

Common Hysterosalpingography Protocols and Findings among Infertile Women in a Tertiary Healthcare Institution in Northeast, Nigeria

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Abstract

Objective: To evaluate the common HSG protocols and findings among infertile women in a Tertiary Healthcare Center in North eastern Nigeria.

Methods: This is a retrospective cross-sectional study involving 257 cases of infertile women who had HSG within a period of five years from 2010 to 2015. Patients' Radiology number, age, Indication and finding as well as the number and types of projections taken for each patient was documented on a data capture sheet. The data collected were first categorized into indications protocols and findings. The abnormal findings were then further grouped based on the anatomical site/organ involved before being analyzed. Descriptive statistics was employed for the data analysis using SPSS software version 16.

Results: A total number of 257 patients with age ranging from 16-59 and mean age of 28 participated in this study. The age group range, 26-30 has the highest frequency in occurrence (26%, n=67). Out of the total patients, 138 (53.7%) were investigated for Secondary infertility while 119 (46.30%) were for primary infertility. The predominant finding was normal study (41.2%, n=106) while the most common abnormal finding was bilateral tubal block (13.2%, n=34). Four different HSG protocols were identified in this study.

Conclusion: Patients within the age group range, 26-30 years are most commonly affected by infertility and secondary infertility was the most common. The most common abnormal finding among this group of patients in this study is tubal blockage.

Keywords: HSG, Infertility, patients.

I. Introduction

Infertility has been a global problem for many decades and is most prevalent in sub-Saharan Africa [1]. It affects about 10-20% [2, 3] and 10-15% [2, 4] of couples in Africa and developed countries respectively. This gynecological condition remains the most common indications for attendance of gynecological out-patient clinics [5]. Infertility has a significant emotional and economic implications among those affected. The couples involved are often depressed and uneasy [6]. The African traditional society places high premium in the size of the family and woman's childlessness may be viewed as a punishment for social misdemeanor or attributed to other factors including witchcraft which often leads to broken marriages and rarely child adoption [7]. In modern society however, causes of infertility can be found in about 90% of infertility cases.

Uterine and tubal abnormality is thought to be contributing factors in approximately 10% [8] and 40% [5] of infertile women respectively. The diagnostic and treatment of this disorder stands out as the most evolving area in medicine, and the ability to visualize the uterine cavity and fallopian tubes to identify the possible pathology has made Hysterosalpingography (HSG) an important and predominant imaging investigation in the infertility work-up [9]

HSG is one of the most valuable techniques used in examination of infertile patients despite the advent of other diagnostic tool such as Magnetic resonance imaging, Hysteroscopy [9, 10]. It remains the best modality for imaging the fallopian tubes in particular [11, 12]. Also, it has sensitivity of 44.4% for uterine pathology and 75% for detection of intrauterine adhesion. In addition, this procedure was shown to have therapeutic value from the flushing effect [13, 14]. The aim of this research is to determine the common causes of infertility seen on HSG among out patients at gynecology clinic in a tertiary healthcare institution in North-eastern Nigeria.

II. Material and Method

Two hundred and fifty seven (257) cases of suspected infertile women who had HSG over 5 year period, from 2010 to 2015 were reviewed retrospectively. Patients' request cards, report sheets and the images were retrieved from the archive section of the radiology unit. Patients with incomplete information or who had

imaging procedure other than HSG were excluded from the study. The data was collected using a data capture sheet designed specifically for the study. Information retrieved for each patient includes; radiology number, patients' age, Indication and finding as well as the number and types of projections taken.

All the images were reported by resident radiology doctor or consultant radiologist. Where no structural abnormality noted involving any of the reproductive organs, the procedure was reported as Normal study. Other than this, is regarded as abnormal and the impression was reported appropriately. The data was first categorized into indications and findings. The abnormal findings were then further grouped based on the organ involved or anatomical site before being analyzed. Descriptive statistics was employed for the data analysis using SPSS version 16.

