



AUDIT OF LAPROSCOPIC SURGERIES IN A TERTIARY CARE CENTRE

Obstetrics & Gynaecology

Dr. Shaikh Alvisha Saleem Junior Resident Department Of Obstetrics And Gynaecology MGM Medical College And Hospital, Aurangabad

Dr. Lakshmi Rachkonda Professor And Head Of Department, Department Of Obstetrics And Gynaecology, MGM Medical College And Hospital, Chh. Sambhajinagar

Dr. Hrishikesh Mandhane Assistant Professor, Department Of Obstetrics And Gynaecology, MGM Medical College And Hospital, Chh. Sambhajinagar

ABSTRACT

Introduction : Laparoscopic surgery has become an effective diagnostic and therapeutic tool globally, offering reduced postoperative pain, shorter hospital stays, and quicker recovery. However, its adoption in low-resource settings remains limited due to high costs, lack of trained personnel, and infrastructure challenges. In the context of laparoscopy & its application in gynecology, this audit helps to evaluate the effectiveness, safety, and efficiency of major/minor laparoscopic procedures. **Materials And Method:** Type of study:- Prospective study Study area:- MGM Medical College and Hospital, Chhatrapati Sambhajinagar Study period:- 1st February 2023 to 31st October 2024 Sample size:- 256 Inclusion Criteria: The study included all patients aged between 15 and 60 years who underwent elective and emergency diagnostic and therapeutic gynaecological procedure Exclusion Criteria: No exclusion criteria **Results:** Most patients (35.94%) were aged between 30-39 years. Most cases (85.55%) had intra-operative blood loss of <200 mL, and 35.94% had a hospital stay of less than four days. Only 2.73% required ICU care. Female infertility (21.88%) and abnormal uterine bleeding (leiomyoma) (15.63%) was the most common diagnosis. Total laparoscopic hysterectomy (22.66%) and laparoscopic tubal ligation (19.14%) were the most frequently performed procedures. Complications occurred in 3.91% of cases, with no severe adverse outcomes. **Conclusion:** Laparoscopy is a valuable tool for diagnosing and treating common gynecological diseases, significantly improving patient outcomes while minimizing complications. Its application enhances surgical expertise and institutional reputation, underscoring the need for increased adoption in low-resource settings

KEYWORDS

Minimally invasive surgeries, Laparoscopic Surgeries, Complications

INTRODUCTION

Laparoscopic gynecological procedures have revolutionized the field of minimally invasive surgery, offering numerous advantages such as reduced blood loss, postoperative pain, reduced anesthesia need, quicker recovery, shorter hospital stays and decreased risk of infection. As these procedures become increasingly prevalent in tertiary care centers, it is crucial to continually assess and evaluate their expertise, quality and outcomes.[1] A study demonstrated that laparoscopic surgery significantly reduces blood loss and postoperative pain compared to open procedures, enhancing patient recovery and satisfaction[2]. Another study emphasized the improved cosmetic outcomes and faster return to daily activities following laparoscopic gynecological procedures[3]. This is a systematic review of medical procedures and patient outcomes to ensure adherence to established clinical standards, evaluate & enhance patient safety and care along with evaluation of institutional capabilities to engage in operating high risk cases. In the context of laparoscopy & its application in gynecology, this audit helps to evaluate the effectiveness, safety, and efficiency of Major and Minor Laparoscopic procedures.

MATERIALS AND METHOD

The present study was conducted at MGM Hospital, Chhatrapati Sambhajinagar. A total of 256 patients who visited the tertiary care hospital were included fulfilling the inclusion and exclusion criteria. Prior to the study, informed consent form was obtained from the patients.

Inclusion Criteria: The study included all patients aged between 15 and 60 years who underwent elective and emergency diagnostic and therapeutic gynaecological procedure

Exclusion Criteria: No exclusion criteria

Methodology:

It was a prospective observational study conducted in Department of OBGY, MGM HOSPITAL, Chhatrapati Sambhajinagar from 1st February 2023 to 31st October 2024. After approval from Ethical Committee a structured proforma was used to record demographic data, laparoscopic findings, intraoperative blood loss, diagnostic findings, intraoperative complications, therapeutic interventions, duration of hospital stay, need of ICU stay. Laparoscopic procedures were divided according to the levels

Level 1 – Basic Procedures

Diagnostic Laparoscopy, Tubal ligation. Diagnostic Hystero-laparoscopy

Level 2 – Minor Procedures:-

Salpingectomy for tubal pregnancy, Ovarian detorsion, Tubal recanalization

Level 3 – Intermediate:-

Oophorectomy (ovarian cyst < 8 cm), Cystectomy, Myomectomy for pedunculated/ nonpedunculated fibroid < 3cm, Hysterectomy for prolapse

Level 4 – Major Procedures:- Hysterectomy, Myomectomy for nonpedunculated fibroid > 3cms, Excision of ovarian tumours > 8cms

Level 5 – Advanced Procedures:- Radical hysterectomy for malignant conditions, Pelvic Floor support other than Colposuspension. Additionally, biopsy specimens obtained during the procedure were documented and sent for histopathological analysis. Preoperative and postoperative pain levels were assessed using a Visual Analogue Scale (VAS) ranging from 0 to 10, where 0 indicates no pain and 10 represents unbearable pain.

