Hydatid disease of the liver

Other forms

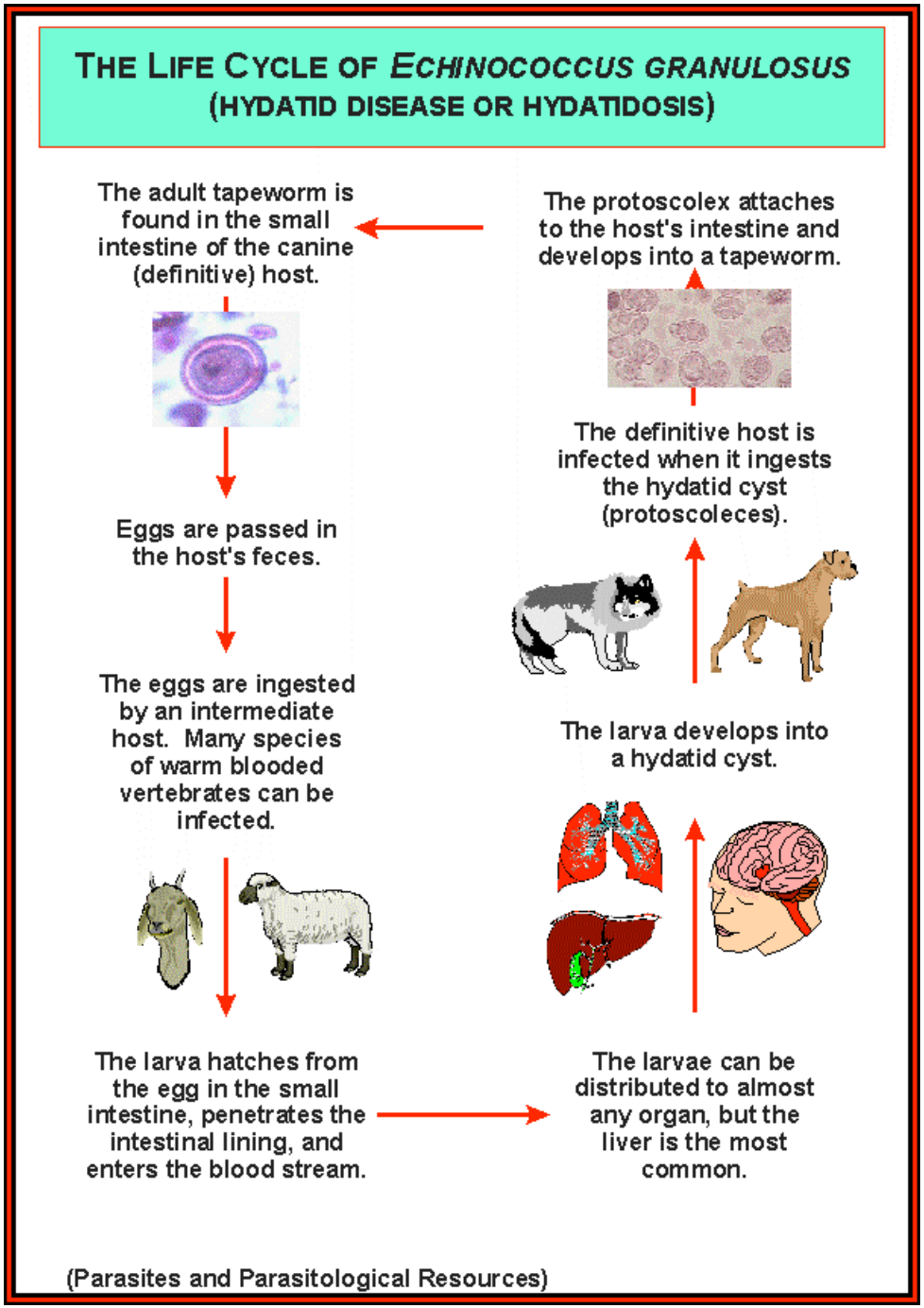
Echinoccous granulosus

Echinoccus multilocularis – alveolar hydatid disease

Differing stains – different hosts and intermediaries

Lifcycle of E. granulosus

?



