Original Article

Influence of induced abortion on tubal findings in hysterosalpingography among women with infertility in Calabar, Nigeria

Ofonime Nkechinyere Ukweh, Chibuike Mcsteve Okeke[1], Afiong Oboko Oku[2]

Departments of Radiology and [2]Community Medicine, University of Calabar, Calabar, [1]Department of Family Medicine, Alex Ekwueme Federal University Teaching Hospital, Abakaliki, Ebonyi State, Nigeria

Abstract

Background/Aim: Induced abortion is a major cause of infertility in our environment, with postabortal complications commonly occurring, especially when done by untrained medical personnel, and in unsafe environments. Imaging plays a very important role in the assessment of tubal factors as a possible cause of infertility; hence, the choice of hysterosalpingography (HSG) as a vital initial tool in the diagnostic evaluation of these patients. The aim of the study was to determine the relationship between induced abortions and HSG tubal findings in the management of females with infertility.

Materials and Methods: This was a cross-sectional descriptive study of 87 HSG's of women being managed for infertility in a private specialist hospital over 2 years from November 2015 to October 2017.

Results: The overall mean age of the respondents was 34.09 ± 4.82 years. Most of the respondents were between 30 and 39 years (60.9%) of age, 70 (80.5%) respondents were nulliparous, and 71 (81.6%) had a previous history of induced abortion. Tubal findings were found to be normal in over a third of the respondents (35.6%). The most common abnormal findings were tubal blockage and hydrosalpinx (50.6%). The abnormal tubal findings were significantly associated with a history of more than one induced abortion and nulliparity ($P < 0.05$). Hydrosalpinx (86.4%) was commonly linked with a previous history of induced abortion, although the difference was not statistically significant ($P \geq 0.05$).

Conclusions: The study demonstrated that abnormal tubal findings in HSG are more common among women with a history of induced abortion; however, the prevalence of tubal damage had mild correlation with the number of induced abortions.

Keywords: Calabar, hysterosalpingogram, induced abortions, infertility

Address for correspondence: Dr. Chibuike Mcsteve Okeke, Room 4, Alex Ekwueme Federal University Teaching Hospital, Abakaliki, Ebonyi State, Nigeria.
E-mail: mcsteveco@gmail.com

INTRODUCTION

In Nigeria, there is a high incidence of unplanned pregnancies as a result of increased sexual activities and low contraceptive usage.[1,2] Securing abortion is illegal in Nigeria in spite of the high incidence of unplanned pregnancies, which are clandestinely terminated by untrained medical in unsafe environment, with resultant postabortal complications. Patients who survive these complications are often seen in clinics with a history of secondary infertility, which is inability of a woman to bear

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a child or become pregnant following a previous ability to carry pregnancy to live birth.[3,4] In Nigeria, Akinola *et al.* reported a high prevalence of induced abortions of up to 84%,[4] resulting in high tubal causes of secondary infertility.[5]

Hysterosalpingogram (HSG) remains an effective method of assessing tubal factors as a possible cause of infertility.[6-8] This study aims to assess the effect of induced abortions on the fallopian tubes using HSG among female clients with secondary infertility in Calabar, Nigeria.

MATERIALS AND METHODS

The study is a descriptive cross-sectional study carried out among patients who present with secondary infertility and have to undergo HSG in Calabar. It was conducted over 2 years from November 2015 to October 2017 among patients referred from the fertility clinic. The protocol was reviewed and approved by the research and ethics committee. Each participant signed informed consent form, where the objectives of the study were clearly described and the form emphasized the confidentiality of all information. Information were elicited from the participants using an interviewer-administered questionnaires containing sections with questions on sociodemographics, reproductive history including a history of induced abortion and where it was done and by whom, and symptoms related to pelvic inflammatory disease (PID) including a history of vaginal discharge, fever, or painful sexual intercourse. HSG was done using an aseptic technique after informed written consent. The results obtained were analyzed using SPSS 20.0 for windows software package (SPSS IBM Corp., Chicago, IL, USA), and the results were taken to be significant at $P < 0.05$.

Table 1: Sociodemographic/gynecological profile of the respondents

Variable	Frequency (*n*=87), *n* (%)
Age (years)	
20–29	18 (20.7)
30–39	53 (60.9)
40–49	16 (18.4)
Parity	
0	70 (80.5)
1	17 (19.5)
Induced abortion	
One induced Abortions	46 (52.9)
Two induced abortions	15 (17.2)
Three induced abortion	10 (11.5)
None	16 (18.4)
Previous history of PID	
No	52 (59.8)
Yes	35 (40.2)
Type of infertility	
Primary	14 (16.1)
Secondary	73 (83.9)

PID – Pelvic inflammatory disease

RESULTS

Information and findings received from 87 participants were analyzed. The overall mean age of the respondents was 34.09 ± 4. 82 years with an age range of 25–45 years. Majority (81.6%) of the respondents had one or more induced abortions [Table 1].

Regarding the tubal findings on HSG in this study, a significant number of the respondents (35.6%) had normal HSG findings while a quarter of the respondents (25.3%) presented with tubal blockage and hydrosalpinx. Few respondents (13.8%) presented with a combination of tubal blockage and hydrosalpinx [Figure 1].

