

## Gynaecologic Laparoscopy at Aminu Kano Teaching Hospital, Kano, Nigeria: A 5-Year Review

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### Abstract

**Background:** Laparoscopy has evolved over the past several decades to become a veritable tool for the gynaecologist. The scope ranges from diagnostic to operative procedures including urogynaecological surgeries. The pattern varies widely across the globe, being largely diagnostic in the developing countries of sub-Saharan Africa.

**Objective** of the study was to determine the rate, indications and findings at laparoscopy in Aminu Kano Teaching Hospital, Kano (AKTH), Nigeria over a 5-year period.

**Method:** case files of all patients who had gynaecologic laparoscopic procedures done in Aminu Kano Teaching Hospital (AKTH), Kano, between 1<sup>st</sup> January 2005 and 31<sup>st</sup> December 2009, were retrieved and analysed for indications, findings and complications.

**Results:** A total of 182 gynaecologic laparoscopies were done over the study period constituting 1.4% of all surgeries in the hospital; 3.4% of all surgeries in the department of Obstetrics and Gynaecology and 12% of all gynaecologic procedures. All except one were diagnostic. The mean age of the patients was 26.5 years with a range of 15-45 years.

Secondary infertility was the most common indication for laparoscopy (50.7%) followed by primary infertility (30.8%), then primary amenorrhea (7.5%) and secondary amenorrhea (2.7%). Findings at operation were bilateral tubal block (44.5%), unilateral tubal block (17.8%) and normal tubes (13.7%). Other findings include pelvic adhesions (34.9%), Hypoplastic uteri and streak gonads (8.9%), peri-hepatic adhesions (6.2%) and frozen pelvis (5.5%).

The complications were upper abdominal pain (4.8%) and chest pain (2.7%). Problems encountered include failed insufflations in one patient, cervical stenosis in three and one mortality during induction of anaesthesia.

**Conclusion:** Laparoscopy in Aminu Kano Teaching Hospital is mainly diagnostic and represents 12% of all elective gynaecologic operations. It is associated with low morbidity. There is a low level of expertise in gynaecologic endoscopy in our environment.

**Keywords:** Laparoscopy, indications, rate, diagnostic, infertility, amenorrhea.

### Introduction

The endoscopic examination of the peritoneal cavity was first performed in Dogs in the early 1900s by the German Gynaecologist, Dr Georg Kelling who then called his procedure *koelioscopie*. The first published work on laparoscopy in humans was by Dr Hans Jacobeus from Sweden in 1910<sup>2</sup>. During these early years, Laparoscopy which was purely diagnostic carried a substantial complication rate<sup>1</sup>.

However, with continued refinement of the procedure and advancement in technology in the 1920s and 1930s, the risks were reduced considerably. And it was during this period that Dr Janos Veress; a Hungarian Physician developed a spring-loaded needle with an inner stylet that automatically converted the sharp cutting edge to a round end. It was not developed for laparoscopy but rather for pneumothorax! This needle has remained the instrument for creating pneumoperitoneum to this day<sup>1,2</sup>.

By the 1950s, the quartz rods were developed to improve illumination and the fibre-optic technology is what finally ended the problem of lighting<sup>1,2,3</sup>. Operative laparoscopy started in the mid 20<sup>th</sup> century and was pioneered by gynaecologists notably Dr Raoul Palmer and Dr Kurt Semm. In fact, the first laparoscopic appendectomy was done by Dr Semm in 1983<sup>1,2,3</sup>

A major breakthrough for laparoscopy came with the advent of solid state video camera in the early 1980s. This has made it possible for both the operator and assistants to view the operative field on video monitor.

Thus, it has enabled co-ordination between the laparoscopist and other team members and also allows for video recording of procedures. Thus, by the early 1990s, video laparoscopy had become standard and operative laparoscopy became widely accepted as a safe and effective mode of surgery<sup>1,2,3</sup>.

Variants to traditional laparoscopy include minilaparoscopy which although not widely accepted may be helpful in reducing the long waiting list for diagnostic laparoscopy especially in a developing countries like ours. Another variant is gasless laparoscopy otherwise called lift-laparoscopy. It was developed in order to avoid the inherent cardio-respiratory problems associated with CO<sub>2</sub> pneumoperitoneum.