Carnivores (dog, dingo) definitive host, lives in the small intestine

Sheds ova into faeces

Sheep, cattle (kangaroos, pigs) intermediate host

Majority of affected pateints have liver involvement

Liver

Lungs

Brain

Bone

Secondary spread

Endemic areas

?

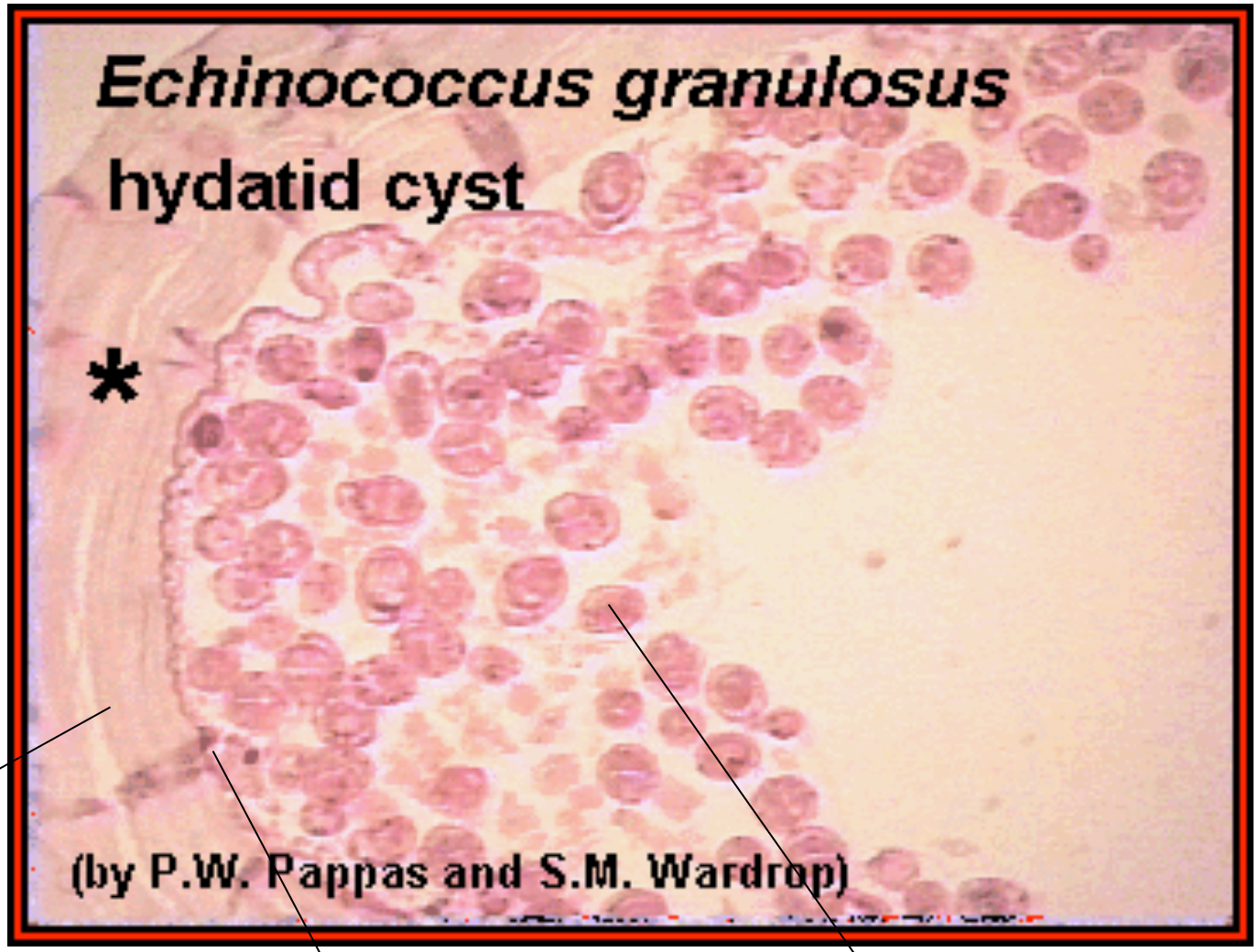
Endemic areas

- Mediterranean
- New Zealand / Australia
- Asia
- also Americas (north, south & central)

