

Improving Outcomes in Laparoscopy

Routine Drainage associated with Reducing Morbidity, Mortality and Risk of Litigation in Laparoscopic Surgery

DrainTow[®]



Introduction

The transition to Laparoscopic Cholecystectomy occurred when routine cholangiography and routine drainage of the gallbladder bed was a diminishing practice. A substantial increase in Biliary Leaks and Injuries has been observed with the laparoscopic approach. Currently, biliary leaks and injuries are the leading cause of malpractice litigation in Laparoscopy. Routine cholangiography and drainage of the gallbladder bed is associated with a reduction in biliary complications and improved outcomes¹⁻³⁷.

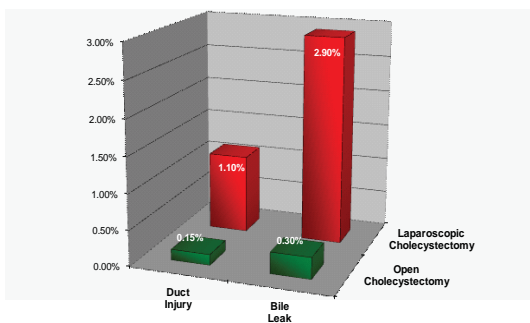
Bile Leaks and Bile Duct Injuries

Open cholecystectomy is associated with 0.3% incidence of bile leaks and 0.15% incidence of bile duct injury. Laparoscopic cholecystectomy is associated with up to 4.4% incidence of bile leaks and up to 1.8% incidence of bile duct injury. Most (>75%) events are not recognized at surgery. Without cholangiography or drainage, a delay in corrective action or even death occurs¹⁻²¹.

Table 1. Incidence of Bile Leak & Bile Duct Injury Open vs Laparoscopic Cholecystectomy

Type of Injury	Open Cholecystectomy	Laparoscopic Cholecystectomy
Bile Leak	0-0.5 (0.3)%	1.7-4.4 (2.9)%
Bile Duct Injury	0-0.2 (0.15)%	0.3-1.8 (1.1)%

Incidence of Bile Leak and Bile Duct Injury* Open vs Laparoscopic Cholecystectomy



*Summary data compiled from multiple sources Domestic and International, see Bibliography in PDF Documents. Data is cross referenced with reports from Academic Departments of Surgery, Gastroenterology, and Radiology. Studies from Departments of Gastroenterology and Radiology tend to report higher observed rates of Biliary Leaks and Duct Injury

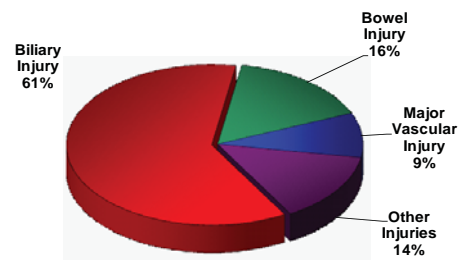
Delayed Recognition of Biliary Injuries

Without routine cholangiography or drainage of the gallbladder bed, most (>75%) leaks and injuries are not recognized, The cost of delay may exceed \$100,000. Plaintiff settlements and awards in litigation average \$507,000 but may exceed \$2,000,000³²⁻³⁶.

Table 2. Cost of Delayed Recognition of Biliary Injuries in Laparoscopic Cholecystectomy

Item Studied	Result
Biliary Injuries not recognized at surgery	> 75%
Cost of Management	> \$100,000
Average Plaintiff Indemnity	\$507,000
Extent of Jury Awards	> \$2,000,000

Source of Malpractice Litigation*

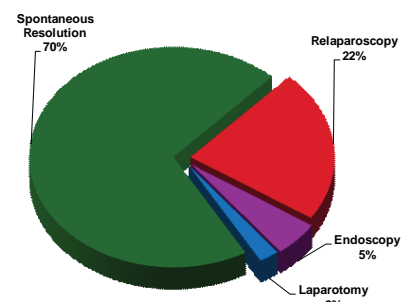


*Medicolegal Perspectives on Injuries Associated with Laparoscopic Cholecystectomy. Kern, KA, University of Connecticut School of Medicine, Farmington, CT. Reported in Archives of Surgery 1997 and Surgical Clinics of North America 1994

Routine Cholangiography and Drainage Preventative

Routine cholangiography is associated with a lower incidence of Bile Duct Injury. Routine drainage detects Bile Leaks and provides for spontaneous resolution or management as required^{1-10,22-32}.

Outcome of Bile Leaks*



*Prospective Studies²²⁻³¹
Routine Cholangiography and Drainage

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