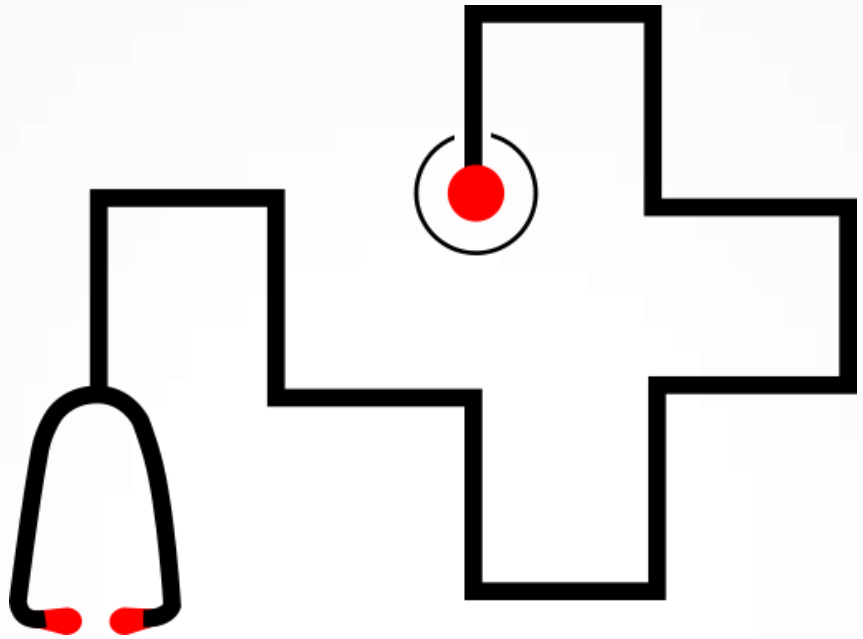


CHUYÊN ĐỀ

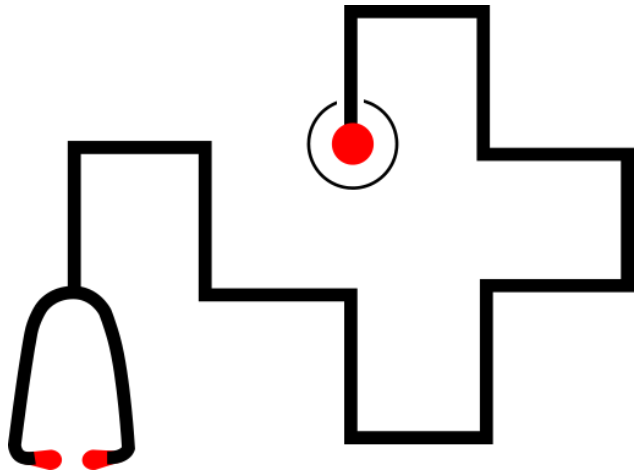
SỎI ĐƯỜNG MẬT

Chuyên đề : Sỏi đường mật

Giảng viên hướng dẫn : **ThS.BS. Lê Quan Anh Tuấn**

Thành viên thực hiện :

1. **Trương Quang Bảo**
2. **Lê Minh Đức**
3. **Đào Thị Thu Hiền**
4. **Nguyễn Thị Diệu Hiền**
5. **Phạm Nguyên Huân**
6. **Đặng Quang Huy**
7. **Lương Xuân Khuê**
8. **Nông Tuấn Mạnh**