More respondents who had performed an induced abortion in the past were more likely to present with hydrosalpinx 19 (86.4%) followed by tubal blockage 18 (81.1%). The difference, however, was not statistically significant ($P > 0.89$) [Table 2].

In determining the association between gynecological profile and HSG findings as presented in Table 3, this study revealed that a significantly higher proportion of nulliparous women (56, 80%) were more likely to have

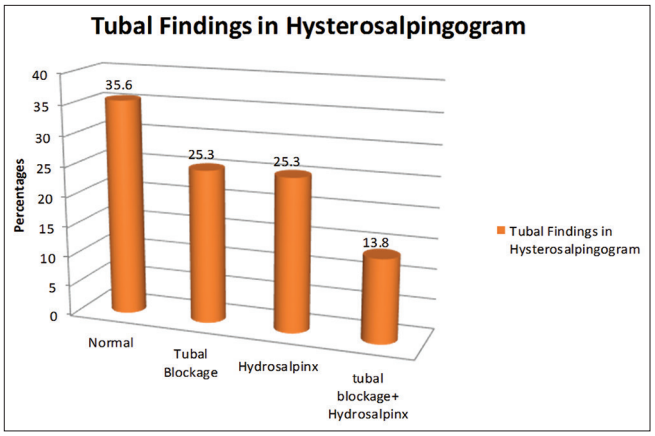

Figure 1: Percentage of tubal findings in HSG among study population

Table 2: Relationship between induced abortions and hysterosalpingographic findings

Induced abortion	Hysterosalpingographic findings - Frequency (%)				χ^2	*P*
	Normal	Tubal blockage	Hydrosalpinx	Blockage and hydrosalpinx		
Yes	25 (80.6)	18 (81.8)	19 (86.4)	9 (75)	0.70	0.891
No	6 (19.4)	4 (18.2)	3 (13.6)	3 (25)		

abnormal HSG findings compared with women (0) who had at least one child [Table 3]. Furthermore, a significantly higher proportion of respondents who had performed more than one termination of pregnancy (TOP) were significantly more likely to have abnormal HSG findings as compared to respondents who did at least one TOP. Other variables such as age, history of PID, and infertility type were not associated with abnormal HSG results ($P > 0.05$).

DISCUSSION

HSG remains an essential part in the management of infertile couple, and its value cannot be underestimated in modern gynecological practice despite emergent of laparoscopy and dye test in low- and middle-income countries.[6] Infertility has immense physical and emotional stress on the couple, especially the female partner, who is often erroneously accused as the cause of the problem.[9-11] Some factors in women are known risk factors and causes of infertility; one of these factors is pelvic infection following induced abortion.

Majority of the respondents (60.9%) were between 30 and 39 years of age; however, abnormal tubal findings were found in 71.8% of the respondents above 34 years. This probably explains the high rate of infertility seen in this age group. This finding is similar to what Bukar *et al.* found in their study.[12]

In this study, the incidence of secondary infertility was higher than that of primary infertility, with a ratio of 5.2:1. This is similar to the findings of others in the subregion.[6,10,12] The high rate of secondary infertility and the fact that there was a high rate of tubal-related abnormalities (about 60%) could be secondary to post-abortion sepsis, puerperal sepsis, and/or sexually transmitted infections. It is worthy to note that in this study, 81.6% had at least one induced abortion, and this may be attributed to the fact that majority of them likely accessed induced abortions easily from unskilled personnel and in very unsafe environment. The relationship between induced abortions and tubal findings showed borderline significance ($P = 0.053$). This finding was similar to findings of Torres-Sánchez *et al.* in Mexico in spite of the legality of induced abortion and conduction of the procedure by trained medical personnel in a sterile environment with postprocedure antibiotics given empirically.[13] This suggests that there may be other factors contributing to tubal findings outside the healthcare provider and infection.

Table 3: Association between gynecological profile and hysterosalpingogram findings

Variable	Tubal findings in HSG, frequency (%)		χ^2	*P*
	Normal	Abnormal		
TOP				
≤1	26 (41.9)	36 (58.1)	3.74	0.053
>1	5 (20.0)	20 (80.0)		
Age (years)				
≤34	20 (41.7)	28 (58.3)	1.70	0.192
>34	11 (28.2)	28 (71.8)		
Parity				
0	14 (20)	56 (80)	FET	<0.001
1	17 (100)	0 (0.0)		
PID				
No	19 (36.5)	33 (63.5)	0.046	0.830
Yes	12 (34.3)	23 (65.7)		
Type of infertility				
Primary	6 (42.9)	8 (57.1)	0.380	0.538
Secondary	25 (34.2)	48 (65.8)		

HSG – Hysterosalpingogram; FET – Fisher's exact test; TOP – Termination of pregnancy; PID – Pelvic inflammatory disease

CONCLUSION

This study shows that abnormal tubal findings in HSG are more common among women with a history of induced abortion; however, the prevalence of tubal damage, which causes secondary infertility, does mildly correlate with the number of induced abortions. This relationship will likely persist in settings where abortion is legalized. Tubal damage could be avoided if trained medical personnel perform TOPs in safe environment. Further prevention can be achieved if contraceptive use can be increased among the sexually active women to reduce the incidence of unplanned pregnancy.

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Conflicts of interest
There are no conflicts of interest .

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