III. Results

A total number of 257 patients with age range of 16-59 and mean age of 28 participated in this study. The age group range, 26-30 has the highest frequency in occurrence (26%, n=67) (Table 1). Out of the total patients, 138 (53.7%) were investigated for Secondary infertility while 119 (46.30%) were for primary infertility. The predominant finding was normal study (n=106) while the most common abnormal finding was bilateral tubal block (n=32) (Table 2). Four different HSG protocols classified A-D were identified in this study (Table 3)

Table 1: Frequency and Percentage Distribution of the Age Group Ranges

AGE GROUP	FREQUENCY	PERCENTAGE
16-20	30	11.7
21-25	60	23.3
26-30	67	26.0
31-35	62	24.2
36-40	32	12.5
41-45	3	1.2
46 and above	3	1.2
TOTAL	257	100%

Table 2 frequency and percentage distribution of the findings

Anatomical site	Findings	Frequency	Percentage
1- Normal study		106	41.2
2- Uterus			
a) Congenital			
	Arcuate uterus	4	1.5
b) Acquired			
	Uterine Synaechia	12	4.6
	Uterine fibroid	10	3.8
	Endometrial polyp	1	0.3
3- Fallopian tube			
	Right tubal block	17	6.6
	Left tubal block	12	4.6
	Bilateral tubal block	34	13.2
	Right Hydrosalpinges	9	3.5
	Left Hydrosalpinges	9	3.5
	Bilateral Hydrosalpinges	7	2.7
4- Adhesion			
	Uterine adhesion	9	3.5
	Cervical adhesion	3	1.1
	Fimbrial adhesion	5	1.9
	Asherman's syndrome	23	8.9

Table 3 Frequency and Percentage Distribution of the HSG Protocols

Protocols/Film series	Frequency	Percentage
A- Control, two AP and Delay	183	71.20
B- Control, AP, Oblique (1) and Delay	43	16.80
C- Control, AP, oblique (2) and Delay	29	11.20
D- Control, AP and Delay	2	0.8
Total	257	100

Key: AP; Anterior posterior

IV. Discussion

HSG is used predominantly in the evaluation of infertility and remains one of the best imaging procedures for female reproductive organs. Its high sensitivity and specificity in detection of tubal and uterine

abnormality makes it an indispensable tool for evaluation of infertility. It remains the most widely used imaging technique among suspected infertile women in this locality.

The age distribution of these subjects was between 16-49 years with the age range, 26-30 years being most prevalent. This disagrees with a study carried out by Njoku et. al., [15] in Lagos, Nigeria in which the age distribution was 25-40 years and the most prevalent age group was 25-34 years. This difference may be explained by the social and cultural differences between the two regions. In the present study the maximum number of infertile patients belongs to the age group of 21- 26 years which is similar to the findings in the study by Santhalia et.al [5]. The correlation of findings shows a high frequency of reproductive abnormalities in this age range. Therefore, it could be said that this age range is the peak of the infertile period of life in our locality. Infertility is commonly diagnosed a few years after marriage and most women in this locality get married within this age group range. This could be the reason of having high prevalence of infertility among women within this age range.

Secondary infertility was reported in 138 (53.80%) of the patients in this study. Although several local literatures [2, 4, 15 16] agrees with this findings a few foreign literatures [17, 18] revealed conflicting findings. This high prevalence of secondary infertility in this locality could be due to the facts that 50-80% of infertility in sub-Saharan Africa usually follows ascending genital infection from complicated abortions and unsupervised deliveries resulting in tubal pathologies [19]

The result of this research shows that only 41.2% of the cases had normal structure and outline of the female reproductive tract. This may be a true positive result since causes of infertility could be unexplained. In addition, it could be a male factor as this account for up to 45% cases of infertility [20]. The current study revealed that the most common abnormal finding in this locality was tubal block with bilateral tubal block being the most common. This finding accords with a number of local and international literatures consulted where the most common abnormal HSG findings was tubal block [21, 22] The high prevalence of tubal block in this locality could be due to infection resulting from poor hygiene among the women. This is because most of the women attending this healthcare institution are rural dwellers thus, lacking adequate awareness on how couples could improve on their health condition and the responsibility of each member of the couple while doing so. This makes them unable to properly sanitize their genitalia which often make them prone to infections. On the other hand, studies conducted by Bukar et al., [23] and Njoku et al., [15] showed that the commonest abnormal HSG findings were pelvic adhesion and fibroid respectively.

Protocol A which comprises of Control, two AP and Delay has the highest frequency in occurrence among all the four different HSG protocols identified in this studies. No literature identified during our literature search that evaluate HSG protocol in other healthcare institution. However, this is in line with internationally recognized HSG protocol where fluoroscopy unit is unavailable.

V. Conclusion

The detection of uterine and tubal pathology on HSG makes it a very important diagnostic tool for evaluation of infertile women. The age group that is most affected by infertility was 26-30 years and secondary infertility is the most common type of infertility identified in this locality. The most common abnormal finding in this study is tubal blockage.

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