

## A Review of 375 Consecutive Hysterosalpingograms at University of Maiduguri Teaching Hospital, Radiology Department.

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### Abstract:

**Background:** Hysterosalpingography (HSG) is a specialized radiographic examination of the uterus and fallopian tubes that is used predominantly in the assessment of infertility and evaluation of abnormalities of the uterus and fallopian tubes<sup>1, 2</sup>. Some of the abnormalities that can be detected by HSG include Uterine fibroid, unilateral and bilateral tubal blockage, uterine synechia, pelvic adhesion, unilateral and bilateral hydrosalpinx, congenital anomaly, ashamen's syndrome, TB saphingitis, ovarian cyst and endometritis.

**Objective:** To review the recent pattern of Hysterosalpingography at University of Maiduguri Teaching Hospital, Nigeria.

**Method:** The data was obtained from the record of radiology department at university of maiduguri teaching hospital and were analyzed using SPSS version 16.

**Results:** HSG reports of patients in the age range of 17 -50 years (mean age 29.6±6.2 SD) were reviewed. The highest frequency was seen in the 26 – 30 years age with 124 patients (34.3%) and the lowest seen in the 46 -50 years age group with a frequency of only 2 (0.6%). The commonest indication was secondary infertility with a frequency of 172(45.9%), followed by primary infertility with a frequency of 64(43.7%) and unspecified were 39(10.4%). Pelvic adhesion recorded the highest frequency 47(12.5%) of the total findings.

**Conclusion:** Result from this study shows that pelvic adhesion is the commonest radiological findings in patients that underwent HSG examination at University of Maiduguri Teaching Hospital.

**Keywords:** Hysterosalpingography, Infertility, Pelvic adhesion, Tubal blockage.

### I. Introduction

Hysterosalpingography (HSG) is a specialized radiological examination of the uterus and fallopian tubes following the introduction of a water soluble contrast medium through the cervix. The aim is to visualise the uterine cavity and to ascertain patency of the fallopian tubes most commonly [1,2]. HSG remains the most widely used and readily available radiographic investigation for infertile women in Nigeria, apart from ultrasound scanning [3]. Other techniques for assessing structural causes of female infertility like sonohysterography (Hycosy), laparoscopy and hysteroscopy are increasingly used elsewhere. Despite the advantage of being radiation free, they lack the clear tubal resolution and definition that conventional or fluoroscopic x-ray HSG offers[4]. HSG plays an important role in the evaluation of abnormalities related to the uterus and fallopian tubes [5].

The aim of this study is to review the findings of 375 consecutive patients that underwent HSG examination at University of Maiduguri Teaching Hospital.

### II. Materials And Method

This study retrospectively reviewed the results of 375 patients who had Hysterosalpingography (HSG) examination carried out in Radiology department, University of Maiduguri Teaching Hospital from June 2010-June 2013. The procedures were performed using a GE flouroscopy x-ray machine with a spot film device. The examinations were carried out between the 7th and 10th day of the patient's menstrual cycle. Patients age ranged from 17-50 years. All studies were reviewed by a Consultant radiologist along with two Resident doctors in the department.

Data retrieved from the radiology achive was recorded on a data capture sheet, categorised into: patients hospital and x-ray numbers, date of examination, age, sex, indications and findings. Data collected was analysed using descriptive statistics with the aid of an SPSS, (IL, Chicago, USA version16).

### III. Results

A total of the 375 HSG reports were reviewed and analysed in this study. The patients were between the age ranges of 17 -50 years (mean age 29.6±6.2 SD). Majority of the findings were in the age range of 26 –

30 years with a frequency of 129(34.3%) and the lowest was seen in the age range of 46 -50 with a frequency of only 2 (0.6%) as shown in table 1.

Out of the 375 reports, the lead of indications were secondary and primary infertilities having the following frequencies 172 (45.9%) and 164 (43.7%) respectively. Oligomenorrhea and tubal spasm are the least of indications with a frequency of 1 each (Table 2).

A total of 15 different findings were recorded including patients with normal results, wit a frequency of 151 (40.3%). Pelvic adhesion was our most frequent abnormal finding and occurred in 47 patients (12.5%) followed by bilateral tubal blockage and uterine synaechia with frequencies of 43 (11.5%) and 41(10.9%) respectively. The least findings are TB salphingitis, Ovarian cyst, Endometritis and Uterine adhesion with one case of each documented.(Table 3).

