

What to do with abnormal LFTs?

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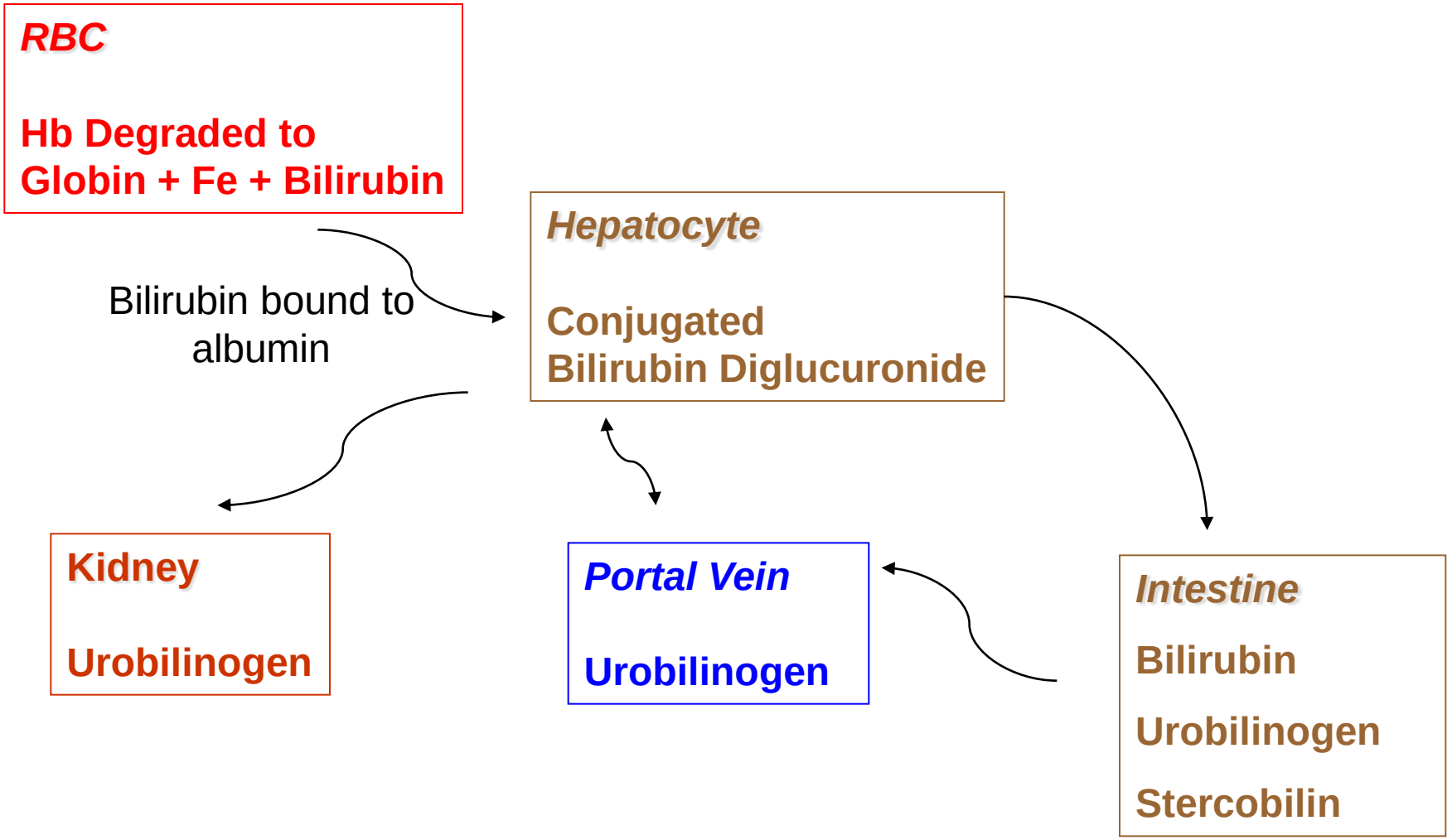
"it looks like there's something wrong…
….with your television set."

