

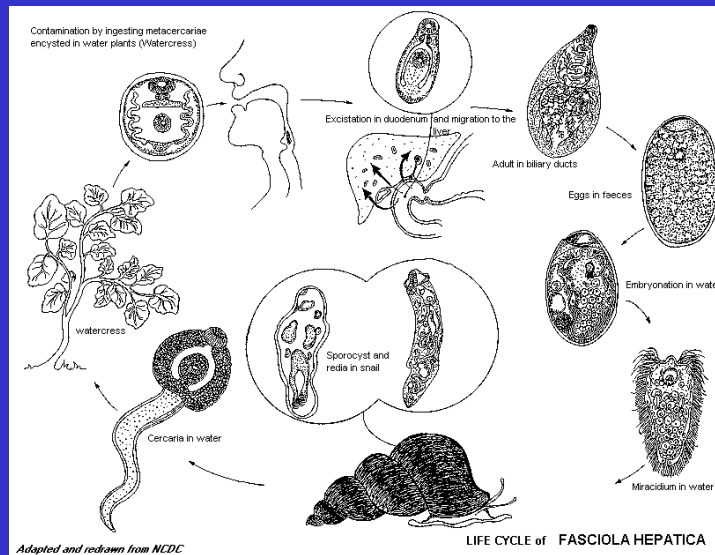
# **Fascioliasis due to chewing khat; an emerging imported disease in Britain**

Peter L Chiodini



## *Fasciola hepatica* – Life cycle

Image from Carlo Denegri Foundation



## *Fasciola hepatica* -Epidemiology

**91 million people at risk.**

- Important foci:
  - Altiplano of Bolivia
  - Highlands of Ecuador and Peru
  - Cuba
  - Nile delta of Egypt
  - Northern Iran
  - Portugal
  - Spain

## *Fasciola hepatica* -Epidemiology

Data from Dr GBB Mitchell:

- 12-fold increase EU states in past 10 years
- Costs Scotland >£50 million pa
- 1997-2002 meat hygiene service sheep liver rejections for Scotland, England and Wales rose by 300%
- Prevalence rose from 2% to 9% in last 5y

## *Fasciola hepatica* Epidemiology in the UK

- Human cases not statutorially notifiable
- Thus, data very likely incomplete
- Rare, even in a Parasitology clinic

## HTD diagnosed cases

January 2008 to 2009 11 cases  
6 cases in the preceding 10 years

Are they indigenous?

## HTD diagnosed cases

Case definition:

- Positive IFAT test and either compatible clinical or radiological features

## HTD cases

- 2 UK with overseas travel
- 9 migrants

Somalia	5
Ethiopia	3
Yemen	1

## HTD cases- possible risk factors

**UK residents:** overseas travel

**Migrants:**

Years since migration

Not known in one case

Mean of 11.4 years for 8 cases  
(range 3 to 21)

Khat consumption in 7 cases

6 from one centre in the UK  
all used locally-bought khat

## Khat

Doherty JF et al (1995) Fasciola due to imported khat. Lancet; **345**: 462

Female from Yemen

Five year history of abdominal pain

Chronic *Fasciola hepatica*

Previous khat consumption

## What is Khat?

*Catha edulis*



## Khat



## Khat

Contains cathinone and cathine  
Stimulant and appetite suppressant

# Khat



## Home Office Online Report 47/05

Khat (also known or spelt as 'qat', 'jaad', 'qaat' or 'chat') is a plant most commonly grown in Eastern African or Middle Eastern countries. Its leaves are chewed for their stimulant effect mostly by people from these regions. Khat itself is legal in the UK, however the two main active ingredients (cathine and cathinone) are Class C controlled substances, under the Misuse of Drugs Act (1971).

There have, however, been some concerns about the effects of khat. Research on a Somali population in London in the 1990s (Griffiths, 1998), reported health effects of khat use including sleeping difficulties, paranoia and mood swings. Other research indicates that frequent khat use can have physical health implications, such as oral infections or problems with digestion (Ali *et al.*, 2004; Rassool and Abou-Saleh, 2000). There is also concern that people who do not wash khat before consuming it will ingest pesticides (Date *et al.*, 2004).



