

Review of Laparoscopic Activities at the University Hospital Center (CHU) “Mère-Enfant Luxembourg” in 100 Cases

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Abstract

Introduction: Laparoscopic surgery is a surgical technique that allows to intervene under the control of an endoscope, introduced into the abdominal cavity previously distended by an artificial pneumoperitoneum. We propose in this study to bring the assessment of the laparoscopic activities in the department of general surgery at the CHU MERE-ENFANT “Luxembourg”. **Methodology:** This was a descriptive cross-sectional study from September 2019 to September 2020 including 100 cases of laparoscopic procedures at the University Hospital Mother and Child “Luxembourg”. All patients regardless of pathology, who underwent laparoscopic surgery with or without conversion to conventional surgery were included in the study. The data were collected from routine media such as the consultation register and the operative report register. Data analysis was performed using SPSS 21 software. Informed consent was obtained from the patients before their inclusion in the study, and each patient was assigned an anonymity number. **Results:** In our study, the female sex represented $\frac{3}{4}$ of the patients, *i.e.* 76% with a sex ratio of 3.2. Housewives were 53% of the cases. The majority of patients were in the age range of 16 - 30 in 44% of cases and 75% were married. Overweight/obesity, hypertension and peptic ulcer were the main medical histories with 22%, 12% and 10% respectively. All patients presented with abdominal pain. Cholecystectomy was the main activity during the study with a frequency of 43%, followed by tube surgery and appendectomy. The average duration was 53 minutes for digestive pathologies 48 minutes with extremes of 22 and 66 minutes for gynecological pathologies. One case of injury to the cystic artery was recorded. The conversion rate was 6% of cases. We recorded 5 cases of suppuration as a postoperative complication. The length of stay was 2 - 3 days in 96% of patients. **Conclusion:** In view of this study, the feasibility of laparoscopic surgery at the CHU Mère Enfant “Luxembourg” is no longer in question. Actions must be taken to reinforce the practice of laparoscopic surgery.

Keywords

1. Introduction

Laparoscopic surgery is a surgical technique allowing to intervene under the control of an endoscope, introduced into the abdominal cavity previously distended by an artificial pneumoperitoneum [1].

This practice has been expanding rapidly in developing countries for more than twenty years [2]. The list of digestive procedures performed under laparoscopy is rapidly growing [3]. The scope of application of this technique, especially in the emergency setting, is becoming increasingly wide. According to one study, the laparoscopic approach should stabilize over the next decade at around 70% to 75% of technical digestive surgery procedures [2]. It was introduced in Mali in March 2001 in the “A” surgery department of the Point G University Hospital [4].

In some sub-Saharan countries such as Côte d’Ivoire and Cameroon, support for training through workshops and assistance in the acquisition of equipment by the pioneers of laparoscopy in France had made it possible to introduce it in public hospitals of tertiary level [3].

The first laparoscopic surgery symposium, at the initiative of the endoscopic surgery society of Mali in the presence of experts from mainly Africa and Europe was held from 07/03/2001 to 09/03/2001 [2].

It was introduced in September 2019 at the CHU Mère-Enfant “Luxembourg”. Its dangers are rare when laparoscopy is performed by a trained team. Several authors have already demonstrated the diagnostic interest of laparoscopy in the management of acute abdominal pain of undetermined origin [5]. After months of practice, we propose to evaluate the place of this surgery in the general surgery department of the Mother and Child University Hospital and to determine the future perspectives.

2. Methodology

The study was carried out at the Mother and Child University Hospital with the support of the surgeons of the “A” surgery of the Point G University Hospital. It was a descriptive study from September 2019 to September 2020 including 100 cases of laparoscopic surgery.

Random sampling was done by randomly taking 100 cases of laparoscopic procedures from the department. All patients, regardless of pathology, who underwent laparoscopic surgery with or without conversion to conventional surgery were included in the study. Patients operated by a conventional surgical technique and those who underwent surgery by another surgical technique were not included in the study.

Data were collected from routine media such as the consultation register and the operative report register. The variables studied were sociodemographic (age, sex,

profession, origin), clinical (nausea, vomiting, jaundice, pruritus), paraclinical (ultrasound, hysterosalpingography), therapeutic (laparoscopic surgery) and evolutionary (simple, complications) data.

Data analysis was done using SPSS 21 software. Descriptive statistics were presented in tabular form. For the quantitative variables, the means were calculated with their confidence intervals, while the proportions were calculated for the qualitative variables.

