

## Anatomical Variations of Extrahepatic Biliary System

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### Abstract

<b>Background</b>	Variations in the anatomy of gallbladder, bile ducts and the arteries that supply them are important to the surgeon during cholecystectomy, because failure to recognize them may lead to inadvertent iatrogenic injuries.
<b>Objective</b>	To evaluate the type and frequency of anatomical variations of extra hepatic biliary system encountered during cholecystectomy.
<b>Methods</b>	One hundred and fifty patients with gallstones underwent cholecystectomy at Baghdad Teaching Hospital. There comprised 112 females and 38 males with age range between 20-80 years. Open (33 cases) and laparoscopic (117 cases) cholecystectomies were done. Extra hepatic biliary tree was carefully dissected to study the variations in the anatomy of the gallbladder, bile ducts, and the arteries that supply them.
<b>Results</b>	There were only three important vascular and four important ductal anomalies while gallbladder anomalies were rare. The total numbers of the extrahepatic biliary anomalies were 81 cases (incidence 54%), and included vascular anomalies (60 cases = 40%); ductal anomalies (18 cases = 12%); gallbladder anomalies (3 cases = 2%); mostly occurred as Phrygian cap (2 cases = 1.3%). The higher incidence of anatomical abnormalities was found in females 80% (65 cases) while in males 20% (16 cases).
<b>Conclusion</b>	Anomalies of the vascular and ductal components of the extra hepatic biliary tree are relatively common (the former occurring much more frequently than the latter). Failure to recognize them during biliary surgery leads to iatrogenic injuries and can increase morbidity and mortality.
<b>Key Words</b>	Extra hepatic biliary tract; biliary anomalies, cholecystectomy.

### Introduction

The biliary tract is the site of great variation and even gross anomalies and their clinical significance is variable <sup>(1,2)</sup>. These anomalies can represent a major challenge especially to unprepared and unaware surgeons for failure to recognize them at operation may lead to disaster <sup>(3,4)</sup>.

The anatomy of the biliary system has been the subject of extended research for many years largely because of their surgical importance in

cholecystectomy, and interest has been centered on the extrahepatic biliary tree because it is frequently abnormal <sup>(5)</sup>. Many studies have attempted to determine a standard length, diameter, and thickness of various portions of the ductal system but significant normal variability in duct size and length may be encountered <sup>(6)</sup>.

There is a wide difference of opinion which still exists regarding basic detail of extrahepatic biliary anatomy, and it is pertinent at this point