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Laparoscopic Cholecystectomy at the Centre Hospitalier Universitaire (CHU) Mère-Enfant le "Luxembourg" in Mali for 2 Years from 2020 to 2021

Amara Coulibaly[1*], Abdoul Karim Simaga[2], Moussa Sissoko[1], Sekou Koumaré[1], Mamedy Doumbia[2], Sidiki Konaré[1], Zimogo Zie Sanogo[1]

[1]Surgical Department "A" of the University Hospital Center (CHU) of Point-G, Bamako, Mali
[2]Surgical Department of the Centre Hospitalier Universitaire Mère-Enfant (CHU-ME) le "Luxembourg", Bamako, Mali
Email: *amaracoulibaly485@gmail.com

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Abstract

Introduction: Laparoscopic cholecystectomy is a surgical technique that involves the removal of the gallbladder by laparoscopy. Its practice is timid in sub-Saharan Africa, despite the existence of risk factors such as sickle cell disease. We report our 2-year experience of laparoscopic cholecystectomy in the general surgery department of the CHU-ME Luxembourg. **Materials and Method:** This was a descriptive cross-sectional study from September 2019 to September 2021. The study included 64 patients with vesicular lithiasis who underwent laparoscopic cholecystectomy. Data were analyzed on SPSS software (version 25.0). Confidentiality and anonymity of the subjects were respected. **Results:** The frequency of cholecystectomy was 30.9%. The average age was 38.37 ± 16.94 years. The female sex was 70.3%. Obesity and sickle cell disease were found in 85.9% and 14.1% of patients. On physical examination, hepatic colic was found in 54.7% and the Murphy sign was positive in 64.1% of patients. Ultrasound diagnosis of vesicular lithiasis was made in all patients. All patients underwent laparoscopic cholecystectomy, which was retrograde in 64.1% of cases. The average procedure time was 66 minutes. No case of complication was recorded postoperatively. **Conclusion:** Laparoscopic cholecystectomy is a technique to be developed and supported.

Keywords

Cholecystectomy, Laparoscopic, Lithiasis, Mali

1. Introduction

Laparoscopic cholecystectomy or laparoscopic cholecystectomy is a surgical technique that involves the removal of the gallbladder by laparoscopy [1] [2].

In the USA, 78.3% to 93% of cholecystectomies were performed laparoscopically [3]. Similar proportions were found throughout Europe (72% in Sweden, 93% in France, and 73% in Scotland) [4].

Its practice is timid in sub-Saharan Africa, despite the existence of risk factors such as sickle cell disease [5]. In Mali, the first cholecystectomy was performed in the "A" surgery department of the Point G University Hospital in March 2001 [6]. Soumaré L *et al.* in 2003 reported 30 cases of laparoscopic cholecystectomy in the "A" surgery department of the Point G University Hospital, a frequency of 16.6% [7]. Traoré AF [6] found a frequency of 6.2% of laparoscopic cholecystectomy in sickle cell patients. Laparoscopic cholecystectomy is now a common practice in the department representing 25.28% of the laparoscopic surgical activity [8].

In the literature, sickle cell disease and obesity are cited as major risk factors for gallstone disease [9]. The high prevalence, morbidity and lethality of sickle cell disease in black Africa make this condition a real public health problem [6].

Laparoscopic cholecystectomy has been shown to decrease perioperative complications especially in sickle cell patients [8]. We report here our 2-year experience with laparoscopic cholecystectomy in the general surgery department of the CHU-ME Luxembourg.

2. Materials and Method

This was a descriptive cross-sectional study over a 2-year period from September 2019 to September 2021 at the Mother and Child University Hospital (CHU). The study included all patients with symptomatic and or complicated vesicular lithiasis confirmed by ultrasound and who underwent laparoscopic cholecystectomy. All patients who had a non exploitable file were excluded from the study. An exhaustive sample allowed us to collect 64 cases of laparoscopic cholecystectomy. The variables studied were age, sex, body mass index (BMI), ASA score, medical history, reasons for consultation, physical and functional signs, type of cholecystectomy, duration of the procedure (minutes) and complications.

Data were entered and analyzed on SPSS software (version 25.0). Descriptive statistics were presented in table format.

Confidentiality and anonymity of the subjects were respected.

3. Results

The 64 cholecystectomies performed by laparoscopic approach represented 30.9% of the operative activity by this route at the CHUME Luxembourg in the two (2 years) of this study.

3.1. Socio-Demographic Characteristics of Patients

Patients aged between 20 and 30 years were the most represented with 53.1%, the average age was 38.37 ± 16.94 years with extremes of 9 and 78 years. The female sex was 70.3% (45 cases) with a sex ratio of 0.42; the majority were housewives, 42.2% of cases (Table 1).

3.2. Clinical Characteristics of Patients (Table 2)

Obesity was the risk factor found in 85.9% of cases, sickle cell disease was the most common medical history found in 14.1% of the patients (9.4%) and diabetes (7.8%). Regarding surgical history, caesarean section was the main history found in 10.9% of patients. Eighty-four point four percent 84.4% (54 cases) of patients had WHO performance index 1. As for the ASA score 68.7% (44 cases) had an ASAI score.

Table 1. Socio-demographic characteristics.

Age range (year)	Workforce	Percentage
<20	4	6.3
20 - 39	34	53.1
40 - 59	15	23.4
>59	11	17.2
Gender		
Female	45	70.3
Male	19	29.7

Table 2. Clinical characteristics of laparoscopic cholecystectomy patients.

