

Assessment of positive perioperative cholangiography in patients undergoing elective laparoscopic cholecystectomy

Avaliação da positividade da colangiografia peroperatória em pacientes submetidos à colecistectomia laparoscópica eletiva

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A B S T R A C T

Objective: To evaluate the positivity of cholangiography in patients without formal indication of this exam undergoing elective cholecystectomy. **Methods:** We included, in the study, 100 patients whose clinical, laboratory and imaging not older than 10 days before the operation showed no change and therefore kept us unsuspecting of choledocholithiasis. The cholangiographies were analyzed and examined by the surgical team, the radiologist and the authors. The reports were compared and correlated with patients' previous clinical and laboratory findings. **Results:** The incidence of preoperatively unsuspected choledocholithiasis was only one case (1%). **Conclusion:** The use of selective cholangiography is safe and should be used in the treatment of calculous cholecystitis.

Keywords: Laparoscopic cholecystectomy, choledocholithiasis, cholelithiasis, cholangiography.

INTRODUCTION

Laparoscopic cholecystectomy (LC) is now the preferred treatment for patients with cholelithiasis, while handling associated choledocholithiasis still remains controversial^{1,2}.

Ludwig et al., in a German study, found that only 6% of institutions use perioperative cholangiography (POC) systematically during LCs, 49.5% of them use it selectively and 43% of institutions do not perform any diagnostic procedure at the time of LC³.

Although the systematic use of POC is still defended by a considerable number of surgeons who choose for the perioperative instrumentation of the biliary duct, the largest part argues that the POC, conducted in a systematic way, has not been cost-effective⁴, increasing operative time and the number of false-positive diagnoses, overestimating choledocholithiasis^{5,6}, and especially increasing the proportion of patients undergoing unnecessary instrumentation of the biliary tract with the inherent risks of morbidity and mortality^{5,7}.

Matthew et al., in a meta-analysis, reported 4,209 preoperatively POCs performed in unsuspected

patients for gallstones in the bile duct. Among those, they found 170 (4%) cases of choledocholithiasis in patients with no history of pancreatitis, nor clinical, biochemical or ultrasound alterations suggestive of biliary ducts stones. They also emphasized that only 15% of those with silent, unsuspected, untreated choledocholithiasis will have some type of complication, i.e., only 0.6% without previous indication for the bile ducts contrast examination⁶.

It should be stated that the literature contains well-defined criteria for inclusion of patients with possible choledocholithiasis who should be submitted to cholangiography. However, it does not safely excludes asymptomatic patients, those for whom the contrast exam would not be indicated⁸⁻¹¹.

Thus, this study intended to assess the positivity of cholangiography in patients with cholelithiasis with no indication for this exam.

METHODS

This study was based on a prospective analysis of patients undergoing elective laparoscopic

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cholecystectomy with perioperative cholangiography. As a criterion for inclusion in the study, patients undergoing elective laparoscopic cholecystectomy should necessarily be suffering from cholelithiasis and not showing any recent clinical, laboratory or ultrasound changes that would lead to choledocholithiasis suspicion. Cholangiography was then performed during surgery^{12,13}.

We analyzed one hundred consecutive laparoscopic cholecystectomies with perioperative cholangiography in patients with cholelithiasis without formal preoperative indication of contrast examination of biliary tract in the period of May 2008 through February 2009.

The criteria for the indication of cholangiography during surgery are present or past history of jaundice, acute cholecystitis or acute pancreatitis over the past six months, laboratory parameters, elevated bilirubin, canalicular enzymes (alkaline phosphatase and gamma-GT), and ultrasonography with recent dilatation of the biliary tree and / or choledocholithiasis^{6,14}. Thus, the finding of one or more changes in these parameters was considered an exclusion factor of the patient for this study by presenting formal criteria for indication of POC.

Perioperatively, POC was performed when there was difficulty in identifying the main biliary duct.

The study was approved by the UFTM Ethics in Research Committee and all patients were enrolled after signing an informed consent.

One hundred patients were included in the study. They had clinical, laboratory and imaging exams, not older than 10 days before the operation, showing no relevant change, and were therefore considered unsuspected for choledocholithiasis.

In all cases, cholangiography was preceded by administration of a muscle relaxant (eosin / glucagon) and was carried out with warm 30% iodinated contrast solution slowly injected through a transparent catheter placed in the common bile duct through the cystic duct, thus avoiding spasm of the sphincter of Oddi. The technique used was described by Mirizzi¹⁵, with three X-rays: the first after the introduction of 3 to 5 cc, the second to complete 8 to 10 cc, and the third with the rest of the contrast, totaling 15 cc.

The first two X-rays aimed the visualization of calculi, stenosis and the passage of contrast medium into the duodenum, demonstrating that the duct had no bile duct obstruction. The third radiograph focused on the visualization of the intra-hepatic biliary tree¹⁶.

The cholangiographies were analyzed by the surgical team, the radiologist and the authors of this study. The reports were compared and correlated with the patients' previous clinical and laboratory findings.

