

## CAUSES OF FEMALE INFERTILITY ON DIAGNOSTIC LAPAROSCOPY

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## ABSTRACT

**Background:** Infertility poses a great impact on individuals personal and social life and sometimes is associated with many underlying diseases. **Objective:** To determine the frequency of pelvic inflammatory disease and tubal blockage in infertile women, as diagnosed on laparoscopy. **Methodology:** This cross sectional study was conducted on 200 cases over the period of 2 years from 1<sup>st</sup> January 2014 to 31<sup>st</sup> December 2015 at Department of Gynecology, Sheikh Zayed Hospital, Rahim Yar Khan. The adult cases of fertile age, irrespective of primary or secondary infertility were included. These cases then underwent laparoscopy to assess for PID and transvesical methylene blue was injected to assess for tubal blockage. The data was entered SPSS version 19 and analyzed. **Results:** In this study, there were 200 infertile cases with mean age of 30.65±6.34 years and mean duration of infertility was 3±0.54 years. Primary infertility was seen in 159 (79.50%) and secondary in 41 (20.50%) cases. Out of 200 infertility cases, PID was seen in 43 (23.50%) while tubal blockage was seen in 85 (42.50%) cases. Regarding PID, there was no significant association with type of infertility or any age group with p value of 0.74 & 0.34 respectively. However, the cases with infertility more than 3 years had significant association with secondary infertility with p= 0.03. Similarly in cases with tubal blockage there was no association with any age group.(p= 0.92) However its association was significantly seen in primary infertility (p= 0.04) and with infertility less than 3 years.(p= 0.01) **Conclusion:** In our study tubal blockage and PID was found among two third cases with female infertility. PID was significantly associated with infertility more than 3 years while tubal blockage revealed significant association with primary infertility and duration of infertility less than 3 years.

**Key words:** Infertility, PID, Tubal blockage

## INTRODUCTION

Infertility is a great issue of concern considering its health and social impacts, and labeled as “inability to conceive after unprotected intercourse of a couple for 12 to 24 months.” It affects around 10 percent of the population. Considering the further aspects, about one third (30%) can be due to male related factors and similar (30%) with the females factors. While in 20%, the nature of it is unexplainable. In the remaining 10% it is multifactorial.<sup>1</sup> There are multiple risk factors contributing to different degree.<sup>2</sup> The ovulatory disorders are one of the most prevalent entities. Other factors include tubal factors, endometriosis and disorders of uterus and cervix.<sup>3</sup> World health organization has revealed the pubertal infection, tubal blockade, malnutrition and pelvic tuberculosis as one of the most common infertility etiologies.<sup>4</sup>

In developing countries like Pakistan mal-practice and quack overburden has led to significant delays in the diagnosis and management of such cases.<sup>5</sup> Furthermore, in routine cases a number of pathologies can be missed on routine investigations; hence the fancy procedures like laparoscopy and hysteroscopy can add a lot in diagnostic information; although not used in primary screening procedures.<sup>6</sup> This study was

conducted to determine the frequency of pelvic inflammatory disease and tubal blockage in infertile women on diagnostic laparoscopy.

## METHODOLOGY

This cross sectional study was conducted on 200 cases over the period of 2 years from 1<sup>st</sup> January 2014 to 31<sup>st</sup> December 2015 at Department of Gynecology Sheikh Zayed Hospital Rahim Yar Khan. The cases with age range of 20 to 45 years with primary or secondary infertility were included. The primary infertility was defined as no previous history of conception and unprotected sex over 24 months while secondary was labeled with similar findings in cases that had at least one prior pregnancy. The cases with other causes like males infertility factors, and other gynecological factors like ectopic pregnancies, previous major abdominal surgeries, or any contraindication to laparoscopy like ascites, abdominal mass, adhesions or bleeding disorders were excluded from this study. These cases then underwent laparoscopy to assess uterus and both ovaries, pouch of Douglas and broad ligament to look for PID and transvesically methylene blue was injected to assess for tubal blockage.

The data was entered on SPSS version 19. The data regarding socio-demographic factors and clinical data was taken. Frequency and percentages were

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calculated for gender, type of infertility and type of lesion detected i.e. PID and tubal blockage. While mean and SD was calculated for age and duration of infertility. Chi square test was used to see for significance and p value of  $\leq 0.05$  was taken as significant.

## RESULTS

In this study there were total 200 cases of infertility with age range of 20 to 45 years. The mean age was  $3\pm 6.34$  years. The mean duration of infertility was  $3.05\pm 0.54$  years (Table I). Primary infertility was seen in 159 (79.50%) and secondary infertility in 41 (20.50%) cases. Out of 200 infertility cases, PID was seen in 43 (23.50%) while tubal blockage was seen in 85 (42.50%) cases. (Figure 1)

**Table I: PID and study variables (n=200)**

Variables	PID		Total	P-value	
	Yes	No			
Infertility	Primary	34 (21.38%)	125 (78.62%)	159	0.74
	Secondary	9 (21.95%)	32 (78.05%)		
Age groups	20- 27	07 (19.32%)	71 (80.68%)	88	0.32
	28-36	19 (24.36%)	59 (75.64%)	78	
Duration of Infertility	37-45	7 (20.59%)	27 (79.41%)	34	0.03
	2-3 years	13 (17.57%)	61 (82.43%)	74	
	More than 3 years	51 (40.48%)	75 (59.52%)	126	

