Simple Cystic Liver Disease

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Simple Cystic Liver Disease
Epidemiology

- Incidence difficult to determine:
  - 0.14-0.53% based on autopsy studies
  - 2.5-4.75% based on imaging studies

- F>M:
  - 1.5F:1M
  - Symptoms more common in females
Pathogenesis:
Related to the type of cyst

HEPATIC CYSTS

Primary (Congenital)
- Simple Cyst
- PCLD

Secondary (Acquired)
- Infectious
- Neoplastic
- Traumatic
Pathogenesis

- **Simple**
  - congenital
  - abnormal development of intra-hepatic bile ducts in utero
  - no communication with the remainder of the biliary tree
  - lined by cuboidal epithelium
  - no malignant potential

- **Infectious**
  - echinococcal

- **Neoplastic**
  - cystadenoma
  - cystadenomacarcinoma

- **Trauma**
Most cysts are asymptomatic (76%)

Symptoms:
1. abdominal pain (50%)
2. early satiety, nausea, vomiting

Physical Examination:
1. palpable abdominal mass
2. jaundice
Diagnostic Evaluation

- Laboratory values:
  - LFT’s usually normal
  - echinococcal serology

- Imaging Studies:
  1) Abdominal radiograph
  2) Ultrasound
  3) Computed Tomography
  4) MRI
  5) angiography
  6) liver scintography
Ultrasound

- Initial test of choice
- Inexpensive, noninvasive
- Provides information about the rest of the biliary tree
- >90% sensitivity and specificity
- Simple cyst:
  - anechoic with back wall enhancement
  - smooth and thin walls
  - uni-locular
- Cystadenomas/cystadenocarcinomas:
  - septated, multilocular appearance

Computed Tomography

- Can provide additional information:
  - location of liver cysts
  - spatial relationships between liver cyst(s) and surrounding anatomic structures (vessels, viscera)

- CT findings:
  - non-enhancing, fluid density lesions
  - thin, uniform wall
  - if septated, multilocular or papillary projections are present then the diagnosis of cystadenoma or cystadenocarcinoma must be considered
MRI

- Rarely used to image cystic hepatic structures
- No role for distinguishing benign from malignant disease
- Knowledge of appearance on MRI useful when cystic hepatic structures are incidental findings:
  - SIMPLE: dense on T1, intense on T2
  - HEMORRHAGIC: intense on both T1 and T2
  - NEOPLASTIC: multiloculated, septated
Treatment

- **Percutaneous**
  1) Aspiration
  2) Aspiration and injection of sclerosing agent

- **Surgical (open or laparoscopic)**
  1) unroofing/fenestration/marsupialization
  2) cystectomy
  3) hepatic resection
Surgical Intervention: The Case for Fenestration

- N=78
  - Simple =61
    Echinococcal =8
    Cystadenomas =8
    Cystadenocarcinoma =1

- Retrospective review over 15 years
- Adults
  - ages 25-81 (mean 61.2)
- Hepatic cysts >4cm diameter
- Follow up over 5.3 years

Regev, A. AmCollSurg: 2001; 193, 1: 36-45
Surgical Intervention: The Case for Fenestration

- All patients had normal LFT’s
- All patients had U/S and CT:
  - Radiographic characteristics used as primary tool for delineating cyst as either simple, parasitic or possibly malignant
Surgical Intervention: The Case for Fenestration

- Cyst
  - Septated
    - Echinococcal
      - Resection vs. Unroofing
    - Non-echinococcal
      - Resection
  - US/CT
- Simple
  - Asymptomatic
    - Observe
  - Symptomatic
    - PCLD
      - Dominant cysts
      - Multiple small cysts
      - Unroofing vs. Resection
      - Unroofing
      - Simple cyst confirmed
      - Resection
    - Simple or Multicystic
      - Unroofing
      - Other
      - Resection
Surgical Intervention: The Case for Fenestration

- 50% had percutaneous aspiration with injection of alcohol:
  - 100% recurrence of symptoms
  - recurrence over 3 weeks → 9 months

- 84% eventually managed surgically
Surgical Intervention: The Case for Fenestration

- 57 patients managed surgically:

  1) Fenestration (52)
     - Laparotomy between 1984 and 1993 (34)
     - Laparoscopically after 1993 (18)

  2) Segmentectomy/lobectomy (5)
     - Performed for suspected diagnosis of malignancy
       on intra-op frozen section (all subsequently ruled out)
Surgical Intervention: The Case for Fenestration

- 4% had recurrence of symptoms after 5.3 years
- 12.5% had follow up imaging demonstrating recurrence of small (2-4 cm) cysts without associated symptoms
- No post operative morbidities or mortalities

Regev A. Am Coll Surg: 2001; 193, 1: 36-45
Conclusion

- Aspiration associated with high failure rate
- Surgical fenestration the only definitive treatment of symptomatic simple cysts:
  - low incidence of cyst recurrence (12.5%)
  - even lower incidence of recurrent symptoms (4%)
  - low rate of complications both open and laparoscopically
  - laparoscopic fenestration avoids creation of a debilitating incision and should be the procedure of choice when anatomically feasible

Regev, A. Am Coll Surg: 2001; 193,1: 36-45
## Laparoscopic Treatment

### Table 3. Results of Surgical Treatment of Liver Cysts

<table>
<thead>
<tr>
<th>Lead author</th>
<th>Year</th>
<th>n</th>
<th>Treatment</th>
<th>Complications</th>
<th>Recurrence</th>
<th>Followup (mo)</th>
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<td>Longmire[^36]</td>
<td>1974</td>
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