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Laparoscopic Cholecystectomy: Our Experience at the Angre University Hospital

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Abstract | **Original Research Article**

Introduction: Laparoscopic cholecystectomy currently remains the gold standard worldwide [1-3]. While in our country, it is hampered by material difficulties and the training of medical and paramedical personnel in its use and maintenance [4, 5], it still remains inaccessible to the entire population. We report the preliminary assessment of the 03 years of laparoscopic cholecystectomies carried out at the Angré University Hospital since its inauguration in 2020. ***Materials and Methods***: We carried out a retrospective study at Angré University Hospital, over a period from January 2020 to October 2022. ***Results***: We collected 35 patients including 25 women and 10 men. Gallstone lithiasis predominated in 21 cases. The intervention was postponed in 28 cases. The intervention was delayed in 28 cases with 8 cases of gallbladder plastron and 2 cases of pyocholecyst. The average duration of intervention was 73.41 min. The hospitalization period was 01 day in 25 cases. We noted 1 case of fever and 1 case of postoperative common bile duct stenosis. ***Conclusion***: Laparoscopic cholecystectomy reduced morbidity and reduced treatment costs.

Keywords: Cholecystitis-Cholecystectomy-Laparoscopy.

INTRODUCTION

After the first laparoscopic cholecystectomy by PH. Mouret in France in 1987 [1], the technique quickly became the gold standard for gallstone disease [1-3], and is now practiced worldwide. This technique revolutionized surgery and opened up a new field in digestive and visceral surgery, a field that has continued to grow [4].

It is undeniable that for more than ten years, laparoscopic cholecystectomies have outnumbered laparotomy cholecystectomies. The indication for laparoscopy in our countries has been hampered by material difficulties and the training of medical and paramedical staff in its use and maintenance [5]. Even though it has established itself as the standard surgical treatment for acute calculous cholecystitis, laparoscopic cholecystectomy remains inaccessible to our populations for economic reasons.

We report on the inherent advantages of laparoscopic cholecystectomy and the difficulties encountered during our experience at the Angré University Hospital, in order to consider future prospects.

MATERIALS AND METHODS

This is an observational, retrospective study conducted in the Digestive Surgery Department of the Angré University Hospital. We included all patient records of patients with symptomatic gallstones confirmed by ultrasound who underwent laparoscopic cholecystectomy during the 34-month study period from January 2020 to October 2022, since its inauguration in 2020. We studied the clinical and paraclinical characteristics of the patients, as well as the surgical data and follow-up. The patients were seen in the outpatient surgery clinic at the Angré University Hospital, with the results of the abdominal ultrasound.

Qualitative variables were expressed as percentages. Quantitative variables were presented as the mean and standard deviation when the distribution was Gaussian, otherwise as the median and extremes.

The laparoscopic surgery equipment consisted of a STORZ endoflator, a cold light source mounted on a 0° optical system; a SONY 36 cm PVM 1453 monitor, CO2 gas, two 10 mm trocars, one 5 mm trocar, a reducer, a pair of curved scissors, a hook, two Johan grasping forceps, a clip forceps, and a suction-irrigation system.

All procedures were performed under general anesthesia. Patients were in the prone position, legs apart with a 30° roll to the left. The laparoscopy column was installed on the right side of the patient, with the surgeon between the legs and the surgical assistant to the right of the patient. After cleaning and sterile draping in accordance with the asepsis protocol, the first trocar allowing the introduction of a 10 mm 0° lens was placed at the umbilicus using the open laparoscopy technique, followed by CO2 insufflation to a pressure of 14 cm Hg. Three other operating trocars (5 mm epigastric, 5 mm left lateral, 5 or 10 mm right lateral) were inserted under laparoscopic visual control (Figure 1). The 5 mm epigastric trocar was used to insert a fenestrated grasping forceps, which was used to expose the Calot triangle by moving the bottom of the gallbladder upward and outward. The other two trocars, 5 mm on the left side and 5 or 10 mm on the right side, allowed for careful dissection with a hook or coagulation scissors; slight coagulation of the elements of the cystic-choledochal tripod (cystic duct and artery) as close as possible to the infundibulum, bearing in mind the probable anatomical variations. After locating Calot's triangle and the common bile duct, visible through transparency, we made an incision in the infundibular peritoneum of the gallbladder, then performed a circumferential dissection of the cystic duct and artery, which were sectioned between double clips on the pedicle side (Figure 2). The gallbladder bed was dissected retrograde using a monopolar scalpel mounted on scissors, and the gallbladder was extracted through the 10 mm lateral trocar port. The 10 mm trocar ports were closed in two aponeurotic planes, thus avoiding the risk of ventration, which is more common at the umbilicus. The surgical specimens were sent to the anatomy-pathology laboratory.