It may also eliminate shoulder tip pain caused by diaphragmatic irritation by CO<sub>2</sub>, may be safer for pregnant patients and may also reduce trocar site metastasis in patients with intraperitoneal carcinomas. This, however, is not widely used; it could find relevance in resource-poor settings<sup>4</sup>.

Recently, three key innovations have generated a lot of interest in laparoscopy; these are robotic surgery, natural orifice transluminal surgery (NOTES), and single incision laparoscopic surgery (SILS). All three have their own corresponding advantages and disadvantages compared to traditional laparoscopy. Amongst these, however, robotic surgery appears to be gaining more relevance in clinical practice<sup>1</sup>. Today, laparoscopy is not limited to diagnosis but varied operative procedures for tubal ligation, pelvic adhesiolysis, treatment of endometriosis, treatment of ectopic pregnancy, ovarian cystectomy, myomectomy and hysterectomy amongst many other increasing indications<sup>2-5</sup>.

The contraindications to laparoscopy include bowel obstruction, generalised peritonitis, diaphragmatic hernia, major intraperitoneal haemorrhage, severe cardio-respiratory disease, morbid obesity, inflammatory bowel disease, large abdominal mass, advanced pregnancy, multiple abdominal incisions and irreducible external hernia<sup>2</sup>.

However, recent reports suggest that in patients with previous abdominal surgeries open laparoscopy is an option in experienced hands, thus not an absolute contraindications to laparoscopy<sup>1-3</sup>.

The complications of laparoscopy are significantly lower than conventional surgery though some may not be recognised during the procedure and are mainly entry-related. The reported rates of these include 1.0-12.5/1,000, 3.6/1,000 and 5.7/1,000 in the UK, Finland and Netherlands respectively. These complications could be reduced by modifications of the entry methods which include the use of open entry techniques like

the Hasson or Fielding methods. In addition, insertion of the Veress needle at the Palmer's point especially in thin patients and insertion of secondary ports under direct vision are further precautionary measures<sup>6</sup>.

The frequency of laparoscopy varies widely across the globe. In the USA, approximately, 350,000 tubal ligations and 200,000 laparoscopically-assisted vaginal hysterectomies were done annually. Across the Atlantic in the United Kingdom (UK), about 250,000 gynaecologic laparoscopic surgeries were done annually<sup>1,6</sup>. In developing countries particularly sub-Saharan Africa, gynaecologic laparoscopy was introduced in the 1970's through collaboration with donor agencies. It is still evolving and is mainly diagnostic for now<sup>6-8</sup>.

In AKTH, Kano, laparoscopy was started in 2001 albeit erratically until the 2008 when video monitors were procured and the minimal access gynaecology unit was established. Thus, more were done in the past two years compared to the preceding 7 years.

This study was designed to determine the rate, indications and operative findings of gynaecologic laparoscopy at AKTH, Kano. It is the first in the centre.

### **Material and methods**

Between 1<sup>st</sup> January, 2005 and 31<sup>st</sup> December, 2009, 182 gynaecologic laparoscopy were done. Of these, 146 case files were retrieved from the records department giving a file retrieval rate of 80.2%. Information obtained from the records includes patients' age, indications for laparoscopy and findings at surgery. The generated data was analysed. It was presented in simple percentages using tables and figures.

### **Results**

During the study period, a total of 12,992 surgeries were carried out in the hospital, out of which 5,290 were from obstetrics and gynaecology department. Amongst the latter, 1,521 were gynaecologic out of which 182 were laparoscopic. Thus, gynaecologic laparoscopy constituted 1.4% of all surgeries in AKTH, 3.4% of all surgeries in the department and 12.0% of all gynaecologic surgeries.

Table 1 shows the age distribution of the patients. Large proportions are in the 30-35year age group. The mean age was 26.5 years.

Table 2 shows the various indications for laparoscopy, the commonest being infertility responsible for over two thirds of all procedures. All except one were purely diagnostic. The exception was a laparoscopic retrieval of a translocated IUCD.