Matt Groenig, creator of
The Simpsons

Probability of an abnormal screening test result

Number of independent tests	Probability of abnormal test (%)
1	5
2	10
4	19
6	26
10	40
20	64
50	93

Normal Bilirubin Metabolism



Liver Function Tests

- ALT & AST indicate liver cell necrosis
- ALP indicates cholestasis (may or may not be obstruction) or bone disease
- Conjugated bilirubin - suggests liver disease

Rule 1

Repeat any abnormal tests before action

History

‘most important part of the evaluation of the patient with abnormal LFTs’

Persistence of deranged LFT

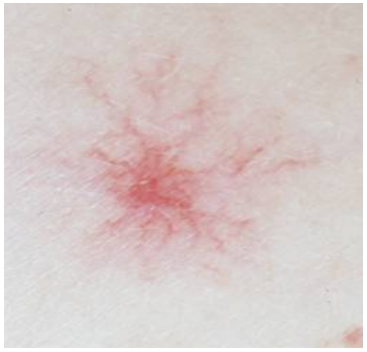
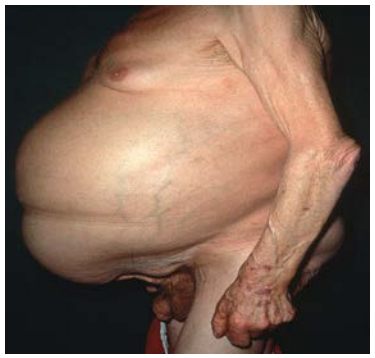
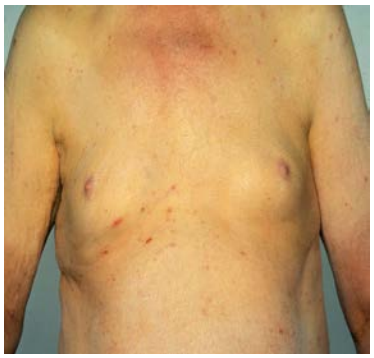
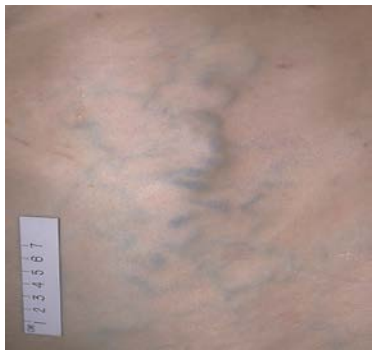
- Full history and assess risk factors
- Alcohol intake 28 units/21 units
- Foreign travel, especially medical Rx abroad, IVDU, high risk sexual activity
- Drug history, including herbal remedies
- Family history
- Symptoms - RUQ pain, pruritus, dark urine
- Signs: SCLD, Ascites=v.compromised liver function

Examination -1

1. Clinical signs - most apparent in alcoholics

Palmar erythema
Spider naevi
Pseudo Cushings
Splenomegaly

Dupuytrens
Clubbing
CREST
Jaundice, ascites

Examination - 2

2.Obstrucutive Jaundice

- Temp
- Tachycardic +/- hypotensive

} cholangitis

- Cachexia, Virchow's node,clubbing
- Courvoisier's law 'If in the presence of jaundice the gallbladder is palpable then the cause of the jaundice is unlikely to be gallstones'
- Murphy's sign
- Urine

3. Investigate persistently abnormal LFTs

4. Ultrasound scan in most cases is appropriate

How to deal with an abnormal GGT

Rule 2

Do not check GGT

- Extremely poor specificity for disease

- Occasionally may help to follow alcoholics, but there are still problems, such as duct obstruction in pancreatitis

How to deal with an abnormal GGT - 2

CONSIDER (before any thoughts of liver disease)

- Enzyme inducing drugs
- Alcohol
- Sporadic elevation of GGT of u/k cause
- GGT higher in males than females
- GGT high in neonates and infants

Raised GGT in non-hepatic disorder 3

- BUPA screen: 15% males exceeded ULN
- 4% greater than 2 x ULN
- Non hepatic causes of raised GGT:
  - Obesity
  - Anorexia
  - MI, pancreatic disease, hyperthyroidism
  - Sporadic

How to deal with an abnormal GGT - 4

- If high GGT persists - requires investigation
- Elevated GGT may reflect focal liver lesion and hence **USS required**
- GGT is elevated in virtually all forms of parenchymal liver disease
- High sensitivity
- LOW SPECIFICITY

there's never a metal thief
around when you need one

ALT and AST

- Debate as to relative merits of ALT & AST
  ALT more sensitive & specific
- AST has many non hepatic sources:
  Myocardium, skeletal muscle
  Kidney & pancreas
  Red blood cells
- No method of differentiating source of AST

Rule 3

Use ALT

How to deal with an abnormal ALT - 1

History:

- Alcohol intake
- Diabetes
- Drugs: legal/other
- Transfusion
- Family & Social history
- ALT/AST ratio may be useful in alcoholics, since AST > ALT, in contrast to other forms of liver disease

How to deal with an abnormal ALT - 2

Examination:

- Stigmata of chronic liver disease
- Liver and spleen size

- Obesity
- Heart failure

Abnormal ALT - 3

Investigations:

