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Common Hysterosalpingographic Findings in Infertility Cases in Lagos State, Nigeria.

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Abstract

Background: Reproductive medicine has recently witnessed advances and hysterosalpingography has become a relatively quick and non-invasive procedure to evaluate the uterine cavity and fallopian tubes.

Purpose: This study was carried out to evaluate the common hysterosalpingographic findings in infertility cases in Lagos, South West, Nigeria.

Materials and Methods: The HSG reports of 100 patients who were referred to the department of radiodiagnosis of Lagos University Teaching Hospital between September 2010 and August 2011 were reviewed. The biodata of each patient was collated from the request forms. Fifty-seven patients (57%) were investigated for secondary infertility, while 43 patients (43%) were investigated for primary infertility.

Results: The commonest pathology found in patients presenting with infertility in this study were uterine fibroid (26%), followed by uterine adhesion (12%). There was evidence of peritubal adhesion, either bilateral or unilateral, in 10% of the patients, while tubal occlusion, either bilateral or unilateral, was reported in 7% of the cases. Hydrosalpinx occurred in only 6% of the patients. Twenty-eight patients (28%) had normal uterus and fallopian tubes.

Conclusion: Hysterosalpingography remains relevant in the investigation of mechanical causes of infertility in women.

INTRODUCTION

Hysterosalpingography (HSG) has for many years been an invaluable procedure for the assessment of tubal patency and tubal and intra-uterine pathology[1]. It is a radiological investigation used to demonstrate the uterine cervix, uterine cavity and fallopian tube lumen using contrast media. It remains the best modality to image the fallopian tubes[2]. Infertility is the inability of a couple to achieve conception after 12 months of unprotected coitus of average frequency[3]. Childlessness is considered a personal tragedy in Africa[4]. It is a public health issue whose effect can result in family conflicts, divorce and even suicide.

Infertility as a public health problem varies in different communities according to the prevalence of the condition and the importance ascribed to it by society. The most frequently quoted figure for its prevalence is 10% of couples[5].In tropical Africa, infertility rate is said to be 10-20%[4,6], while in developed countries the rate is 5-15%[4,5].

According to Rastogi[7] the causes of female infertility are multifactorial and can be broadly categorized into the following: Uterine causes - congenital anomalies, infections, uterine synechiae, focal lesions ,intrauterine scar, cervical stenosis, reduced uterine perfusion, and alterations in endometrial thickness and vascularity. Ovarian causes – follicular and ovulation abnormalities, stromal vascularity, and endometriosis. Tubal causes – infections, obstructions. Horwitz et al[8] posit that the mechanical causes of female infertility, which can be radiologically elucidated, include hydrosalpinges and other tubal obstructions, peritubal adhesions, leiomyomata, congenital malformations of the uterus and intra-uterine synaechiae.

Despite claims of possible potential replacement of HSG by laparascopy and hysteroscopy by some authorities[9], HSG still maintains superiority in detecting intraluminal tubal pathology[10]. And it's ready availability and cost effectiveness still makes it the standard procedure for evaluating female infertility in most developing countries[11].

Our aim is to highlight the common findings on hysterosalpingography in a teaching hospital in Lagos, Western Nigeria.

MATERIALS AND METHODS

The HSG reports of 100 patients who were referred to the department of radiodiagnosis of Lagos University Teaching Hospital (LUTH) were retrospectively reviewed. These were patients referred from the gynaecology unit of this teaching hospital for infertility between September 2010 and August 2011. The biodata of each patient was collected from the request forms. The duplicate request forms and reports of each patient were collected from the departmental files and reviewed. All HSG investigations done to evaluate primary and secondary infertility were included in this study. Forms with incomplete information and files without

request forms or reports were excluded from the study. Also excluded were cases with incomplete film series, intravasation of contrast media and studies done for indications other than infertility. Demographic data, clinical history, provisional diagnosis and radiological findings were first recorded on the data sheet formats and then transferred to the computer for analysis. Data were analyzed using SPSS version 13.0 software.

Patients who had normal uterine cavities with both fallopian tubes outlined with normal caliber and free peritoneal spill were considered normal. Any variation from this was considered abnormal and classified accordingly.

RESULTS

Fifty seven patients (57%) were investigated for secondary infertility while forty three (43%) were investigated for primary infertility. The age of the patients ranged from 25 years to 50 years with a mean of 34.9 and a standard deviation of 5.3. The age distribution of the patients is shown in table 1.

Table I: Age distribution of subjects.

