International Journal of Research in Medical Sciences
Wakhloo A et al. Int J Res Med Sci. 2019 Jan;7(1):255-259
www.msjonline.org
pISSN 2320-6071 | eISSN 2320-6012
DOI: http://dx.doi.org/10.18203/2320-6012.ijrms20185391

Original Research Article

Role of laparoscopy in the diagnosis and management of benign adnexal masses

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Received: 14 November 2018
Accepted: 08 December 2018

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ABSTRACT

Background: Adnexal masses are frequent findings in women of all age groups. It consists of the ovaries, fallopian tubes and uterine ligaments. Women can present with various gynaecological complaints and adnexal masses could be detected while examining and investigating for these complaints. The aim was to study the role of laparoscopy in diagnosis and management of benign adnexal masses.
Methods: The study was conducted on 48 women of reproductive age group. Per speculum examination was done and PAP smear was taken before bimanual examination was done. A complete per vaginum examination was done and the adnexal mass was assessed for its size, side, consistency, laterality and tenderness. Laparoscopy was done to confirm preoperative diagnosis and appropriate procedure done depending on diagnosis.
Results: Pain in the lower abdomen was the commonest chief complaint seen in 87.5% cases. 41.67% cases were suspected to have endometriosis while on laparoscopy it was seen in 47.92%, 33.33% were suspected to have ovarian cyst which decreased to 25% on laparoscopy, ectopic pregnancy in 16.67% cases both pre-operative and on laparoscopic examination and tubo-ovarian mass in 8.33% cases pre-operatively and 2.08% on laparoscopy.
Conclusions: This study has shown that if proper preoperative evaluation was done, author can select the appropriate patients for laparoscopic approach.

Keywords: Adnexal masses, Clinical examination, Laparoscopy, Pre-operative diagnosis

INTRODUCTION

Adnexal masses are frequent findings in women of all age groups. The adnexal mass could be of mullerian origin which consists of the ovaries, fallopian tubes and uterine ligaments. The prevalence of adnexal masses is 0.17% to 5.9% in asymptomatic and 7.1% to 12% in symptomatic patients.[1] It has been estimated that 5% to 10% of women will undergo a surgical procedure owing to a suspected ovarian mass during their lifetime, and 13% to 21% of these women will suffer from malignancy.[2] In the reproductive age group, the majority of adnexal masses are benign, with malignancy found in only 7% to 13%.[3] As the risk of malignancy is not very high in appropriately selected cases of adnexal masses, laparotomy may be considered an over treatment in these cases which can be better managed laparoscopically alone.[4,5] Therefore, careful selection of patient is critical to the appropriate use of laparoscopy for the removal of adnexal masses.

The patient's age, history, clinical examination and results of serum marker in combination with imaging assessment in the form of ultrasound can provide important information that can help to reach a diagnosis preoperatively and determine the appropriate operative approach.[6] Ultrasound is the most common initial approach for diagnosis of adnexal mass with doppler flow

to rule out torsion.[7] Laparotomy remains the gold standard for malignant ovarian tumour. A pelvic mass should be suspected for malignancy when it appears to be solid, fixed or irregular.

During laparoscopy, in addition to examination of adnexal mass, the procedure should include careful examination of all peritoneal surfaces, pelvis, pouch of douglas, diaphragm, paracolic gutters, omentum and bowel surfaces. Various laparoscopic procedure can be performed for these adnexal masses like cystectomy, cyst wall biopsy, aspiration of cyst, oopherectomy and salpingo-oopherectomy, adhesiolysis, drainage of hydrosalpinx, salpingostomy, segmental or distal salpingectomy.[8-10]

Recently, scientific data have supported the concept and the laparoscopic approach for treating adnexal masses is now considered the preferred treatment.[11] Therefore laparoscopic surgery should be given more and more promotion in lieu of its proving to be extremely advantageous and minimally invasive.

METHODS

This prospective study was conducted in the Department of Obstetrics and Gynaecology, Government Medical College, Jammu, from October 2014 to September 2015 after taking approval from the Ethical Committee of the Institution. All eligible patients were explained the purpose of the study. A written consent was taken from all the patients before enrolling them in the study. Inclusion criteria was women in reproductive age group, benign nature of adnexal mass on clinical examination and ultrasonographic confirmation of benign nature of the mass.

While exclusion was post-menopausal females and girls less than 15years of age, any evidence of malignancy on clinical or ultrasonographic examination and sign and symptoms of acute abdomen.

Detailed clinical history including chief complaints and their elaboration, parity and obstetrical history, menstrual history, relevant gynecological history, past history and family history was taken. Complete clinical examination was done. Per speculum examination was done in married women to look for any bleeding or discharge per vagina and status of cervix and vagina. PAP smear was taken before bimanual examination was done. A complete per vagina examination was done and the adnexal mass was assessed for its size, side, consistency, laterality and tenderness.

