Original Article

A 5-year audit of diagnostic gynaecologic laparoscopy under conscious sedation at the University College Hospital, Ibadan

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ABSTRACT

Introduction: Diagnostic laparoscopy affords smaller incisions, shorter recovery time, and fewer complications. In developing countries, access is limited by cost, infrastructural deficit, and expertise. In a bid to reduce cost at our center, conscious sedation for diagnostic laparoscopy was introduced as far back as 1980. We present here a 5-year audit of our outpatient diagnostic laparoscopy highlighting the various indications, findings, and complications observed.

Methodology: A retrospective review of case files of patients who had diagnostic gynecological laparoscopy between 1st January 2011 and 31st December 2015. The retrieved case files had data extracted and analysed using the Statistical Package for Social Sciences version 20 (Chicago IL USA). Data was presented as simple percentages using tables and figures.

Results: During the period, 1,329 outpatient gynecological procedures were performed with 207 diagnostic gynecologic laparoscopies (15.6%). Only 187 case notes were retrieved (retrieval rate of 90%). The mean age was 33.04 (±5.2) years, 84.5% (158) had post-secondary education, and 69.0% (129) were nulliparous. Majority, 131 (70.0%), had laparoscopy and dye test, 26 (14.0%) had laparoscopy alone, and 30 (16.0%) had a combination of laparoscopy, dye test, and hysteroscopy. The commonest indications were secondary infertility (51.9%), primary infertility (24.1%), and chronic pelvic pain (11.2%). Common findings at laparoscopy were pelvic adhesions (53.5%), uterine fibroids (35.1%), and bilateral tubal blockage (30.3%). Normal findings were reported in only 19 patients (10.3%).

Conclusion: Diagnostic laparoscopy under conscious sedation is cost-effective and safe. It has very minimal complications when performed by skilled personnel. It is thus recommended for low resource settings with the view to avail low income patients the opportunity for endoscopic evaluation.

Key words: Audit; conscious sedation; diagnostic laparoscopy; low income.

Introduction

Laparoscopy, a transperitoneal endoscopic technique, permits adequate visualization of the abdominopelvic structures.[1] From its first application in the 1900s, laparoscopy has undergone various modifications and improvements with robotic surgery now gaining more relevance in developed countries.[2] It is routinely used by gynecologists worldwide for several minimal access procedures. It affords diagnosis of gynecologic disorders and pelvic surgeries without laparotomy. Compared with laparotomy, laparoscopy affords smaller, more cosmetically acceptable wounds, it is cheaper with a shorter recovery time and has a lower complication rate (0.4--3%) usually entry related and often higher with operative procedures.[2,3] Laparoscopy is particularly relevant in tropical gynecological

Access this article online	
Website: www.tjogonline.com	Quick Response Code
DOI: 10.4103/TJOG.TJOG_15_18	

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How to cite this article: Adesina O, Obajimi GO, Abo-Briggs T. A 5-year audit of diagnostic gynaecologic laparoscopy under conscious sedation at the university college hospital, Ibadan. Trop J Obstet Gynaecol 2019;36:80-4.

practice where more than 50% of consultations are because of infertility, especially those because of tuboperitoneal factors.[4,5]

In developed countries, laparoscopic procedures are quite common. In contrast, in developing countries, access is limited by cost, infrastructure, and technical expertise. For example, in our environment, laparoscopy is usually available only in government-owned teaching hospitals and a few big privately-owned hospitals in big cities. Moreover, where laparoscopy is available, the need for general anesthesia limits access to the procedure as specialist anesthetists are not readily available. Although general anesthesia has the benefit of good patient relaxation, it regrettably adds to the cost of the procedure putting it beyond the reach of the generality of the patients who require these services. At our center, in a bid to reduce cost and increase access to diagnostic laparoscopy, conscious sedation was introduced as far back as 1980 as a protocol intended on removing the need for general anesthesia. This report, a 5-year audit of outpatient diagnostic laparoscopy at the University College presents the indications, findings, and type of complications observed while providing laparoscopy under conscious sedation.

