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Management of benign adnexal masses: A comparative study of laparoscopy vs. laparotomy

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Abstract

Background: For last two decades operative laparoscopy has become a routine for benign adnexal masses.
Objective: To compare the safety and efficacy of laparoscopy and laparotomy for the management of benign adnexal masses.

Methodology: 80 consecutive women with a diagnosis of presumed benign adnexal mass and requiring surgical treatment were randomly assigned to laparoscopy (Group A) and laparotomy (Group B). The two groups were matched demographically. Various parameters were compared among the two groups.

Results: Median operating time for group A was 50.85 ± 7.6 min and for group B was 45.72 ± 11.7 min. Intraoperative blood loss was significantly less in group A than in Group B (30.8 ± 14.9 vs 77.2 ± 17.9 ml) $p < 0.0001$. Significantly less patients in group A, had postoperative fever (10% vs 42.5%) $p < 0.001$. Patients in group A remained in the hospital for a shorter time period (3.02 ± 0.9 vs 5.53 ± 0.9 days) $p < 0.005$. Patients in group A required a shorter postoperative recovery time before resuming normal activities (7.47 ± 0.8 vs 17.13 ± 2.2 days) $p < 0.0001$. Similarly, patients in group A took lesser time to become pain free (8.23 ± 1.0 vs 19.13 ± 2.2 days) $p < 0.0001$. Patients in group A had smaller incision & less incision related complications (2.5% vs 17.5%) $p < 0.001$. No intraoperative complications were registered in either group.

Conclusion: This study demonstrates a statistically significant decrease in blood loss, postoperative pain and faster recovery in patients undergoing laparoscopy for adnexal surgery as compared to laparotomy.

Keywords: Laparoscopy, laparotomy, adnexal masses, benign

Introduction

Adnexal masses are a common indication for gynecologic surgery. The incidence of adnexal masses undergoing surgical intervention is 5.26% of which 93% are ovarian in origin [1]. Among the ovarian masses, neoplasms accounted for 68% and non-neoplastic lesions 32% [2]. Differential diagnosis of adnexal mass is complex and includes functional cysts, benign and malignant ovarian tumors, paraovarian cysts, tubo-ovarian abscesses, hydrosalpinx, ectopic pregnancies, tubal malignancy, broad ligament fibroid, fimbrial cysts, sigmoid colon or colon distended with gases or feces, pelvic kidney, and pregnancy in bicornuate uterus. These could be benign or malignant. Due to uncertainty of most of the lesions, the best surgical approach is still debated. Thus, it seems important to establish risk profiles of all patients with adnexal masses so they can reap the benefit of minimally invasive surgery wherever possible.

Operative laparoscopy is becoming routine in gynecologic surgeries and has been progressively integrated into adnexal mass management in the past 20 years in spite of the reported higher costs of laparoscopy due to the surgical instruments, the longer operative time and learning curve.

Objective

To compare the safety and efficacy of laparoscopy and laparotomy for the management of benign adnexal masses.

Materials and Methods: This was a hospital based observational study, conducted in the Department of Obstetrics & Gynaecology, MCSG, SMS Medical College, Jaipur.

Data was collected from 80 consecutive women with a diagnosis of benign adnexal mass and requiring surgical treatment who were randomly assigned to laparoscopy (Group A) and laparotomy (Group B). The two groups were matched demographically. Various parameters were compared between the two groups.

Inclusion Criteria

All women with benign adnexal mass between 16 to 45 years of age posted for surgery.

Exclusion Criteria

- Patients with doubtful malignant adnexal mass
- Ectopic pregnancy

For each woman, charts were used to collect data regarding demographic information, presenting clinical history, menstrual & obstetric history, past medical & surgical history, preoperative assessment, operative notes, postoperative progress, and histopathological reports. Preoperative evaluation included history, clinical examination, sonographic images and serum markers.

Operating time was noted from skin incision to dressing the wound after closure of the incision. The blood loss was assessed by measuring the amount of blood in the suction container and weighing the used mops & gauze pieces preoperatively & postoperatively with a high accuracy digital weighing machine. Postoperative progress was noted in terms of severity & duration of pain, duration of hospital stay, occurrence of fever & wound related complications.

Statistical analysis was performed with Student t test or chi² test for univariate analysis, and logistic regression for multivariate analysis using SPSS.

Results

In our study, mean age of the subjects in the study group A was 31.1 years and in study group B was 32.4 years. Mean BMI of the patients, in group A was 23.8 while in group B was 21.7 kg/m². In group A, 27.5% study subjects were from rural area and 72.5% were from urban area. Whereas in group B, 35% study subjects were from rural area and 65% were from urban area. Most of the study subjects were housewives in both the groups. (Table-1)

Table 1: Comparison of Demographic Parameters between the two Groups

Demographic Details	Group A	Group B
Mean Age (Years)	31.1	32.4
Mean BMI (Kg/m ²)	23.8	21.7
Rural %	27.5	35
Urban %	72.5	65
Working %	23	15
Housewife %	77	85
Low SES %	42.5	50.5
Middle class SES %	57.5	49.5

The most common pathology was large (>5 cm) simple ovarian or Paraovarian cyst followed by Endometriotic & Hemorrhagic cyst. Patients with the doubt or proven malignant masses on preoperative workup were excluded from the study. 25% cases had bilateral disease in Group A while it was 18% in Group B (Table-2). Cystectomy with cyst wall excision was done in most of the cases. Few underwent salpingo-oophorectomy in which tube was adherent to the ovary.