The radiological findings in this study are illustrated in table 2. Of the 100 subjects, 28 (28%) had normal uterus and bilateral free spill. Seventy-two patients (72%) had abnormal findings which are multiple in some cases. Twenty-six patients (26%) had fibroids while 12 (12%) had uterine synechia. Distal tubal occlusion occurred in 3 cases (3%), while cornual occlusion, bilateral hydrosalpinx and congenital uterine abnormality occurred in 4, cases (4%) respectively. Bilateral peritubal adhesion and unilateral peritubal adhesion occurred in 6% and 4% of cases respectively.

Table II: Distribution of radiological findings among 100 subjectsts investigated for infertility.

DISCUSSION

Infertility is the commonest complaint encountered in the gynaecological outpatient clinics in Nigeria[12]. A major cause of infertility in sub-Saharan Africa is Pelvic Inflammatory disease (PID), usually due to Neisseria gonorrhea. It has been estimated that PID – related tubal adhesions, causes 30 – 50 % of all cases of female infertility[4].

The age distribution of the subjects as shown in table 1 indicates that majority of the patients subjected to HSG for infertility (86%) were between ages 25 and 40 years. The minimum age of the study population is 25 years and could be explained by late marriages occasioned by the current desire of many to acquire Western education before marriage. The minimum age of 25 years compares favourably with minimum age of subjects recorded by Akinola et al in a prospective study on infertility done in Lagos[13], but significantly differs from the minimum age of 15 years recorded in a similar research done in Maiduguri, North Eastern part of Nigeria[14]. This difference may be explained by the

social and cultural differences between the two regions.

As observed by other researchers[4, 5, 13, 15, 16,] majority of the subjects (57%) investigated in this study were for secondary infertility. Some authors[4, 5,] attribute the prevalence of secondary infertility in our society to postpartum and postabortal infections. However some other researchers in Ethiopia[17, 18,] and Sub-Saharan Africa[19] are of the view that primary infertility predominates in their clime.

Among the uterine pathologies highlighted in this study, leiomomata are the most common (26%). This prevalence rate is in keeping with the findings of Mgbor in Enugu[10], but contrasts with those of Bukar et al in Maiduguri[14], where the prevalence was much less. This high incidence of uterine fibroid might not be unconnected with the prevalence of fibroids among the black population. Uterine synechia was found in 12% of the cases. This is similar to the findings of Bukar et al[14] who recorded incidence of 12.9% synechia in Maiduguri, although in their own case it accounted as the commonest acquired uterine pathology, over and above fibroid. Eng et al[2] describes this condition as adhesions within the uterine cavity, attributable to endometrial infection or from previous dilation and curettage.

In contrast to other studies made with HSG on infertile women where hydrosalpinx is the commonest tubal pathology reported[8, 20, 21] our study shows that the incidence of Hydrosalpinx, whether bilateral or unilateral, is only 6%.This is slightly less than the 9% incidence reported by Akinola et al in Lagos 3 years ago[13], but significantly less than those reported by Adetiloye in 1988, (44.5%)[15] and Bello in 2000, (23.3%)[4]. The difference might be accounted for by the improved health care delivery in the cosmopolitan city of Lagos over time. Proximal and distal tubal occlusion accounted for 7% of the findings in this study is much lower than the findings of some other studies[13, 22]. The difference here may be due to the interplay of technical inadequacies, patient relaxation, corneal spasm and effectiveness of antispasmodics. Our study shows that the incidence of peritubal adhesion, whether bilateral or unilateral, is 10%. This value is significantly less than that reported in South Africa[8] in 1979 and Maiduguri[14] recently. Although the diagnosis of peritubal adhesion by HSG is more difficult[23, 24,] access to improved health care services in cosmopolitan Lagos may have accounted for the reduced incidence in our report.

CONCLUSIONS

From the foregoing HSG has shown to be effective in the detection of intra-uterine and tubal pathologies. It is the commonest diagnostic modality in most third world countries for the work up of infertility related to mechanical factors in the female reproductive tract. It is done as outpatient, requiring no anaesthesia or surgery. It is relatively cheap, cost effective and readily available. Although the advent of laparascopy and laparatomy has

improved the investigation of peritubal factors, these modalities are costly, involve surgical procedure and anaesthesia and not readily available. Other modalities such as selective ostial salpingography and hysterosalpingo-contrast sonography show promise but are not yet in wide spread use.