RESULTS

One hundred elective laparoscopic cholecystectomies with perioperative cholangiography were

performed, with an average time of 13.54 minutes for the contrast examination.

Among the patients examined, 16 cases were male and 84 were female. Mean age for men was 44.07 years and 45.64 for women. Regarding skin color, individuals were distributed as follows: 81% Caucasians, 4% African Brazilians and 15% mulattoes*. Therefore, we found a significant predominance of white women aged between the fourth and fifth decades.

With respect to laboratory tests, we found that, for the inclusion criteria, all tests were within normal limits: AF: 65.72 U / l (rv: 122U / l), gamma-GT: 49.82 U / l (rv: 71 U / l), total bilirubin: 0.62 mg / dl (rv: 1.2 mg / dl) and direct bilirubin: 0.20 mg / dl (rv: 0.4 mg / dl).

There were not complications related to the exam, which could be accomplished in all cases.

The incidence of preoperatively unsuspected choledocholithiasis was only one case among 100 patients without indication for the exam (Figure 1). The unsuspected choledocholithiasis was found by cholangiography in a 67-year-old, Caucasian, female patient without clinical, laboratory or ultrasound suggestive of choledocholithiasis; FA: 72.0 U / l, gamma-GT: 19.0 U / l; TBb: 0.50 mg / dl; DBb: 0.10 mg / dl. There was, therefore, a prevalence of 1% positivity of cholangiography during surgery.

DISCUSSION

Perioperative cholangiography (POC) represents a significant advance in the diagnosis of lithiasis in the common bile duct. Its indications aim to detect choledocholithiasis based on the assessment of the anatomy and topography of the gallbladder and bile duct for a safe dissection and with lower rates of injury to the bile ducts during LC^{17,18}.

The natural history of unsuspected choledocholithiasis has been studied in various populations and therapeutic approach remains controversial for several groups. Some articles state that the POC, when accomplished systematically, has a 10-12% positive result. However, when selectively and judiciously performed, it presented values equal to or less than 1% of positivity^{19,6}.

It was noted in this study a positivity of 1% for the perioperative examination, which is consistent with the values found in the literature^{4,5,7,12,10,17,19}. It can be inferred, given this 1% choledocholithiasis positivity rate, that only 0.15% of patients would have postoperative complications based on the study of Matthew et al.

Another reported fact is that POC does not prevent, but may provide the perioperative diagnosis of, lesions to the biliary tract. It could also be useful in the identification of biliary ducts' anomalies, which did not occur in the patients studied.



Figure 1 - Representation of contrast cholangiography (15 cc). Note the 0.7 cm wide common bile duct (arrow).

Importantly, in this study, in addition to detailed clinical history, laboratory tests and imaging were performed in at most 10 days before surgery.

Another fact that must be considered is the time spent with cholangiography. In this study it was on average 13.54 min, which corresponds to 35% of the total surgical time of laparoscopic cholecystectomy, increasing the duration of anesthesia and total time of the procedure²⁰, plus the cost of contrast, catheter, syringe and radiological films^{5-8,10,12,17,19,21-23}.

Some reports include age over 70 years as a risk for cholelithiasis and choledocholithiasis^{24,25}.

It was noted that the patient who had choledocholithiasis in this study was 67 years old and her common bile duct was 0.7 cm wide, suggesting that the age of 65, not 70, should be included as a criterion for perioperative cholangiography.

Based on this material, we can conclude that the use of selective cholangiography is safe for the detection of choledocholithiasis and should be used in the surgical treatment of chronic calculous cholelithiasis.

R E S U M O

Objetivo: A colecistectomia laparoscópica é o tratamento de escolha para pacientes com colecistopatia calculosa, embora o manejo da coledocolitíase associada ainda permaneça assunto controverso. O presente estudo baseou-se na análise prospectiva de pacientes submetidos à colecistectomia eletiva com colangiografia peroperatória, pretendendo assim avaliar a positividade do exame contrastado das vias biliares em pacientes com colelitíase sem indicação para colangiografia. **Métodos:** Foram incluídos, no estudo, 100 pacientes cujos parâmetros clínicos, laboratoriais e de imagem feitos até no máximo 10 dias antes da colecistectomia não apresentaram qualquer alteração no pré-operatório e, portanto, considerados pacientes insuspeitáveis para coledocolitíase. As colangiografias foram analisadas e examinadas pela equipe cirúrgica, pelo radiologista e pelos autores deste estudo. Os laudos foram comparados e correlacionados com achados clínicos e laboratoriais prévios dos pacientes. **Resultados:** A incidência de coledocolitíase insuspeitável no pré-operatório foi de apenas um único caso entre 100 pacientes sem indicação para o exame (1% de positividade). **Conclusão:** Com base neste material, pode-se concluir que o emprego da colangiografia seletiva é segura e deve ser empregada no tratamento da colecistite calculosa.

Descritores: Colecistectomia laparoscópica. Coledocolitíase. Colelitíase. Colangiografia.

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