

# Gynecological laparoscopic surgeries: A 4-year audit at the University of Ilorin Teaching Hospital, Nigeria

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## ABSTRACT

**Background:** In addition to a shorter hospital stay and better cosmetic results, laparoscopic surgery also offers patients fewer postoperative complications compared to conventional open gynecological surgeries. With expertise and better facilities, it has come to stay as an alternative surgical approach to gynecological diagnosis and treatment.

**Aims and Objectives:** The aim of this study was to assess the indications, intraoperative findings, and types of laparoscopic surgeries performed at the University of Ilorin Teaching Hospital, Ilorin.

**Materials and Methods:** A retrospective observational study of 150 patients who underwent laparoscopic procedures between January 1, 2012 and December 31, 2015, at the Assisted Reproduction Technology (ART) unit of the University of Ilorin Teaching Hospital (UITH), Ilorin, Nigeria.

**Results:** Within the period of our review, there were 1,256 gynecological operations and 150 laparoscopies, thus giving a period prevalence of 11.2%. The patients were aged 20–59 years with a mean age of  $32.1 \pm 3.9$  years. Of the 150 laparoscopies, 30 (20%) had diagnostic laparoscopies while 120 (80%) had therapeutic laparoscopies. Of the 30 patients who had diagnostic laparoscopies, 5 (16.7%) presented with primary infertility and 12 (40%) with secondary infertility. The commonest indication for therapeutic laparoscopy was clomiphene-resistant polycystic ovary syndrome (PCOS) and was found in 81 (67.5%). One (0.7%) was converted to open surgery due to technical difficulties. There was a case of iatrogenic sigmoid colon injury and no mortality recorded.

**Conclusion:** Laparoscopic surgery offers patients a novel choice of intervention that affords establishing definitive diagnosis, shorter hospital stay, better cosmetics, and reduced morbidities/mortalities compared to open gynecological surgeries.

**Key words:** Gynecological; Ilorin; laparoscopy; Nigeria.

## Introduction

Laparoscopy is a surgical procedure that has been used widely in medicine over the last three decades.<sup>[1]</sup> It has become a popular procedure among patients and surgeons due to the factors like faster recovery time, minimizing of pain, shorter hospitalization, and the better aesthetic results. Also, certain technical parameters such as the magnification offered by the endoscope during the procedure and the small risk of

complications of laparoscopy have resulted in the wide use of laparoscopic surgery in gynecology.<sup>[1]</sup>


Laparoscopic surgery has evolved over the years from being a simple diagnostic aid to evaluate acute and chronic pelvic pain,<sup>[2]</sup>

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assessment of amenorrhoea and for fertility work-up, to being a major surgical tool used to treat a multitude of gynecological problems ranging from treatment of ectopic pregnancy, dealing with lower abdominal masses, performing hysterectomies for staging, and treatment of gynecological cancers.<sup>[2]</sup> Approximately 80% of all gynecological surgical procedures can be done laparoscopically in advanced centers with expert trained in the procedures and in the best of the facilities.<sup>[3]</sup>

In the industrialized countries, it is often the first choice intervention when surgery is needed. However, there is still a major gap in the implementation of laparoscopic surgery in resource-limited settings often due to restricted availability or access to the equipment and lack of training.<sup>[4]</sup> Its implementation is associated with some constraints such as the surgeons' skills, the cost of equipment acquisition and maintenance, the need for general anesthesia, and the availability of electricity and carbon dioxide.<sup>[3,4]</sup>

The reported over all complication rates of laparoscopy surgeries range from 0.2% to 10.3%.<sup>[2]</sup> This includes damage to other abdominopelvic organs, hemorrhage, and unintended conversion to open surgery. Similar to other surgeries, it can be complicated by anesthesia-related risks due to increased intraabdominal pressure, such as aspiration, and difficulty in ventilating the patient, and postoperative infection.<sup>[5]</sup>

Laparoscopic surgeries started in University of Ilorin Teaching Hospital (UITH), Ilorin, in 2010, while therapeutic laparoscopy in 2011 following the return of UITH Assisted Reproductive Technology (ART)/laparoscopy team from training abroad, acquisition of a new laparoscopic set, and commencement of activities at the ART unit of the hospital. This study was aimed at determining the current status of laparoscopy, common indications, intraoperative findings, and various interventions done during laparoscopic surgeries performed at the University of Ilorin Teaching Hospital, Ilorin over a four-year period.