As depicted in table 3, about two thirds had dye hydrotubation while 23.3% had only laparoscopy. One patient had the procedure extended to laparotomy to retrieve an intraperitoneal IUCD that was involved in a lot of adhesions. Three patients (2.1%) had cervical dilatation done because of stenosis.

Table 4 shows that bilateral tubal block was found in over one half of the patients while bilateral tubal patency was demonstrated in 13.7% and unilateral block in 17.8%. Other findings included hypoplastic uteri and streak gonads streaks in 8.9%, frozen pelvis in 5.5% and 34.9% had some degree of pelvic adhesions. Perihepatic adhesions were seen in 6.2%. In addition, bilateral hydrosalpinges were seen in 6.2% of the patients whereas 38% and 21.9% had right and left hydrosalpinx respectively. Twenty five (17.1%) had uterine fibroids. Two patients had cystic ovaries.

Problems encountered include failed insufflations in one patient, cervical stenosis in three and one fatality which occurred at induction of anaesthesia. The complications following the procedure included upper abdominal /flank pain in 4.8% and chest pain in 2.7% of patients while they were resting in the ward before discharge.

**TABLE 1: AGE DISTRIBUTION OF PATIENTS**

S/NO	AGE(years)	NUMBER	PERCENTAGE
1	< 15	1	0.7%
2	15-19	5	3.4
3	20-24	32	21.9
4	25-29	33	22.6%
5	30-34	47	32.2
6	35-39	20	13.7
7	>40	8	5.5

**TABLE 2: INDICATIONS FOR LAPAROSCOPY**

S/NO	INDICATION	NUMBER	PERCENTAGE
1	Primary Infertility	45	30.8
2	Secondary Infertility	74	50.7
3	Chronic Pelvic Pain	3	2.1
4	Missing IUCD	3	2.1
5	Primary Amenorrhoea	11	7.5
6	Ambiguous Genitalia	3	2.1
7	Acute PID	1	0.7
8	Secondary Amenorrhoea	4	2.7
9	Transverse Vaginal Septum	2	1.4

**TABLE 3: PROCEDURES**

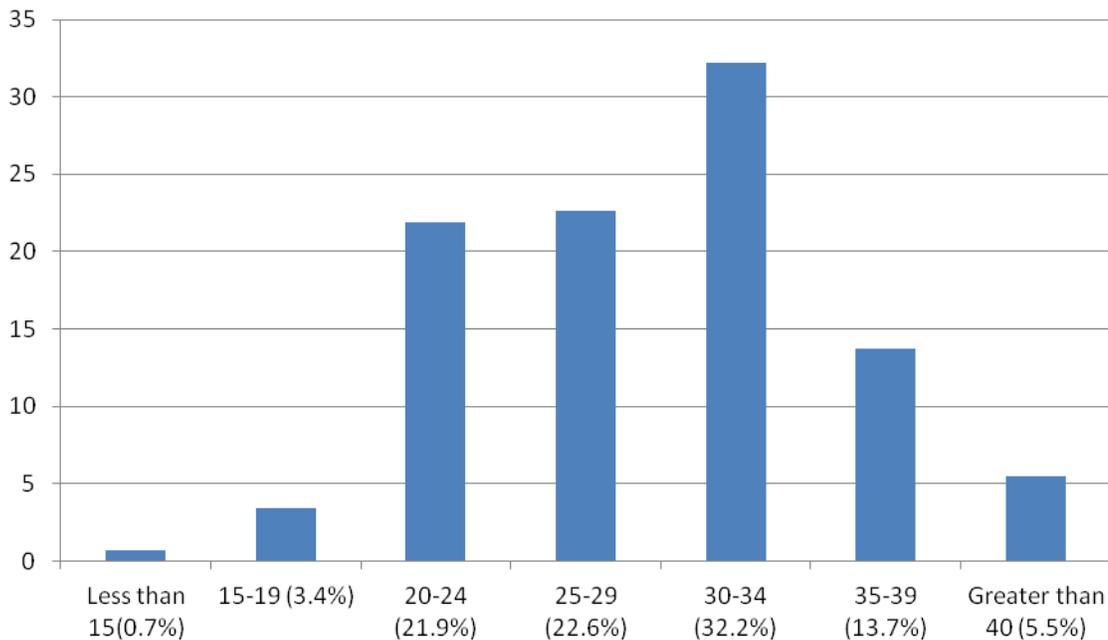
S/NO	PROCEDURE	NUMBER	PERCENTAGE
1	Laparoscopy alone	34	23.3
2	Laparoscopy plus DHT	111	76.0
3	Diagnostic	144	99.0
4	Operative	1	0.7
5	Laparoscopy + Laparotomy	1	0.7
6	Cervical Dilatation	3	2.1