Giải phẫu ứng dụng điều trị bệnh sỏi đường mật

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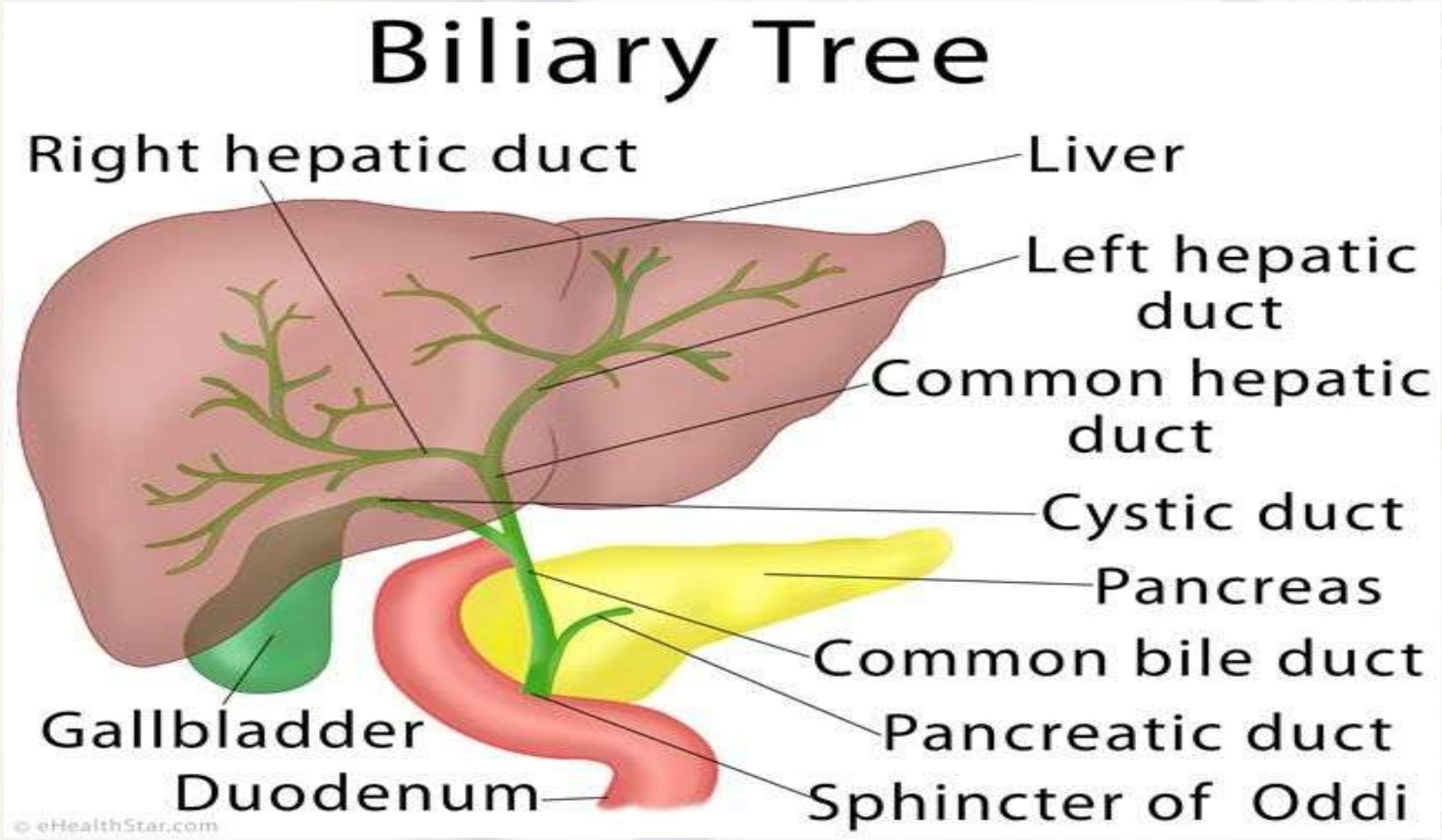
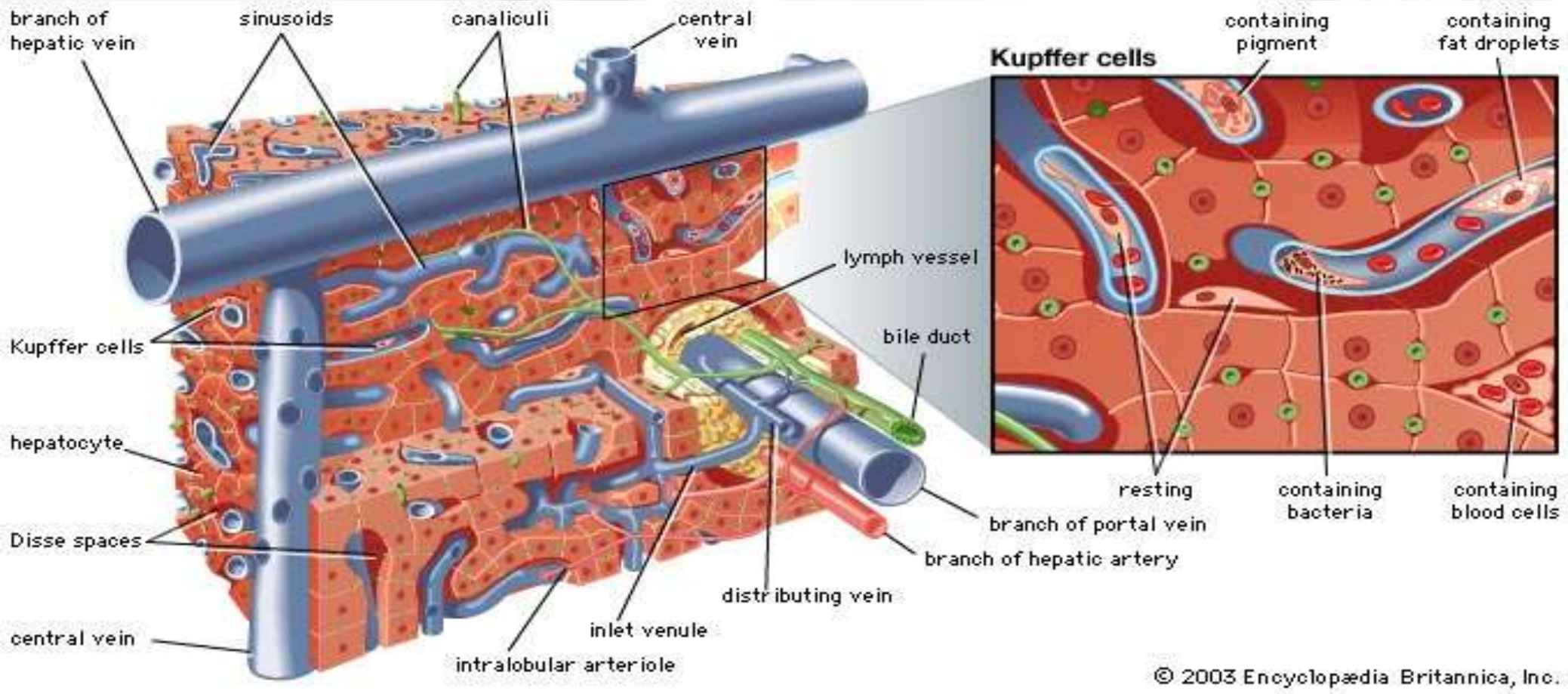