## Materials and Methods

This is a retrospective observational study of all patients who underwent diagnostic and therapeutic laparoscopy at the ART Unit of UITH, Ilorin, between January 1, 2012 and December 31, 2015. Patients' case notes were reviewed alongside information extracted from ward registers and theater records. Information obtained included age, types of laparoscopic surgery, and indications for both diagnostic and therapeutic laparoscopy and interventions done. The total number of major gynecological operations performed during the study period was also obtained from theater register. Data was analyzed using simple percentages.

All patients were evaluated and confirmed fit for surgery. Complete blood count, urinalysis, electrolyte, urea and creatinine estimation were requested preoperatively. Patients also had bowel preparation with Dulcolax and enema saponis. All procedures were performed under general anesthesia. In positioning of patients for surgery, both the modified Trendelenburg and Lloyd-Davis positions were used according to the need of the surgeon. During the procedure, perineum and vagina were cleansed and draped leaving only the umbilical area and the vulva. A stab skin incision was made on the sub-umbilical region, and then the anterior abdominal wall was lifted between gauze pads and a Veress needle introduced. Pneumoperitoneum was achieved with carbon dioxide electronic insufflator at 4-6 l/min and preset pressure of 12–15 mmHg. Subsequently, the Veress needle was removed, incision extended to 10 mm and a 10 mm trocar and cannula were passed through the incision. The trocar was then removed and the laparoscope inserted into the peritoneum through the primary port and panoramic evaluation of the abdominal cavity was undertaken by rotating camera through 360 degrees to determine the anatomic position of abdominal viscera and decision was made depending on the procedure for inserting secondary ports through small incisions under direct vision with attention to the deep inferior epigastric vessels.

After the procedure, the peritoneal cavity was lavaged with warm saline and suctioned out. Instruments and laparoscope were removed under direct vision. All patients were discharged within 24 hours of the procedure.

## Results

A total of 150 laparoscopic surgeries were performed in the period under review and 30 (20%) of the total procedures were diagnostic laparoscopies while 120 (80%) of the total procedures were therapeutic laparoscopies [Table 1].

Of the 30 patients who had diagnostic laparoscopy, 18 (60%) were aged 30–39 years, 8 (26.7%) were aged 20–29 years, and only one patient was aged 56 years. Only 3 (10%) were in the 40–49 years age group. In the therapeutic laparoscopy group, the ages of patients ranged between 20–29 years in 42 patients (35%), 30–39 years in 50 patients (41.7%), 40–49 years in 21 patients (17.5%) and 50–59 years in 7 patients (5.8%) [Table 2].

The commonest indication for diagnostic laparoscopy was infertility evaluation. Twelve (40%) of the patients presented on account of secondary infertility, while five (16.7%) were presented on account of primary infertility. Six (20%) presented on account of primary amenorrhoea

while 7 (23.3%) had recurrent pelvic pain [Table 3]. Ovarian pathologies formed a major group, i.e. 90 (75%) of the operative laparoscopies, which included 81 cases of polycystic ovarian syndrome (PCOS), 6 of endometriotic cysts, and three of dermoid. Ten (8.3%) of the patients had laparoscopic myomectomies, while two (1.6%) had retrieval of translocated intrauterine contraceptive devices (IUCDs). Out of 14 (11.7%) patients with tubal pathologies, 10 (8.3%) had tubal disconnection on account of hydrosalpinges, two (1.6%) salpingectomy for ectopic gestation, and the remaining 2 (1.6%) had tubal sterilization. One patient (0.8%) had laparoscopic-assisted Davydov vaginoplasty, and three (2.5%) had laparoscopic adhesiolysis [Table 4].