Pathology

Migration via portal circulation

Essentially creates a cyst (mucopolysaccharide) lined by inflammatory reaction of the host



Ectocyst (laminated membrane)

Endocyst (Germinal membrane)

Scoleces (400,000 scoleces per 1 ml of 'hydatid sand')

Natural History in Humans

Thought that some cysts die immediately

Essentially will continue to grow or die

Growth rate

?

Natural History in Humans

Thought that some cysts die immediately

Essentially will continue to grow or die

Growth rate

1-2 cm / year

Eventually reach the capsular surface of liver - rupture
- intraperitoneally
- intrathoracically
- biliary system

Presenting symptoms

Abdominal pain (RUQ mass) – Liver being pushed down
Jaundice
Acute abdomen/ Rupture
Cholangitis
Secondary infection
chest pain/cough/haemoptysis/bilioptysis

2013 patients
- uncomplicated 82%
- biliary complications 12%
- thoracic complications 2.2%
- other rarer complications

Zaouche et al Tunisienne de Chirurgie 1997

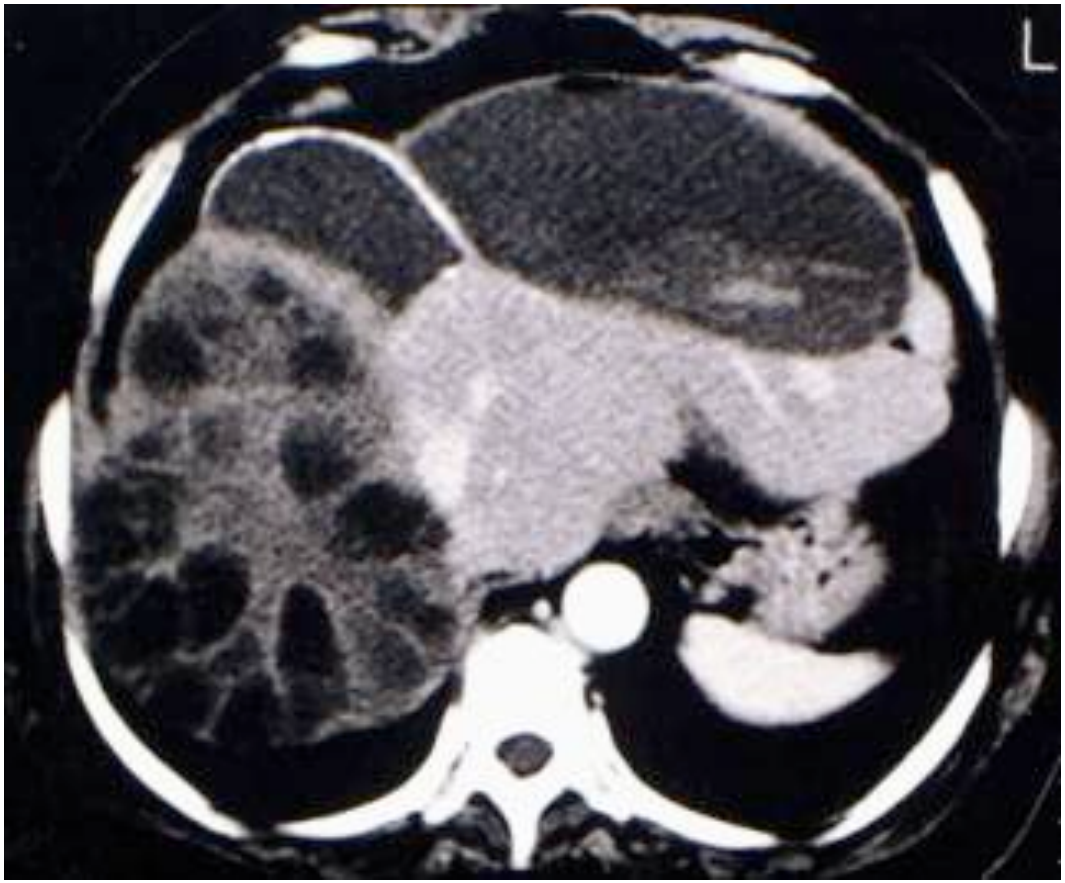
Diagnosis

Clinical and physical examination

esp history of exposure

Imaging

Blood tests



Ultrasound clasiification

(I) Pure fluid collection

(II) Fluid collection with a split wall

(III) Fluid collection with septa

(IV) Heterogenous echographic patterns

(V) Reflecting thick walls

Gharbi et al Radiology 1981

Laboratory diagnosis of hydatid disease

Tests:

?

Laboratory diagnosis of hydatid disease

Tests:

ELISA (Enzyme linked immunosorbent Assay)
very sensitive
cross reactive with other parasites

IEP
specific but only 90% sensitive
arc 5
