

Prevalence of Tubal Obstruction in the Hysterosalpingogram of Women with Primary and Secondary Infertility

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Abstract

Background: The purpose of this study was to evaluate the fallopian tube of women with infertility and to observe whether there are any significant differences in the Hysterosalpingogram findings with regard to prevalence of tubal block in women with primary and secondary infertility.

Methods: A retrospective study of unilateral and bilateral tubal obstruction in Hysterosalpingogram of women with primary and secondary infertility was carried out.

Results: The frequencies of tubal obstruction were about 19% in women with primary infertility and 29% in secondary infertility. Chlamydia antigen positivity rate was similar in both groups. Ectopic pregnancy ($p < 0.01$) and previous pelvic surgery ($p < 0.001$) were higher in women with secondary infertility.

Conclusion: Tubal obstruction is a cause of female infertility according to this study. Bilateral tubal obstruction was similar in primary and secondary infertility groups and previous pelvic surgery may be the cause of tubal obstruction in the secondary infertility group.

Keywords: Chlamydia, Fallopian tube blockage, Hysterosalpingography, Infertility.

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Introduction

Hysterosalpingogram (HSG) is an imaging modality used in assessing the patency of fallopian tubes in women with primary and secondary infertility. Tubal pathologies may be responsible for primary and secondary infertility. Based on several research studies, women with secondary infertility had a higher likelihood of having fallopian tube obstruction on HSG than those with primary infertility (1, 2). In a study by Lash et al. they supported continued routine evaluation for tubal patency in patients with secondary infertility (1). Among the risk factors for infertility, prior pelvic surgeries were significantly higher in a case controlled study by Romero Ramas et al. (3). Prevalence of past Chlamydia infection was strongly significant in women with secondary infertility (4). For tubal tissue damage to occur, prolonged exposure to Chlamydia is considered a major predisposing factor which results in either

chronic persistent infection or frequent reinfections (5, 6). The Chlamydia prevalence and test rates reported in European countries vary and depend highly on the population tested or screened, and on the national reporting system of Chlamydia positive cases (7). In a study by Aswad et al., the prevalence of Chlamydia infection among women in a Middle Eastern communities was 2.6%.

In otherwise low risk women, patency in one tube is considered normal as this finding is usually caused by the dye following the path of least resistance (8). Our objective was to study the prevalence of tubal obstruction in women with primary and secondary infertility, associated factors and also the prevalence of Chlamydia antigen positivity in these women. Chlamydial screening is available only in our hospital in the Sultanate of Oman. There is not much literature either on the preva-

Table 1. Patient characteristics in primary and secondary infertility groups

Parameter	Number (n=218)	Primary infertility (n=115)	Secondary infertility (n=103)
Age * (years)	218	28.6	31.4
Gravidity *	--	0	2.8
Parity *	--	0	1.4
History of PID	3	0	3%
History of ectopic	16	0	15.69%
Chlamydia antigen positivity	12	7.07%	5.49%
PCOS	18	7.83%	8.82%
Previous pelvic surgeries	85	17.7%	50%

* Mean, PID: Pelvic Inflammatory Disease; PCOS: Polycystic Ovarian Syndrome

lence of Chlamydial infection or tubal obstruction from Oman and hence we decided to do this study.

Methods

The study was approved by local research and ethics committee. A retrospective study of the prevalence of tubal block in women who underwent HSG from June 2008 to June 2010 was undertaken in Sultan Qaboos University hospital, Sultanate of Oman. All women who presented to the subfertility clinic for primary or secondary infertility were included except those who declined to be evaluated by Hysterosalpingogram. There was one patient who gave history of her previous tubal ligation reversal. The information regarding the type of infertility, past obstetric history, gynecological history, any pelvic surgeries including myomectomy, ovarian cystectomy, surgery for endometriosis, Salpingostomy/Salpingectomy, appendectomy was taken from electronic medical records. Testing for Chlamydia antigen was performed in the endocervical swabs with the IDEIATM PCE Chlamydia assay (Oxoid, Cambridgeshire, UK).

The significance of the associated factors in the two groups was tested by Chi-squared test. When the numbers were small, Yates correction was done to compare the groups *e.g.* bilateral block.

Results

Of the total number of women, 53% had primary infertility and the rest had secondary infertility. The patient characteristics for each group are given in table 1. The findings of Hysterosalpingogram in the primary and secondary groups are given in table 2. The prevalence of fallopian tubal obstruction was 19.1% in the primary infertility group and 28.7% in the secondary infertility group. Cornual block was observed in 11 women in the primary infertility group but only one woman with secondary infertility. Hydrosalpinx of the whole tube was observed in two women and peritubal adhesions were reported in four women. The prevalence of Chlamydia antigen positivity was similar in both primary and secondary infertility groups. In those women who tested positive for Chlamydia antigen, the HSG showed bilaterally patent tubes in 8 of 11 cases (73%) and unilateral block in the remaining three (27%).

Discussion

The overall prevalence of Chlamydia antigen positive cases were less than those reported in some of the European literature (7), but it was more than the one reported by Aswad et al, from the Middle East (9). This could be so because the sample studied were from a tertiary care and not a primary care. The prevalence of tubal block in the primary and secondary infertility groups is similar

Table 2. HSG findings in primary and secondary infertility groups

Finding	No (%)	Primary infertility	Secondary infertility	p-value
Bilateral block	6(2.8)	2.6%	2.97%	0.122
Unilateral block	45(20.8)	16.52%	25.74%*	<0.0001 **

* Including previous adnexal surgery for ectopic pregnancy; ** p<0.05, Chi-square

to that reported by Bello (2). Bilateral tubal obstruction was confirmed by laparoscopy in 4 of 6 cases and laparoscopy was not performed in the other two cases. One of the cases with bilateral tubal obstruction had an obvious bilateral hydrosalpinx on HSG and hence laparoscopy was not performed. Previous pelvic surgeries including surgery for ectopic pregnancies, myomectomy, cesarean section, appendectomy, cystectomy etc., were significantly higher in women with the secondary infertility compared to those in the primary group. Of the nine patients with cesarean section, eight had a normal HSG and only one had unilateral obstruction. In a systematic review by Luttjeboer et al., regarding the risk factors for tuboperitoneal pathology, previous pelvic surgery was found to be an important risk factor (10).

Conclusion

Tubal obstruction is a cause of female infertility according to this study. Bilateral tubal obstruction was similar in primary and secondary infertility groups and previous pelvic surgery may be the cause of tubal obstruction in the secondary infertility group.

Conflict of Interest

The authors declare that they have no conflict of interest.

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