Patient with abnormal liver function – case presentation and discussion

Dr. Anna Körei, PhD

1st Dept. of Medicine, Semmelweis University, Budapest

Scenario 1.
Painless jaundice

- 80-year old male
- Past medical history: HT, AF, T2DM, GERD
- No alcohol consumption, no smoking

- Presenting complaints:
  jaundice for one week, no abdominal pain
  stool has got pale and loose, urine was getting darker
  Weight loss 4 kg/week, good appetite
  No fever, nycturia 2x

???

- Key points among the symtoms?

- Questions to be answered:
  Isolated hyperbilirubinaemia?
  Hepatocellular or cholestatic origin?
  Differentialdiagnosis?

Cholestatic jaundice
Malignancy?

- What examinations should be performed?

„Backup slide” 1
Causes of isolated hyperbilirubinaemia

- Indirect hyperbilirubinaemia
  - Haemolytic disorders
    - Inherited
      - Spherocytosis, elliptocytosis, G6PDH-deficiency, PKD, sickle cell anaemia
    - Aquired
      - Microangiopathic hemolytic anaemias
      - Paroxysmal nocturnal hemoglobinuria
      - Immune hemolysis
      - Parasitic infections (e.g. malaria)
  - Ineffective erythropoesis
    - Cobalamin, folate def., thalassaemia, severe iron deficiency
  - Drugs (rifampicin, probenicid, ribavirin)
  - Inherited conditions
    - Criegler-Najjar syndrome I and II
    - Gilbert’s syndrome
- Direct hyperbilirubinaemia
  - Dubin-Johnson-syndrome
  - Rotor’s syndrome

„Backup slide” 2 - Hepatocellular jaundice

- Hepatotropic viruses
  - A,B,C,D,E, EBV, CMV, HSV;
- Alcohol
- Drug toxicity
  - Predictable, dose-dependent e.g. acetaminophen
  - Unpredictable, idiosyncratic e.g. isoniazid, halothan
- Environmental toxins
  - Vinyl chloride
  - Mushrooms (Amanita phalloides)
- Wilson’s disease
- Autoimmune hepatitis

„Backup slide” 3 - Cholestatic jaundice

- Intrahepatic
  - Viral hepatitis
  - Alcoholic hepatitis
  - Drug toxicity
    - Pure cholestasis – anabolic and contraceptive steroids
    - Cholestatic hepatitis – erythromycin
    - Chronic cholestasis - chlorpromazine
  - Primary biliary cirrhosis
  - Vanishing bile duct syndrome
    - Chronic rejection of liver transplants
    - Sarcoidosis
    - Drugs
  - Inherited
    - Benign recurrent cholestasis
  - Cholestasis in pregnancy
  - Total parenteral nutrition
  - Nonhepatobiliary sepsis
  - Venoocclusive disease
  - Infiltrative disease
    TB, lymphoma, amyloidosis
- Extrahepatic
  - Malignant
    - Cholangiocarcinoma
    - Pancreatic cancer
    - Gallbladder cancer
    - Malignant involvment of portal lymph nodes
  - Benign
    - Choledocholithiasis
    - Primary sclerosing cholangitis
    - Chronic pancreatitis
    - AIDS choalngiopathy
    - Mirizzi syndrome
    - Parasitic disease (Ascaris, liver fluke)

Examinations

- 1. Physical examination:
  Jaundice – no other abnormality
- 2. Laboratory findings:
  Bilirubin with fractionation, AST, ALT, GGT,
  Alkaline phospatase INR, albumin, …

- Imaging studies
  abdominal US, CT,
- Endoscopy
  gastroscopy, colonoscopy, ERCP

„Backup slide” 4 - Algorithm for patients with jaundice

- Figure removed.
- Resource: Jameson JL et al. Harrison’s Principles of Internal Medicine. 20th Edition. McGraw-Hill Education.

Laboratory results

- Complete blood count:
  WBC: 6.3 G/l; neu: 54%; lym: 36%; mono: 7%
  Hb: 135 g/l; Htc: 0.38; MCV:88 fl; Thrcyt:219 G/l
- Chemistry:
  Na: 141; K: 3.8; CN:4; crea: 62
  AST (GOT): 59 (H); ALT (GPT): 107 (H); GGT: 287 , ALP 94, lipase 11,amylase 43
  Glu: 10.6; TG: 4; chol:6.9; Bi 192 (H) >> 287; diBi: 110 (H)>>144(umol); pChe: 6506 (U); INR: 1.26 (H), haptoglobin 0.88
- Tumor markers: CA 19-9 6516 (H!!!)

„Backup slide” 4- Algorithm for patients with jaundice

- Figure removed.
- Resource: Jameson JL et al. Harrison’s Principles of Internal Medicine. 20th Edition. McGraw-Hill Education.

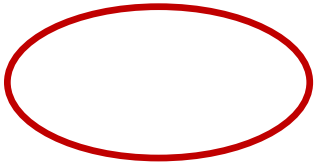
Colonoscopy

Polypi coli, no sign of malignancy.

- Chest radiograph:
  Negative
- Abdominal US:
  Slight hepatomegaly, enhanced reflectivity of the liver. Intrahepatic gall ducts a bit dilated, centrally 7 mm, on the periphery 2-3 mm diameter, but the choledochal duct was not dilated.

„Backup slide” 4- Algorithm for patients with jaundice

- Figure removed.
- Resource: Jameson JL et al. Harrison’s Principles of Internal Medicine. 20th Edition. McGraw-Hill Education.



