 2003;82:57-62.