us. becomes negative 6-12 months post death / Rx of cyst

Immuno HaemAglutination
- Has replaced the others over last 3 years
- Approx 98% accurate

Treatment

Symptomatic versus aysmptomatic

Options: 1. medical Rx only

2. surgery - open

- laparoscopic

3. percutaneous drainage

Benzimidazoles

Albendazole, mebendazole

Albendazole – most commonly used

? in combination with praziquantal

Anti-helminthic – direct effect on the parasite and perhaps on the cyst wall

Albendazole is administered in several 1-month oral doses (10-15 mg/kg/d) separated by 14-day intervals.

Side effect – hepatic enzyme distrubance, alopecia, glomerulonephritis, neutropaenia

Clinical response to albendazole

Best results:

1369 patients

444 (32.4%) cured

598 (43.7%) improved

327 (23.9%) unchanged

Current role of albendazole ± praziquantal

1. Perioperatively
2. widely disseminated disease
3. poor surgical risk
4. alveolar echinococcosis
5. Small deep seated hydatids

EBM review

Three available RCTs showed that ABZ had a better effect on hydatid cysts than placebo [17, 21] or MBZ[20]. One prospective controlled trial compared ABZ and praziquantel versus ABZ alone [24] and concluded that the combined treatment was more effective than ABZ alone. However, complete disappearance of all cysts was not reached according to these data. Therefore chemotherapy is not the ideal treatment for hydatid cyst of the liver when used alone (level II evidence, grade B recommendation).

Dzeri et al WJS 2004

Surgery

Principles – Remove all the hydatid scolicoles – complete removal of laminated membrane