RESULTS

We collected data on 35 patients who underwent laparoscopic cholecystectomy. The population was predominantly female, with 25 cases (Table I). The main reason for consultation was hepatic colic (Table II). Murphy's sign was the most common sign in 18 cases (Table III). Gallstones were the most common diagnosis in 22 cases (Table IV). Deferred indication was the most common in 28 cases (Table V), with an average duration of two months. Gallbladder distension was the most common intraoperative finding in 16 cases (Table VI). The rate of conversion from laparoscopy to open surgery was 2 cases (Table VII). Intraoperative incidents were reported in 5 cases (Table VIII). The average duration of the procedures was 73.48 minutes, with a predominance of 76 minutes in 14 cases (Table IX). The average length of hospital stay was 1 day in 25 cases (Table X). The postoperative course was uneventful in 33 cases (Table XI).

Annex:

Figure 1: Patient installation with trocar placement

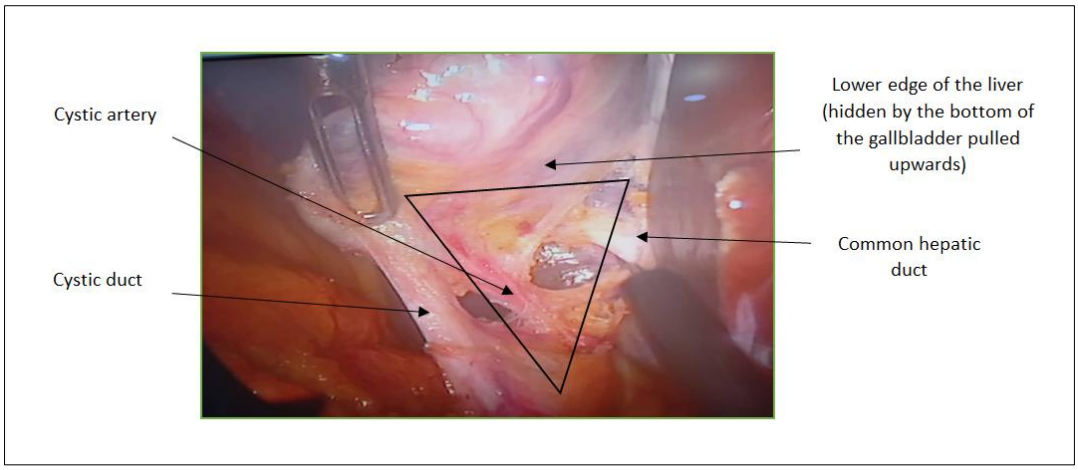

Figure 2: Exposure of Calot's triangle and dissection isolating the cystic artery and duct

Social Demographic Data:

Board I: Population distribution by sex

Sex	n	%
Female	**25**	**71,43**
Male	10	28,57
Total	35	100

Clinical Data:

Board II: distribution according to the reason for consultation

Motif	n	%
Hepatic colic	**20**	**57,14**
Abdominal pain	15	42,86
Total	35	100

Board III: distribution according to physical signs

Motif	n	%
Right hypochondrium pain + guarding	8	22,86
Murphy sign	**18**	**51,43**
Without particular	5	14,28
Mass in the right hypochondrium	4	11,43
Total	35	100

Paraclinical Data:

Board IV: distribution according to ultrasound results.

Ultrasound	n	%
Acute Cholecystitis	13	37,14
Gallstone Disease	**22**	**62,86**
Total	35	100

Indications

Board V: distribution according to strategy and response time for deferred cases

Intervention	n	%
Program	**28**	**80**
In emergency	7	20
Total	35	100

Intervention deadlines	n	%
1 month	**14**	**50**
2 months	9	32,14
3 months	2	7,14
5 months and more	3	10,72
Total	28	100

Operational data:

Board VI: distribution according to intraoperative findings

Intraoperative exploration	n	%
Gallbladder distension	**16**	**45,72**
Omental adhesion	9	25,71
Pyocholecyst	2	5,71
Gallbladder plastron	8	22,86
Total	35	100

Approaches:

Board VII: distribution of interventions according to the approach

Intervention	n	%
Laparoscopy	**33**	**94,29**
Laparotomy Conversion	2	5,71
Total	35	100

Intraoperative incidents:

Board VIII: distribution of intraoperative incidents.