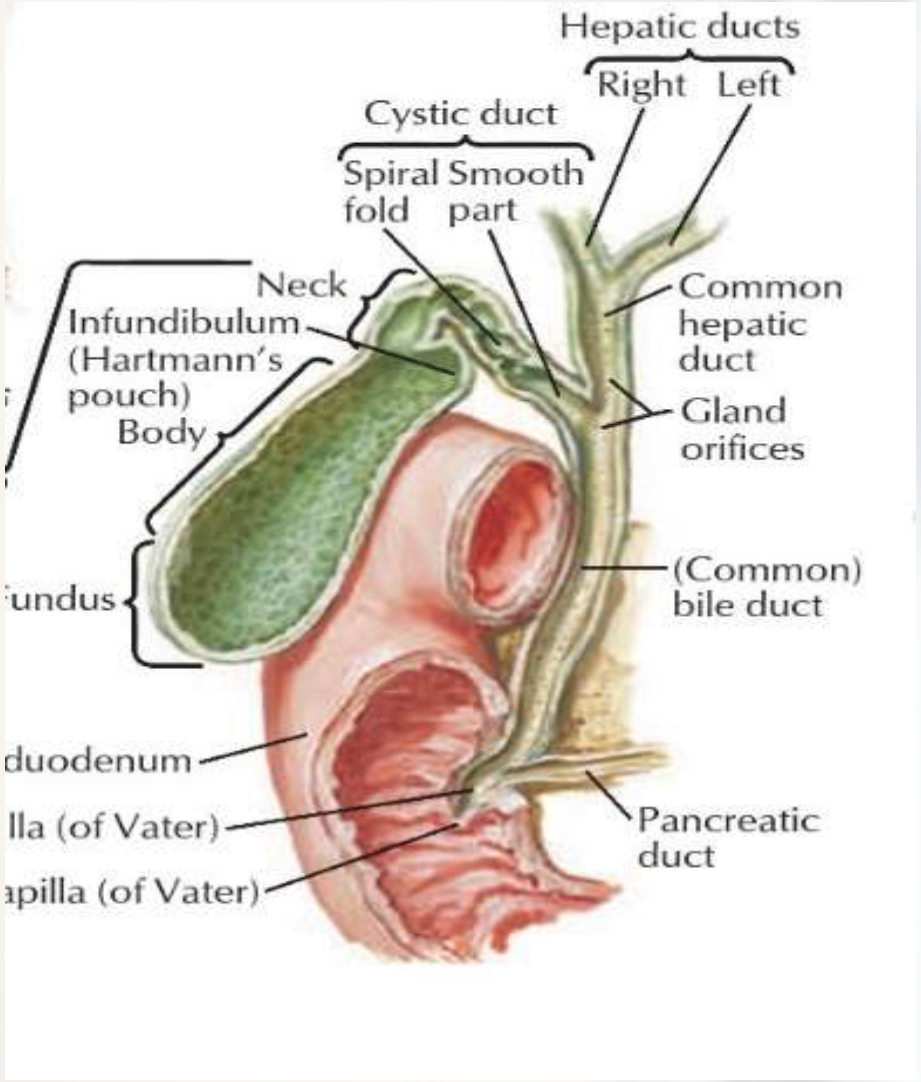
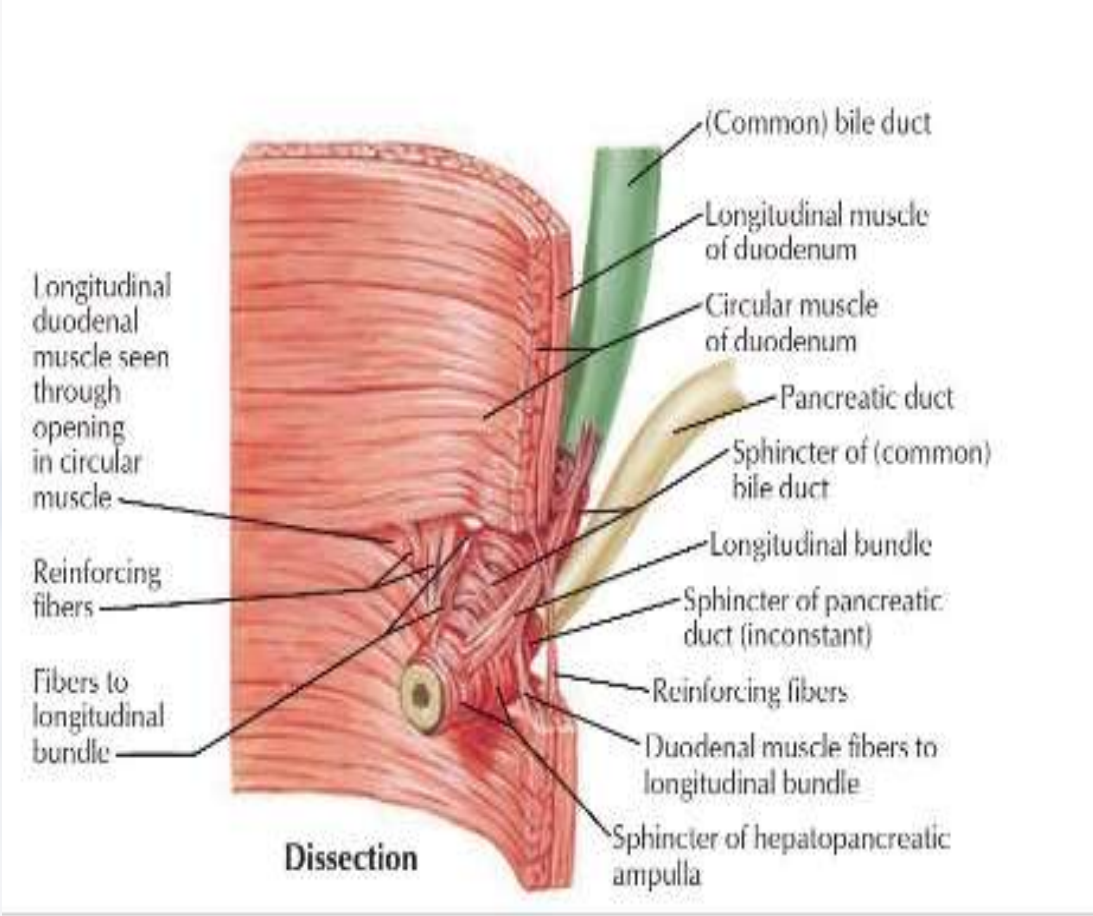


