

# Practice of Laparoscopic Surgery in Yokadouma District Hospital/Cameroon

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## Abstract

**Background:** Laparoscopic surgery has many advantages among which are, decrease post operative pain and complications. It's practice in the capital of Cameroon is still a luxury and it is almost non-existent in peripheral zones. The aim of this study is to present the results of the first laparoscopy surgeries done at the Yokadouma district hospital located in the east region at 600 km from Yaoundé. **Methods:** This is a descriptive prospective study carried out from march 2020 to march 2021 in the general surgery department of the Yokadouma district hospital. Patients operated by laparoscopy during this period were included in the study giving a sample size of 40 patients. The data collected were analyzed by "Census software and Survey Processing System" (CSPRO). **Results:** Majority of patients, 57.5% were males and aged between 16 and 30 years (32.5% of cases). Most patients (30% of patients) were farmers. Transabdominal preperitoneal prosthesis plasty for hernia represented 55% of interventions followed by appendectomy (15%) and cholecystectomy (7.5%). Two procedures (0.8%) required conversion into open surgery. Post-operative complications were very rare and were encountered just by one patient who presented a parietal suppuration. Interventions in 77% of cases cost less than 200,000 CFA FRANCS (400\$). **Conclusion:** The example of Yokadouma shows that laparoscopy should be developed in peripheral zones so that its residents can benefit from its multiple advantages.

## Keywords

Laparoscopy, Surgery, Yokadouma

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## 1. Introduction

Coeloscopy has many advantages unlike classical surgery [1]. These advantages include mini-invasive character, decrease post-operative morbidities, aesthetic profit, magnified view of the operating field, precision and surgical gestures efficiency, respect for the anatomy and physiology [2]. With the modernization of surgery, the population of the city of Yokadouma located 600 km from Yaounde is not exempted from the benefit of this practice. In our study, we examine laparoscopic treatment of hernia linea alba, inguinal, umbilical, and the appendicectomy. The purpose of the study is to present the results of the first laparoscopic surgeries done in Yokadouma.

## 2. Methods

We carried out a prospective descriptive study from March 2020 to March 2021 in the general surgical service of the Yokadouma district hospital. The participants in this study were patients who had a celioscopic surgery during the study period and accepted to participate. Patients who refused the study were not included. A total sample size of 40 patients was recruited. Analyzed variables were age, sex, occupation, the location of the hernia, the type of hernia, surgical technique, the number days of post-operative hospital stay and immediate surgical complications. Data collected were analyzed by “Census software and Survey Processing System” (CSPRO). Authorisation was obtained from Yokadouma district hospital ethical committee.

## 3. Results

**Table 1.** Baselines characteristics of patients.

Socio-demographic data of patients	Number	Frequencies (%)
<b>Age (years)</b>		
0 - 15	3	7.5
16 - 30	13	32.5
31 - 50	11	27.5
51 - 65	9	22.5
>65	4	10.0
<b>Sex</b>		
Male	23	57.5
Female	17	42.5
<b>Profession</b>		
Farmer	12	30.0
Housewife	4	10.0
Civil servant	2	5.0
Unemploy	10	25.0
Business	5	12.5
Forestry company	4	10.0
Non-Governmental Organization	2	5.0

This **Table 1** shows that majority of patients had ages between 16 and 30 years (32.5%). The patients aged 0 to 15 represented the lowest ratio with 7.5% of cases. Most patients were males with a sex ratio of 1.48. Farming was the most represented profession (30% of cases), followed by unemployed (25% of cases). Civil servants and different employees of society and Non-Governmental Organization represented just 15% of patients operated.

**Table 2.** Indications of laparoscopy.

Indications	Number	Frequency (%)
Direct left inguinal hernia	02	5
Indirect left inguinal hernia	03	7.5
Directe right inguinal hernia	02	5
Indirecte left inguinal hernia	02	5
White line hernia	01	2.5
Ombilicus Hernia	04	10
Spiegel hernia	05	12.5
Mixt hernia	02	5
Bilatéral inguinal hernia	02	5
Total hernia	23	57.5
Appendicitis	07	17.5
Cholecystitis	02	5
Laparoscopy for diagnosis	03	7.5
Ectopic pregnancy	03	7.5
ovarian cyst	02	5