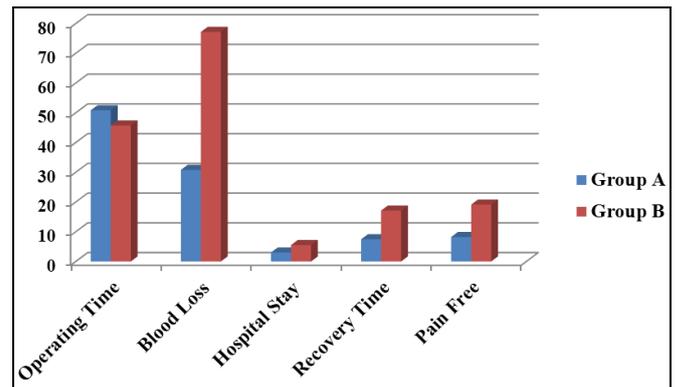
Table 2: Comparison of the Pathology between the two groups

Diagnosis	Group A (n=40)	Group B (n=40)
Simple Cyst	10	8
Hemorrhagic Cyst	9	5
Twisted Ovarian Cyst	2	5
Dermoid Cyst	4	6
Paraovarian Cyst	5	7
Endometriotic Cyst	8	6
Tubercular Cyst	2	3

Median operating time for group A was 50.85±7.6 min and for group B was 45.72±11.7 min. Intraoperative blood loss was significantly less in group A than in Group B (30.8±14.9 vs 77.2±17.9 ml) *p*<0.0001. Patients in group A remained in the hospital for a shorter time period (3.02±0.9 vs 5.53±0.9 days) *p*<0.005. Patients in group A required a shorter postoperative recovery time before resuming normal activities (7.47±0.8 vs 17.13±2.2 days) *p*<0.0001. Similarly, patients in group A took lesser time to become pain free (8.23±1.0 vs 19.13±2.2 days) *p*<0.0001. (Table-3)

Table 3: Comparison of Different Parameters between the two groups

Parameters	Group A	Group B	P value
Mean Operating Time (min)	50.85±7.6	45.72±11.7	0.011
Mean Blood Loss (ml)	30.8±14.9	77.2±17.9	<0.0001
Mean Duration of Hospital Stay (days)	3.02±0.9	5.53±0.9	<0.005
Mean Recovery Time (days)	7.47±0.8	17.13±2.2	<0.0001
Mean duration to become pain free (days)	8.23±1.0	19.13±2.2	<0.0001



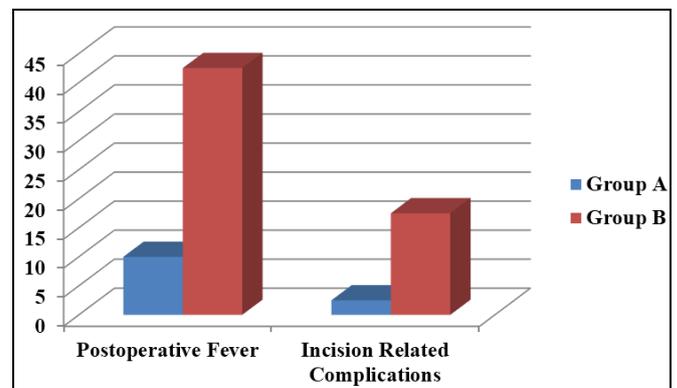
Graph 1: Comparison of Different Parameters between Two Groups

Significantly less patients in group A, had postoperative fever than group B (10% vs 42.5%) *p*<0.001. Patients in group A had smaller incision & less incision related complications than group B (2.5% vs 17.5%) *p*<0.001.

No intraoperative complications were registered in either group.

Table 4: Comparison of Different Parameters between the two groups

Parameters	Group A	Group B	P value
Postoperative Fever (%)	10	42.5	0.001
Incision Related Complications (%)	2.5	17.5	0.001



Graph 2: Comparison of Different Parameters between Two Groups

Discussion

Treating benign adnexal masses laparoscopically has become the standard of care during the past years [3-12]. Laparoscopic adnexectomy offers significant advantages to laparotomy in

selected patients when performed by a laparoscopist experienced in advanced techniques¹³. This study demonstrates a statistically significant less blood loss during the laparoscopic surgery than laparotomy (30.8±14.9 vs 77.2±17.9 ml in laparoscopy vs laparotomy respectively) which was similar to the study done by Gal D *et al*¹⁵ (33.4 ± 22 mL vs 84.6 ± 22.2 mL) and Serur E *et al*¹⁴. Duration of postoperative hospital stay was significantly less in laparoscopy patients 3.02±0.9 vs 5.53±0.9 days, which was comparable to the findings of the study done by Koo YJ *et al.* ^[16] (5.9 ± 2.5 days vs. 2.4 ± 0.7 days), Duggal BS *et al*¹⁷ and Serur E *et al.* ^[14]. Patient of laparoscopy group experienced significantly less postoperative pain and faster recovery than laparotomy patients ^[15]. Patients become pain free much earlier in laparoscopic group resuming their normal activity than the laparotomy group ^[15]. Early ambulation decreases the chances of postop DVT & pulmonary embolism. Chances of postoperative fever are much less in patients who underwent laparoscopic surgery for adnexal masses than in laparotomy patients ^[18]. There was no significant difference in the operating time between the two groups. Incision size is much smaller with laparoscopy than laparotomy with significantly lower incision related complications. Despite being performed through small incisions, the visualization of the operative field, surgical outcome and the ability to achieve the surgical objectives have been similar among patients undergoing laparoscopic surgery compared to those whose surgery was performed through laparotomy.

Conclusion

Laparoscopic surgery is a minimally invasive tool with decreasing complications and has become increasingly more common compared to laparotomy for gynaecological surgeries. Laparoscopic surgery has better patient satisfaction & better quality of life.

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