

Minimal Access Surgical Experience in Developing Economy: A Young Trainee Stimulant

Patrick O Igwe 

ABSTRACT

Background: The utilization of minimal access surgery (MAS) is rising in developing countries. Robotic surgery is rarer. The mirage surrounding operating with a telescope is completely changing the dimension of surgery. A young trainee finds it difficult to properly perform this surgery.

Aim and objective: This study aimed to elucidate an experience of minimal access surgeons practicing in a developing economy with the hope of stimulating a young trainee surgeon in the same field of study.

Materials and methods: This was a review of prospectively collected data of cases performed, stored electronically in an Excel spreadsheet and statistical software, Epi info, from December 2017 to March 2020. This review included laparoscopic procedures, colonoscopies, and esophagogastroduodenoscopies (OGD) performed by the author in a tertiary hospital and two private centers. It excluded all cases assisted by the author. The results were analyzed using statistical software, SPSS version 23.

Results: A total of 195 cases were performed. Esophagogastroduodenoscopies consisted of a maximum of 114 cases. This was followed by colonoscopies (52 cases), and laparoscopy (29 cases). The laparoscopic cases consisted of laparoscopic cholecystectomy (6), diagnostic laparoscopy (11), laparoscopic appendectomies (8), laparoscopic fundoplication (1), and foreign body retrieval (1). This study showed a gradual shift from mild to more complex minimal access procedures.

Conclusion: Performing minimal access procedures requires extensive training. Findings from this study will guide a young trainee in a developing economy to perform the easily available surgery procedures.

Keywords: Developing economy, Experience, Minimal access surgery, Young trainee.

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INTRODUCTION

The utilization of minimal access surgery (MAS) is rising in a developing economy.¹ The illusion of performing a surgical procedure with a telescope is currently moving surgical practice to a new level, especially for surgeons practicing in low- and medium-income countries. A beginner in minimal access surgical procedures needs to be abreast of this procedure. Taking steps to undergo training in minimal access procedures is indeed a very good option. Training is provided by good trainers who will give you the right ergonomics.² However, it may be worthwhile to peruse the experience of similar surgeons, especially those with recent experience on the trend of these procedures in the developing country. The use of modules, simulators, and trainers could be a plus.^{3,4} Using a phone by a young trainee could help facilitate learning.⁵

AIM AND OBJECTIVE

This study aimed to elucidate an experience of minimal access surgeons practicing in the developing economy. This may be useful to a young trainee surgeon.

MATERIALS AND METHODS

This study is a review of prospectively collected data of all minimal access procedures performed by the author and stored electronically in an Excel spreadsheet and Epi-info software from December 2017 to March 2020. The review included laparoscopic

Department of Surgery, University of Port Harcourt Teaching Hospital, Port Harcourt, Rivers State, Nigeria

Corresponding Author: Patrick O Igwe, Department of Surgery, University of Port Harcourt Teaching Hospital, Port Harcourt, Rivers State, Nigeria, Phone: +234 8035510045, e-mail: igwe_patrick@yahoo.com

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procedures, colonoscopies, and esophagogastroduodenoscopies (OGD) performed in a tertiary hospital and two private centers in Nigeria. It excluded all cases that were assisted or observed by the author. The results were analyzed using statistical software, SPSS, version 23.

RESULTS

A total of 192 cases were performed. OGD consisted of the highest 114 cases. This was followed by colonoscopies in 52 cases, then laparoscopy with 26 cases (Fig. 1). The average cost for the endoscopies was 300 USD, while the average cost of laparoscopic procedures was 1500 USD. The laparoscopic cases (Fig. 2) consisted of laparoscopic cholecystectomy ($n = 6$), diagnostic laparoscopy

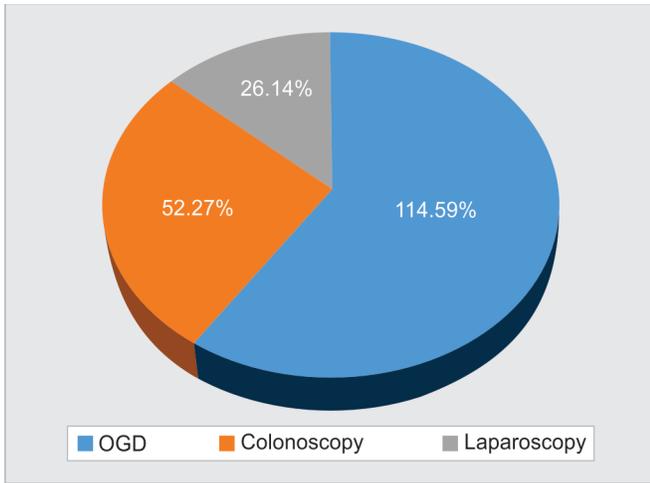


Fig. 1: Pie chart showing different MAS procedures. In the pie chart, the first numbers show the numbers of cases (n) and the second number percentage of procedures