Peroperative incident	n	%
No incident	**30**	**85,72**
Liver injury	2	5,71
Biliary tract trauma	2	5,71
Duodenal injury	1	2,86
Total	35	100

The duration of the intervention:

Board IX: Distribution of interventions according to operating time

Intervention	n	%
55 min	11	33,33
76 min	**14**	**42,42**
93min	7	21,21
105min	1	3,03
Total	33	100

Postoperative hospitalization data:

Board X: distribution according to the length of hospital stay

Hospitalization times	n	%
1 day	**25**	**71,43**
3 days	5	14,29
4 days	2	5,71
More than 4 days	3	8,57
Total	35	100

Post-operative data:

Board XI: distribution according to postoperative complications

Complication	n	%
Simple	**33**	**94,28**
Infection	1	2,86
Bile duct obstruction	1	2,86
Total	35	100

DISCUSSION

Gallstones were considered rare in Africa. However, their frequency has been increasing significantly over the past 10-20 years [1-3]. In Abidjan, Côte d'Ivoire [6], the prevalence is clearly on the rise. In Mali, studies by Diallo G. [7], Bray M.K in Chad [8], and Ravelson JR [9] in Madagascar have found the same trend. The average age of onset in African and European series varies between 44 and 60 years [10, 11]. This average is 47.94 years in our study. The frequency of lithiasis is high in women, with a predominance of 71.43% in our study. This could be due to the fact that obesity, contraception, and multiple pregnancies are classically implicated in the genesis of gallstones [12-14]. In our study, we found two cases of obesity and twelve cases of multiple pregnancy, which would be the main factor.

The reason for consultation was hepatic colic in the literature. This is consistent with the most common functional sign in our series in 57.14% of cases. Physical examination was often poor. In our study, Murphy's sign was found in 51.43% of cases and right hypochondriac tenderness in 22.86% of cases. Abdominal ultrasound performed in all our patients allowed the diagnosis of gallstones in 62.86% of cases and acute calculous cholecystitis in 37.14% of cases. This examination played a major role in the diagnosis of gallstones in our country, especially since it is very accessible and affordable.

In the literature, a randomized study involving a large number of patients shows that laparoscopic cholecystectomy within 24 hours is superior to a conservative approach in terms of morbidity and costs [15]. The authors therefore believe that emergency laparoscopic cholecystectomy should become the treatment of choice for acute cholecystitis in operable patients. In our study, the decision to operate was delayed in 26 cases, with an average delay of two months, giving patients time to complete the pre-treatment assessment and prepare the surgery and anesthesia kits.

During surgery, the macroscopic appearance of the gallbladder on inspection is all the more important as it immediately indicates the difficulties to come. Tight perivascular adhesions were present in 25.71% of cases and vesicular plastron in 22.86% of cases. Vesicular plastrons were a source of difficulty, requiring more careful dissection of Calot's triangle. Adhesiolysis in these cases increased the total duration of the surgical procedure. No anatomical variations were found. We noted two cases of pyocholecystitis. We regrettably observed two cases of bile duct trauma and one case of duodenal wound in our study. In the literature, the incidence of operative trauma to the bile ducts has increased significantly [15]. This could be explained by the experience of our surgeons, as well as the adoption of the "Critical View of Safety" during laparoscopic cholecystectomy. Our results are similar to other studies reporting equally positive results, such as that of Sanjay, who found 0% bile duct injuries due to 87% compliance with the "Critical View of Safety" [13].

We had two cases of laparoscopic conversion to open surgery, representing 5.71% of cases. Gutt CN *et al*., [14], recorded a 1% conversion rate at the beginning of their experiment. The excellent quality of their equipment and scrupulous adherence to all the principles of laparoscopic cholecystectomy would explain the low conversion rate in their series.

The conversion in our study was due to the late diagnosis of cholecystitis, which was complicated by an inflammatory mass, despite cooling treatment.

The average duration of surgery for our first 33 cases of laparoscopic cholecystectomy was 73.48 minutes, ranging from 55 to 105 minutes. Most European and American authors [10-18], after several years of experience, have noted an average duration of 46 to 91 minutes. Drainage was not systematic; it was performed in cases of intraoperative incidents. Five patients required drainage, with the drain being removed after 2 and 3 days. Some authors systematically drain the right hypochondrium [16]. No cholangiography was performed intraoperatively.

The postoperative course was uneventful in 94.28% of cases. There was no bleeding, pain, or vomiting in the immediate postoperative period, except for one case of fever. This could be due to the indication for emergency laparoscopy in a patient who consulted for febrile hepatic colic with an inconclusive ultrasound.

Postoperative complications of laparoscopic cholecystectomy in the literature are dominated by hemorrhage, unrecognized intraoperative lesions of the common bile duct, parietal abscesses, hemoperitoneum,

and subhepatic collections [17]. None of these complications were observed in our series.

The average length of hospital stay was 2 days, similar to that reported in other series [17, 18]. All patients expressed satisfaction with this short stay.