## Clinical features

- Acute invasive
  - Abdominal pain (8/11 HTD)
  - Eosinophilia (9/11 HTD; 1 to 18.7)
- Established/chronic
- May be none
  - “Gall bladder” pain
  - Dyspepsia

## Complications

- Cholecystitis
- Cholangitis (HTD one gram neg sepsis)
- Biliary colic
- Biliary obstruction
- Liver abscess
- Ectopic flukes

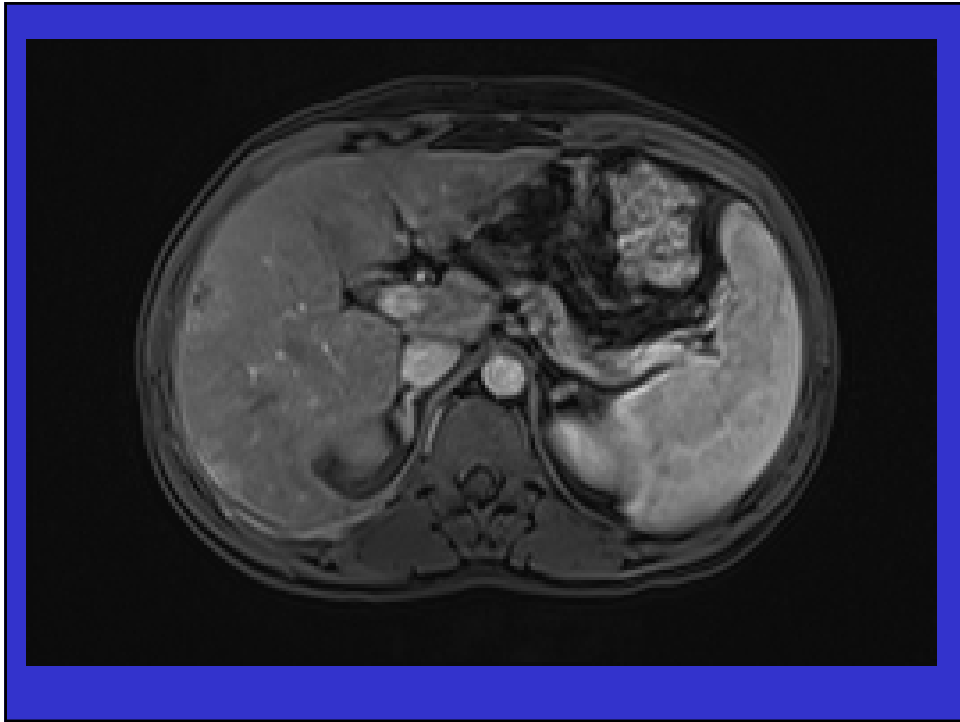
## HTD Imaging appearances

- Normal in 2 cases
- 8 cases heterogeneous, serpiginous, low or mixed density lesions
- One lesion in hepatic vein (query relevant)

## Diagnosis – Imaging appearances

Lim JH et al (2007) AJR; 188: 1596-1603

- Clusters of tract-like microabscesses
  - usually subcapsular
- Large cyst-like necrotic lesions
- Non-specific biliary dilatation
  - single or multiple filling defects



## Diagnosis

- Microscopy of faeces or duodenal juice for ova
- Antibody detection

## Faecal Microscopy for ova



## Problems with microscopy

- Eggs may be shed intermittently
- Eggs may be shed in low numbers
- Eggs may be missed by microscopists not used to seeing them, ie those working where human cases are rarely seen