## Discussion

In this study, diagnostic laparoscopy accounted for 20% of laparoscopic surgeries within the period under review. This is however higher than 2.9%,<sup>[6]</sup> 7.4%,<sup>[7]</sup> and 12%<sup>[8]</sup> reported in Abuja, Sokoto and Kano, Nigeria, respectively, but similar to 15.6% reported in Rawalpindi, Pakistan.<sup>[2]</sup> This was due to the fact that this study was conducted in a Fertility Research unit of the hospital where patients need to be thoroughly evaluated for improved chances for success of assisted-conception interventions.

The age of patients undergoing laparoscopy ranged from 20 to 29 years in 50 cases (30%), while 68 (43.5%) were in 30 to 39 years age group. This is to be expected as the study was conducted in a selected population of patients (in reproductive age group) with infertility being managed at the ART unit of the hospital. Also, infertility (56.7%) was the commonest indication in patients that underwent diagnostic laparoscopy. This is in keeping with findings of Begum *et al.*,<sup>[2]</sup> Shraddha *et al.*,<sup>[9]</sup> and Nasir *et al.*<sup>[7]</sup> in Pakistan, India, and Sokoto, Nigeria, respectively. This may be related to the increasing awareness of minimal access surgeries among the populace and its cost effectiveness in public institutions within the country. This procedure is limited to only few public health facilities in the country.

In the therapeutic group, majority (67.5%) of patients underwent laparoscopic ovarian drilling (LOD) on account of anovulatory infertility secondary to clomiphene-resistant PCOS. Although, in a Cochrane database review there was no significant difference in rates of clinical pregnancy, live birth, or miscarriage in women with clomiphene-resistant PCOS undergoing LOD compared to medical treatment, the one-off therapy of LOD in clomiphene-resistant PCOS makes it an attractive option.<sup>[10]</sup> Additionally, in clomiphene-resistant patients who cannot come for stringent follow-up, which

**Table 1: Types of laparoscopic surgery**

Laparoscopic Surgeries	Total, n=150	Percentage
Diagnostic Laparoscopy	30	20
Therapeutic Laparoscopy	120	80

**Table 2: Age distribution of clients**

Types of Laparoscopic Surgery	20-29 Yrs	30-39 Yrs	40-49 Yrs	50-59 Yrs	Total (%)
Diagnostic Laparoscopy	8	18	3	1	30 (20)
Therapeutic Laparoscopy	42	50	21	7	120 (80)
Total	50	68	24	8	150 (100)

**Table 3: Indications for diagnostic laparoscopic surgeries (n=30)**

Indications	Frequency	Percentage
Primary infertility	5	16.7
Secondary infertility	12	40
Primary amenorrhea	6	20
Recurrent Pelvic pain	7	23.3
Total	30	100

**Table 4: Indications for therapeutic laparoscopic surgeries (n=120)**

Therapeutic Laparoscopic Surgeries	Frequency	Percentage
Ovarian Pathology		
Laparoscopic Ovarian Drilling for PCOS	81	67.5
Endometriotic cysts (Ovarian cystectomy)	6	5.0
Dermoid cysts (Ovarian cystectomy)	3	2.5
Uterine Pathology		
Laparoscopic myomectomy	10	8.3
Tubal Pathology		
Laparoscopic Tubal disconnection	10	8.3
Laparoscopic Tubal sterilization	2	1.7
Laparoscopic salpingectomy (ectopic pregnancy)	2	1.7
Vaginal Surgery		
Laparoscopic-Assisted Davydov vaginoplasty	1	0.8
Others		
Laparoscopic retrieval of translocated IUD	2	1.7
Laparoscopic adhesiolysis	3	2.5
Total	120	100

is required in cases of gonadotropin treatment, LOD is an effective and safe treatment modality for clomiphene-resistant PCOS patients with anovulatory infertility.<sup>[11]</sup>

A study comparing 106 ART cycles in patients with uterine fibroids with 318 ART cycles in age-matched control without fibroids concluded that implantation and pregnancy rates were significantly lower in patients with intramural or submucosal fibroids, even those with no deformity of the

uterine cavity.<sup>[12]</sup> Thus, the justification for laparoscopic myomectomy in 10 patients as the unit had achieved capacity and competence to conduct such procedure safely.