- Prothrombin time, Albumin

- Hepatitis B and C
- Autoantibodies & Immunoglobulins
- Alpha-anti-trypsin / Cu studies
- Fasting triglycerides, cholesterol, glucose
- HbA1c
- Ferritin

- Ultrasound scan: fat, focal lesions, splenomegaly & cirrhosis

Abnormal ALT - 4

Management:

- Refer: High ALT's (>250 - phone)
  High PT
  Chronic liver disease
  Chronic viral hepatitis
  USS abnormalities

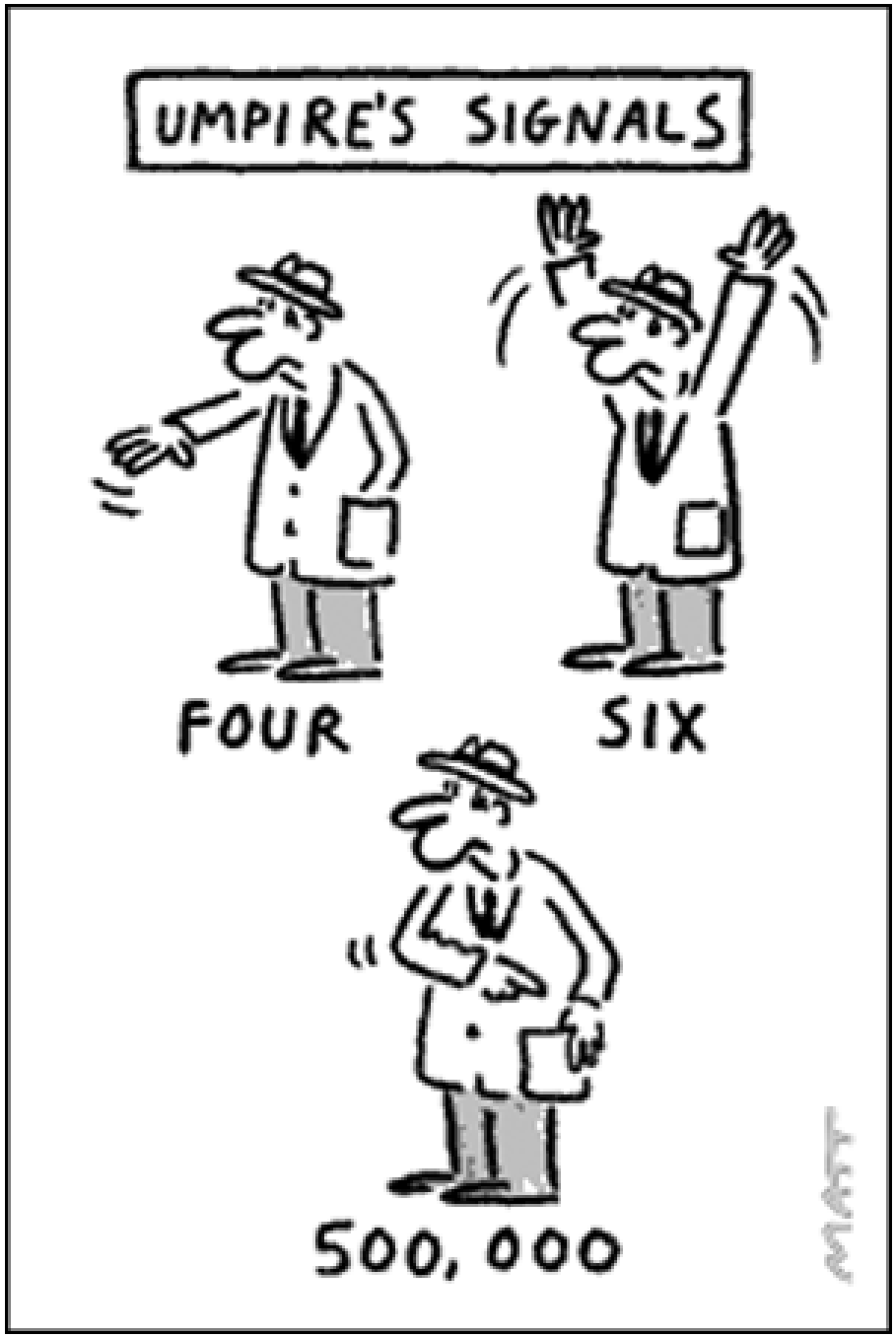
- Watch: Alcohol
  Cholesterol/TGL
  Obese

Raised ALT in 1000's

- Acute hepatitis (HAV, HBV, HCV, EBV)
- Severe auto immune hepatitis
- Drug reaction
- Secret or accidental paracetamol overdose

- Liver congestion

- Gall stones or cholangitis (unlikely)
- Extreme rarities (Wilsons)