REFERENCES

1. Siegler AM. Hysterosalpingography. Harper and Row (1967). New York.
2. Eng CW, Tang PH, Ong CL. Hystrosalpingography: current applications. Singapore Med J 2007; 48 (4): 368.
3. Eskondary N, Cadieux M. Infertility In: Current obstetric and gynaecologic diagnosis and treatment. Ed Decherney AH and Nathan L. 9th Edition. Lange Medical Books/Mcgraw-Hill (2003) : 979-990.
4. Bello TO. Pattern of tubal pathology in infertile women on hysterosalpingography in Ilorin. Annals of Afr. Med. (2004); 3(2):77-9.
5. Belsey MA. The epidemiology of infertility: A review with particular reference to Sub-Saharan Africa. Bull. World Health Organ; Vol. 54, 1976.
6. Pollard I. A guide to reproduction: social issues and human concerns. Cambridge University Press, Cambridge (1994); pp 3-17.
7. Rastogi R. The role of imaging in female infertility. Indian J Radiol Imaging, August 2010, 20(3): 168 – 73.
8. Horwitz RC, Morton PCG, Shaff MI, Hugo P. A radiological approach to infertility – hysterosalpingography. British Journal of Radiology (1979); 52: 255-262.
9. Otubu JA, Sagay AS, Dauda S. Hysteroscopy in the assessment of infertile Nigerian female. East Afr Med J (1990); 67: 370-72.
10. Mgbor SO. Pattern of hysterosalpingographic findings in gynaecological patients in Enugu. Nig Med J (2006); 47: 14-6.
11. Ogutoyinbo AE, Amok AO, Komolafe OF. Sonographic assessment of tubal patency in the investigation of female infertility in Ilorin, Nigeria. Afr J Reprod Health (2001); 5: 100-5.
12. Onifade A, Adelusi B, Kolawole TM. Tubal patency in infertility in Ibadan. Nigerian Tropical Journal Obstet Gynaecol (1978); vol 7: 19-21.
13. Akinola RA, Akinola OI, Fabamwo AO. Inferlity in women: hysterosalpingographic assessment of the fallopian tubes in Lagos, Nigeria .Educational Research and Review (2009); 4 (3): 86-9.
14. Bukar M, Mustapha Z, Takai UI, Tahir A. Hysterosalpingographic findings in infertile women: A seven year review. Nig J Clin Pract (2011); 14: 168-70.
15. Adetiloye VH. Radiological patterns of diseases on hysterosalpingography Dissertation.

National Postgraduate Medical College of Nigeria, Lagos (1988); 68-100.
16. Odita JC. Hysterosalpingography in Nigerian women: an analysis based on 500 cases. Trop. Doct. 1: 7-11.
17. Kitilla T. Infertility investigation: socio-demographic characteristics and dropouts of infertile women at Family Guidance Association of Ethiopia. Ethiop. J. Health Dev., (2000); 14(2):127-34.
18. Admassie D, Nedatuy Y. Evaluation of the fallopian tubes in infertile women by hysterosalpingography in Tikur Anbessa Hospital, Addis Ababa, Ethiopia. International Journal of Nursing and Midwifery (2011); vol. 3(11):178-81.
19. Larsen U. Primary and secondary infertility in Sub-Saharan Africa. Int. J. Epidemiol., (2000) 29: 285-291.
20. Sanfillipo S, Yussman MA, Smith O. Hysterosalpingography in the evaluation of infertility: a six year review. Fertil. Steril. (1978); 572.
21. Thurmond AS, Rosch J. Fallopian tubes: improved techniques for catheterization. Radiology (1990); 174: 572-3.
22. Kiguli-Malwade E, Byanyima RK. Structural findings at hysterosalpingography in patients with infertility at two private clinics in Kampala, Uganda. Afr. Health Sci (1994); 4(3): 178-81.
23. Maathuis JB, Horbach MD, Hall EVE. A comparison of the results of hysterosalpingography and laparascopy in the diagnosis of fallopian tube dysfunction. Fertility and Sterility (1972); 23(6): 428-31.
24. Moghissi KS, Gun Sup Sim. Correlation between hysterosalpingography and pelvic endoscopy for the evaluation of tubal factor. Infertility and Sterility. (1975); 26(12): 1178-81.

Table 1: Age distribution of subjects

Age(years)	Frequency	Percentage (%)
25-30	28	28
32-35	30	30
36-40	28	28
41-45	10	10
46-50	4	4

The age of the patients ranged from 25 years to 50 years with a mean of 34.9±5.3 years. Majority of the patients were aged between 25 years and 40 years.

Table 2: Distribution of HSG findings among 100 women investigated for infertility.

Radiological Findings	Frequency	Percentage (%)
Bilateral free spill	45	28
Submucous fibroid	42	26
Uterine adhesion	19	12
Unilateral free spill	15	7
Bilateral peritubal adhesion	10	6
Unilateral peritubal adhesion	7	4
Cornual occlusion	6	4
Distal tubal occlusion	5	3
Bilateral Hydrosalpinx	6	4
Unilateral Hydrosalpinx	3	2
Congenital Uterine abnormality	6	4

This table shows that the commonest abnormal radiological finding in this study is Uterine fibroid (26%), followed by uterine adhesion (12%). Curiously, hydrosalpinx occurred only in 6% of the cases.