Statistical Analysis

Data analysis was performed using the Statistical Package for Social sciences (SPSS) version 21. Descriptive statistics were employed to calculate the mean and standard deviation for age, as well as frequencies and percentages for gender. A Student's t-test was used to determine the significance of pre- and postoperative pain differences, with a p-value of ≤ 0.05 considered statistically significant.

RESULTS

Table-1 Age Wise Distribution

Variables	N=256	Percentage
Age in years	No. of Cases	
<18	24	9.38%
19-24	26	10.16%
25-29	51	19.92%
30-39	92	35.94%
40-49	42	16.41%

>50	21	8.20%
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In our study total 256 cases were analysed and (35.94%) were in the age group of 30-39 years

Table-2: Distribution According To Indications

Diagnosis	No. of Cases	Percentage
Female infertility	56	21.88 %
AUB-L	40	15.63 %
Ovarian Cyst Torsion	31	12.11 %
Ruptured Ectopic	31	12.11 %
AUB -A	20	7.81%
Unruptured Ectopic	14	5.47%
Adnexal complex cyst	10	3.91%
AUB-O	9	3.52%
Adnexal mass	9	3.52%
Dermoid cyst	7	2.73 %
Endometrial carcinoma	5	1.95 %
Septate uterus	4	1.56%
Vault prolapse	3	1.17%
Carcinoma cervix	3	1.17%
UV Prolapse	2	0.78 %
MRKH	2	0.78 %
Scar ectopic	2	0.78%
AUB – P	1	0.39%
Tubal recanalization	1	0.39%
Ruptured uterus	1	1.95%
Ashermann syndrome	1	0.39%
Ohvira syndrome	1	0.39%
Cystadenoma	1	0.39%
Invasive carcinoma of breast	1	0.39%
Tubo-ovarian mass	1	0.39%

The study showed that the most common gynaecological laparoscopic diagnosis were female infertility (21.88%), AUB-L (15.63%), ruptured ectopic pregnancies (12.11%) and ovarian cyst torsion (12.1%). Less common conditions included carcinoma cervix (1.17%), septate uterus (1.56%), and vault prolapse (1.17%), with several rare diagnoses each comprising 0.39%.

Table-3: Distribution According To Levels Of Laparoscopic Surgeries

Level 1	92	35.9%
Level 2	47	18.3%
Level 3	45	17.6%
Level 4	63	24.6%
Level 5	9	3.51%

The study found that the most common gynaecological laparoscopic procedures were under Level 1 (35.9%) followed by Level 4 (24.6%) and Level 2 (18.3%). This indicates our tertiary care centre is able to cater to all levels as there are superspecialities also present

Table-4: Distribution According To Gynaecological Laparoscopic Procedures

Procedure	No. of Cases	Percentage
Total Laparoscopic Hysterectomy	58	22.66%
Laparoscopic Tubal ligation	49	19.14%
Laparoscopic salpingectomy	37	14.45%
Diagnostic laparoscopy	25	9.77%
Laparoscopic cystectomy	23	8.98%
Diagnostic hysterolaparoscopy	18	7.03%
Laparoscopic salpingo-oophorectomy	11	4.30%
Ovarian detorsion	9	3.52%
Laparoscopic myomectomy	7	2.73%
Wertheims hysterectomy	6	2.34%
Laparoscopic hemi-hysterectomy	4	1.56%
Laparoscopic oophorectomy	3	1.17%
Laparoscopic sacro-colpopexy	2	0.78%
Laparoscopic sacropepy with perineal repair	1	0.39%
Laparoscopic tubal recanalization	1	0.39%
Laparoscopic tubo-ovarian mass drainage	1	0.39%
Diagnostic lap vaginoscopy , vaginal septum resection	1	0.39%

The study found that the most common gynaecological laparoscopic procedures were Total Laparoscopic Hysterectomy (22.66%), laparoscopic Tubal Ligation (19.14%), and laparoscopic salpingectomy (14.45%). Other procedures included diagnostic hysterolaparoscopy (7.03%), laparoscopic cystectomy (8.98%), and diagnostic laparoscopy (9.77%). Less common procedures included Wertheim's hysterectomy (2.34%), laparoscopic myomectomy (2.73%), and ovarian detorsion (3.52%). Several procedures had lower frequencies, each below 2%.

