

Common Bile Duct Injury in Laparoscopic Cholecystectomy—Inherent Risk of Procedure or Medical Negligence—A Case Report

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Abstract: We present a case report of common bile duct injury which occurred in a patient who underwent laparoscopic cholecystectomy for cholecystitis and cholelithiasis. The patient died within 96 hours of the surgery. The case was investigated by the police as the relations of the victim alleged death due negligence on the part of treating doctors. The clinical details, autopsy findings, report of histopathological examination and medicolegal aspects are discussed along with relevant literature.

Keywords: Cholecystectomy, common bile duct injury, negligence.

INTRODUCTION

For more than a century classical cholecystectomy has been a method of choice in surgical management of gallbladder disease. Laparoscopic cholecystectomy introduced in the late eighties, has now become the gold standard and has taken the place of conventional cholecystectomy.¹ It is now the treatment of choice for symptomatic gallstone disease.^{2,3} Though it is a very safe procedure, it does have its own morbidity and rarely mortality due to numerous complications.⁴

CASE REPORT

A 44-year-old male patient presented to a private hospital with the complaints of acute onset of pain in the right upper abdomen for two days with 4-5 episodes of yellowish vomiting. He was examined by a surgeon and admitted to the hospital on the next day. As per clinical records, there was a history of dyspepsia with acid brash. The pain was radiating to right hypochondrium and back. There was no history of jaundice and diarrhea. On clinical examination, his general condition was satisfactory with

stable vitals. The central nervous system, cardiovascular system and respiratory system were normal on examination. Abdominal examination showed slight tenderness in the right hypochondrium. There was no organomegaly or free fluid. Ultrasonography revealed acute cholecystitis with cholelithiasis. Laboratory investigations were within normal limits.

Laparoscopic cholecystectomy was performed on the next day of admission under general anesthesia. During the surgery gallbladder was found to be thick walled with dense omental adhesions. The Hartmann's pouch was not well developed. Gallbladder was sessile and Moynihan's hump was present.

During dissection the common bile duct was accidentally injured at the junction of gallbladder. The injury was identified immediately during the procedure. A second opinion of other senior consultant was sought and it was decided to convert the procedure to open through a right subcostal incision. The injury to common bile duct was repaired and a no. 12 T tube was placed across the repair. Gallbladder was dissected out of its bed, hemostasis achieved, suction irrigation done and a no. 32 chest drain tube placed in the subhepatic region. The incision was closed in layers. The patient was shifted to the surgical ICU. The gallbladder was sent for histopathological examination. There was no anaesthetic complication during the entire procedure. On the first and second postoperative day patient was afebrile and stable hemodynamically. He was kept on intravenous fluids, antibiotics, analgesics and proton pump inhibitors. Oral feeding was withheld.

On the third postoperative day patient developed oliguria. Urine output failed to respond to a fluid challenge. The opinion of a physician was sought and the patient was shifted to

Medicine ICU. A diagnosis of cholangitis with septicemia and associated pancreatitis was made. Computerized Tomography of abdomen did not reveal any leakage from the T tube as the dye was passing smoothly from CBD into duodenal loop without any extravasation. Patient was kept on intravenous fluids, antibiotics, vasopressor support and was placed on ventilator. Central line was inserted. Blood was sent for culture and sensitivity test, Serum amylase and serum Lipase. ECG and X-rays were done. Arterial Blood Gas analysis showed severe metabolic acidosis.

The investigations revealed deranged clotting parameters and high level of Serum amylase and Serum Lipase. A vasopressin infusion was started and sodium bicarbonate was administered to correct acidosis. Consultation was sought from senior nephrologists. Non-contrast Computerized Tomography of abdomen was done which was normal. Patient was on dalacin, amikacin and vancomycin. The coagulation abnormality was corrected with one unit of Fresh Frozen Plasma and one unit of platelets. He was started on Xigris (Activated Protein C) on fourth postoperative day. Despite these measures the patient's condition continued to deteriorate. In the morning hours of the fifth postoperative day, the patient developed cardiac arrest. Cardiopulmonary resuscitation was attempted with adrenaline, atropine and sodium bicarbonate but was unsuccessful and the patient was declared dead.

