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Choledochal Lithiasis: Treatment in the "A" Surgery Department of the Point-G University Hospital in Bamako

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Abstract | **Original Research Article**

The aim of this study was to examine the clinical, paraclinical, and therapeutic aspects of common bile duct (CBD) lithiasis. Considered rare in Africa, CBD stones are a potentially serious condition, and their diagnosis is facilitated by imaging tests (ultrasound, CT scan, MR cholangiography). Their surgical management is improved by laparoscopy combined with interventional endoscopy. However, laparotomy remains the only approach in Mali. This was a retrospective and descriptive study covering 14 years (2010-2014). All patients with VBP lithiasis were included. We studied the background, history, clinical, biological, radiological, and therapeutic aspects, as well as the results. Forty cases of VBP lithiasis were collected during the study period. The hospital frequency was 2.8 cases per year, with clinical signs dominated by Charcot's triad (pain, fever, jaundice) found in 40 cases (100%). The average age was 60 years, with females accounting for 70% of cases. Ultrasound was the most commonly requested examination in 40 cases (100%). The procedure performed was cholecystectomy combined with choledochotomy with stone extraction in all patients (100% of cases). One case of biliary fistula and one case of wall abscess were observed. Mortality was 5% and complications were minor in 90% of cases. Gallbladder lithiasis is a rare but potentially serious condition in our region. In our context, diagnosis is aided by ultrasound and CT scans. Laparotomy remains the only approach in Mali.

Keywords: Common bile duct stones, surgery, choledochotomy.

INTRODUCTION

Choledocholithiasis is the presence of one or more stones in the common bile duct [1]. In the literature, the frequency of common bile duct lithiasis ranges from 2 to 28% of all gallstones [2]. Gallstones are considered rare in Africa [3], but common in Western countries, where they affect 9 to 12% of the adult population in France and 15 to 20% in the USA [4].

In Africa: in Niger, SANI R. found 11% of common bile duct stones at the National Hospital of Niamey in 2007, based on 136 cases of gallstones [5]. In Burkina Faso, TRAORE S.S. found in 2009 that choledocholithiasis accounted for 25.6% of gallstones in the visceral surgery department of the Yalgado OUEDRAOGO University Hospital Center in Ouagadougou [6]. In Mali, common bile duct stones account for 28.57% of gallstones in the general surgery department of university hospitals [7]. The common bile duct can be examined using transcutaneous ultrasound, retrograde opacification of the common bile duct, endoscopic ultrasound, or MR cholangiography [8].

For a long time, the standard treatment for common bile duct stones was "traditional" surgery, i.e., performed by laparotomy. This therapeutic approach was based on a well-established surgical technique with very satisfactory results in terms of mortality, morbidity, and residual stones. The combined treatment of surgery and intraoperative endoscopy, consisting of laparoscopic cholecystectomy and intraoperative endoscopic sphincterotomy, facilitated by the placement of a guide wire introduced during intraoperative cholangiography, has replaced laparotomy in the West. Overall mortality averages 5%, depending on age, comorbidities, and, above all, the severity of complications [9].

Given the scarcity of publications on the treatment of choledocholithiasis in Mali, we conducted a study on the management of choledocholithiasis in Surgery A at the Point G University Hospital.

Patients and methods:

Type and period of study: This was a retrospective and descriptive study covering the period from January 2000 to December 2014 (i.e., 14 years) in the Surgery A department of the Point G University Hospital.

Study setting: This work was carried out in the Surgery A department of the Point G University Hospital.

Inclusion criteria: We included patients diagnosed with choledocholithiasis preoperatively and/or intraoperatively, patients with choledocholithiasis preoperatively and/or intraoperatively associated with gallstones or other associated pathologies.

Exclusion criteria: We did not include in our study patients who underwent surgery for gallstones without choledocholithiasis or any patients whose records were unusable.

The patient's sociodemographic data, clinical and paraclinical parameters, diagnosis, therapeutic data, and postoperative outcomes were studied.

RESULTS

Over a period of 14 years, 40 cases of choledocholithiasis were recorded in the department, with an average of 2.8 cases per year. This represented 0.15% of all consultations during the study period and 0.37% of surgical procedures during the same period. Females accounted for 70% (n=28) of cases, with a sex ratio of 0.4 in favor of women. The average age of patients was 60 years, with a standard deviation of 11.44 and extremes ranging from 32 to 78 years. In the study, 62.5% of patients (n=25) were referred by a specialist.

The clinical signs found in the study are reported in the table below

Table I: Clinical signs found

Clinical signs	Number	Percentage
Charcot's triad	40	10
Pruritus	38	95
Discolored stools, dark urine	40	100
Vomiting	38	95
Right hypochondrium defense	8	20

In 35% of patients (n=14), choledocholithiasis was associated with gallbladder stones. Ultrasound was performed in all patients (n=40) and revealed lithiasis associated with dilation of the common bile duct. Laboratory tests revealed cholestasis syndrome in 8 patients, or 20%. Hyperleukocytosis was found in 5% of patients (n=2). The risk factors found are reported in Table II.