Giải phẫu ứng dụng điều trị bệnh sỏi đường mật



Giải phẫu ứng dụng điều trị bệnh sỏi đường mật

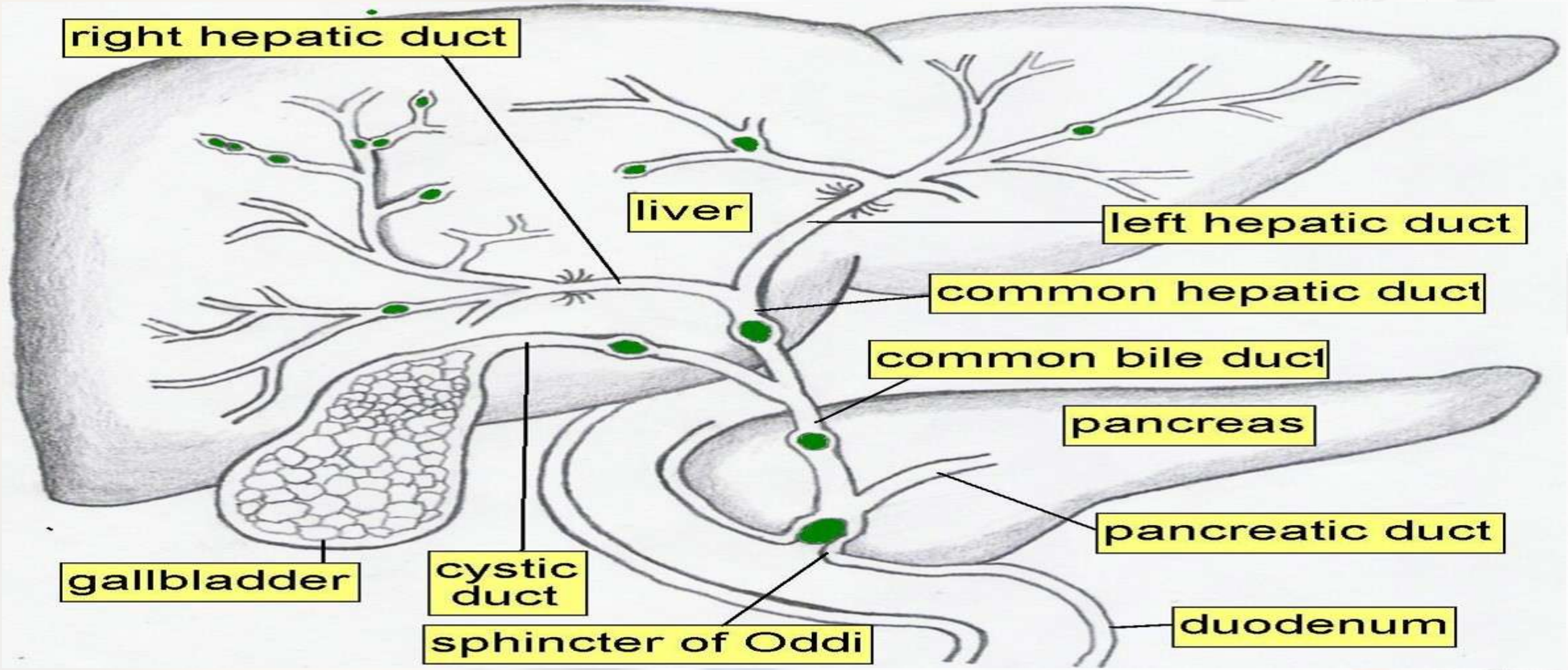




Giải phẫu ứng dụng điều trị bệnh sỏi đường mật

- Dịch vàng tươi hay vàng hơi xanh, trong, hơi quánh
- Có vị đắng
- Có pH tác dụng trung hòa dưỡng trấp từ dạ dày xuống
- Gồm nước (90%), thành phân hóa học gồm cholesterol tự do, acid mật và muối mật(acid choline và muối glycincholat, taurincholat), sắc tố mật (bilirubin liên hợp) và phospholipid (chủ yếu là lecithin)
- Cholesterol vốn không hòa tan trong nước), dạng hòa tan trong dịch mật nhờ muối mật và lecithin

Sỏi mật


right hepatic duct
liver
left hepatic duct
common hepatic duct
common bile duct
pancreas
pancreatic duct
gallbladder
cystic duct
sphincter of Oddi
duodenum

