HYSTEROSALPINGOGRAPHIC FINDINGS AMONG INFERTILE WOMEN
RAHILA RAMZAN¹, SAJIDA PARVEEN², SERWAT JEHAN³

ABSTRACT

OBJECTIVE: To determine hysterosalpingographic findings among women with infertility.

STUDY DESIGN: A cross sectional descriptive study.

PLACE AND DURATION OF STUDY: Department of Obstetrics and Gynaecology, Infertility Clinic Baqai University Hospital Nazimabad Karachi, from 1st January 2007 to 31st December 2011.

METHODOLOGY: In this cross sectional study, Non probability purposive sampling was done. Infertile women attending infertility OPD, having X-ray Hysterosalpingography films with them (done within last 2 years) at their initial visit were included. The radiological films were studied and imaging features described. Specific features included were patent or blocked tubes, hydrosalpinx, beaded tubes, congenital uterine abnormalities and filling defects. Women more than 40 years, having history of unilateral or bilateral salpingectomy or history of Lap and Dye and women who had azoospermia in their male partner were excluded.

RESULTS: The age at presentation was between 25-34 years. Primary infertility was found in 56.43% and secondary infertility 43.56% . The commonest finding was tubal blockage.

CONCLUSION: Hysterosalpingography done as a part of initial infertility workup may help in timely intervention for conception rather than identifying tubal problem in an age where female fertility is markedly declined.

KEY WORDS: Hysterosalpingography, Infertility, Tubal blockage

INTRODUCTION

The desire to have children is very powerful and widespread but unfortunately everyone does not have ability to reproduce. The prevalence has increased in last decade or so in large part because of an increase in sexually transmitted diseases resulting in pelvic inflammatory diseases. Tubal causes of infertility accounts for 35% to 40% of cases of infertility and hence evaluation of tubal patency represents a key step and a basic investigation in the assessment of infertile couple. Hysterosalpingography (HSG) has a significant role in the assessment of infertility and has been extensively employed in infertility investigations since 1914. Historically, hysterosalpingography has been originally used for the diagnosis of pregnancy. Hauser reported the first clinical application of this for the diagnosis of early pregnancy. Now it is no longer used for this purpose because of better ways of diagnosing pregnancy.

Hysterosalpingography is a simple, safe and inexpensive X-Ray based contrast study of uterine cavity and fallopian tubes. Other extensive, expensive techniques for assessing structural causes of female infertility like Hysterosonography (Hycosy), Laparoscopy and dye test and hysteroscopy are increasingly used elsewhere. Despite the advantage of being radiation free, they lack the clear tubal resolution and definition that conventional X-Ray Hysterosalpingography offers.

The pathologies detected on Hysterosalpingography may include tubal blockage, peritubal adhesions, submucosal leiomyoma, endometrial polyps and synechie. The degree of tubal obstruction is best diagnosed using hysterosalpingography. Keeping in view the escalating incidence of infertility in our population, this study aims to analyse radiological pattern of uterine and tubal pathology in patients being investigated for infertility in our setup.

METHODOLOGY

This cross sectional descriptive study covers period of five years i.e from 1st January 2007 till 31st December 2011, in which we have analysed the imaging features of hysterosalpingography. This study was conducted at Baqai Hospital Nazimabad Karachi, Infertility Clinic. As our hospital has one of the country’s largest and only university based IVF center, patients report to us not only from all of country but also from abroad. Most of the time couples consider coming to us relatively late when they have done most of their investigations.

Considering the above mentioned facts we recruited females with both primary and secondary infertility producing radiological films of hysterosalpingography (done within last 2 years) at their initial visit. Non probability purposive sampling was done. To reduce interobserver variation all films were analysed and interpreted by the most senior personal conducting IVF clinic.

Exclusion criteria included age of female less than 20 and more than 40 years, already diagnosed with premature ovarian failure, recurrent miscarriages, past history of ectopic pregnancy, history of tubal ligation, history of lap and dye test and those with Azoospermic males.

After recording age, type and duration of infertility specific variables were noted and grouped accordingly. Those included were patent or blocked tubes, hydrosalpinx, beaded tubes,
congenital uterine abnormalities and filling defects. Percentages of the data obtained were presented in Table - I & II.

