

Simple Cystic Liver Disease

Kimberly M. Chan, M.D.
Long Island College Hospital



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

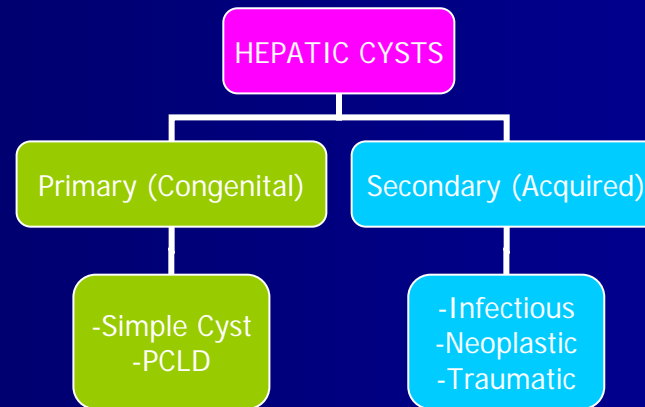
- $F > M$:

 - 1.5F:1M

 - symptoms more common in females

Pathogenesis:

Related to the type of cyst



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

Presentation

- 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 scintigraphy

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)

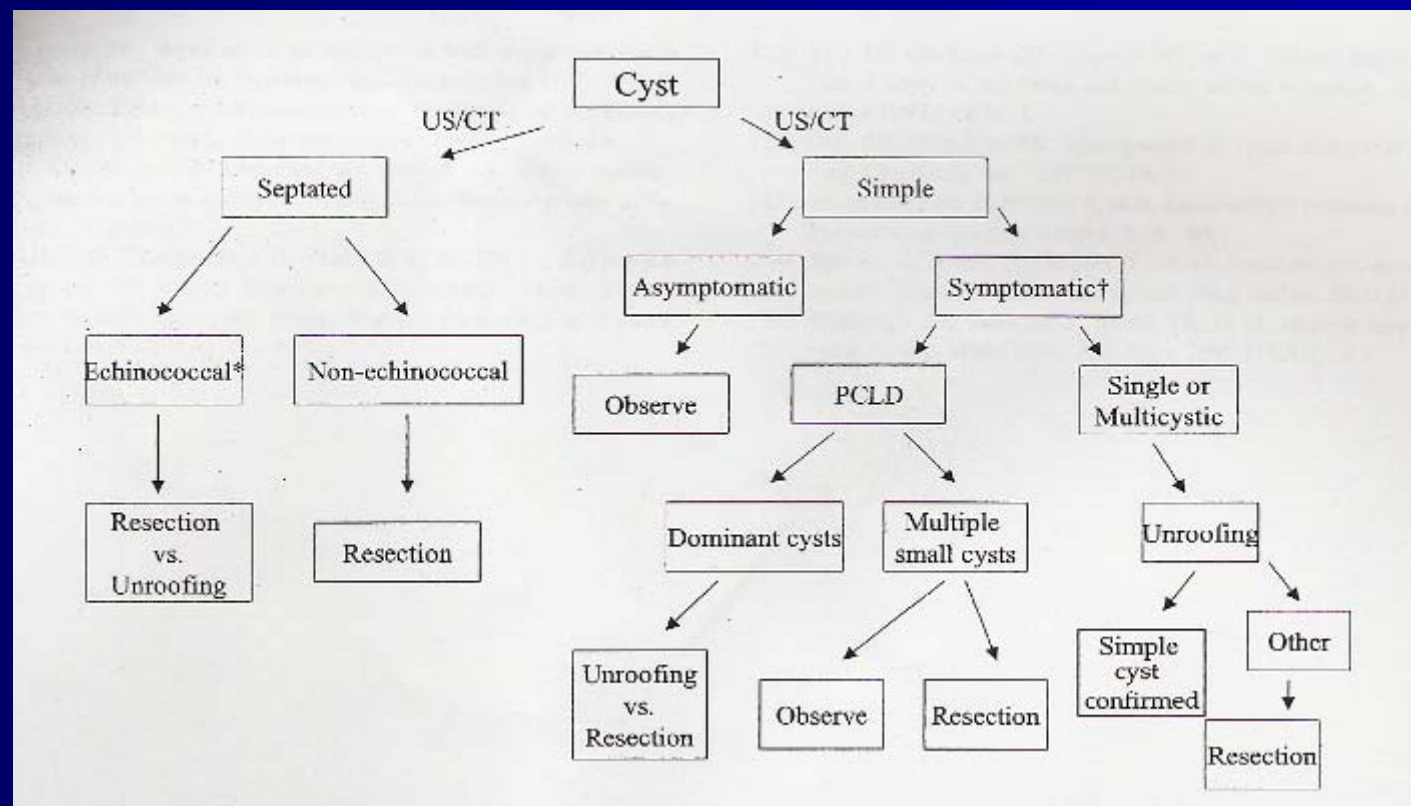
- Hepatic cysts >4cm diameter

- Follow up over 5.3 years

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



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

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

Laparoscopic Treatment

Table 3. Results of Surgical Treatment of Liver Cysts

Lead author	Year	n	Treatment	Complications	Recurrence	Followup (mo)
Longmire ³⁸	1974	5	Cyst excision (2) Cystenterostomy (2) Aspiration (1)	None	1*	Not reported
Edwards ⁴⁴	1987	6	Unroofing (3) Cyst excision (1) Lobectomy (2)	None	None	3-12
Lai ³⁹	1990	7	Unroofing (4) Cyst excision (2) Fenestration (1)	None	None	24+
Nelson ³⁹	1992	3	Unroofing	None	None	18
Henne- Bruns ⁴⁰	1993	6	Unroofing (3) Cyst excision (3)	None	None	5-32
Madariaga ³⁷	1993	19	Resection	Death (1/19)	None	12-108
Herman ⁴¹	1996	10	Unroofing	None	None	30
Koperna ⁴²	1997	27	Fenestration (20) Resection (4) Cystjejunostomy (3)	Bleeding (1/27)	None	74
Martin ⁷	1998	10	Unroofing (7) Resection (3)	Not reported	2†	4-104
Kakizaki ⁴³	1998	9	Unroofing (5) Cyst excision (2) Fenestration (2)	None	None	43