Table No 5 : Distribution According To Intraoperative Blood Loss

Intraoperative Blood Loss	Number of cases	Percentages
<200 ml	219	85.55 %
200-400 ml	28	10.94 %
400-1000 ml	5	1.95 %
>1000 ml	4	1.56 %

Most cases 219 (85.55%) had intra-operative blood loss of less than 200ml and only 4 (1.56%) had loss more than 1000ml.

Table-6: Incidence Of Complication

Complications	Number of Cases	Percentage
Yes	10	3.91%
No	246	96.09%

The incidence of complications in the study were 3.91%, with 10 cases experiencing complications, while **96.09%** of cases (246) had no complications. 3.91% patients were converted to open surgeries due to excessive blood loss and adhesions.

Table No 7 : Duration of Hospital Stay

Duration of hospital stay in days	No of patients	Percentage
<4	92	35.94 %
4-5	66	25.78 %
6-9	74	28.91 %
10-13	12	4.69 %
>14	12	4.69 %

Table no 8 : ICU Stay

ICU stay	Patients	Percentage
Yes	7	2.73 %
No	249	97.27 %

The duration of hospital stay revealed that 35.94% stayed less than 4 days, while 4.69% stayed over 14 days. Only 2.73% required ICU stay.

DISCUSSION

Laparoscopic procedures are among the most frequently performed surgeries by gynaecologists. This minimally invasive technique is quickly becoming the preferred alternative to traditional surgeries in gynaecology, for both benign and malignant conditions. Minimally invasive surgery offers several benefits, including cost-effectiveness, shorter hospital stays, and less disruption to the patient's physiological functions.

Laparoscopic techniques are increasingly applied in the management of gynecologic malignancies, including early-stage endometrial and cervical cancer. According to a systematic review by Walker et al. (2019), laparoscopic radical hysterectomy for cervical cancer offers comparable oncologic outcomes to open surgery while reducing hospital stay and recovery time[4]. Knisely et al. (2021) further reported that laparoscopic lymphadenectomy in endometrial cancer staging improves precision with minimal morbidity. [5]

In the present study, the age distribution of patients revealed that 9.38% were under 18 years, 10.16% were between 19 and 24 years, 19.92% were aged 25 to 29 years, 35.94% were between 30 and 39 years, 16.41% were 40 to 49 years, and 8.20% were over 50 years. The majority of patients (85.55%) experienced inter-operative blood loss of less than 200 ml, while 10.94% had blood loss ranging from 200 to 400 ml. In terms of hospital stay, 35.94% of patients were discharged within four days, while 4.69% stayed for more than 14 days. Only 2.73% of patients required an ICU stay, while 97.27% did not.

In a similar study by Asmita.G et al., Most patients undergoing diagnostic laparoscopy were in the age group of 25-34 years (20.29%) which was similar to study in Nigeria, this was because most common indication was infertility. For therapeutic procedures, most patients

were in the age group of 45-54years (29.55) where fibroid, adenomyosis, and ovarian cysts are frequent[6] Additionally, the study by Olusegun.B et al.,^[2] found a mean age of 32.6 years in their study. [7]

Regarding the duration of hospital stay, Nishma.B.,^[3] found 75% cases had hospital stay of 2 days and 25% had hospital stay of 3 days. Additionally, the study by Olusegun.B et al.,^[2] duration of hospital stay was 4 hours to 5 days. in terms of pre-operative findings, the majority of patients in this study (72%) experienced blood loss of less than 100 ml, indicating minimal bleeding during the procedure.

The present study revealed that the most common gynecological laparoscopic diagnosis were female infertility (21.88%), AUB-L (15.63%), and ruptured ectopic pregnancies (12.11%). Other notable conditions included AUB-A (7.81%), ovarian cyst torsion (7.42%), unruptured ectopic pregnancies (5.47%), and dermoid cysts (2.73%).

Similar study by Omokanye et al., commonest indication for therapeutic laparoscopy was clomiphene resistant polycystic ovary syndrome (PCOS) 81 (67.5%) [8]

In comparison, a study by Asmita.G et al.,^[1] identified ovarian disorders as leading cause of laparoscopic diagnosis (41.74%) which shows variation with the present study findings.