**RESULTS**

In Table-I age of women was mentioned in years. Between 20 to 24 years of age primary infertility was found in 10.43% and secondary infertility was found in 5.68% women. Between 25 to 29 years 30.70% women had primary infertility and 34.09% women had secondary infertility. In women aged between 30 to 40 years primary infertility was present in 29.82% and secondary infertility in 34.09%. Among women of age group 35 to 40 years 28.94% women had primary infertility and 26.13% women had secondary infertility.

In Table-II important findings detected on X ray films are discussed. Normal hysterosalpingography with bilateral peritoneal spill was present in 40.35% women with primary infertility and 35.22% women with secondary infertility. Bilateral tubal blockage was found in 17.54% women of primary infertility and 19.3% in secondary infertility. 15.7% women of primary infertility suffered from unilateral tubal blockage and 19.3% women with secondary infertility had unilateral tubal blockage. Bilateral hydrosalpinx was found among 7.01% women with primary infertility and 12.5% women of secondary infertility. Unilateral hydrosalpinx was found among 3.50% women of primary infertility and 5.68% women of secondary infertility.

Beading on both sides of fallopian tubes was seen only in women of primary infertility and it was found to be 7.89% unilateral beading of tubes were seen in 0.87% women of primary and 2.27% women of secondary infertility. Uterine anomaly was diagnosed in 6.14% women of primary infertility and 6.81% of secondary infertility. Filling defects were found in 0.8% women with primary infertility and 7.9% women of secondary infertility.

**TABLE – I: AGE GROUP OF WOMEN WITH PRIMARY AND SECONDARY INFERTILITY. (n= 202)**

| AGE IN YEARS | PRIMARY INFERTILITY  (n=114) 100 % | SECONDARY INFERTILITY  (n=88) 100 % | TOTAL  
<table>
<thead>
<tr>
<th></th>
<th></th>
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<th>n = 202 100 %</th>
</tr>
</thead>
<tbody>
<tr>
<td>20-24</td>
<td>12</td>
<td>5</td>
<td>17</td>
</tr>
<tr>
<td>25-29</td>
<td>35</td>
<td>30</td>
<td>65</td>
</tr>
<tr>
<td>30-34</td>
<td>34</td>
<td>34</td>
<td>68</td>
</tr>
<tr>
<td>35-40</td>
<td>33</td>
<td>23</td>
<td>56</td>
</tr>
</tbody>
</table>

**TABLE – II: IMPORTANT FINDINGS FOUND ON HYSTEROSALPINGOGRAPHY. (n= 202)**

<table>
<thead>
<tr>
<th>FINDINGS</th>
<th>PRIMARY INFERTILITY  (n=114) 100%</th>
<th>SECONDARY INFERTILITY  (n=88) 100%</th>
<th>TOTAL  (n =202) 100 %</th>
</tr>
</thead>
<tbody>
<tr>
<td>Normal Fertility With Bilateral Spill</td>
<td>46 40.35%</td>
<td>31 35.23%</td>
<td>77 38.12%</td>
</tr>
<tr>
<td>Bilateral Block</td>
<td>20 17.54%</td>
<td>17 19.32%</td>
<td>37 18.32%</td>
</tr>
<tr>
<td>Unilateral Block</td>
<td>18 15.79%</td>
<td>9 10.23%</td>
<td>27 13.37%</td>
</tr>
<tr>
<td>Bilateral Hydrosalpinx</td>
<td>8 7.02%</td>
<td>11 12.50%</td>
<td>19 9.41%</td>
</tr>
<tr>
<td>Unilateral Hydrosalpinx</td>
<td>4 3.51%</td>
<td>5 5.68%</td>
<td>9 4.46%</td>
</tr>
<tr>
<td>Bilateral Beading</td>
<td>9 7.89%</td>
<td>None</td>
<td>9 4.46%</td>
</tr>
<tr>
<td>Unilateral Beading</td>
<td>1 0.88%</td>
<td>2 2.27%</td>
<td>3 1.49%</td>
</tr>
<tr>
<td>Uterine Anomaly</td>
<td>7 6.14%</td>
<td>6 6.82%</td>
<td>13 6.44%</td>
</tr>
<tr>
<td>Filling Defects</td>
<td>1 0.88%</td>
<td>7 7.95%</td>
<td>8 3.96%</td>
</tr>
</tbody>
</table>