Methodology

This is a 5-year (1st January 2011 to 31st December 2015) audit of outpatient diagnostic gynecologic laparoscopies performed at the University College Hospital Ibadan. This training center receives referrals from neighboring towns/states and offers daily sessions of diagnostic laparoscopy for fertility evaluation and other gynecological indications. All patients were carefully reviewed preoperatively for suitability by the managing teams. The patients had clinical and imaging evaluations (ultrasonography ± hysterosalpingography) along with laboratory investigations for proper diagnosis and identification of any pre-existing comorbidities. Prior to the laparoscopy sessions, the patients and their spouses/relatives were counselled and informed about the procedure. On the morning of the procedure, each patient gave a written consent. All procedures were performed in the outpatient theatre, following an overnight fast.

All the laparoscopies were performed with the patients under conscious sedation. Conscious sedation was achieved with intravenous administration of 100 mg pethidine (or 60 mg pentazocine when pethidine was not available) and 10 mg diazepam. During the procedure, the perineum and vagina were cleansed and draped leaving only the umbilical area and vulva. In addition, local infiltration of the subumbilical area was achieved with 1% plain lignocaine. A stab skin incision was made on the subumbilical region, and the anterior abdominal wall was lifted between gauze pads and a Veress' needle introduced. Carbon dioxide (CO_2) pneumoperitoneum was employed for all cases via the Veress needle. After inflation of 2--3 L of gas, the Veress' needle was withdrawn, and the patient placed in a slight Trendelenburgh position. The trocar was then introduced after extending the subumbilical incision followed by the 10 mm 0° laparoscope for visualization of the pelvic organs. Intra-abdominal pressure was maintained between 14 mmhg and 18 mmhg. Other equipment comprised a standard definition camera and monitor, a light source and fibreoptic light cable, and a Quadro-manometric insufflator. Added to these was a suction machine. Chromotubation and endometrial curettage were carried out in cases of infertility. After the procedure, the port sites were closed by suturing with 2/0 Vicryl suture.

Patients' vital signs were closely monitored during and after the procedure until the patient fully recovered. Patients were allowed oral intake once they were fully conscious and were discharged home on oral analgesics and antibiotics. Patients were subsequently seen in the gynecology clinic one week after the procedure.

The register of the outpatient theatre was reviewed, and cases of diagnostic laparoscopy were identified and retrieved from the medical records department. Information obtained from the case folders included demographics, indications for laparoscopy, intraoperative findings, complications, and status of the lead laparoscopist. Data obtained from the case folders were recorded in a proforma. The generated data was analysed using Statistical Package for Social Sciences (SPSS) version 20 (Chicago IL USA) and presented in simple percentages using tables and figures.

Results

During the period of study, a total of 1,329 outpatient gynecological procedures were performed with 207 (15.6%) being diagnostic laparoscopies. Only 187 patient's case notes were available for analysis giving a retrieval rate of 90%, and further analysis were limited to these cases. The mean age of the patients was 33.04 (±5.2) years. Of the 187 patients, most of the respondents (59.4%) were between 25--34 years. Majority of the patients were married (88.2%), had post-secondary education (84.5%), and of Yoruba ethnic extraction (87.2%). More than half of the respondents (69.0%) were nulliparous [Table 1].

Majority 131 (70.0%) had laparoscopy and dye test, whereas 26 (14.0%) had laparoscopy alone and 30 (16.0%) had laparoscopy, dye test, and hysteroscopy [Figure 1]. The

commonest indications were secondary infertility (51.9%), primary infertility (24.1%), and chronic pelvic pain (11.2%) [Figure 2]. The lead surgeon was of consultant cadre in most cases (69.0%), whereas other cases were performed by senior registrar cadre (31%). No case was performed by a junior resident.

Common findings at laparoscopy [Table 2] were pelvic adhesions of varying severity (99/187), uterine fibroids (66/187), and bilateral tubal blockage (56/187). Normal findings were reported in 19 patients whereas about a third of the patients had bilateral patent tubes (28.6%). Almost all (95.7%) the procedures were completed and only eight (4.3%) were abandoned either because of difficult entry or faulty instruments. During the period of study, no major complication was documented and only four cases of post-procedure abdominal discomfort were reported which spontaneously resolved.