The relations of the deceased lodged a complaint at the police station alleging negligence in the treatment by the doctors. The inquest was conducted by police and autopsy was performed the body by the board of doctors.

Autopsy findings revealed stitched wounds on right and left side of chest with injection marks (Therapeutic Central Venous Line insertion site), Stitched wound 24 cm in length on anterior abdominal wall (Stitched Surgical Incision), stitched wound around umbilicus (Therapeutic) and injection marks in both side inguinal and both side cubital fossa. Internally, stitched surgical wound on first part of duodenum. CBD was attached to first part of duodenum. Gallbladder was absent. Gel foam present in gallbladder fossa. Both lungs were congested and edematous. Petechial hemorrhages were seen on surface of lungs and liver. Heart shows subendocardial petechial hemorrhages. There was no evidence of pericardial, pleural effusion or hemoperitoneum.

Histopathological Examination

Histopathological examination indicated congestion in spleen, fatty change in liver, severe pulmonary edema and hemorrhage in lungs and acute tubular necrosis of proximal tubules of kidneys.

Cause of death was attributed to multiple organ failure due to septicemia following cholecystectomy.

DISCUSSION

Professional negligence is defined as absence of reasonable care and skill or willful negligence of a medical practitioner in the treatment of a patient, which causes bodily injury or death of patient. A doctor is not liable if he exercises reasonable skill and care, provided that his judgment conforms to accepted medical practice and does not result in an error of omission. The doctor cannot be sued for professional negligence, when statistics show that accepted methods of treatment have been employed on the patient and that the risk and injury which resulted are of a kind that may occur even though reasonable care has been taken.

In the present case, the patient was admitted with diagnosis of acute cholecystitis. Laparoscopic cholecystectomy, which is the treatment of choice for gallbladder diseases¹ was performed by the treating surgeon. During the surgical procedure injury to common bile duct occurred. Bile duct injuries result in high morbidity, long-term hospitalization and may be life threatening.¹ The incidence of bile duct injury reported varies in different studies. *Gronroos et al (2003)* reported that the risk of bile duct injury was 0.86% in total patient population.² *Krahenbuhl et al (2001)* reported that overall bile duct injury incidence was 0.3%; 0.18% for symptomatic gallstones, and 0.36% for acute cholecystitis. In case of severe chronic cholecystitis with shrunken gallbladder incidence was as high as 3%.⁵ *Calvete et al (2000)* reported that overall incidence of bile duct injury was 1.4%⁶ and *Huang et al (1997)* reported that bile duct injury accounted for 0.32%.⁷

Richardson et al (1996) has mentioned that severe inflammation, aberrant anatomy and poor visualization as contributory factors for CBD injury.⁸ This complication may occur even when the operating surgeon is well experienced.^{5,6,9} *Francoeur et al (2003)* reported that these injuries could not be anticipated and as such it is an inherent risk of this procedure thus, it is unavoidable and uniformly first concerned of surgeon after injury is about the patients well being.⁹

The bile duct injury in this case was immediately recognized by the operating surgeon. Injury to common bile duct was repaired by using T-Tube and converting the procedure of laparoscopic cholecystectomy to open procedure. Other senior surgeon was also consulted and involved in operation. The procedure adopted was in conformation to that as reported in literature.^{5,6} *Kienzle (1999)* had reported that bile duct injury cannot be considered as malpractice, because it could be intraoperatively made out and immediately treated.¹⁰ *Carroll et al (1998)* concluded that factors that predisposes to lawsuits include treatment failures in immediately recognized injuries, complications that result from delays in diagnosis and misinterpretation of abnormal cholangiograms.¹¹ *Low et al (1997)* reported that in Germany the main reasons for acceptance of a case of common bile duct injury in laparoscopic

cholecystectomy as malpractice were delay in changing to conventional cholecystectomy, delay revisions, laparoscopic revisions and not reverting to conventional cholecystectomy in unclear situations.¹²