- Thoracic-abdominal-pelvic CT scan (staging):
  In the liver hilar area, a 32 mmx28 mm, hypodense structure with irregular border and infiltration towards the liver tissue. It involves the branching of the portal vein and the proximal part of the lobal branches. No exrahepatic bile duct dilatation.
  No infiltration of lymph nodes or distant metastases revealed.

What is the diagnosis?

Klatskin tumor (hilar cholangiocarcinoma):

- a cholangiocarcinoma occurring at the confluence of the right and left hepatic bile ducts.
- Risk factors for cholangiocarcinoma: PSC, choledochal cyst, Caroli's disease, nitrosamines, asbestos exposition, choladocholithiasis (?), S-E Asia: parasitic infections (liver fluke) any chronic liver disease (alcohoic cirrhosis, hepatitis B, C

Levels of tumor markers CA 19-9 (!!!), CEA, CA125 are abnormally high in patients with intrahepatic cholangiocarcinoma and Klatskin tumor.

Ultrasonography always detects dilatation of the bile ducts but rarely the tumor itself.

Definite dg.: CT scan MRI

Gerald Klatskin 1910-1986

Treatment and prognosis

- Most cases present too late, surgical resection not possible
- General guidelines for operability include:
  - Absence of lymph node or liver metastases
  - Absence of involvement of the portal vein
  - Absence of direct invasion of adjacent organs
  - Absence of widespread metastatic disease
- +/- adjuvant chemotherapy/radiotherapy

- Inoperable:
  - palliative chemotherapy +/- radiotherapy
  - ERCP-stent implantation (metal)

Prognosis: poor
Even in resecable cases, the 5-year survival is 50%

What to do with our patient?

- Worsening jaundice
- ERCP with stent implantation?

- US and CT scan finding: No extrahepatic bile duct dilatation!
  >> ERCP not possible!

- PTD (percutaneous transhepatic drainage)…

Scenario 2.
Old, desoriented lady

- 86-year old female
- Past medical history: HT ? No information available

- Presenting complaints:
  Patient admitted with desorientation, agitation and exsiccosis
- BP: 160/80 mmHg, HR: 94/min (SR), T: 37.3 C
  Physical exmanination: no crepitation, no heart murmurs, abdomen: no tenderness
- Desorientation, no cooperation, decreased skin turgor……

Discussion: common causes for desorientation and agitation in the elderly?

Further examinations?

- Laboratory tests
- Chest radiograph
- Urine test
- Skull-brain CT scan

- Neurologist ?
- Psychiatric consultant?

Laboratory results

- Complete blood count:
  WBC: 14 G/l; neu: 92%; lym: 4%; mono: 3%
  Hb: 140 g/l; Htc: 0.41; MCV:93 fl; Thrcyt:151 G/l
- Chemistry:
  Na: 141; K: 3.8; CN:5; crea: 55, troponin 7, CRP 99
  AST (GOT): 377 (H); ALT (GPT): 545 (H);
  GGT: 121 , ALP 314, TP: 62; alb: 32;
  Ca: 2.09; P: 0.68
  Glu: 5.5; Bi 62; diBi: 35 (umol); INR: 1.23 (H), LDH: 311;

Additional tests?

- Viral serology blood test:
  HBsAg, Anti-HBs, aHCV, anti-HAV IgM, anti-HEV IGM
  CMV, EBV…

- Abdominal ultrasound:
  No hepatomegaly, the liver has a homogenous structure, no bumps. Bile ducts not dilated. Gall bladder normal sized, no wall thickening, some 15 mm diameter gall stones revealed. Pancreas morphologically intact. Normal kidneys. No sign of urocystitis.

Diagnosis? Therapy?

- Infusion, potassium supplementation
- No fever, no abdominal pain or tenderness during observation
-
- After three days:
  WBC: 3.88 G/l; neu: 57%; lym: 30%; mono: 10%
  Hb: 130 g/l; Htc: 0.40; MCV:96 fl; Thrcyt:157 G/l
  Na: 144; K: 4.0; CN:7; crea: 71, CRP 55
  AST (GOT): 57 (H); ALT (GPT): 227 (H); LDH 175
  GGT: 78 , ALP 216, TP: 62; alb: 32;
  Glu: 5.5; Bi 17; INR: 1.09

- In five days:
  AST (GOT): 377>>57 >>50(H);
  ALT (GPT): 545>>227>>104 (H);
  GGT: 121>>78>>50 (H),
  ALP 314>>216>>154 (H)

???

Primary and secondary (systemic) hepatotropic viruses

- HAV
- HBV
- HCV
- HDV (delta agent)
- HEV

- EBV
- CMV
- Rubella
- Coxsackie virus B
- HIV
- Adenovirus
- Parvovirus B19
- Enteroviruses

„Backup slide” 5: Evaluation of abnormal liver function. Summary chart flow

- Figure removed.
- Resource: Jameson JL et al. Harrison’s Principles of Internal Medicine. 20th Edition. McGraw-Hill Education.

„Backup slide” 5 - Liver test patterns in hepatobiliary disorders

- Table removed.
- Resource: Jameson JL et al. Harrison’s Principles of Internal Medicine. 20th Edition. McGraw-Hill Education.

We have discussed …

- Characteristic symptoms of cholestatic jaundice
- Primary and secondary hepatotropic viruses
- De Ritis ratio (AST/ALT)
  - In alkoholic hepatitis
  - In non-alkoholic steatohepatosis (fatty liver disease)
- Klatskin tumor
- Mechanisms of drug-induced liver injury (DILI)