Gallbladder pathology – stones and tumours

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Gallbladder stones

• Is the most frequent disease of the biliary system

• It is estimated that 10% of the adult population have gallbladder stones, and that 1/3 of the population over 70 years of age will have gallbladder stones (1).

• On the other hand 35% of the patients with gallstones will become in time symptomatic and will require surgery (2).

1. Freitas ML et al – World J Gastroenterol 2006
2. Schirmer BD et al- J Long Term Eff Med Implants 2005
Asymptomatic Gallstones:

- The presence of gallstones detected incidentally in patients who do not have any abdominal symptoms or have symptoms that are not thought to be due to gallstones.

- Diagnosis is made during routine ultrasound for other abdominal conditions.

*WGO Practice Guideline: Asymptomatic Gallstone Disease*
Gallbladder stones

• Transabdominal ultrasound examination is the most commonly used screening modality for this disease.

• The accuracy of ultrasonography for the diagnosis of gallstones is up to 96% (4).

Barreiros AP, Popescu A, Walton J, Dietrich CF - Ultrasound of the biliary system in EFSUMB – European Course Book
Gallbladder stones

- Hyperechoic images in the gallbladder with posterior shadowing
- The images move with the patient’s movements
- Difficult to see when are small
- Gallbladder filled with stones and no bile left - shell aspect
Gallbladder stones
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Gallbladder stones

- Difficult to see when are small
- Gallstones size and number can not be estimated accurately by means of ultrasound.
- Gallbladder filled with stones and no bile left - shell aspect can be easily mistaken with air in the digestive tube, if the examinator is not enough experienced.
- The presence of one gallstone impacted in the gallbladder infundibulum creates a hydrops and the diagnosis of gallstones is missed!
- There are also limitations of this method generated by the lack of acoustic window in some patients and also by the obesity.
Gallbladder stone?
Differential diagnosis
• Asymptomatic gallbladder stones have 2-5% risk every year to become symptomatic in the first 4-5 years and generates in less than 1% complications every year.

• 2/3 of the patients remain asymptomatic even after 20 years

• The risk of developing gall bladder cancer is around 0.3% over 30 years.

Sama C. Et al – Semin Liver Dis 1990
WGO Practice Guideline: Asymptomatic Gallstone Disease
Acute cholecystitis

- Occurs in aprox. 1/3 of the patients with gallstones (1).
- 95% of the cases are due to calculous obstruction of the gallbladder neck or cystic duct
- The presence of the gallstones at ultrasound in combination with sonographic Murphy sign has a positive predictive value of 92% (2)

1. Laing FC – in Diagnostic Ultrasound 1998
2. Ralls PW et al - Radiology 1985
Acute cholecystitis

- Thick gallbladder wall (6-8 mm) with "sandwich" aspect
- An/hypoechoic inflammatory fluid around the gallbladder (a hypoechoic "eye-brow")
- Gallbladder stones – mobile or impacted in the infundibulum
Acalculous acute cholecystitis

- Acute acalculous cholecystitis, inflammation of the gallbladder without evidence of calculi or sludge, comprises 2-15% of all cases of acute cholecystitis.
- Occur in critically ill patients, following cardiac surgery, abdominal vascular surgery, severe trauma, burns, prolonged fasting, total parenteral nutrition, or sepsis.
- Ultrasound is the principal diagnostic method.
- More difficult to assess comparing with calculous acute cholecystitis.
- *Is it real acalculous acute cholecystitis or we do not see the gallbladder stone?*

Shridhar Ganpathi I et al - HPB (Oxford), 2007
• MR imaging allows simultaneous anatomic and physiologic assessment of the gallbladder and biliary tract

• MR imaging, including MR cholangiopancreatography, can be a valuable complement to US and CT when additional information is needed.

• MR imaging has a higher sensitivity than US for diagnosis of acute acalculous cholecystitis

Catalano OA et al - Radiographics. 2008
Zins M et al - J Radiol. 2006
Hakansson K et al - Acta Radiol 2000
Biliary fistula

• Internal biliary fistula is associated with chronic cholelithiasis in 90% of the cases.

• The incidence – about 0.3%.

• Duzgun AP et al – World J Gastroenterol 2007
Gallbladder carcinoma

- Is a rare, highly fatal malignancy, associated in almost 100% of the cases with cholecystolithiasis.
- Is more frequent in patients older than 60 years.
- The risk of developing gallbladder cancer in a patient with gallbladder stones is 0.3% over 30 years and much higher cancer risk in stones larger than 3 cm.

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• Diagnosis – ultrasonography

• Staging – complementary CT of MRI

• US - irregular wall thickening, a poorly defined polypoid mass protruding in the gallbladder lumen, or, in advanced cases, the replacement of the gallbladder by a solid, hypoechoic, mass.

• The presence of a gallstone in relation to this mass suggests the diagnosis of gallbladder carcinoma.

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THANK YOU!