Before each procedure, the patient and/or the family were informed about the operative diagnosis, the endoscopic procedure, the expected benefit and possibly the possibility of conversion to conventional surgery. Informed consent was obtained from the patients before their inclusion in the study, An anonymity number was assigned to each patient.

3. Results

We included 100 cases of laparoscopic surgery among the 270 registered since the start of laparoscopic surgery in Luxembourg in September 2019. This sample size represents a frequency of 37%.

3.1. Sociodemographic Data

In our study, the female sex represented $\frac{3}{4}$ of the patients or 76% with a sex ratio of 3.2. Housewives were 53% of the cases. Housewives were represented with 53% of the cases. Most patients lived in Bamako (91%). The majority of patients were in the 16 - 30 age group in 44% of cases and 75% were married. Of the 100 patients, 97 were attending school. Sociodemographic data are shown in **Table 1**.

3.2. Clinical Data

The majority of patients were referred by medical specialists in 50%. Overweight/obesity, hypertension and peptic ulcer were the main medical histories with 22%, 12% and 10% of all patients respectively. The abdomen was scarred in 25% of patients. WHO performance status was grade 0 and 1, *i.e.* 80% and 19% of cases respectively.

All patients had abdominal pain. It was a pain of progressive installation in 61% of the patients with 28%, located in the right hypochondrium in 37% of irradiation was of the type of strap in 36% patients. The intake of fatty foods was the triggering factor in 18% of patients and the pain was calmed by analgesics in 43% of patients. Nausea-vomiting was most frequent in 40 patients, *i.e.* 40% of cases.

Table 1. Sociodemographic characteristics of patients.

Socio-demographic characteristics	Number (n = 100)	Percentage (%)
Sex		
Male	24	24
Female	76	76
Age range (year)		

≤15 years	3	3
16 to 30 years	44	44
31 to 45 years	30	30
45 and over	23	23
Profession		
Civil servant	16	16
Tradesman	8	8
Housewife	53	53
Student	14	14
Farmer	2	2
Other	7	7
Schooling		
Yes	97	97
No	3	3
Marital status		
Married	75	75
Single	20	20
Widowed	4	4
Divorced	1	1

Blood counts were normal in 96% of patients. Hepatitis B surface antigen was requested in 51 patients and returned in 5.8% of cases. Ultrasound was performed in 98% of our patients; gallbladder lithiasis was present in 38% of patients. Hysterosalpingography was performed in 18% of patients, which were pathological in 16% of cases.

Cholecystectomy was the main activity during the study with a frequency of 43%, followed by tubal surgery and appendectomy. The average duration was 53 minutes for digestive pathologies 48 minutes with extremes of 22 and 66 minutes for gynecological pathologies. One case of injury to the cystic artery was recorded. The conversion rate was 6% of cases. We recorded 5 cases of suppuration as a postoperative complication. The length of stay was 2 - 3 days in 96% of the patients.

4. Discussion

From September 2019 to September 2020, laparoscopic surgery has 37% of surgical procedures in Luxembourg. Camara M on the first 18 months found a frequency of 17.34% [6] in 2004. Mafogue FLD over the first 45 months found a frequency of 18.99% [4] in 2005. Togola F over the first 12 months found a frequency of 21.29% [7] in 2011.

Laparoscopic surgery is replacing open surgery in the management of several pathologies. Nevertheless, laparoscopy remains a challenge in developing countries, especially in an emergency context.

In our study, the age groups 16 - 30 years represented 44% of the patients and more than $\frac{3}{4}$ of the patients were female (76%). This result is similar to the frequency of African series [8] [9]. This can be explained by the youth of the African population. In spite of the existence of a pediatric surgery service, we continue to take care of children, as the latter is not equipped with laparoscopic surgery equipment.

The patients received in emergency represented 20% of the cases. Togola F found 8.5% in the “A” surgery department [7]. This low percentage can be explained by the fact that many emergency cases are operated in conventional surgery, due to the inexistence of an emergency laparoscopic surgery team.

Laparoscopic cholecystectomy accounted for 43% of laparoscopic procedures. This frequency is comparable to Abdelkarim [10] Morocco 2018 who found (59%), Haithem [3] [8] in Tunisia in 2017 (*i.e.* 48.9%) and James [9] in Niamey in 2018 who reported (63.75%). The laparoscopic approach in digestive pathologies has started to impose itself since the success of the first cholecystectomy performed by Philippe Mouret in 1987 [6]. It has become the “gold standard” in the treatment of biliary lithiasis. The average operating time of 55 minutes during cholecystectomy is lower than that of Bray M [11], Ngo Nougou B [12]. This difference could be explained by the quality of the technical platform. We found a frequency of intraoperative complications of 2.3% comparable to that recorded by Thiam O (2.3%) [13], lower than that recorded by Bray M (9%). The techniques for evacuation of hepatic abscesses, the Heller and Nissen techniques were used in our study. The rarity of these pathologies rarely offers the opportunity for such procedures. Postoperative complications were found in 7% of cases. This rate is higher than those of Ngo Nougou B [12] and Bonkougou [14] who reported postoperative complications in 2% and 4% of cases respectively. The average postoperative stay after cholecystectomy was 2 days. Laparoscopy has multiple advantages, one of the main ones being the short post operative time.