Reasons consultation	Fever	20	31.3
	Abdominal pain	19	29.7
	Vomiting	15	23.4
Functional signs	Nausea	9	14.1
	Icterus	1	1.6
	Hepatic colic	35	54.7
Physics signs	Epigastralgia	29	45.3
	Defense HCD	23	35.9
	Positive Murphy's sign	41	64.1
WHO Index Performance	1	54	84.4
	2	10	15.6
ASA	ASA I	44	68.7
	ASA II	20	31.3
BMI	Normal	9	14.1
	Moderate obesity	25	39.1
	Morbid obesity	9	14.1
	Severe obesity	21	32.7

Fever, abdominal pain and vomiting were the main reasons for consultation in 31.3%, 29.7% and 23.4% of cases respectively. As for functional signs, hepatic colic was found in 54.7% (35 cases) and epigastralgia in 45.3% (29 cases) of cases. The Murphy sign was positive in 64.1% (41 cases) of patients. The average time of evolution of symptoms was 44.72 ± 60.341 days with extremes of 3 and 360 days and 54.7% had a duration of evolution of symptoms of less than 30 days.

3.3. Echo/CT Characteristics

Ultrasonography found vesicular lithiasis in 43.8% (28 cases), vesicular lithiasis cluster 40.6% (26 cases) and vesicular multimicrolithiasis in 9.4% (6 cases).

3.4. Therapeutic Aspects

All patients received laparoscopic cholecystectomy (100%). The cholecystectomy was retrograde in 64.1% (41 cases) and anterograde in 35.9% (39 cases) of cases. The average duration of the operation was 66 minutes and 67.2% (43 cases) of the operations lasted between one and two hours. No cases of complication were recorded postoperatively.

4. Discussion

4.1. Frequency

During the study period, we recorded 64 cases out of 207 of laparoscopic surgery, *i.e.* a frequency of 30.9%. This frequency is statistically higher than those recorded in the series by Sagna A in 2001 [10] and Sangare D *et al.* in 2015 [11] which were respectively 1.6% and 16.1% ($p < 0.05$). This rate could be explained by the period of study, currently laparoscopic surgery has greatly revolutionized the world of surgery and many practitioners use this tool because of the reduced postoperative complications.

4.2. Socio-Demographic Data

The average age of the patients was 38.37 ± 16.94 years with extremes of 9 and 78 years and 70.3% female. The female predisposition for lithiasis has been shown in several studies [9] [11] [12] the increase in fat mass in women appeared to be associated with an increased risk of biliary lithiasis [13]. However, in our study we found that surgery was occurring in younger and younger women, other mechanisms (probably hormonal in origin) are mentioned, such as LPAC (low phospholipid-associated cholelithiasis) syndrome [14].

4.3. Clinical Data

Obesity affected 85.9% of our sample, with morbid obesity in 14.1%, severe obesity in 32.7% and moderate obesity in 39.1% of cases and sickle cell disease in 12.5% of patients. In the literature, obesity, sickle cell disease, intestinal diseases, and multiparity are cited as the main risk factors for biliary lithiasis [9].

Fever, abdominal pain and vomiting were the main reasons for consultation with 31.3%, 29.7% and 23.4% respectively.

This pain rate was statistically superior to those of Bhattacharya D [15] in Senegal in 2002, and Plummer in Jamaica [16] in 2006, who respectively found a pain frequency of 68% ($p = 0.035$) and 21% ($p < 0.01$).

On abdominal examination, hepatic colic and epigastralgia accounted for 54.7% and 45.3% of cases. HCD and positive Murphy's signs dominated the signs found on physical examination. In Mali, Sanogo ZZ *et al.* [7] in Mali reported hepatic colic in 96.7% in 2006 and Sangaré D [11] 2013 found a frequency of 77.9%. Samb AN *et al.* [12] in 2016 reported 96.8% in Senegal. In France Guillaume P. [16] found hepatic colic in 78.8% of cases in 2003.

4.4. Further Examination

In this study, all our patients had performed ultrasound. Abdominal ultrasound remains the reference examination for the detection of gallstones, with a sensitivity of over 95% [17]. During our study, the preoperative and postoperative diagnoses of our patients were dominated by vesicular lithiasis clusters and vesicular lithiasis at respective rates of 40.6% and 39.1%.

Our results are not statistically different from those of other African authors ($p > 0.05$) [17] [18].

4.5. Therapeutic Aspect

Retrograde cholecystectomy remains the reference technique in laparoscopic surgery and the most frequently used because it is considered the safe technique due to the primary control of Calot's triangle instead of the main intraoperative complications [7] [12] [18]. However, the mode of cholecystectomy, anterograde or retrograde, may result either from a deliberate choice by the surgeon, or from conditions imposed on him, discovered intraoperatively or suspected preoperatively [19].

Retrograde cholecystectomy was performed in 64.1% during our study. This rate is different from that of Samb, Sagna and Najib ($p \leq 0.05$) who reported 8.9%, 50% and 97.5% retrograde cholecystectomy respectively [10] [20]. This can be explained by a simple choice of operator according to the author of the study.

The average operative time was 66 minutes. It was 98 minutes for Fall B [21] and 135 minutes for Raveloson [22]. In the West, the average duration varied from 46 minutes to 91 minutes [20] [22]. This is a direct consequence of the experience of the laparoscopic surgeons.

We recognize that this study has limitations, the sample size was not calculated on a statistical basis and is therefore not representative. Some variables were not taken into account in the study, such as the follow-up of patients after surgery.

Despite these limitations, the study allowed us to make the situation of chole-

cystectomy at the University Hospital Center (CHU) Mother-Child "Luxembourg".

5. Conclusion

Cholecystectomy, it has several advantages over laparotomy cholecystectomy. Laparoscopic cholecystectomy is a technique to be developed and supported.

Conflicts of Interest

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

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