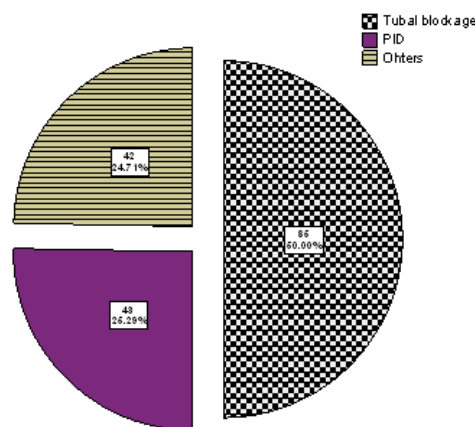
**Table II: Fallopian tubal blockage and study variables (n=200)**

Variables	Tubal Blockage		Total	P-value	
	Yes	No			
Infertility	Primary	56 (35.22%)	103 (64.78%)	159	0.04
	Secondary	29 (70.73%)	12 (29.27%)	41	
Age Groups (yrs)	20- 27	41 (46.59%)	47 (53.41%)	88	0.92
	28-36	33 (42.31%)	45 (57.69%)	78	
	37-45	11 (32.35%)	23 (69.65%)	34	
Duration of Infertility	2-3 years	35 (47.30%)	39 (52.70%)	74	0.01
	More than 3 years	24 (19.05%)	102 (80.95%)	126	

Regarding PID, it was seen in 34 cases with primary and 9 with secondary infertility ( $p=0.74$ ). There was no significant difference of PID with different age groups. ( $p=0.34$ )

However, the cases with infertility more than 3 years had significantly higher number in secondary cause with  $p=0.03$  as shown in (Table I). While out of those 85 with tubal blockage, significantly higher number i.e. 56 cases had primary as compared to 39 secondary infertility with  $p=0.04$ . There was also significant association with duration of infertility less than 3 years with tubal blockage with  $p=0.01$  while none of the age group showed any significant association. ( $P=0.92$ ) (Table II)

**Figure I: Causes of Infertility (n=200)**



## DISCUSSION

In this study the duration of infertility was  $3.05\pm 0.54$  years while mean age of infertility was  $30.65\pm 6.34$  years. Similar results were also noted by other studies who also found almost similar range of age and duration of presentation.<sup>5-9</sup> However, a study by Maheshwari A et al slightly contradicted it and they found about 60% of their cases presented within 3 to 5 years and the remaining even earlier.<sup>7</sup> The results from studies done in Pakistan were comparable to our study as compared to Maheshwari A et al who had slightly younger age of presentation. This might be because of the traditional factors and the availability of the resources in different countries. That's why the cases reported slightly later in this study than the developed countries.

In this study the infertility was higher with primary cases as compared to secondary ones involving 79.50% primary and 20.50% secondary. Similar results were seen by other studies.<sup>10-11</sup> The reason for higher number of primary infertility as compared to secondary may be explained by the concerns of the family and the patients herself that they report in higher number in primary infertilities as compared to the secondary where they might have a single or more live babies which lower the incidence of reporting.

Tubal blockage was seen in 56 (35.22%) out of 159 cases with primary as compared to 29 (70.73%) secondary infertility with significant p value of 0.04. Furthermore it was also significantly associated with duration of infertility less than 3 years. Similar trends were observed by other studies.<sup>12-14</sup> In a study done by Al-Subhi T et al who had this 19% in primary and 29% secondary infertility.<sup>12</sup> This can be explained by the chances of infections specially chlamydia which is an important cause of the tubal blockage or it can be due to other causes like previous histories of surgery.

As number is high in secondary infertility and these cases had prior pregnancy and their outcome was not assessed. This was important to rule out the fate of previous pregnancies as in such cases, the instrumentation or intervention done may have introduced infection or led to adhesion formation. This may end up in tubal blockage and add to secondary infertility. And this can also explain the nature of significant reporting within 3 year of duration because of the concerns of the recent infertility, considering the background of previous pregnancy outcome. In this study PID was seen in 34 (21.38%) cases with primary and 9 (21.95%) cases with secondary infertility. This difference was not statistically significant while duration of infertility more than 3 years was ( $p=0.03$ ). Similar was noted by other studies who also found higher PID with primary infertility.<sup>15-18</sup>

This might be explained by the poor socioeconomic status of Pakistan where infection rate is high and access to the medical facilities is limited and hence infection leading to PID and then adhesions ultimately lead to infertility. However international studies have shown another mechanism of PID due to increased risk of sexually transmitted disease with PID.

There were few limitations in this study. As this study only included PID and tubal blockage and did not check any other causes which are also well reported. Secondly, we also did not collect data regarding the outcome of previous pregnancies.

## CONCLUSION

In our study, tubal blockage and PID was found among two third cases with female infertility. PID is significantly associated with infertility more than 3 years while tubal blockage revealed significant association with primary infertility and duration of infertility less than 3 years.

## Conflict of interest

There is no conflict of interest among all authors.

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