**Table 1.** Distribution according to age group

S/No	Age Group	Frequency	Percentage (%)
1.	16-20	31	8.3
2.	21-25	72	19.2
3.	26-30	129	34.3
4.	31-35	67	17.8
5.	36-40	65	17.4
6.	41-45	9	2.4
7.	46-50	2	0.6
	<b>Total</b>	<b>375</b>	<b>100</b>

**Table 2.** Distribution of indications

S/No	Indications	Frequency	Percentage (%)
1.	Secondary infertility	172	45.9
2.	Primary infertility	164	43.7
3.	Amenorrhea	14	3.7
4.	Asherman's syndrome	6	1.6
5.	Post surgery	4	1.1
6.	Hypomenorrhea	4	1.1
7.	Recurrent miscarriage	3	0.8
8.	Uterine fibroid	2	0.5
9.	PID	4	1.1
10.	Oligomenorrhea	1	0.3
11.	Tubal spasm	1	0.3
	<b>Total</b>	<b>375</b>	<b>100</b>

**Table 3.** Distribution of findings

S/No	Findings	Frequency	Percentage (%)
1.	Normal study	151	40.3
2.	Uterine fibroid	28	7.5
3.	Bilateral hydrosalpinx	6	1.6
4.	Bilateral tubal blockage	43	11.5
5.	Uterine synaechia	41	10.9
6.	Unilateral tubal blockage	35	9.3
7.	Cervical synaechia	3	0.8
8.	Pelvic adhesion	47	12.5
9.	Congenital anomaly	4	1.1
10.	Asherman's syndrome	3	0.8
11.	Unilateral hydrosalpinx	10	2.7
12.	TB salphingitis	1	0.3
13.	Ovarian cyst	1	0.3
14.	Endometritis	1	0.3
15.	Uterine adhesion	1	0.3
	<b>Total</b>	<b>375</b>	<b>100.0</b>

#### IV. Discussion

Hysterosalpingography (HSG) is the radiographic technique for evaluation of uterine cavity and fallopian tubes. It still remains the best radiographic imaging procedure for visualising the fallopian tubes despite the advent of newer modalities and is used primarily for the evaluation of female infertility<sup>6</sup>. Furthermore, HSG is less invasive and often less expensive [1].

In this study, out of the 375 patients, the most frequent age group investigated for uterine and fallopian tube abnormalities are 26-30years. This is in line with the findings in the study conducted in Nnamdi Azikwe University Teaching Hospital, Nnewi, Nigeria, where the most commonly investigated age group was 25-29

years[1]. However, it differs with the study conducted by Admassie and Negatuy. The dissimilarity might be due to the concept that women in this locality engage in early marriage relative to those in Ethiopia.

The most common indication we found was secondary infertility in 172(45.9%) of the cases, while primary infertility was the indication in 164(43.7%) of the cases. Those with unspecified type of infertility were (10.4%). In another research conducted at Ladoko Akintola University of Technology college of Health Sciences Oshogbo, Nigeria, out of 120 patients' studied, secondary infertility was the indication for HSG in up to 80%, whereas primary infertility was only 20%[7]. In the study of Nnamdi Azikwe University Teaching Hospital, Nigeria, primary infertility was found to be commoner, 44.8%, while secondary infertility was 38.3%[1], showing these findings to be much closer to ours regarding indication for HSG.

Result from the current study revealed that 151 (40.3%) patients had normal HSG. This is consistent with a study carried out in Port Harcourt, Nigeria, 44.2% of those studied had normal HSG[8]. Similar results were seen in a study in Nnewi, Nigeria and another study conducted in two private clinics in Kampala, Uganda, 29.1% and 16.6% of those studied had normal findings respectively[8,9]. Regarding other findings, Pelvic adhesion was documented as the abnormal finding to be commonest in this study 47(12.5%). This may be as a result of an increased incidence of infection, previous surgery etc. In the study conducted in Uganda, bilateral tubal blockage was seen to have 32% while 6% had unilateral tubal blockage[10]. But our study shows a lower incidence of bilateral tubal blockage at 11.5% while unilateral tubal blockage had 9.3%. Uterine synechia and cervical synechia have frequencies of 10.9% and 0.8% respectively in this study, and is in keeping with the study conducted in Port Harcourt, which has a percentage of 12.8%. Synechia is a condition characterised by formation of intrauterine adhesions, it results from uterine or cervical surgery, overzealous curettage for numerous indication or as a result of pelvic infection. Less commonly, no predisposition of synechia is seen in some patients (idiopathic synechia)[8]. Uterine fibroid is more common in the study conducted in Nnewi, Nigeria occurring in as much as 20% of women above the age of 30years[1]. While our study shows only 7.5%. The least findings in this study were TB salpingitis, Ovarian cyst, Uterine Adhesion and Endometritis with 1(0.3%) patient presented each. Analysis of our result shows that 4(1.1%) accounted for congenital anomaly. This is however, slightly lower than the study conducted by Bukar et al[10], which reported the incidence of congenital uterine abnormalities to be 10(3.7%) of the abnormalities detected on HSG.

## V. Conclusion

Results from this study shows that pelvic adhesion was the commonest finding in patients that underwent HSG examination. The least findings are TB salpingitis, Ovarian cyst, Endometritis and Uterine adhesion with one case of each documented. HSG remains a useful and valuable method of evaluating women for infertility in our environment. It is widely available and much more affordable than other modalities. It looks clear that practitioners in this environment will continue to rely on this modality when investigating infertility.

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