Malignancy was suspected if pelvic mass felt solid, fixed or irregular or if an upper abdominal mass or ascites was also present. Per rectal examination was done in unmarried females. Laparoscopy was done in appropriately selected patient to confirm clinical diagnosis and appropriate procedure was done.

RESULTS

The study comprised of 48 patients of reproductive age group. The patient's age in this study varied from 18-40years. Maximum number of patients were in the age group 26-30years i.e., 47.92% with mean age of 20.08±5.48years. Out of a total number of 48 patients with adnexal masses, 6 were unmarried females and majority of them had endometriosis. The mean parity of patients was 1.15±1.20 with a minimum of 0 and maximum of 5. Maximum number of patients i.e. 45.83% were nulliparous who came to hospital in view of infertility.

The common presenting complaint in this study was pain lower abdomen (87.50%), Infertility (22.92%), dysmenorrhea (20.83%) and amenorrhea (16.67%) which was seen in patients of ectopic pregnancy. Other less common complaints were dyspareunia, vaginal discharge and fever (Table 1).

Table 1: Symptoms of the studied population.

Symptoms	No. of patients (n=48)	%
Pain	42	87.50
Infertility	11	22.92
Amenorrhea	8	16.67
Dyspareunia	3	6.25
Dysmenorrhea	10	20.83
Menorrhagia	1	2.08
Fever	1	2.08
Discharge P/V	1	2.08

On per vaginum examination, left sided masses were present in 43.75% cases while in 41.67% cases, the masses were right sided. Bilateral masses were suspected in 3 patients. No well-defined mass could be palpated in 4 patients though vague fullness could be felt. The average size of adnexal mass in this study was 5.44±0.31cm. Majority i.e. 72.92% adnexal masses were between 3-6cm. Majority (81.25%) adnexal masses appeared cystic on clinical examination.[10] 42% adnexal masses appeared to have mixed consistency. No adnexal mass appeared solid. In 4 cases however, no well-defined adnexal mass was palpable and only vague fullness could be felt. 18.75% adnexal masses were tender on examination. 81.25% masses appeared non-tender on clinical examination.

Maximum patients i.e., 20 (41.67%) were suspected to have endometriosis followed by ovarian cyst in 16 (33.33%) patients.

Around 8 (16.67%) patients were provisionally diagnosed to have chronic ectopic pregnancy and another 4 (8.33%) patients were suspected to have TO mass (Table 2). These patients were subsequently subjected to laparoscopic surgery for confirmation of diagnosis and management accordingly.

Table 2: Pre-operative diagnosis.

Pre-operative diagnosis	No. of patients (n=48)	%
Ovarian cyst	16	33.33
Endometriosis	20	41.67
Ectopic	8	16.67
TO mass	4	8.33

On laparoscopic examination, out of 16 cases of ovarian cyst diagnosed pre-operatively, 7 diagnosed as functional cyst, 4 as serous and 1 as dermoid cyst. The remaining 4 cases were correctly diagnosed as par-ovarian cyst (3) and endometriotic cyst (1). Pre-operative diagnosis of endometriosis and ectopic pregnancy was found correct on laparoscopy.

Table 3: Laparoscopic diagnosis and pre-operative diagnosis.

Laparoscopic diagnosis		Pre-operative diagnosis (No. of patients (%))			
		Ovarian Cyst* (n=16)	Endometriosis** (n=20)	Ectopic**(n=8)	To Mass***(n=4)
Serous cyst	n=4	4 (100.00)	0 (0.00)	0 (0.00)	0 (0.00)
Dermoid cyst	n=1	1 (100.00)	0 (0.00)	0 (0.00)	0 (0.00)
Functional cyst	n=7	7 (100.00)	0 (0.00)	0 (0.00)	0 (0.00)
Par-ovarian cyst	n=3	3 (100.00)	0 (0.00)	0 (0.00)	0 (0.00)
Ectopic	n=8	0 (0.00)	0 (0.00)	8 (100.00)	0 (0.00)
Endometriosis	n=23	1 (4.34)	20 (86.96)	0 (0.00)	2(8.70)
TO mass	n=1	0 (0.00)	0 (0.00)	0 (0.00)	1(100.00)
Hydrosalpinx	n=1	0 (0.00)	0 (0.00)	0 (0.00)	1(100.00)

Table 4: Sensitivity of pre-operative diagnostic tools.

Pre-operative diagnosis		Laparoscopic diagnosis			
		Correct in no. of patients	% of patients	Incorrect in no. of patients	% of patients
Ovarian cyst	n= 16	12	75.00	4	25.00
Endometriosis	n=20	20	100.00	0	0.00
Ectopic	n=8	8	100.00	0	0.00
TO mass	n=4	1	25.00	3	75.00
Hydrosalpinx	n=0	0	0	1	100.00

Out of 4 suspected TO mass pre-operatively, 2 came out to be endometriosis, 1 as hydrosalpinx and only one was finally diagnosed as TO mass (Table 3).