Discussion

Our study revealed that laparoscopy and dye test was the procedure of choice in patients aged 25--34 years, who were mostly nulliparous. The commonest indication being infertility (secondary and primary) and the commonest findings were pelvic adhesions, bilateral tubal blockage, and uterine fibroids. Diagnostic laparoscopy has become an accepted part of the basic investigations in modern gynecological care of patients with conditions such as those reported in this study. It is a complex art which requires much versatility and skill in the use of fibreoptics, light sources, electric current, gas under pressure, cameras, and an array of rapidly changing and improving instruments.[6,7]

Diagnostic laparoscopy in this centre accounted for 15.6% of all gynecological outpatient procedures in the department. Gynecological outpatient procedures as opposed to gynecological admissions or major surgeries were used in calculating the laparoscopy rate in this study. The reason is that diagnostic laparoscopy in this center is performed on a day-case basis and so the number of outpatient gynecologic procedures is a more accurate denominator. The rate reported here is higher than 7.4% reported in Sokoto,[5] and 6.9% reported in Cameroon,[8] respectively. The higher rate can be attributed to the fact that our protocol of conscious sedation employed for diagnostic laparoscopy results in fees about five times cheaper than obtained when performed under general anesthesia in the same center.

Table 1: Sociodemographic characteristics

Variables	Frequency	Percentage
Age (years)		
<20	1	0.5
20-24	5	2.7
25-29	40	21.4
30-34	71	38.0
35-39	46	24.6
>39	24	12.8
Marital status		
Single	18	9.6
Married	165	88.2
Widowed	4	2.1
Religion		
Christianity	148	79.1
Muslim	39	20.9
Educational status		
Primary	2	27
Secondary	27	14.4
Post-secondary	158	84.5
Parity		
0	129	69.0
1	37	19.8
2	15	8.0
3	6	3.2
Ethnicity		
Yoruba	163	87.2
Igbo	18	9.6
Others	6	3.2

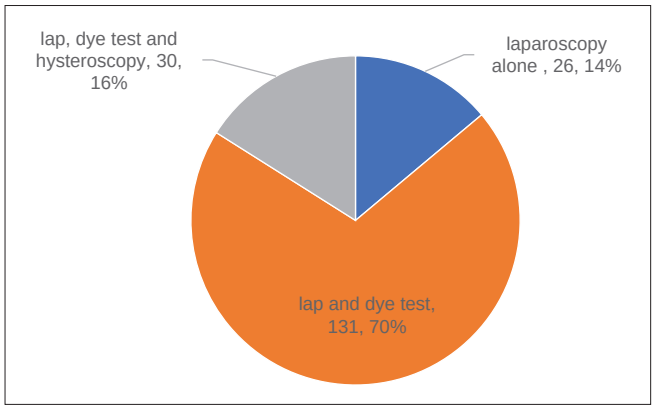

Figure 1: Type of procedure performed

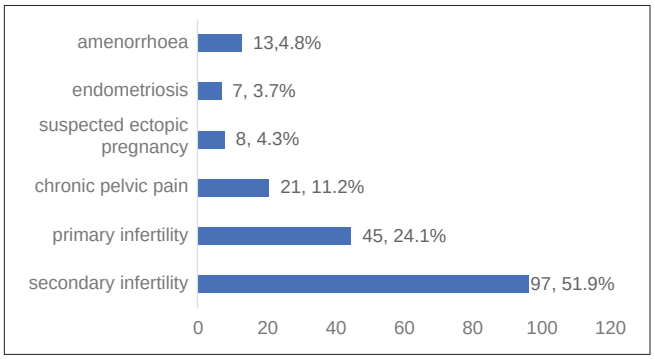

Figure 2: Indications for laparoscopy

Table 2: Findings at Laparoscopy

Finding	Frequency	Percentage
Normal findings	19	10.3
Bilateral patent tubes only	53	28.6
Tubal disease		
Bilateral tubal blockage (including bilateral hydrosalpinges)	56	30.3
Right tubal blockage (including right hydrosalpinx)	33	27.3
Left tubal blockage (including left hydrosalpinx)	15	8.1
Pelvic adhesions	99	53.5
Pelvic endometriosis	33	17.8
Frozen pelvis	9	4.9
Uterine fibroids	66	35.1
Others (PID, unruptured ectopic pregnancy, hypoplastic uterus and ovaries)	10	5.5