UMPIRE'S SIGNALS
FOUR
SIX
500,000

How to deal with an abnormal Alkaline Phosphatase - 1

History

- Jaundice
- Pain
- Weight loss
- Itch, tiredness, fever, dry eyes etc
- Alcohol
- Drugs
- Bone disease (other sources of enzyme)

How to deal with an abnormal Alkaline Phosphatase - 3

Investigations:

- USS
- FBC & blood picture, PT
- Autoantibodies, Immunoglobulins
- CRP

How to deal with an abnormal Alkaline Phosphatase - 4

Management:

- Refer: Persistent elevation of ALP (4 Bx)
  Autoimmune liver disease
  Dilated/obstructed biliary tree
  Tumours/abscess

- Watch: Alcohol abuse
  Drug cause
  Untreated cardiac failure

'The doctor's on strike, so I had his stitches done by the vet'

How to deal with an isolated abnormal Bilirubin - 1

History:

- Family history
- Jaundice
- Effect of infection, starvation etc
- Haemolysis
- Drugs

Examination:

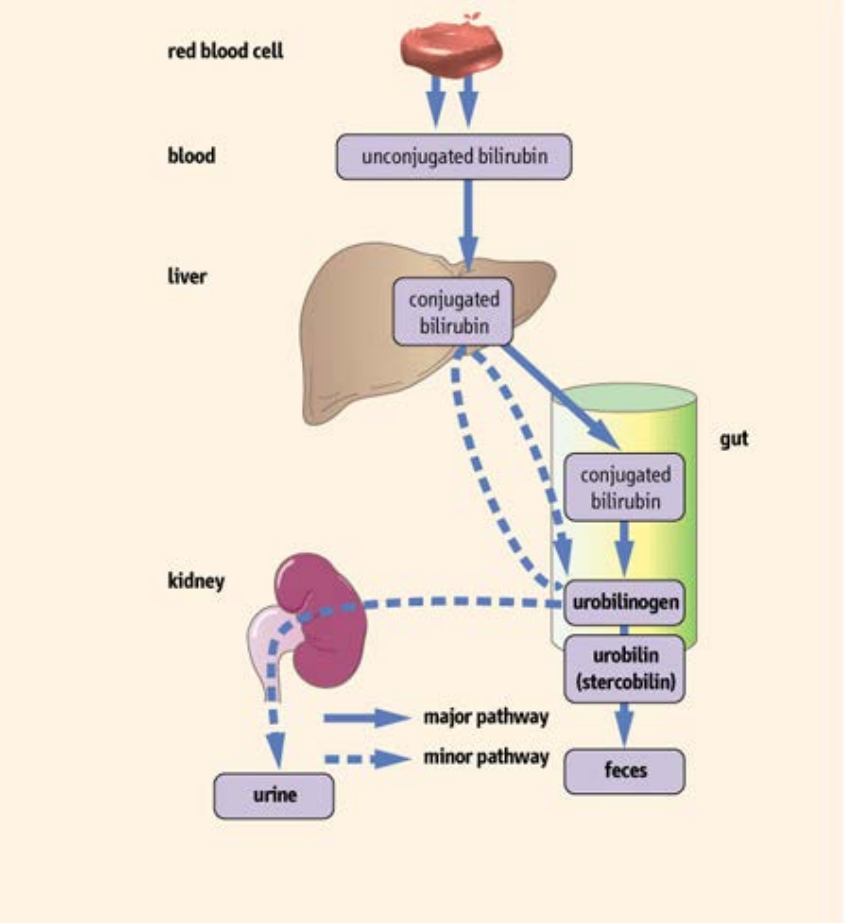
- Splenomegaly

How to deal with an isolated abnormal Bilirubin - 2

Investigations:

- Bilirubin (?fasting sample)

  unconjugated vs conjugated
- Blood film, retic count, Coombs' test
- Urinanalysis: negative for Bilirubin
- No requirement for imaging



How to deal with an isolated abnormal Bilirubin - 3

Management:

- Refer: Haemolytic anaemia
  → Haematologist
- Watch: Gilbert's (and reassure - 5% population UK)
  ALT / ALP normal
  Bili - unconjugated
  Retic count normal
  Urine - neg for bilirubin

How to deal with a fatty liver - 1

1. History:

Incidental finding

Alcohol

Abdominal pain

Diabetes/cholesterol etc

2. Examination:

Normal

Obese

Xanthelasma etc

How to deal with a fatty liver - 2

3. Investigations: Cholesterol / HbA1

4. Management: Alcohol counselling
Weight reduction
Appropriate diet
Consider referral

the yorkshiregallstone clinic

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Spire Clinic

- Monday 1800hrs
- Tuesday 1800hrs
- Friday 1700hrs

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