

Gallstones



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Common in

- Fat
- Fertile
- Forty
- Fair
- Female



Prevalence

- Found in 24% of women and 12% of men.
- Prevalence increases with age
- Majority- asymptomatic 10-20% symptomatic
- About 10 % of people with gallstone have bile duct stones.



Types of stones

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graph TD; A[Types of stones] --> B[Cholesterol stone]; A --> C[Mixed stones]; A --> D[Pigmented stones]
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Cholesterol
stone

Pigmente
d stones

Mixed stones



Cholesterol stone

- Common in Europe.
- 15% from all type of stones.
- Often solitary
- Usual size is >2.5 cm
- Round
- Radiolucent



Pathophysiology of cholesterol stone formation

Cholesterol (insoluble in water) is secreted by canalicular membrane and is kept in solution by micelles made of phospholipids and biles.



Reduced concentration of bile acids
Increased concentration of cholesterol
Increased absorption of water from bile



Supersaturation of cholesterol



Cholesterol stone



Pigmented stones

- 5% from total gall stone
- Small
- Black or brown
- Radiopaque
- Common in Asia



Black stone



Contain mostly
bilirubin ,calcium
phosphate and
Calcium bicarbonate



Associated with
haemolysis

Brown stone



Contain Calcium
bilirubinate,
palmitate and
steorate



Pathophysiology of pigment stone formation

Brown pigment stone

- Related to bacterial glucuronidation of bilirubin.
- This associated with foreign body within the bile duct, parasite, bile stasis and infected bile



Mixed stones

- Multiple
- Faceted
- Cholesterol, calcium phosphate, calcium carbonate and proteins.
- Commonest in Sri Lanka.
- Contain cholesterol ,calcium ,phosphate, protein and phospholipid



Clinical presentations

Inside gall bladder

- Acute cholecystitis
- Empyema- sepsis
- Mucocele
- Biliary colic- Severe pain ,rising to a plateau, persistent for some time and come to the baseline, exacerbate with fatty meal and can radiate to the inferior angle of scapula.
- Carcinoma