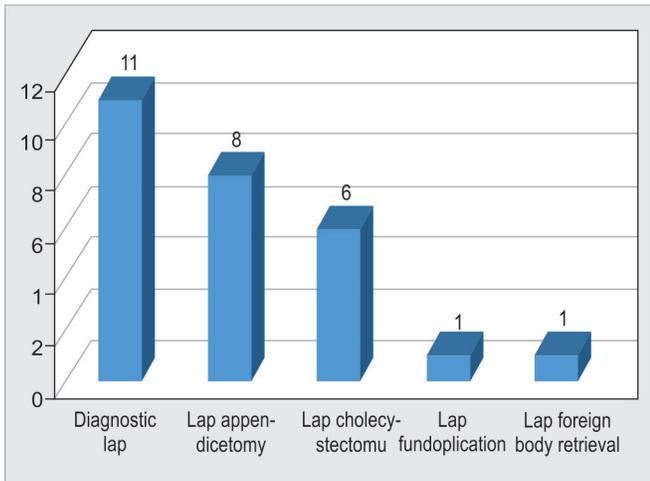


Fig. 2: The number of different types of laparoscopic cases

(n = 11), laparoscopic appendectomies (n = 8), laparoscopic fundoplication (n = 1), and foreign body retrieval (n = 1). The laparoscopic surgeries had a female to male ratio of 12:1. This result showed a gradual shift from mild to more complex minimal access procedures, with females being more beneficiaries. Most of the patients were young. The mean age was 29.3 ± 11.6 years. The oldest patient was a 65-year-old woman who had laparoscopic cholecystectomy while the youngest patient was an 8-year-old boy who had diagnostic laparoscopy with orchidectomy for undescended (intra-abdominal) right testes. The laparoscopic cases had an average procedure time of 60 minutes and both the conversion and case fatality rates were nil (0%). Only one patient had a port site infection that was managed conservatively.

The author could intubate the duodenum in all cases of OGS performed, except in three patients with gastric outlet obstruction where the risk of perforation was high and the endoscope could not enter the first part of the duodenum. The average intubation and procedure durations were 10 and 15 minutes, respectively.

The colonoscopy appears to follow the same pattern with 51 (98%) cases of cecal intubation. The average procedure duration was 45 minutes. All patients had a very good outcome.

DISCUSSION

Minimal access surgery involves the use of camera-guided images to carry out procedures upon patients. Some authors prefer to use the term minimal invasive or incision surgery. It is also termed, in some instances, as key-hole surgery and also button-hole operation. These are for easy comprehension or clarity of terminology for trainees and clients or patients. The author preferred minimal access surgery to be a more comprehensive term just like his trainer.⁶ However, endo-luminal, laparoscopy, and some other related procedures within the scope of this minimal access surgery were considered here. Hence, this review is expected to stimulate a young trainee surgeon to set up a career choice in minimal access surgery in a developing economy. The issue of the learning curve has been overemphasized and attention should be drawn to commonly performed procedures. Those who have high demanding practice, are easily available, and give a good outcome should be of prime importance in the scale of preference.

A glance at the results of the above procedures shows that endoscopic procedures were more than laparoscopies. This could be the result of high demand for upper and lower gastrointestinal endoscopies. This could also have been a result of associated lower costs. Most laparoscopic procedures appear to be more expensive than endo-luminal procedures as can be seen in the index report. More studies are required to elucidate MAS in developing countries. A young trainee should be aware of this fact, as acquiring skill in endo-luminal procedures could hasten experience in MAS. More data and studies will be required to compare activities of those with endo-luminal experience before laparoscopic procedures in low-income countries. Most hernia procedures are still done under regional or local anesthesia in low or medium-income countries, thereby, reducing the demand for laparoscopies that most often utilize general anesthesia.

Although the author recorded a nil conversion rate and nil case fatality rate, this may be due to a limited number of cases performed. It might also be due to adequate training that the author underwent at a good training center.⁶ The act of conversion should always be borne in mind and discussed with the patient. The surgeon should be familiar with the anatomy of the area. He may not necessarily know how to repeat the open type of the operation but should have a colleague who can perform the open type around especially while operating in a developing economy. Also, a more senior minimal access surgeon, laparoscopist, or endoscopic surgeon is a good asset.

This result showed a gradual shift from mild to more complex minimal access procedures. Some cases, such as appendicectomy and laparoscopic cholecystectomy may be termed basic laparoscopic procedures. However, the author has encountered two instances where laparoscopic cholecystectomy was not the usual norm. He could remove giant calculi in the procedure via laparoscopy.⁷ Laparoscopic fundoplication or retrieving a sharp foreign body is an advanced procedure. Some authors have reported retrieval of sharp foreign bodies.^{8,9} The young trainee surgeon should have acquired the skill of intra-corporeal suturing technique. He should have mastered the act, especially during laparoscopic cholecystectomy, appendicectomy, and the likes.

The laparoscopic surgical cases had a female to male ratio of 12:1 with females being more beneficiaries. This may be a result of the diagnostic dilemma of young female patients presenting with abdominal pain. Cosmetic incisions may be another paramount reason as most females prefer these incisions. Furthermore, less pain, early return to work, and resumption of activity are all-inclusive in the avalanche of minimal access procedures.

A young trainer is therefore required to undergo extensive training at a good center, develop passion, exhibit yearn, and develop firm practicing habits to enhance necessary skills after taking a bold step.

CONCLUSION

Starting minimal access procedures requires a gradual curve of training. This experience will guide a young trainee in a developing economy on the easily available procedures to perform.

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ORCID

Patrick O Igwe:  <https://orcid.org/0000-0001-6107-7173>

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