**TABLE 4: OPERATIVE FINDINGS**

S/NO	FINDING	NUMBER	PERCENTAGE
1	Bilateral Patent Tubes	20	13.7
2	Bilateral Tubal Block	65	44.5
3	Unilateral Tubal Block	26	17.8
4	Frozen Pelvis	8	5.5
5	Features of Endometriosis	5	3.4

6	Absent Uterus/Ovaries	5	3.4
7	Hypoplastic Uterus/Streak Gonads	13	8.9
8	Abdominal Testes/Streaks	2	1.4
9	IUCD in the pelvic cavity	2	1.4

**FIGURE 1: AGE DISTRIBUTION OF PATIENTS**



## DISCUSSION

Twenty-six percent of the patients in this study are under 25 years of age. This agrees with other reports from Jos and South western Nigeria<sup>9,10</sup>.

The commonest indication for laparoscopy was infertility accounting for 81.5% of all procedures. It concurs with the findings of El-Tabbakh in Egypt and Umar-Sulayman et al from Zaria<sup>11,12</sup>. Similarly, secondary infertility was found in over one half of cases as was obtained in those two studies. Unlike the findings from Zaria, chronic pelvic pain was the indication for only 2.1% in Kano probably because the patients having it may also be infertile hence the desire for pregnancy may have precluded that as their primary complaint at consultation.

In this study, primary amenorrhoea was the reason for laparoscopy in 7.5% which is considerably higher than that reported from Egypt<sup>11</sup>.

Only one patient had a sort of operative procedure whereas the remaining were diagnostic. This further re-emphasises the disparity in the scope of laparoscopic surgery between private and public health institutions in developing countries where higher levels of endoscopy are done mainly in the private setting<sup>7</sup>.

This is mainly due to lack of sufficient trained personnel and modern equipments. In addition, there are no established public teaching hospitals with specialised gynaecological endoscopy units that could serve as hatching points for specialists<sup>7,8</sup>.

The commonest procedure was laparoscopy and dye hydrotubation while laparoscopy alone accounted for less than a third of patients. This reflects the Zaria study the proportion of the latter group was slightly higher<sup>12</sup>.

Bilateral tubal block was found in 44.5% of patients in this study which is similar to the study from Jos. It highlights the role of prior infectious morbidity on fertility<sup>9</sup>. Bilateral tubal patency was demonstrated in 13.7% of patients and it is considerably lower than the findings of Sagay *et al* and El-Tabbakh<sup>9, 11</sup>.

Pelvic adhesions was less common in this study compared to Sagay *et al* and the adhesions were not further classified probably because the laparoscopy in AKTH in the first three years of the study was purely the cumbersome, backbreaking operator sees-only laparoscope-eyepiece method.

Perihepatic adhesions were found in only 6.2% of patients. This probably shows that STIs may not be the sole factor in tubal disease in our environment but rather the last pregnancy may be the cause of tubal disease.

Uterine anomalies were seen in 13 (8.9%) of patients while 5 (3.4%) had no female internal genitalia and/or gonad. These were probably cases on androgen insensitivity syndrome.

Polycystic ovaries were seen in two patients although there was no correlating ultrasound evidence. This is lower than what was reported from Jos, Ibadan and markedly lower than those from outside Nigeria<sup>9, 10</sup>.

### **Conclusion**

Laparoscopy in AKTH accounts for 12% of gynaecologic surgeries but it is mainly diagnostic. Its common indications were infertility evaluation and primary amenorrhea. This clearly shows the limited skills and manpower needed to utilise the immense benefits of endoscopy in public health institutions in Nigeria.

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