Sỏi mật

- Theo vị trí
  - Sỏi túi mật
  - Sỏi đường mật chính.
    - Sỏi ống mật trong gan (hay sỏi trong gan)
      - *sỏi ống mật trong gan thứ phát*
      - *sỏi ống mật trong gan nguyên phát*
    - Sỏi ống mật chủ (ngoài gan).
      - *sỏi ống mật chủ thứ phát*
      - *sỏi ống mật chủ nguyên phát*
- Theo thành phần
  - Sỏi cholesterol
  - Sỏi sắc tố mật
  - Sỏi hỗn hợp

↑Cholesterol
Acid mật bình thường
(tăng bài tiết cholesterol mật: béo phì, thuốc: clofibrat…)

Cholesterol bình thường
↓Acid mật
(giảm tổng hợp ở gan, ảnh hưởng tới lưu thông ruột non- gan: bệnh hồi tràng, cắt bỏ hồi tràng,…)

↑Cholesterol
↓Acid mật
(tăng tiết cholesterol mật, giảm bài tiết acid mật: (người già, sụt cân…)

Cholesterol/acid mật↑

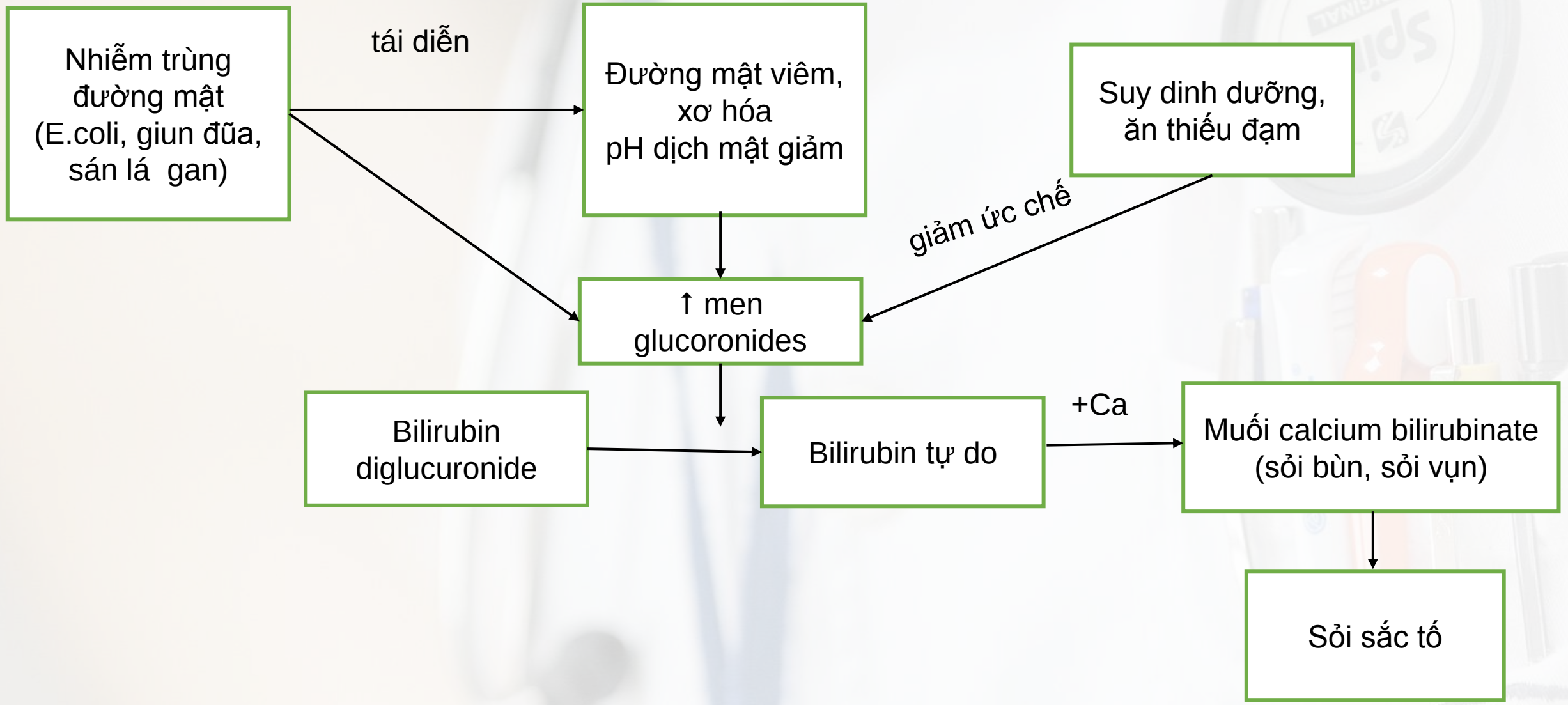
Chức năng vận động túi mật bất thường
Giảm nhu động túi mật