Table II: Risk factors

Risk factors	Number	Percentage
Age > 40 years	37	92.5
Female	28	70
Multiparity	26	65
Obesity	22	55
Family history	8	20
Sickle cell disease	4	10

Surgical procedure: the location of the choledocholithiasis and associated lesions are reported in Table III.

Table III: Localisation of lithiasis and associated lesions

Location	Number	Percentage
Lower bile duct	30	75
The bile duct	10	25
Associated gallstones	3	7.5

The surgical procedure consisted of cholecystectomy combined with longitudinal choledochotomy with stone extraction and placement of a Kher drain in the common bile duct in 39 patients (97.5%) and a trans-cystic drain in one patient (2.5%). The patency of the common bile duct was verified. Cholangiography was performed 3 days postoperatively in all patients and did not reveal any residual stones, but it did reveal one case of bile leakage, i.e., 2.5% (n=1). No patients underwent intraoperative cholangiography due to the lack of technical facilities in our institution. The Kher drain was removed on day 8 postoperatively in 39 patients, or 99% of cases. Morbidity was marked by one case of biliary fistula, or 2.5% (n=1), and one case of wall abscess, or 2.5% of cases. Mortality was 5% (=2), and the postoperative course was uneventful in 90% of cases.

Discussion

In Mali, the actual incidence of gallstones is unknown. The incidence observed in Western studies varies between 10-15% of the population, of whom 5-15% suffer from common bile duct stones (CBD) [10]. In our series, CBD surgery accounted for 2.8% of all gallstone surgery, a frequency that has been reported in studies conducted in Niger and Burkina Faso [5,6]. The prevalence and incidence of biliary tract stones increase with age. The average age of 60 in our series does not differ from that of the Ivorian and French series [10]. Gallstones are known to be two to three times more common in women than in men, both in Africa and in the West [11]. This higher frequency in women can be explained by the role of female sex hormones, contraception, and estrogen therapy [12]. The sex ratio was 0.4 in our series compared to 3 in Keita's study [7]. Painful feverish jaundice is observed in 50% of cases and causes choledochal syndrome, which combines the following symptoms in less than 24 to 48 hours: pain in the right hypochondrium, fever, and jaundice. This triad, known as Charcot's triad, is one of the key elements in the clinical diagnosis of choledocholithiasis. It was observed in 33% of cases in the series reported by Tham [13] compared to 100% in our series. This difference can be explained by the fact that in our series, patients consulted late or all clinical signs were already present. Hepatobiliary ultrasound was the morphological examination performed in all patients in our series, i.e., 100% of cases. In Tham's series [13], the percentage of cases in which it was performed was also 100%, and it revealed lithiasis in 60% of cases, compared with 100% in our series. The performance of ultrasound in the diagnosis of VBP lithiasis remains difficult to assess. The sensitivity figures reported in the literature range from 15% to 75%. The conditions of the examination and the type of stone are determining factors. Some authors [13,14] systematically requested abdominal computed tomography (CT) in 71 to 76% of cases. In our study, CT was requested when the ultrasound result was inconclusive. Biological tests showed cholestasis syndrome in most series, varying between 20 and 30% [13, 14]. In our study, cholestasis syndrome was noted in 8 patients (20%) and hyperleukocytosis was observed in 2 cases (20%). Laparoscopy and endoscopic sphincterotomy are the standard treatments for gallbladder lithiasis in the West. These approaches have many advantages over conventional surgery, but they are not feasible in Mali due to a lack of technical facilities. This is why all patients in our series underwent laparotomy, i.e., 100% of cases. The median incision was the most commonly used in our series, while in the series reported by Keita [7], the right subcostal incision was the most commonly used, i.e., 80.7% of cases. The choice of incision type depends on the surgeon's preference. Some authors believe that the right subcostal incision provides easy access to the bile ducts. The surgical procedure performed in our study was cholecystectomy combined with longitudinal choledochotomy with stone extraction. External biliary drainage was performed in all patients, either with a Kher drain in 39 cases (97.5%) or with a trans-cystic drain in 1 case (2.5%), compared with 66% and 34% respectively in the study conducted by N Houes [14]. Intraoperative cholangiography was not performed in our patients due to a lack of technical facilities. However, if technical conditions allow, intraoperative cholangiography should be performed systematically to check the patency of the bile duct and the presence of residual stones. It was performed in all patients in the study reported by N Houes [14], i.e., 100% of cases. A subhepatic drain was placed in all of our patients (50 cases, 100%), compared with 23% of cases reported by Traoré [15]. The purpose of this drainage is to collect any biliary leakage or bleeding. Cholangiography was performed in all our patients three days after the operation through the Kher drain or the cystic drain. It did not reveal any residual stones, but one case (2.5%) of bile leakage was observed, which did not require reoperation. The Kher drain was removed eight days after the operation. The overall morbidity rate was 10% in our series, compared with 25% in Keita's series [7]. The morbidity observed in our series was marked by one case (2.5%) of biliary fistula and one case (2.5%) of wall abscess. The postoperative course was uneventful in 90% of cases.

Conclusion

Choledocholithiasis is a potentially serious condition. Laparoscopy and interventional endoscopy have replaced laparotomy in the West, but laparotomy remains the standard approach in Mali. Morbidity can be reduced by using endoscopic and laparoscopic approaches.

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