Similarly, a meta-analysis demonstrated the deleterious effect of hydrosalpinx on the success of ART cycles revealed that clinical pregnancy rate was about 50% lower and the miscarriage rate was more than two-fold higher in patients with hydrosalpinx compared with the patients without hydrosalpinx.<sup>[12]</sup> The improved clinical pregnancy rate following tubal disconnection for hydrosalpinges have been demonstrated in several studies.<sup>[13-15]</sup> This explains the need for tubal disconnection in 10 patients in our study. Also, the role of laparoscopic salpingectomy in the management of ectopic pregnancy has been documented in several studies.<sup>[16-18]</sup> In this study, two patients had successful laparoscopic salpingectomy for unruptured ectopic gestations.

Laparoscopic management of benign ovarian cysts (mucinous/serous cystadenoma, dermoid cysts, endometriotic, etc.) with cystectomy/fulguration of endometriotic lesions are feasible and safe options for women with added benefit of short hospital stay.<sup>[16]</sup> This has been replicated in our study where 8 patients underwent laparoscopic ovarian cystectomy and were discharged within 24 hours. However, laparoscopic ovarian endometriosis cystectomy, an implement Gonatrophin-Releasing Hormone analogue (GnRH-a) therapy can improve the postoperative pregnancy rate, which changes with clinical stage and patient age, reduces ovarian recurrence, and its influence on ovarian reserve is lesser.<sup>[19]</sup>

The choice of laparoscopically assisted davydov vaginoplasty in this study was influenced by its relative ease of conduct in experienced hands with excellent results on long-term follow up, the neovagina, with epithelium lining resemble that of a normal vagina, facilitates comfortable sexual intercourse, minimal short and long term care is required, fertility enhancing in assisted conception and practically devoid of morbidity associated with other techniques.<sup>[20]</sup> Two cases of translocated IUCDs were laparoscopically retrieved in this study; however this is lower than 5 cases reported by Begum *et al.*<sup>[2]</sup> This is because majority of gynecologists in this centre are conversant with exploratory laparotomy for retrieval of translocated IUCD due to lack of skills in laparoscopic surgeries.

It was observed in our study that there were more operative than diagnostic laparoscopies which is in consonance with the reports of Begum *et al.*,<sup>[2]</sup> Twijnstra *et al.*,<sup>[21]</sup> and Dhaliwal *et al.*<sup>[22]</sup> However, this trend is changing as surgeons are developing better operative skills, giving them more exposure

and experience in performing advanced techniques for more indications for laparoscopy. The conversion rate of 0.7% was slightly higher than 0.12% reported from Nnewi, Nigeria<sup>[5]</sup> but far lower to other studies.<sup>[23,24]</sup> This was encountered in the first year of our practice probably due to the long learning curve for laparoscopic surgeries.

All surgical procedures are bound to have complications; either intra or post-operatively, minor or major, and potentially lethal or non-lethal.<sup>[25]</sup> Complications encountered in our centre were basically minor ones except for a case of inadvertent sigmoid colon perforation during adhesiolysis. Therefore, it can safely be affirmed that laparoscopic gynecologic surgery as a safe and efficacious procedure is practicable in a tertiary care teaching hospital set up and gives us insight into its use in different gynecological problems in our population.

## Conclusion

Laparoscopy is an essential intervention in detecting pelvic pathologies, which are difficult to diagnose on clinical examination. Its diagnostic and therapeutic potential has made it a safe, feasible, and less invasive modality for evaluation and treatment of many gynecological pathologies of infertility with attendant benefit of shorter hospital stay, less post operative pain, better cosmesis, less complications, and a lower cost implication in the long run.

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## Conflicts of interest

There are no conflicts of interest.

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