Postoperative follow-up at one month was uneventful in 16 of the 18 patients reviewed. One case presented with obstruction of the common bile duct with cholestatic syndrome, which was treated with secondary choledochoduodenal anastomosis. The scars were very discreet and often impossible to find. Laparoscopic cholecystectomy is less traumatic and more aesthetic [16-18]. The short hospital stays of patients increase the occupancy rate of hospital beds in the long term, which is beneficial for the hospital.

CONCLUSION

Laparoscopic cholecystectomy, provided that the basic principles are followed, is reliable and beneficial in our surgical practice. It reduces morbidity, lowers treatment costs, increases bed turnover, ensures patient comfort, and generates savings for the hospital.

REFERENCES

1. Akyurek N, Salman B, Irkorucu O et al. Laparoscopic cholecystectomy in patients with previous abdominal surgery. JSLS. 2005 ; 9 : 178-83.
2. Borie F et Millat B. Cholécystectomie et exploration de la voie biliaire principale par cœlioscopie. Encycl. Méd. Chir - Appareil digestif. Mise à jour 2006 40-950, 25 p.
3. Pessaux P, Tuech JJ, Regenet N, Fauvet R, Boyer J, Arnaud JP. Cholécystectomie laparoscopique dans le traitement des cholécystites aiguës. Gastroentérologie Clinique et Biologique. 2000; 24 :400-03. PubMed | Google Scholar.
4. Valverde A, Mosnier H. Cholécystectomie par laparoscopie. Journal de Chirurgie Viscérale ;2011;148(5) ; 400-07.
5. Sani R, Garba RM, Harouna YD, et al. La chirurgie laparoscopique dans le service de chirurgie digestive de l'Hôpital National de Niamey. Guinée médicale ; 2009 ; vol 63.35-42.
6. BOURJI A. Bilan des 50 premières choloécystectomies laparoscopiques à Abidjan. Université Victor Segalen Bordeaux II. Mémoire session 2000-2001 ; 2- 57.
7. Diallo G, Ongoïba N, Maiga My, Dembele M, Baye H, Traore Ah, Traore Ak, Guindo A, Koumare Ak. Lithiase des voies biliaires au Mali. Ann. chir 1998 ; vol 52(7) : 667.
8. Bray M.K, Youssouf M, Seid D.A. Cholécystectomie laparoscopique pour cholécystite aiguë lithiasique : à propos de 22 cas colligés à l'hôpital de la renaissance de Ndjamena. PAMJ. 2015; 21:311 doi:10.11604/pamj.2015.21.311.6823.
9. Ravelsonj R, Tovone G X, Ahmad, Francis, et al. Résultats de la cholécystectomie coelioscopique au centre hospitalier de Soavinandriana. J Med Ther 2000 ; suppl 2 :11-12.
10. Dualé C, BOLANDARD F, Duban P, Mission JP, Schoeffler P. Conséquences physiopathologiques de la chirurgie coelioscopique. Ann. Chir. 2001; 126: 508-14.
11. Gigot Jf. Bile duct injury during laparoscopic cholecystectomy: risk factors, mechanisms, type, severity and immediate detection Acta Chir Belg. 2003; 103:154-60.
12. Tidjane A, Boudjenan N, Ikhlef N, Benmaarouf N, Tabeti B. The Critical View of Safety : an attitude to prevent misidentification during laparoscopic cholecystectomy. AAC. Juin 2021.Tom 52 N°1, 36-40
13. Sanjay P, Fulke JL, Exon DJ. 'Critical View of Safety' as an Alternative to Routine Intraoperative Cholangiography During Laparoscopic Cholecystectomy for Acute Biliary Pathology. J Gastrointest Surg. 2010 Aug 1;14(8):128.
14. Gutt CN, Encke J, Köninger J, et al. Acute cholecystitis: early versus delayed cholecystectomy, a multicenter randomized trial (ACDC study, NCT00447304). Ann Surg 2013;258:385- 93.
15. Andrew Jm, Cadière Gb, Germay O. Chirurgie laparoscopique en Afrique noire: l'appel de Dakar Le journal de coelio chirurgie 1999 ; 31 : 40-6.
16. Mutter D, Panis Y, Eseat J. Le drainage en chirurgie digestive. Recommandations de la société française de chirurgie digestive J Chir 1999 ; 136 :117-23
17. Bonkoungou G, Sanou A, Kabore AF et al. Cholécystectomie laparoscopique au Burkina faso: à propos de 32 cas. JSLS. 2009; 71: 57-60.
18. Gourgiotis S, Dimopoulos N, Germanos S. Laparoscopic Cholecystectomy: a safe approach for management of acute cholecystitis. JSLS. 2007; 11(2):219-24. PubMed.