Original Article

Correlation of Operative Findings with Preliminary Diagnosis in Patients with Ovarian Cysts Undergoing Laparoscopy

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Abstract

Background: Ovarian cyst is one of the commonly encountered scenarios in Gynecology emergencies as well as outpatient department, contributing significantly to patients' mortality and morbidity. However, with the development of modern endoscopic techniques, most ovarian cysts can be diagnosed and treated with the help of laparoscopy.

Methodology: This study was carried out at Maternal and Child Health unit 2, Pakistan Institute Medical Sciences (PIMS), Islamabad from 1st Jan 2018 to 30th June 2018. Total 210 patients undergoing laparoscopic surgery for ovarian cysts were registered in the study after taking informed consent.

Results: Ovarian cysts were indication for laparoscopy in 42.1 % patients (n= 90) followed by 39.0 % of patients (n=82) with infertility. There was a significant difference between the preliminary and per-operative diagnosis of ovarian cysts and infertile patients (p= 0.0001 and 0.0002 respectively).

Conclusion: There is poor correlation between preliminary and per-op diagnosis of patients with ovarian cysts and infertility undergoing laparoscopy. Even in a developing country like Pakistan, performing laparoscopy on such patients can decrease their morbidity in the long run.

Keywords: Ovarian Cyst, laparoscopy, diagnosis, clinical signs.

Cite this article as: Naeem S, Luqman S, Hina H, Tasnim N, Bangash K, Amin O. Correlation of Operative Findings with Preliminary Diagnosis in Patients with Ovarian Cysts Undergoing Laparoscopy. J Soc Obstet Gynaecol Pak. 2019; Vol 9(1):9-13.

Introduction

Ovarian cyst is one of the commonest occurring gynecological pathology worldwide. The diagnosis of ovarian cyst is made on history, physical examination, ultrasonography and other radiographic modalities like MRI and CT scan. The incidence of ovarian cyst occurrence varies from the age group to which the patient belongs. The great majority of ovarian cysts occur in reproductive-age patients and most of them are benign.[1,2] The cysts at postmenopausal age have an incidence of 3 to 5 %, but presents with highest morbidity and mortality because13 to 15% out of these may be related to ovarian carcinoma.[3]

The sign, symptoms and outcome of ovarian cysts depends on the age group, type of cyst diagnosed on histopathology and mode of presentation whether in emergency or not.[4] If a cyst is small in size but presents with torsion, it may end up with disrupted blood supply of the ovary and eventually necrosis. Similarly rupture of an endometriotic cyst may cause infiltration of deposits in pelvis leading to frozen pelvis, blocked tubes and subsequently sub-fertility. On the other hand, a similar cyst without torsion or rupture may show less severe signs and symptoms like perineal heaviness and lower abdominal pain.

Authorship Contribution: [1-3]Analysis and interpretation of data, drafting and revision of manuscript, [4] critical review of manuscript, [5]review methodology, [6] participated in the acquisition and data analysis

Funding Source: none

Conflict of Interest: none

Received: Jan 21, 2019

Accepted: April 4, 2019

Ovarian cysts may also be classified into benign and malignant hence influencing the management and prognosis differently. Large benign cysts like dermoid cysts may show minimal recurrence after surgical excision.[5] On the other hand, management of endometriotic cysts varies from case to case, depending on the clinical symptoms in which the patient presents.[6] Moreover, adnexal masses may lead to high mortality rate in the form of under-diagnosed ectopic pregnancy, and management of polycystic ovarian cysts may involve ovarian drilling.[7] Management of ovarian carcinoma warrants preoperative risk assessment, surgical removal, radiotherapy and chemotherapy where required.

Laparoscopic surgery has evolved itself as a diagnostic as well a therapeutic modality in surgical floors among stable patients with ovarian cysts. [8] In expert hands, laparoscopy provides minimal patient morbidity with lessen hospital stay and need for blood transfusion as compared to open surgeries. Also, laparoscopy provides a key-whole real time image without disturbing the milieu of the patient and can aid in establishing the diagnosis as well as treatment for various types of ovarian cysts.

Although effective as it seems for diagnosing various ovarian cysts on laparoscopy, this modality may still be 'out of reach' to majority of patients from peripheral areas of Pakistan as well as due to financial constraints. In many far-flung areas, most diagnosis are still made on basis of clinical signs and symptoms and treatment is started, where as in some areas, ultrasonography may help further in establishing the diagnosis. Limited number of gynecological patients have access and finances to avail laparoscopy for diagnosing and treating ovarian pathology in developing countries.[9]

To our knowledge no study had been conducted to correlate the clinical diagnosis based on signs and symptoms with laparoscopic diagnosis among patients presenting with ovarian cysts.