In the neck



Mirrizi's syndrome

In the biliary duct



Obstructive jaundice
Acute cholangitis

In the sphincter
of Oddi



Pancreatitis

Gall stone ileus



In the ileo-caecal
junction

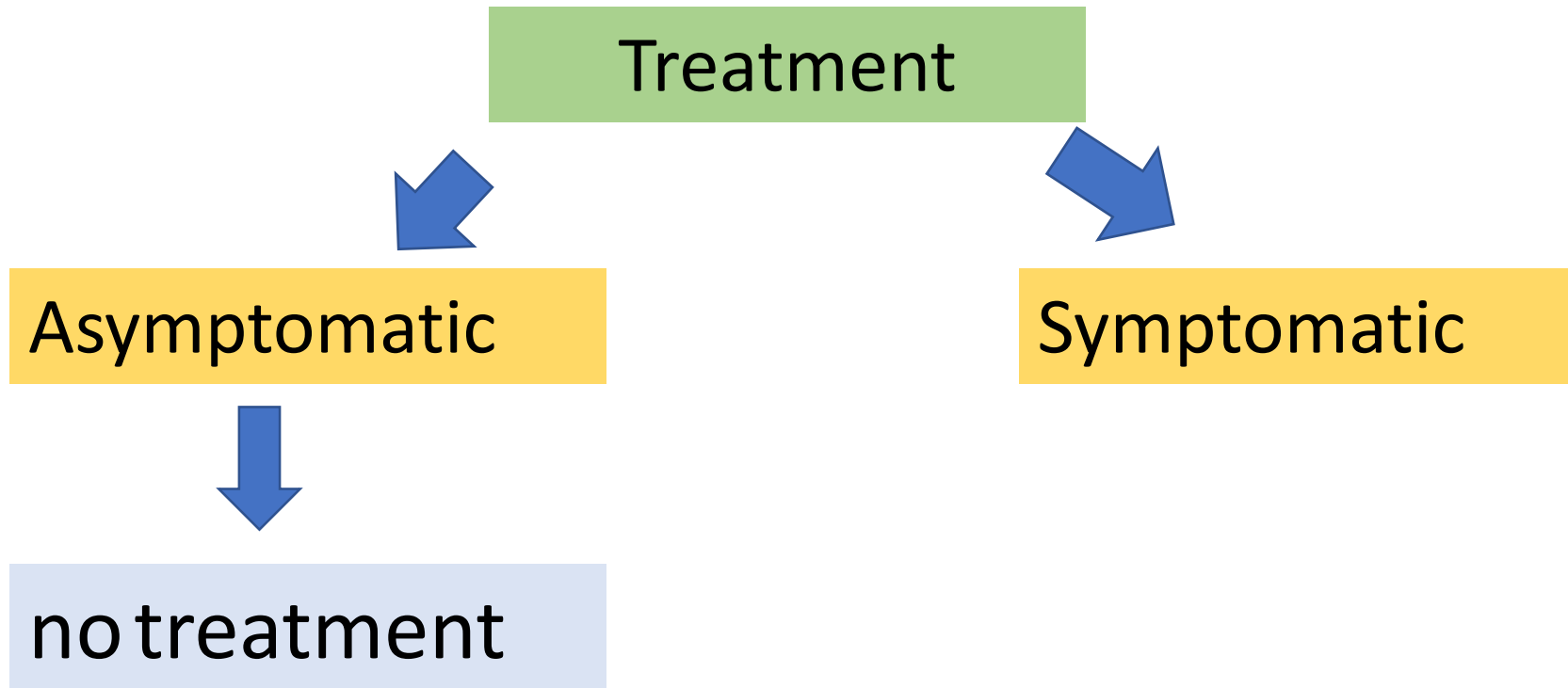


Mirrizi's syndrome

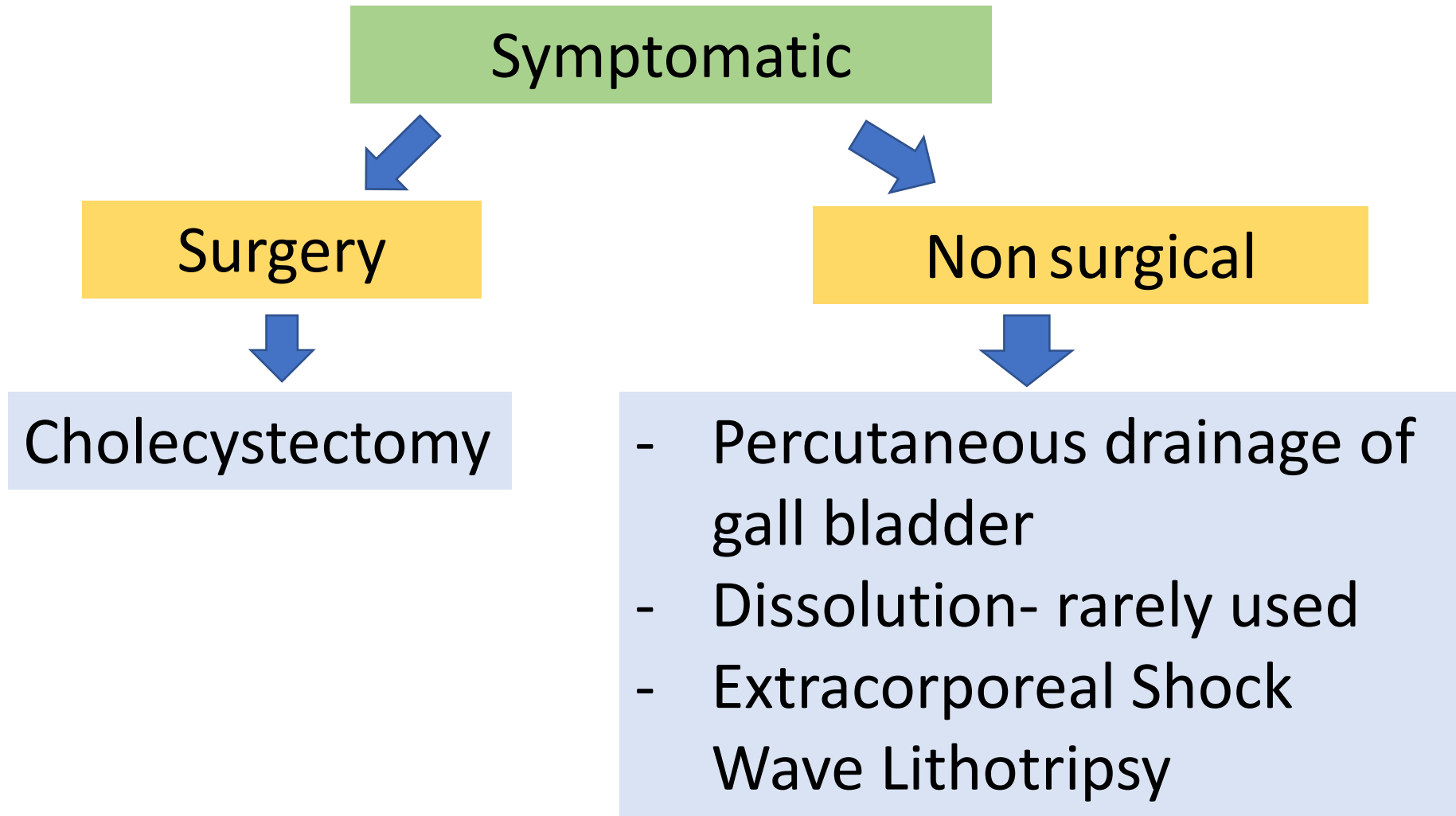
- Large gallstone in the gall bladder produce obstruction in common hepatic duct



Treatment



Treatment



Courvoisier's law

A palpable gallbladder and jaundice is unlikely to be due to gallstones



Courvoisier's law

Exceptions

- Double gallstones- one in the common bile duct and one in cystic duct/ Hartman's pouch leading to mucocele.
- Stone formed in common bile duct insitu.
- Mirizzi syndrome-gallstone impacted in cystic duct or neck of the gall bladder.



Complications of gallstone

In gallbladder

- Acute cholecystitis
- Chronic cholecystitis
- Empyema of gallbladder



In biliary system

- Acute ascending cholecystitis
- Mucocele
- Secondary biliary cirrhosis and liver failure
- Acute pancreatitis
- Gallstone ileus