N.B. Multiple findings possible in some patients

The age and parity distribution agree with findings of other studies which suggest that the procedure is mainly performed on women in the reproductive age group.[2,5,7] This fits the demographic characteristics of infertile patients as reported in hospital-based studies in Nigeria.[7] In Nigeria, infertility which accounts for 50% of gynecology consultations is mainly because of tuboperitoneal factors.[7] It was therefore not unexpected that infertility was the indication in 76.0% of cases with secondary infertility being the commonest. This is similar to findings by other workers in Nigeria and other developing countries.[5,7,9] but contrasts with reports from industrialized countries where pelvic pain was the commonest indication.[10,11] The high rate of tuboperitoneal factors in infertility in this environment has been attributed to the high prevalence of poorly treated pelvic inflammatory diseases, postabortal, or postpartum sepsis.[7] Laparoscopy is the gold standard for evaluation of tuboperitoneal factors.[10] Laparoscopy and dye test was the most common procedure performed in this audit. In addition, in keeping with the high rate of pelvic infections in this environment, chronic pelvic pain as opposed to primary amenorrhoea was the second most common indication for laparoscopy from this study accounting for 11.2% of cases. This percentage of chronic pelvic pain is far higher than those reported in Kano and Sokoto[2,5] where primary amenorrhoea was the second most common indication. Ectopic pregnancy was excluded in four out of the eight patients with suspected unruptured ectopic pregnancy, thereby preventing unnecessary morbidity and cost associated with laparotomy.

Both tubes were reported as being patent in 28.6% of patients which is comparable to findings by Lamina in Sagamu,[7] higher than those quoted in Kano and Sokoto[2,5] but considerably lower than those quoted in India.[11] On the other hand, both tubes were reported as blocked in 28.1% of patients in this study which is lower than figures from Kano,[2] Sokoto,[5] and Sagamu[7] but higher than findings by Shetty in India.[11] Again, this highlights the impact of prior infectious morbidity on fertility. Unilateral tubal blockage accounted for 18.9% in this study which was comparable to the one reported in Sagamu[7] and less than that quoted by Shetty.[11] Right tubal blockage was twice as common as left tubal blockage in this study. It has been suggested that this may be because of the proximity of an inflamed and poorly treated appendix to the right fallopian tube which results in the formation of peritubal adhesions. Laparoscopic findings of endometriosis have become very relevant in infertility management. Thus, it has become the most important investigative tool for the evaluation of endometriosis and tubal disease in developed countries of the world. There were 33 (17.8%) cases of endometriosis from this study, although this was higher than that quoted from similar studies by Ikechebelu in Nnewi,[12] and much lower than that quoted by Fawole *et al*. in Ibadan.[13]

Majority of the laparoscopies were performed by consultants. This may not be unrelated to the increasing medical litigations necessitating the deployment of the most skilled personnel in order to minimize complications. This was evidenced by the low rate of complications and abandonment of procedures. The complication rate in this study was nil which was comparable with similar studies.[8] This further reinforces the belief that with proper training, careful selection of patients and meticulous application of safety precautions, laparoscopy is a safe procedure in gynecological practice. With modern laparoscopic procedures, serious complications are rare and usually more frequent with operative than diagnostic laparoscopy. The use of conscious sedation and local infiltrative anesthesia (CS-LA) regimen/protocol as practised in our centre also reduced the risk of complications because of general anesthesia, with no significant increase in the failure rate of the procedure after proper patient selection. It must however be noted that patient relaxation is often not optimal as compared with general anaesthesia. The rate of abandonment of the procedure in this study was 4.3%, which was essentially because of faulty instruments and difficult entry.

Conclusion

Diagnostic laparoscopy in our environment is majorly employed for the evaluation of infertile patients and tuboperitoneal abnormalities were the most prevalent finding among this group. Laparoscopy under conscious sedation reduces the risks associated with general anesthesia. It is cheap, easy to administer, and does not require the presence of an anesthetist. There, however, may be occasional incidences of failure to achieve good muscle relaxation. We

recommend its use for consideration by practitioners in developing countries like Nigeria where resources are limited, and patients usually have to bear the cost of health services.

Financial support and sponsorship

Nil.

Conflicts of interest

There are no conflicts of interest.

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