Laparoscopic appendectomy was performed in 16% of patients. The laparoscopic approach in digestive pathologies has started to gain acceptance since the success of the first cholecystectomy performed by Philippe Mouret in 1987 [6]. Since Kurt Semm, a German gynecologist in 1981, proposed the alternative of laparoscopic appendectomy, acute appendicular syndrome has become an increasingly common indication for emergency laparoscopy [10]. The average appendectomy procedure time in our study was 45 minutes. This time is less than those recorded by Bonkougou PG (68 mn) [14] and Abdel Karim M (55 mn) [10]. Only the general public believes that appendectomy is a harmless operation whose after-effects can only be simple [10]. During our study we recorded 1 case of complication, *i.e.* 6.25% of appendectomies, which is statistically comparable to the rates obtained by Bonkougou PG [14] and Thiam O [13] who reported re-

spectively 1% and 6% of cases.

Tubal and adnexal surgery was performed in 30% of patients. Most of the cases involved neosalpingostomy. This is due to the high representation of gynaecological pathologies in the study.

The indications for emergency laparoscopy are becoming more and more widespread with high diagnostic and therapeutic accuracy rates [15]. Amongst the 100 patients operated on by laparoscopy, 20 cases were carried out as emergencies, *i.e.* 20% of laparoscopic activities. The performance of laparoscopy remains a challenge in developing countries, especially in an emergency context. Moreover, in our countries, most of the hernias diagnosed are beyond the stage of bubonocoeles or inguinal hernias, thus limiting the indications for laparoscopic surgery for a young team, even in a context of companionship.

During the study, the conversion rate was 6% of patients, *i.e.* 6 cases, including 5 cases of large dermoid cysts and 1 case of vascular lesion (1%). We did not record any cases of conversion to parietal surgery or in relation to peritoneal adhesions. There was no statistically significant difference between our frequency and those found by James D, and Bray M [9] [11], despite the size of our sample and the period of the study.

The postoperative course was simple in 95% of cases and was complicated by five parietal suppurations, *i.e.* 5% in our series.

No deaths were reported postoperatively nor cases of cancer stagings, patients who underwent conversion to open surgery and those who had an associated pathology requiring open surgery for cure. Our recorded frequency does not differ from that of Bonkoungou [14] and James D [9] who found respectively 5.10% and 2.90% with a $P > 0.05$.

Limitation of the study

- Some examinations were not available such as intraoperative cholangiography, echo endoscopy and choledocscopy.
- The evaluation of the cost of the interventions and of the drugs consumed could not be precisely identified.

5. Conclusion

During this year, we reported 100 patients who benefited from laparoscopic surgery in the general surgery department (**Table 2**). Ultrasound was performed in 98% of our patients. Laparoscopic surgery represented 37% of the surgical activity. Cholecystectomy represented 43%, followed by appendectomy 16% and extra uterine pregnancy 4%. The postoperative course was simple in 95% of patients **Table 2**. Clinical and paraclinical characteristics of patients.

Functional signs	Number (n = 100)	Percentage (%)
Joint pain	1	1
Vomiting-Nausea	40	40
Jaundice	7	7

Pruritus	8	8
Other	14	14
None	30	30
WHO Performance Index		
Grade 0	80	80
Grade 1	19	19
Grade 2	1	1
Ultrasound result		
Cholecystitis	22	22
Lithiasis of the gallbladder	38	38
Vesicular thickening	3	3
Acute appendicitis	16	16
Ovarian cyst	10	10
Ectopic pregnancy	4	4
Not done	2	2
Normal	10	10
Other	15	15
Hysterosalpingography		
Pathological result	16	16
Normal	2	2
Not done	82	82

and complicated by parietal suppurations in 5% of cases. In view of this study, the feasibility of laparoscopic surgery at the Mother and Child University Hospital is no longer in doubt.

Conflicts of Interest

The authors declare no conflicts of interest regarding the publication of this paper.

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