Methodology

This study was carried out at Maternal and Child Health (MCH) unit 2, Pakistan Institute of Medical sciences (PIMS), Islamabad. The period of study was between 1st Jan 2018 to 30th June 2018. The total number of patients included in the study were 210. Inclusion criteria included stable patients undergoing laparoscopy in the unit for gynecological indications.

Recruited patients were informed of the study and informed consent was taken. Patients underwent detailed history and physical examination by same doctor to prevent bias and underwent hematological investigations and imaging as required. A preliminary diagnosis was given by the examining doctor and recorded on questionnaire. Per-Op findings of laparoscopy were also noted along with histopathological results if available.

All the data was recorded on predesigned performa and was put in Statistical Analysis software SPSS version 20.0 for analysis. Numerical data like age, were represented with mean and standard deviation whereas categorical data like indications for laparoscopy, preliminary and per-op diagnosis were represented in frequencies ad percentages. Chi-square test was applied to check the correlation between preliminary and per-op diagnosis. A p-value of less than 0.05 was taken as significant.

Results

Table I demonstrates the demographic record of the patients undergoing laparoscopy. Out of total of 210 patients, 38.1 % (n=80) undergoing laparoscopy belonged to the age group of less than 25 years, whereas 16.2 % (n=34) were forty years or above. Similarly, 18.9% (n= 168) women were nulliparous and 75.2% (n= 158) were unmarried as compared to 24.7% (n=52) married women.

Table I: Demographic Data of women undergoing laparoscopy.

Characteristic	Frequency	Percent
Age		
<25years	80	38.0
25-29 years	39	18.6
30-34 years	43	20.4
35- 39 years	14	6.6
40year and above	34	16.2
Mean + SD	210	100.0
Parity		
Para 0	142	6.6
Para 0 with previous miscarriage	26	12.3
Para 1	13	6.2
Para 2	13	6.2
Para 3	2	0.95
Para 4	14	6.6
Marital Status		
Married	158	75.2
Unmarried	52	24.7
Phase of menstrual cycle		
Follicular	99	47.1

Secretary/luteal	98	46.6
Irregular	13	6.2
Previous abdominal Surgery		
Yes	130	61.9
No	80	38.1

41.7 %(n=99) procedures were performed during follicular phase of menstrual cycle, whereas 46.6% (n=98) were performed during luteal phase. 6.2% (n=13) had irregular cycles out of all. Out of 210 women, 61.9 %(n=130) had history of previous abdominal surgeries.

Table II represents the presenting symptoms of the women undergoing laparoscopy.64.2% patients (n=135) presented with pelvic pain while 45.2% (n=95) reported with dysmenorrhea and 18.6% (n=39) with dyspareunia although many symptoms were overlapping. Further, 27.6% (n=58) presented with menstrual abnormalities out of which 11.9% (n=25) had complaints of heavy menstrual bleeding. 43.4% (n=91) presented with pelvic heaviness or abdominal mass.

Table II: Presenting Complaints of women undergoing laparoscopy

Presenting Symptoms	Frequency (n=210)	Percentage %
Pelvic pain		
Present	135	64.2
Acute onset	13	6.1
Chronic	81	38.6
Midcycle	41	19.5
Absent	75	35.7
Dysmenorrhea		
Present	95	45.2
Absent	145	69.0
Dyspareunia		
Present	39	18.6
Absent	171	81.4
Menstrual abnormalities		
Present	58	27.6
Heavy Menstrual bleeding	25	11.9
Oligo menorrhea	19	9.0
Irregular periods	14	6.7
Absent	152	72.3
Pelvic Heaviness/Mass abdomen		
Present	91	43.3
Absent	119	56.7

Figure 1 shows indications for performing laparoscopy based on clinical diagnosis. Ovarian cysts/mass were the most common indication for laparoscopy (42.9%-n=90) followed by primary infertility (32.8%-n=69)

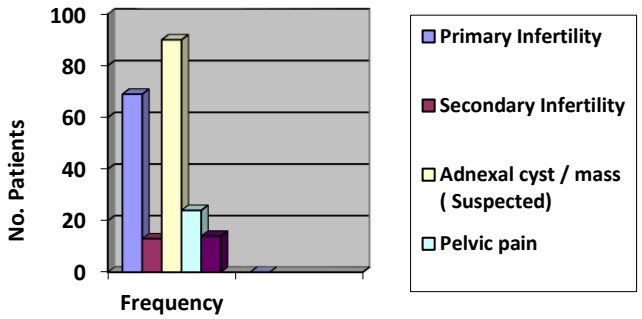

Figure 1: Indications for performing laparoscopy

Table III presents comparison of clinical diagnosis with per-op diagnosis at the time of laparoscopy. The difference between the preliminary diagnosis and per-op diagnosis was significant in patients with indication of primary infertility, secondary infertility and ovarian cyst/ mass (p value = 0.0001, 0.002 and 0.0002 respectively). There was no statistical difference in diagnosis for pelvic pain and menstrual disturbances.(p=0.429 and 0.281 respectively)

