

Comparative analysis of iatrogenic lesion of bile ducts in conventional and videolaparoscopic cholecystectomies

Análise comparativa de lesão iatrogênica de vias biliares em colecistectomias convencional e videolaparoscópicas

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ABSTRACT

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Objectives: to comparatively study cases of iatrogenic lesions of bile ducts that occur during in conventional and videolaparoscopic cholecystectomies carried out in the General Surgery Service and Gastro-surgery at the Ipiranga Hospital UGA-II, evaluating their likely causal factors, complications, and postoperative follow-up. **Method:** this was a retrospective cohort study comparatively analyzing biliary lesions arising from the surgical procedure by the analysis of medical records of patients undergoing conventional (CC) and videolaparoscopic (CC-VLP) cholecystectomies within the period of two years (from 01/01/2010 to 12/31/2011).

Key words: Cholecystectomy; Cholecystectomy, Laparoscopic; Bile Ducts.

RESUMO

Objetivos: estudar comparativamente os casos de lesões iatrogênicas de vias biliares ocorridas em colecistectomias convencionais e videolaparoscópicas realizadas no Serviço de Cirurgia Geral e Gastrocirurgia do Hospital Ipiranga UGA-II, avaliando seus prováveis fatores causais, complicações e o seguimento no pós-operatório. **Método:** estudo de coorte retrospectiva, com análise de prontuários dos pacientes submetidos a colecistectomias convencionais (CC) e videolaparoscópicas (CC-VLP) no período de dois anos (de 1º/01/2010 a 31/12/2011), analisando comparativamente as lesões de via biliar decorrentes do procedimento cirúrgico.

Palavras-chave: Colecistectomia; Colecistectomia Laparoscópica; Ductos Biliares.

INTRODUCTION

Cholecystectomy (CC) was originally described by Carl Langenbuch in 1882. In the 20th century, its technical principles were substantiated and great innovations occurred in the last 25 years with the emergence of the videolaparoscopic surgery (CC-VLP).^{1,2}

The surgical removal of the gallbladder is indicated for the treatment of gallstones and their complications, as well as in neoplasias. The iatrogenic lesion of bile ducts represents the most feared complication from CC, with incidences around 0.2 to 2.9%.³ Factors such as videolaparoscopy, acute cholecystitis, scleroatrophic gallbladder, anatomical variations in the biliary tract, and the learning curve of new surgeons and residents are seen as the main cause of higher incidences of iatrogenic lesions of the biliary tract.⁴⁻¹⁰

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The management of a patient with iatrogenic lesion of the biliary duct is fairly complex, requiring experienced surgeons and, mostly, specialized services. The prognosis is closely linked to the patient's clinical conditions and the elapsed time between lesion identification and institution of the appropriate surgical treatment.^{5,6-12}

Taking into account the learning curve of new surgeons and the increasing incidence of iatrogenic lesion of bile ducts, the motivation to perform this comparative analysis in our service of medical residency emerged through a comparative analysis of the current literature on the occurrence of biliary lesion after surgery.

MATERIAL AND METHODS

A retrospective cohort study was conducted through the analysis of medical records from the General Surgery Service and Gastrosurgery at the Ipiranga Hospital UGA-II evaluating all patients undergoing conventional CC and CC-VLP between 1/01/2010 and 12/31/2011. The inclusion criteria were patients who presented biliary lesion regardless of their location or time since diagnosis. There were no exclusion criteria.

Data on sex, age, chronic or acute symptoms, type of surgery performed, and time since lesion diagnosis and its location were considered in the final analysis of the study. All patients underwent general anesthesia and were operated by second-year residents in the service of general surgery, advised by assistant surgeons or preceptors in the service.

OBJECTIVES

The objective of this study was to evaluate cases of iatrogenic lesion of bile ducts in conventional CC and CC-VLP, evaluating the likely causal factors and approach taken in each case, compared with the literature.

RESULTS

A total of 515 patients with biliary lithiasis were treated and monitored in the period of two years (01/01/2010 to 12/31/2011); 320 were submitted to conventional CC and 195 to CC-VLP. The age of patients

with biliary lesion ranged from 29 to 70 years, with an average age of 49.2 years.