## Antibody detection

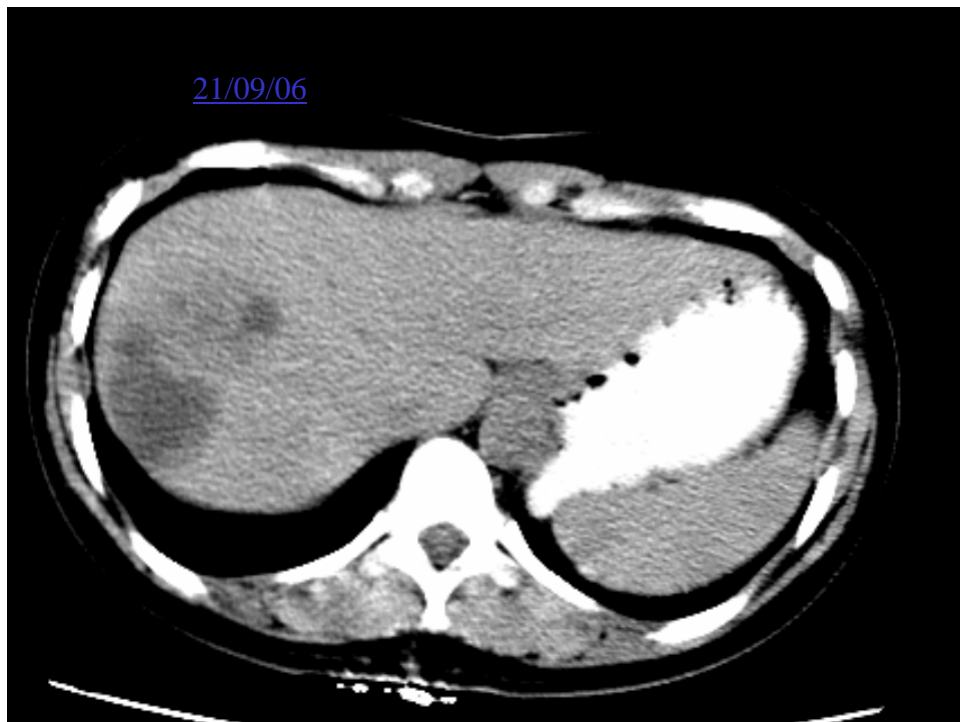
- IFAT
- ELISA
- Serology is approx. 90% sensitive
- May be positive when ova not detected
  - early cases
  - low worm burden

## Misdiagnosis

- Hydatid disease (serological cross-reaction)
- Peptic ulceration
- Gall bladder disease
- Suspected malignancy

## Female aged 21 from Bangladesh

- September 2006  
Admitted with acute abdominal pain,  
nausea and vomiting
- CT Abdomen: liver lesions
- Eosinophil count 1.72 (NR 0.4)



## Eosinophilia and liver lesions

- Liver biopsy

Liver with necrosis palisaded by histiocytes and occasional multinucleate giant cells. These areas disrupt portal tracts. Sheets of neutrophils and numerous eosinophils are present within areas of necrosis. Suggests liver abscesses with a peripheral granulomatous response.