Prevent abscess formation, sinus formation or biliary leak

Avoid intra-operative anaphylaxis

Avoid peritoneal spillage and dissemination

Definitve surgical options

Conservative

Radical

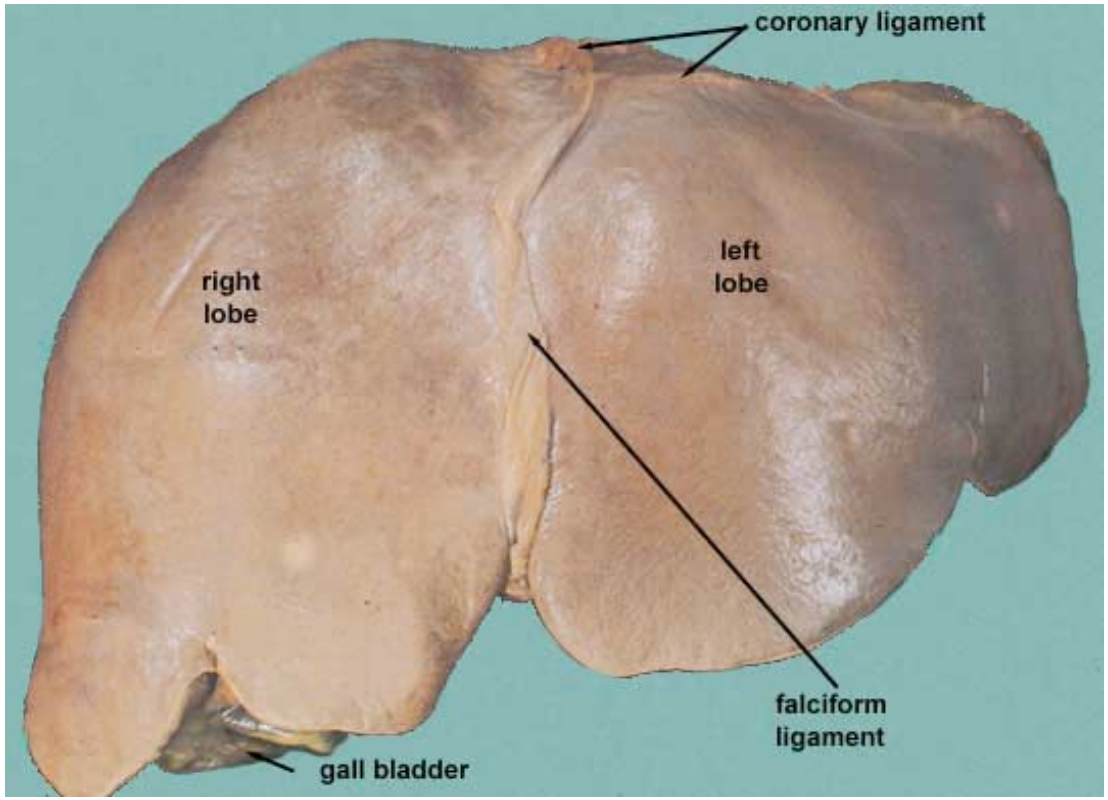
1) Excision of cyst and pericyst

2) Partial hepatectomy

Access – subcostal incisions

(midline, rooftop or thoracoabdominal)

Liver mobilisation



Pack behind liver and pack-off cyst

Scolicidal agents

?

Pack behind liver and pack-off cyst

Scolicidal agents

Most effective 15-20% saline

75% ethanol

0.1-0.5% cetrimide

1% povidine

Avoid Formalin & 0.5% Silver Nitrate

Aspirate cavity – avoid spillage of contents

Stay sutures, then open cyst

? Inject with scolocidal agent

Avoid scolocidal agents if the fluid is bile stained

Deal with residual cavity

Fill with saline or pack with omentum

Close

Drain the area

Communication with the biliary tree

Clinical or biochemical suspicion

Visual inspection

Cholangiogram - identifies communication

- cysts in ducts

Biliary communications closed off with sutures if small, peripheral ducts

Larger duct communication is us. predictable on pre-op imaging (close to ducts, LFTs)

consider: ECBD

T-tube

Percutaneous aspiration, injection and reaspiration (PAIR)

Scolicidal agents - ethanol, hypertonic saline, povodone

Used in conjunction with albendazole

< 5% incidence of anaphylaxis

Safe and effective

Uncomplicated cysts

Percutaneous aspiration, injection and reaspiration (PAIR)

Meta-analysis 769 patients with PAIR + Albendazole vs 952 era-matched patients treated surgically

Pair & Alb ↑ clinical efficacy

↓ morbidity, mortality, recurrence

↓ LOS

Smego Clin infect Dis 2003

According to our systematic review, PAIR with or without benzimidazole coverage may be comparable or superior to surgery or medical treatment with benzimidazoles alone for uncomplicated hepatic hydatid cysts, but the data are not sufficient to draw definite conclusions. Therefore, we cannot recommend the use of PAIR with or without benzimidazole coverage outside randomised clinical trials for treating patients with uncomplicated hepatic hydatid cyst.

Cochrane Collaboration 2006