Among the 320 patients (62.1%) who underwent conventional CC, four were diagnosed (1.25%) with biliary lesion, corresponding to 0.77% of all patients; all lesions were diagnosed in female patients. All were operated by an assistant surgeon accompanied by second-year residents at the General Surgery Service. The incidence rate of biliary lesion in the study was 0.007% out of all monitored patients (Table 1).

Tabela 1 - Análise comparativa de lesão de via biliar entre colecistectomia convencional e colecistectomia videolaparoscópica no Serviço de Cirurgia Geral e Gastrocirurgia do Hospital Ipiranga UGA-II no período de dois anos

	Number of surgeries	Number of lesions
Conventional cholecystectomy	320 (62.1%)	4 (1.25%)
Videolaparoscopic cholecystectomy	195 (37.9%)	0
<i>Total</i>	<i>515</i>	<i>4 (0.7 %)</i>

Lesions were diagnosed intra and postoperatively. Those recognized intraoperatively were one right hepatic duct lesion and one cystic duct avulsion. The other two cases presented bile duct stenosis in the 17th and 41st postoperative days, diagnosed by endoscopic retrograde cholangiopancreatography (ERCP). In one of these cases, ligature in the accessory bile duct was observed, while in the other, lesion or complication in the surgical procedure were not mentioned in the medical records.

In all three cases (75%) of biliary lesion, symptomatology was present at the time of hospitalization; one patient was indicated to elective surgery. The patient electively operated died of complications in the biliary lesion. No biliary lesions were diagnosed in 195 patients (37.9%) submitted to CC-VLP in the follow-up period.

DISCUSSION

CC represents the most frequent elective intra-abdominal surgery in the world and the iatrogenic lesion of bile ducts is one of its most dreaded complications. The incidence of biliary lesion occurs in about one in every 800 procedures.⁶⁻¹⁴

After the introduction of the laparoscopic surgery, indicated as the gold standard in the treatment of cholecystopathy, the incidence increased to one in every 120 procedures because of the learning curve

and technical difficulties during the procedure according to most authors.^{7,9,14}

In this study, the overall biliary lesion rate was 0.77%; this rate associated with conventional CC was 1.25%, which has worldwide incidence between 0.1 and 0.5%. We did not observe the occurrence of lesions associated with the videolaparoscopic surgery, which, in turn, presents a worldwide incidence of biliary lesion between 0.07 and 0.95%.

Numerous factors are involved in the genesis of biliary lesions such as the male gender, acute cholecystitis, access route, and anatomical variation; the latter being the most responsible factor for technical difficulties during CC. Anatomical variation is present in 6 to 25% patients with biliary lesion; the most common anomaly occurs in the right aberrant hepatic duct between the Calot triangle.^{6,10-16}

The early identification of a biliary lesion is of fundamental importance for treatment, however, it is only diagnosed in less than half of all cases, which results in serious late complications such as biliary cirrhosis, liver failure, and death. One case had death as the outcome because of the complication in the biliary lesion.

Among the various existing classifications for biliary lesions, that of Bismuth stands out (1982),^{7,12} which is mostly used in late stenosis resulting in most cases from thermal lesions or ligatures near the biliary duct with inflammatory reaction and subsequent stenosis, not encompassing acute injuries. The scarcity of data in medical records and very late presentation hamper their classification.^{5, 17,18}

The first objective in its treatment should be the control of sepsis and bile leakage. The surgical reconstruction after the resolution of septicemia is not urgent and can be performed after five to six weeks.^{4,9}

In relation to the surgical procedure, the hepaticojejunostomy in "Y" of Roux is the best therapeutic option and the most frequently employed. Another form of treatment is the interventional radiological therapy, performed by the simple placement of a T drain (Kehr) in minimum lesions and dilation or stent placement in cases of stenoses diagnosed by ERCP.^{4,9,19,20}

CONCLUSION

Biliary disease is extremely common and invariably requires surgical therapy; the CC-VLP is the gold standard for treatment but requires great care during

surgery to avoid inappropriate lesions in bile ducts. In this study, CC-VLP, compared to the conventional CC, presented low rate of biliary lesion, in contrast with data from the literature. Additionally, the rate of lesions found in this study was lower compared with the literature. The surgeon's experience, in both open and laparoscopic surgeries, is evident on the incidence of early and late surgical complications of biliary lesions.

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