## Eosinophilia and liver lesions

- Differential diagnosis

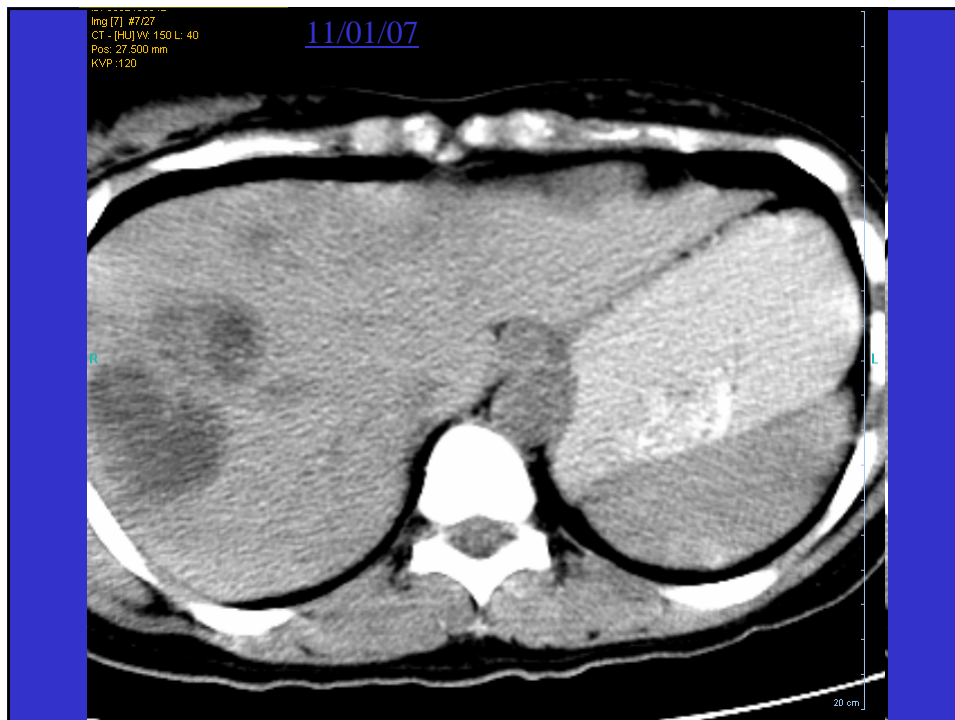
Tuberculosis

Hydatid cyst

No evidence of malignancy

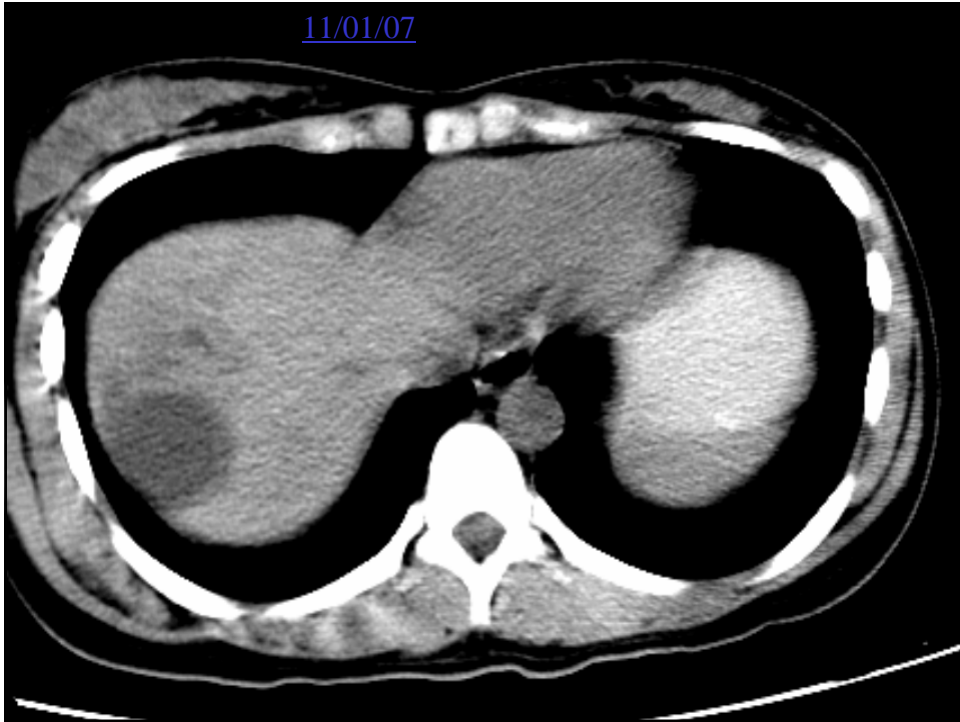
## Eosinophilia and liver lesions

- Eosinophil count rose to 10.34 in Dec 06
- Repeat scan Jan 07





11/01/07



## Eosinophilia and liver lesions

- March 2007  
Case discussed with HTD  
Suspected migrating parasite
- *Fasciola* serology diagnostic  
IFAT titre 1 in 1024
- Treated with triclabendazole

## *Fasciola hepatica* infection

- April 2008  
MR MRCP much improved  
Residual common bile duct dilatation
- October 2008  
Very well
- Risk factors? No khat; occasional betel leaf

## Triclabendazole

- Benzimidazole
- Binds to tubulin and affects
  - intracellular transport
  - protein synthesis
- Kills mature and immature flukes

## Treatment

- Triclabendazole 10 mg/kg po once
- Preceded by an antispasmodic
- Second dose may be required 2 weeks later
- Reported cure rates of 79 to 100%

## Side effects post treatment

- Increased right upper quadrant pain
- Colicky abdominal pain
- Dyspepsia
- Nausea

## Complications of treatment

- Biliary colic
- Biliary obstruction

## Triclabendazole resistance in the field

- First appeared in Australia in mid 1990s
- Reported in Europe from:
  - Ireland 1995
  - Scotland 1998
  - Wales and England
  - Spain
  - Netherlands

## Other drugs Artesunate?

- Hien TT et al (2008) Am J Trop Med Hyg. 78: 388-392
- Artesunate vs triclabendazole
- Artesunate more likely pain free at discharge 50/50 vs 44/50;  $p=0.027$
- But lower complete response rate at 3 months; 38/50 vs 46/50;  $p=0.05$

## The future

- Improved surveillance
- Awareness of risk
- Education about khat  
(especially the medical staff!)