The sensitivity of pre-operative tools i.e. physical examination and ultrasound in diagnosing ovarian cyst was 75%, 86.9% in endometriosis, 100% in ectopic pregnancy and 25% in TO mass (Table 4).

Laparoscopic procedure done was cystectomy (70.83%), adhesiolysis (20.83%), ovarian cyst aspiration (16.67%) and salpingectomy (18.75%). Chromotubation, ovarian repair was other procedure done laparoscopically.

Laparoscopy converted to laparotomy only in one patient because of dense adhesion due to previous 2 LSCS. Post-operatively 1 patient had fever and 1 had abdominal distension which subsided with conservative management.

The minimum post-operative stay was 2days (in 16.67% patients) and maximum was 8days which was seen in 1 patient in whom laparotomy was required. In general, results were concordant on pre-operative and laparoscopic diagnosis (Table 5).

Table 5: Final correlation.

Diagnosis	No. of patients (%)	
	Pre-operative	Laparoscopic
Ovarian cyst	16 (33.33)	12 (25.00)
Parovarian cyst	0 (0.00)	3 (6.25)
Ectopic	8 (16.67)	8 (16.67)
Endometriosis	20 (41.67)	23 (47.92)
TO Mass	4 (8.33)	1 (2.08)
Hydrosalpinx	0 (0.00)	1 (2.08)

DISCUSSION

Maximum number of patients in this study were in the age group of 21-30years with a mean age of 20.08±5.48years. Patients in this study were younger as author had excluded peri-menopausal and post-menopausal women from this study. Studies limited only to reproductive age women, Barla J et al, (mean age, 28years), Saito S et al, (mean age 31years) showed age

distribution similar to this study.[12,13] In this study the most common presenting symptom was abdominal pain which was seen in 42 (87.5%) women.

Majority of these patients i.e. 28 (66.67%) had pain of more than 2months duration. Most of them had vague dull aching pain in the lower abdomen. In these patients, endometriosis, ovarian cyst, par-aovarian cyst were among the most common final diagnosis made on laparoscopy. In a study by Howard FM, 65% of the women with chronic pelvic pain had at least one pathology detected on laparoscopy while in 35% cases no pelvic abnormality was seen.[14] Endometriosis was diagnosed in one-third of laparoscopies while adhesions were diagnosed in about one-quarter of laparoscopies in this study. Pain of less than one-month duration was seen in 10 (23%) patients. Of these, 7 were cases of ectopic pregnancy who presented with severe lower abdominal pain. Out of the remaining three, two were cases of haemorrhagic cyst and one was a patient with a large serous cyst of more than 10cm.

In this study, 44 i.e. 91.67% patients were correctly diagnosed to have an adnexal mass on per vaginum and/or per rectal examination. The findings of pelvic examination were confirmed by ultrasound and laparoscopy. In 4 i.e. 8.33% patients, the adnexal mass could not be palpated accurately though vague fullness was still felt. Consistency was also evaluated by clinical examination. It was found that 39 (81.25%) masses were cystic while 5 (10.42%) masses appeared to have mixed consistency. The assessment of consistency is an important criterion to rule out malignancy. Tenderness of mass on clinical examination is also important. In this study, 9 (18.75%) masses were tender on clinical examination. Of the 8 cases of ectopic pregnancy, 7 had positive cervical excitation.

In this study, all pre-operative suspected cases of ectopic pregnancy (8) were in complete correlation with laparoscopic diagnosis giving a sensitivity of 100%. Ovarian cyst was correctly diagnosed in 12 out of 16 preoperatively suspected cases on laparoscopy, thus had sensitivity of 75% which was consistent with study by Gupta H et al, where sensitivity was 71.4% and 92.9% respectively, when clinical examination and ultrasonography was compared with laparoscopy.[15]

The combined sensitivity of clinical examination and ultrasound finding in detecting endometriosis was 86.9% which was similar to study by Gupta H et al, (57.14% by clinical examination and 85.7% by ultrasonography).[15] Only one (25%) case of TO mass was correctly diagnosed preoperatively. Successful management of adnexal masses was done using various laparoscopic technique, most common was cystectomy (70.83%) which was similar to study by Yuen PM et al, 70%).[16] Other procedure done was adhesiolysis (20.83%), salpingectomy (18.75%), chromotubation (16.67%) and ovarian repair (14.58%). Most patients (70.84%) had a postoperative stay of 3days and less which was significantly lower than laparotomy, a shorter postoperative stay was also reported by Medeiros LR et al.[11]

CONCLUSION

The present study has shown that if proper pre-operative evaluation was done, author can select the appropriate patients for laparoscopic approach. The comparative shorter postoperative stay resulted in lesser economic and patient load on hospital and also associated with lesser morbidity and faster recovery.

Funding: No funding sources
Conflict of interest: None declared
Ethical approval: The study was approved by the Institutional Ethics Committee

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Cite this article as: Wakhloo A, Sharma S, Singh G. Role of laparoscopy in the diagnosis and management of benign adnexal masses. Int J Res Med Sci 2019;7:255-9.