Clinical record revealed that patient was appropriately managed postoperatively. He was admitted in intensive care unit. All the relevant investigations were carried out. The consultations were taken from the nephrologists and physicians of critical care units. In spite of all possible measures patient could not survive. As per report of postmortem examination, the cause of death was multiple organ failure due to septicemia following surgical procedure for gallbladder. Such events though rare, are known to occur and are reported in literature. Bauer et al (1998) reported one case of bile duct injury during laparoscopic cholecystectomy, who died postoperatively due to multi-organ system failure.¹³ There was/were no evidence/s or finding/s which could substantiate the allegation of negligence against the treating doctors. The literature supports the bile duct injury as an inherent risk of procedure.

REFERENCES

1. Mrksic MB, Farkas E, Cabafi Z, Komlos A, Sarac M. Complications in laparoscopic cholecystectomy. *Med Pregl* 1999; 52:253-57.
2. Gronroos JM, Hamalainen MT, Karvonen J, Gullichsen R, Laine S. Is male gender a risk factor for bile duct injury during laparoscopic cholecystectomy? *Langenbecks Arch Surg* 2003;388:261-64.
3. Roviario GC, Maciocco M, Rebuffat C, Varoli F, Vergani F, Rabughino G, Scarduelli A. Complications following cholecystectomy. *J R Coll Surg Edinb.* 1997;42:324-28.
4. Kumar A, Thombare MM, Sikora SS, Saxena R, Kapoor VK, Kaushik SP. Morbidity and mortality of laparoscopic cholecystectomy in an institutional set up. *J Laparoendosc Surg.* 1996; 6: 393-97.
5. Krahenbuhl L, Sclabas G, Wente MN, Schafer M, Schlumpf R, Buchler MW. Incidence, risk factors and prevention of biliary tract injuries during laparoscopic cholecystectomy in Switzerland. *World J Surg* 2001;25:1325-30.
6. Calvete J, Sabater L, Camps B, Verdu A, Gomez-Portilla A, Martin J, Torrico MA, Flor B, Cassinello N, Lledo S. Bile duct injury during cholecystectomy: myth or reality of the learning curve? *Surg Endosc.* 2000;14:608-11.
7. Huang X, Feng Y, Huang Z. Complications of laparoscopic cholecystectomy in China: analysis of 39,328 cases. *Zhonghua wai Ke za Zhi* 1997; 35: 654-56.
8. Richardson MC, Bell G, Fullarton GM. Incidence and nature of bile duct injuries following laparoscopic cholecystectomy: an audit of 5913 cases. *West of Scotland Laparoscopic Cholecystectomy Audit Group. Br J Surg* 1996; 83:1356-60.
9. Francoeur JR, Wiseman K, Buczkowski AK, Chung SW, Scudamore CH. Surgeon's anonymous response after bile duct injury during cholecystectomy. *Am J Surg* 2003;185:468-75.
10. Kienzle HF. Malpractice in laparoscopic cholecystectomy. Results of cases recently considered by expert Commission. *Zentralbl Chir.* 1999;124:535-41.
11. Carroll BJ, Birth M, Phillips EH. Common bile duct injuries during laparoscopic cholecystectomy that result in litigation. *Surg Endosc* 1998;12: 310-13.
12. Low A, Decker D, Kania U, Hirner A. Forensic aspects of complicated laparoscopic cholecystectomy. *Chirurg* 1997;68:395-402.
13. Bauer TW, Morris JB, Lowenstein A, Wolferth C, Rosato FE. The consequences of a major bile duct injury during laparoscopic cholecystectomy. *Gastrointest Surg.* 1998;2:61-66.