**Table 3.** Types of laparoscopic intervention and the rate of conversion into open surgery.

Type of intervention	Number	Frequencies (%)
Appendectomy	6	15.0
Placement of prosthesis (TAPP)	22	55.0
Cholecystectomies	3	7.5
Diagnostic coelioscopy	3	7.5
Salpingectomies	3	7.5
Cystectomies	3	7.5
Total interventions	40	100
<b>Per-operative conversion into open surgery</b>	<b>Number/ (frequency %)</b>	<b>Indication of conversion</b>
Appendectomy	1 (0.4%)	Unsatisfactory pneumoperitoneum
Direct left inguinal hernioraphy	1 (0.4%)	Unsatisfactory pneumoperitoneum
<b>Total number of converted cases</b>	<b>2 (0.8%)</b>	

This **Table 2** shows that abdominal wall hernia represented the mostly diagnosed disease with 57.5% of cases, followed by appendicitis (2.8% of cases) and diagnosis via coeloscopy (1.2% of cases). Ovarians cysts, and cholecystitis represented just 0.8% of cases each.

This **Table 3** shows that the intervention mostly carried out was pre-peritoneal transabdominal placement of prosthesis, indicated for hernia with 55% of cases, followed by appendicectomies with 15% of cases. 0.8% of cases needed conversion into open surgery involving an appendectomy and a pre-peritoneal transabdominal placement of prosthesis for a left inguinal hernia.

**Table 4.** Operation time and duration of post-operative hospitalization.

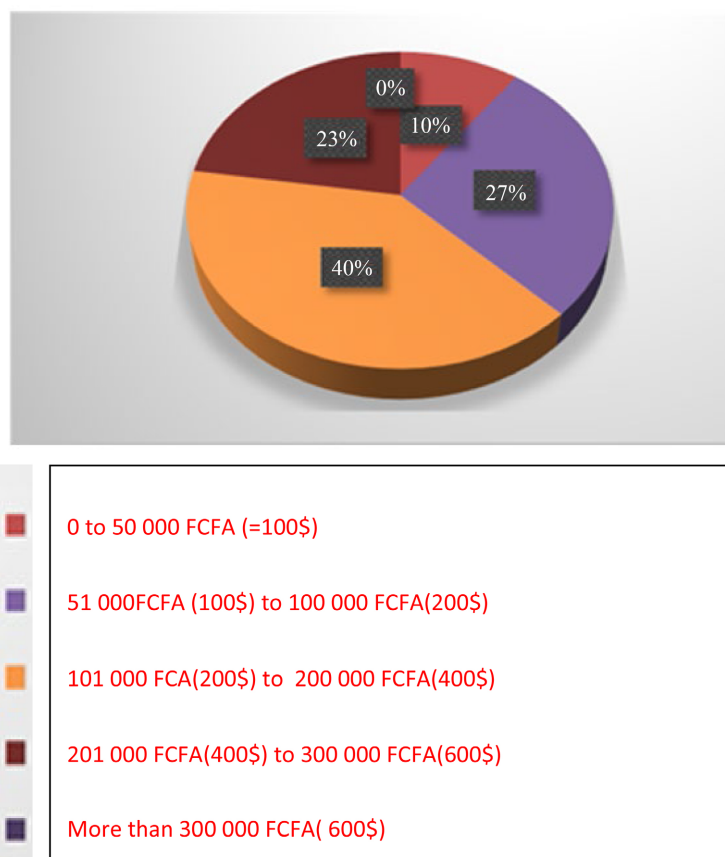
Operation time and duration of post-operative hospitalization	Number	Frequencies (%)
<b>Operation time (hours)</b>		
<02	5	12.5
[02 - 04]	35	87.5
>04	0	0
<b>Duration of post-operative hospitalization (hours)</b>		
[0 - 24]	0	0
[24 - 48]	21	52.5
[48 - 72]	19	47.5
>72	0	0

This **Table 4** shows that 87.5% of interventions had an operation time between (2 and 4) hours. 52.5% of patients were hospitalised for (24 to 48) hours post-operation whereas 47.5% of patients were hospitalized for (48 to 72) hours after the operation.