**DISCUSSION**

Inspite of the increased infertility services rendered these days, its prevalence still remains around 10-15%[10]. An infertile couple workup is considered incomplete without an initial hysterosalpingography. Hysterosalpingography demonstrates the morphology and patency of both the uterine canal and fallopian tubes [11]. It has been for many years an invaluable procedure for assessment of tubal patency and tubal and intrauterine pathology[12]. Majority of patients in our study, attending OPD were of primary infertility i.e. 56.43% as compared to secondary infertility i.e 43.56%. This data is comparable to the study conducted by Mesbazi S et al[13] but not with studies conducted in certain African countries[14]. The wide variation of age in our study can be explained as patients coming to us are from different social classes, different cultures and from country wide area with varying age at marriages.

In the present study, normal hysterosalpingographic finding were seen in 38.11%. This is comparable to study conducted at Nepal by Santahlia pk et al, in which normal hysterosalpingographic findings were 34.1%.[15] In our study tubal abnormalities were 104(51.49%). In another study tubal abnormalities were 63.3%.[16] In contrast normal HSG findings in infertile women sounds to be low in Uganda that is 16.6% and 18.2% in South Africa[17,18]. In our study commonest finding of all structural anomalies was...
tubal blockage 31.68% where 18.31% were bilateral and 13.36% unilateral blockage. These results are comparable to studies conducted at Nepal, Nigeria and Pakistan16,19,20. Santhalia pk et al. found no difference between unilateral and bilateral tubal blockage and found that it was equally distributed15 while Akinola et al reported unilateral blockage more than bilateral block20.

Hydrosalpinx is seen as dilated convoluted structure on HSG due to distal tubal occlusion. In this study 28 patients i.e. 13.86% patients had hydrosalpinx either unilateral or bilateral similar to the study of Malwadde17 higher than those reported at Jian and Kathmandu.10,13 However, hydrosalpinx represents the most common tubal pathology on HSG in most studies. Chronic infections like tuberculosis are characterized by fibrosis and scarring of tubes leading to alternate area of constriction and tubal dilatation gives rise to rosary bead appearance of tubes on HSG.

Our study revealed unilateral beading of tubes in 1.45% and bilateral beading in 4.45% which is high when compared to study conducted by Akinola who reported beading in 0.5% cases20. This rate is even higher when compared to study conducted by Fatima Y and Mohammad Asghar at Dera Ismail Khan who reported beading of tubes only in 1.25%21.

In our study we also found that 3.69% tubal anomalies were in conjunction with each other especially in secondary infertility cases. It was found to be unilateral hydrosalpinx in all cases associated with contralateral cornual block in majority and beading in few cases16. The high incidence of tubal pathology and more so tubal blockage which prevails, reflects the high incidence of Pelvic inflammatory disease including pelvic tuberculosis. This relation is also mentioned by Saima Naqvi et al in their study conducted in Karachi23.

The reason for increased incidence of PID, despite of advancement in the diagnosis and treatment of specific pathogens may be due to poor compliance of patient, visiting Quacks and Dias for illegal abortions and fertility treatments with a false believe of getting pregnancy with D&C in an unhygienic environment. These conditions lead to subacute or chronic PID with deleterious effects on fallopian tubes. Abnormalities of uterus are relatively uncommon cause of infertility but should be considered as can adversely affects successful treatments of other more common factors leading to conducted by Santhalia pk and Rajah R et al, reported 4.6% and 5.8% respectively16,17. Congenital abnormalities of uterine shapes are the result of abnormal fusion of Mullarian ducts. Endometrial polyps are probably the commonest abnormality seen on hysterosalpingography. These appear as filling defects i.e., an area where the dye does not fill the uterine cavity. In this study filling defect was found in 0.87% women of primary infertility and 7.95% women of secondary infertility. No case of synechiæ formation was found in our study. Another study stated that HSG is inaccurate in diagnosing small submucous myoma and endometrial polyp24.

**CONCLUSION**

Commonest pathology found on HSG in women presenting with infertility was tubal blockage. HSG is still most common first line diagnostic test to evaluate the uterine cavity, tubal patency and pelvic pathologies.

**REFERENCE**