The present study found that the most common gynecological laparoscopic procedures were Total Laparoscopic Hysterectomy (22.66%), laparoscopic tubal ligation (19.14%), and laparoscopic salpingectomy (14.45%). Other notable procedures included diagnostic hysterolaparoscopy (7.03%), laparoscopic cystectomy (8.98%), and diagnostic laparoscopy (9.77%). In the study done by Asmita et al.,^[1] primarily focus was on laparoscopic Total Hysterectomy which accounted for 44.06% of cases. Similar study by Rubina.A et al., Primary (55.47%) and secondary (44.42%) infertility were the foremost cause for all the diagnostic laparoscopies whereas in the operative laparoscopies, ovarian mass (33.33%) was the commonest indication followed by laparoscopic BTL (21.21%), laparoscopic hysterectomies (19.19%) and cyst aspiration (10.10%).[9]

The study found that maximum surgeries were under Level 1 (35.9%) followed by Level 4 (24.6%) and Level 2 (18.3%)

Laparoscopy plays a crucial role in fertility-preserving surgeries, such as myomectomy and ovarian cystectomy. In this study 11.71% patients underwent fertility preservation surgeries. Research by Della Corte et al. (2021) highlights that laparoscopic surgery results in reduced adhesion formation and better reproductive outcomes compared to open surgery. A study by Mavrellos et al. (2023) reported that laparoscopic management of tubal pathology and endometriosis significantly improves fertility rates in women undergoing assisted reproductive treatments.

Furthermore, the current investigation revealed that the incidence of complications was 3.91%, with 10 cases experiencing complications, whereas the majority of cases had no complications. 2 cases required conversion to laparotomy. Similarly, Asmita.Get al.,^[1] reported 3.58% patient had complications and 96.42% had no significant complications. There were only 2 cases (0.49%) who required conversion to laparotomy. In contrast, Olusegun. B et al.,^[2] noted 5 (9.8%) conversions to laparotomy

CONCLUSION

Laparoscopic surgery while generally is considered safe in experienced hands, based on the cases analysed at the current centre, does carry the potential for serious complications that surgeon must remain vigilant about. As the demand for minimally invasive procedures continues to grow, number of laparoscopic surgeries being performed daily has significantly rising in present times. It is a safe, quick, and cost-efficient procedure that saves time and eliminates the need for extensive, complex surgeries, leading to significant improvements in diagnosis patient care and postoperative pain management.

REFERENCES

1. Darzi A, Mackay S; Recent advances in minimal access surgery. *BMJ*. 2002; 324(7328):31-34
2. Nezhat, C., et al. (2018). "Minimally invasive surgery in gynecology: a review of techniques and outcomes." *Journal of Minimally Invasive Gynecology*, 25(5), 785-798.

3. Al-Took, S., et al. (2020). "Cosmetic outcomes and patient satisfaction in laparoscopic gynecologic surgery: a comparative analysis." *European Journal of Obstetrics & Gynecology*, 189(2), 300-307.
4. Walker, J. L., et al. (2019). "Laparoscopic management of gynecologic cancers: a systematic review." *Gynecologic Oncology*, 153(2), 323-330.
5. Knisely, A. T., et al. (2021). "Laparoscopic lymphadenectomy in endometrial cancer: advances and outcomes." *International Journal of Gynecologic Cancer*, 31(6), 950-957
6. Asmita.G,Padam Raj pant; Trends of laparoscopic gynecologic surgeries in a tertiary care center: A five-year retrospective study January 2019 *Grande Medical Journal* 1(1):26-30
7. Olusegun. B et al. Operative gynecologic laparoscopy in Ile- Ife, Nigeria: Preliminary experience. *Journal of Gynecologic Surgery* 2013; 29(4):186
8. Omokanye L.O, Olatinwo A, Ibrahim S, Durowade K.A, Biliaminu S.A, Abdul IF;Gynecological laparoscopic surgeries: A 4-year audit at the University of Ilorin Teaching Hospital, Nigeria. *Trop J Obstet Gynaecol* 2017; 34:49-53.
9. Rubina Akhtar ,Rukhsana karim ;Role of laparoscopic surgery in gynecology July 2023 *The Professional Medical Journal* 30(07):912-916
10. Al-Took, S., et al. (2020). "Cosmetic outcomes and patient satisfaction in laparoscopic gynecologic surgery: a comparative analysis." *European Journal of Obstetrics & Gynecology*, 189(2), 300-307.
11. Della Corte, L., et al. (2021). "Fertility-preserving laparoscopic surgery in reproductive-aged women: benefits and challenges." *Reproductive Medicine*, 16(4), 215228.
12. Mavrellos D, Saridogan E: Treatment of endometriosis in women desiring fertility. *The Journal of Obstetrics and Gynecology of India* 2015; 65(1):11-16.