**Table 5.** Post laparoscopic complications.

Post operative complications	Number	Frequencies (%)
<b>Pain</b>		
Moderate to severe	4	10
Mild or absent	36	90
Parietal infection	1	2.5
Recurrent (hernia)	0	0

This **Table 5** shows that 90% of patients had no or mild post-operative pain against 10% of patients who presented a moderate to severe pain. Moreover, 2.5% of patients had a pariétale infection and there is no recurrence over one year in hernia cases.



**Figure 1.** Distribution of intervention cost.

This **Figure 1** shows that 77% of patients paid less than 200,000 fcfa and 23% paid an amount between 201,000 fcfa and 300,000 fcfa.

## 4. Discussion

### 4.1. Age and Sex

Majority of patients had ages between 16 and 30 years (32.5%). Most patients were men with a sex ratio of 1.48. This is different from results of the study done in Nigeria by Balogun *et al.* in October 2020 [2] which found that most patients were aged between 31 and 40 years but in line with a study carried out in Nigeria by Ray-Offer *et al.* in June 2014 [3] which showed a predominance of the male sex. The difference in age group mostly affected between our study and that carried out by Balogun *et al.* can be explained by the fact that our study was carried out in an agricultural and forestry area where young people are the most active in farming work.

### 4.2. Indication of Laparoscopic

Hernia represented the main indication with 57.5% of cases, followed by appendicitis with 2.8% of cases. This is in contrast to the study done in Nigeria by Bolagun *et al.* with main indication being cholelithiasis representing 35% of cases,

followed by the acute appendicitis [2].

### 4.3. Conversion

0.8% of cases required conversion of laparoscopy into open surgery involving an appendectomy and a left inguinal hernioraphy both due to a problem of unsatisfactory pneumoperitoneum whereas a study done at the general surgery department of the university of Lubumbashi clinic within an approximately similar duration had conversion of 4% of cases into open surgery [4]. This difference can be explained by the inequality of sample sizes, differences in skills between the operating teams and in presentation of cases.

### 4.4. Time of Operation and Post Operatory Hospitalization

The operation time of 87.5% of cases varied between (02 and 04) hours which is longer than open surgery operation time. This is similar with the results found by the study done at the general surgery department of the university of Lubumbashi clinic [4] which showed an increase in operation time with laparoscopy compared to open surgery. This could be explained by the fact that the surgical technic being new, the operating team don't yet have appropriate skills to perform the interventions within the required time interval. 52.5% of patients had hospital stay between 24 and 48 hours and 47.5% of patients had hospital stay of 48 to 72 hours after the operation this is in accordance with the study done at the general surgery department of the university of Lubumbashi clinic [4] which found a decrease in number of days of hospital stay after laparoscopy compared with open surgery. This can be explained by the mini-invasive character of the intervention.

### 4.5. Post Operatory Complications

90% of patients had mild or absent immediate post operatory pain. Only 2.8% of cases presented parietal infection in the late post operatory period. This is in accordance with the study done at the general surgery department of the university of Lubumbashi clinic [4] where most patients did quite well postoperatively. Also, it is in accordance with the study done in Nigeria by Balogun *et al.* [2] where most patients had no post operatory complications, with a few having superficial surgical site infection post operatively and no mortality within 30 days after operation.

### 4.6. Intervention Cost

Most of patients 77% paid less than 200,000 fcfa (400 USD) and 23% paid an amount between 201,000 fcfa (400 USD) and 300,000 fcfa (600 USD) whereas the study done by Bang *et al.* at Marie Wyss hospital Yaounde [5] show an average procedures cost of 535,445 fcfa (1070.89 USD). This can be explained by the fact that Yokadouma is a rural zone while Mary Wyss hospital is in Yaounde.

## 5. Conclusion

Coelioscopy is a safe and feasible surgical technique which can be used in the

management of many general surgical conditions in peripheral zones and should be encouraged. The first set of laparoscopy at the Yokadouma district hospital has yielded satisfactory results. Maximum decrease in post-operative morbidity and aesthetic profits with this procedure are advantages to the patients.

#### What is already known on this topic

- Advantages of laparoscopy
- Indications of this technique

#### What this study adds

- laparoscopy is possible in rural areas in Cameroon

### Authors' Contributions

All authors participated in the study and have read and approved the final manuscript.

### Conflicts of Interest

The authors declare no competing interest.

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