Table III: Comparison of Preliminary diagnosis and per-op diagnosis

	Preliminary Diagnosis	Per-Op Diagnosis	*P value*
Primary Infertility	69	69	
Tubal factor	4	15	*0.0001*
Polycystic ovaries	20	23	
Endometriosis	10	18	
No reason found	35	13	
Secondary Infertility	13	13	
Tubal factor	4	5	*0.0002*
Polycystic ovaries	4	7	
Endometriosis	5	1	
Adnexal cyst / mass	90	90	
Dermoid cyst	1	1	
Ovarian cyst	8	28	*0.0002*
Endometriotic cyst	15	18	
Ectopic pregnancy	2	4	
Polycystic ovary	18	27	
Without prior diagnosis	46	12	
Pelvic pain	24	24	
Ovarian Torsion	1	2	*0.429*
Adhesions	23	21	
Tubal abortion	0	1	
Menstrual disturbances	14	14	
Fibroid uterus	4	6	*0.281*
No cause found	10	8	
Total	210		

Discussion

The study highlights some very important points. Firstly, ovarian cysts formed indication for laparoscopy

in 42.9% of patients (n= 90). Previous studies have also demonstrated ovarian cysts to be common among reproductive age group as well as accounting to variety of symptoms from pelvic pain, abdominal mass to menstrual irregularities.[5] A possible cause for high number of ovarian cyst undergoing therapeutic laparoscopy may be presence of technical personal, trained in laparoscopic excision of the cysts. Whether the presentation of ovarian cysts in our population in younger age > 25 (n=35) is by chance or some other factor is behind it, needs to be confirmed by large multi-centered studies utilizing large randomized patients.

If we compare our data with other studies, the indications for performing laparoscopy is almost comparable with study done by Requel et al , who demonstrated that most common indication for laparoscopy was infertility which is on second number on our list of indications.[(10)] Patients with subfertility underwent diagnostic laparoscopy more commonly than pelvic pain or menstrual irregularities.

How uncertain is the clinical diagnosis and cause related to it in patients with subfertility and ovarian cysts are in fact the main findings our study. Comparable results were also found in other authors [3, 5, 7, 8] For example, Babatunde et al demonstrated that tubal factor abnormality can be diagnosed on laparoscopy where as it can by overlooked if cases with no previous history of causative factors.[11] Hence it becomes important to stress on the point to counsel the patients for undergoing tubal patency test despite absence of any risk factors if the history of subfertility is long standing and the cause remains to be identified.

Similarly, endometriosis was diagnosed more accurately during laparoscopy in our study. Laparoscopy has already been declared gold standard for grading endometriosis in various study and our study's findings only reinforces this fact along with urging the gynecologists working in peripheral areas for prompt referral of such patients for proper diagnosis.[12] For the diagnosis of endometriosis, the diagnosis is usually also a histological. Since our study was only focusing on comparison of diagnosis of various indications, further studies could include correlating stage of endometriosis with clinical symptoms with large number of patients with endometriosis.

Also, in all other clinical presentations, no proper preliminary diagnosis could be drawn from patients' clinical examination and investigations. The number included 35 with infertility and 49 with ovarian cysts. Laparoscopy thus enabled further invasive diagnosis, shortlisting the above-mentioned patients to 13 and 12 respectively. This reduction in number of patients with no diagnosis by diagnostic laparoscopy can prove this procedure to be the gold standard in establishing the final diagnosis. However, the dilemma remains the selection of patients with proper indications to offer them laparoscopy directly to save their time in reaching the diagnosis. How soon and when can we offer patients laparoscopy for diagnosis, remains a challenge till now.

Even with clinical suspicion of ovarian cyst/adnexal tumor, 49 patients could not be diagnosed on clinical grounds as previously mentioned and there was marked difference between clinical diagnosis and per-op diagnosis of cases involving ovarian cysts.(p= 0.0002). Hence our study did not find clinical diagnosis enough for labeling a patient with ovarian cysts until proven through laparoscopy. A limitation of our study was lack of detail analysis regarding the size of cyst and its correlation to be diagnosed clinically. Daniel M et al showed that 25% percent of cysts can be missed on a manual pelvic examination especially if they are of 3 cm or less in size. [13]

An interesting finding from out study was the correlation of preliminary diagnosis and per-op diagnosis of patients with pelvic pain and menstrual irregularities (p = 0.429 and 0.281 respectively). Hence our study demonstrates minimal role of laparoscopy in establishing diagnosis in above mentioned indications. However, the number of patients in our study was too low and hence demands a revisit to this topic again.

Conclusion

There is poor correlation between preliminary and per-op diagnosis of patients with ovarian cysts and infertility undergoing laparoscopy. Even in a developing country like Pakistan, performing laparoscopy on such patients can decrease their morbidity in the long run.

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