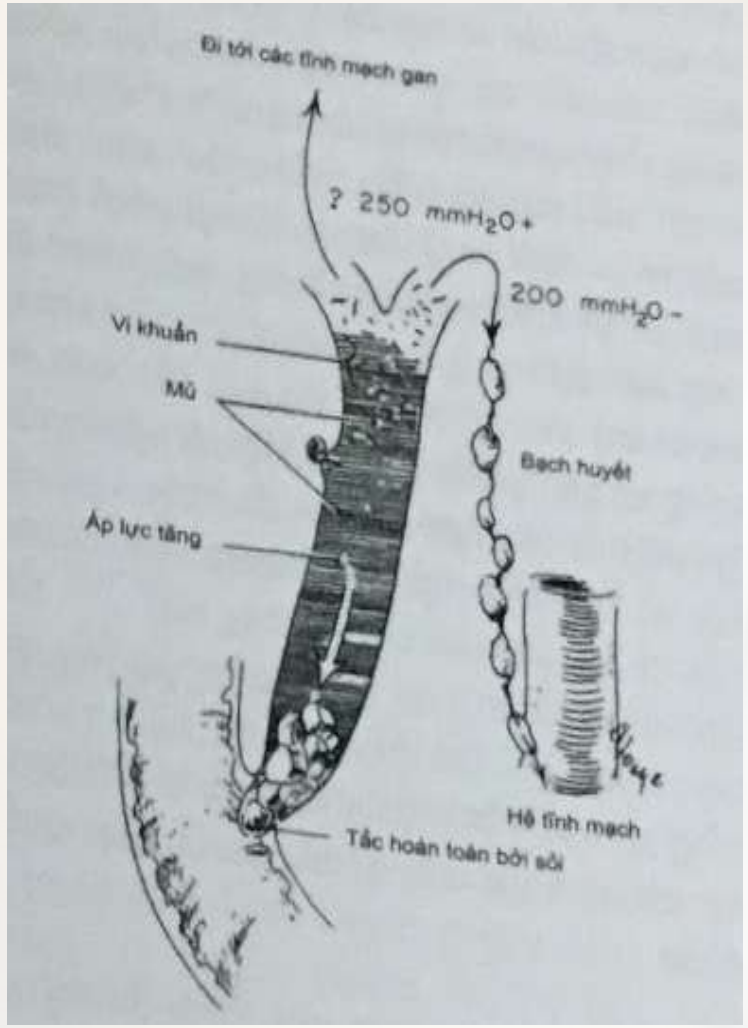
Tạo hạt nhân

Ứ đọng mật

Sỏi mật

Cơ chế tạo sỏi sắc tố mật





Tắc mật
giai đoạn sớm, gan vẫn tiếp tục tiết mật

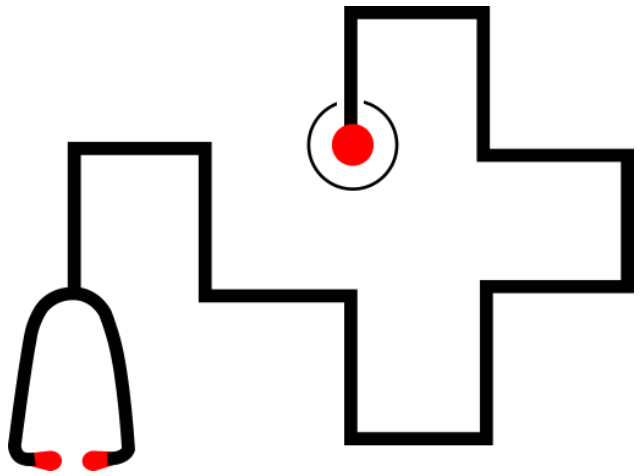
Tăng áp suất đường mật

Vi khuẩn có thời gian sinh sản

Đi ngược dòng vào gan và hạch bạch huyết quanh gan

Viêm đường mật

Vi khuẩn huyết



Triệu chứng lâm sàng

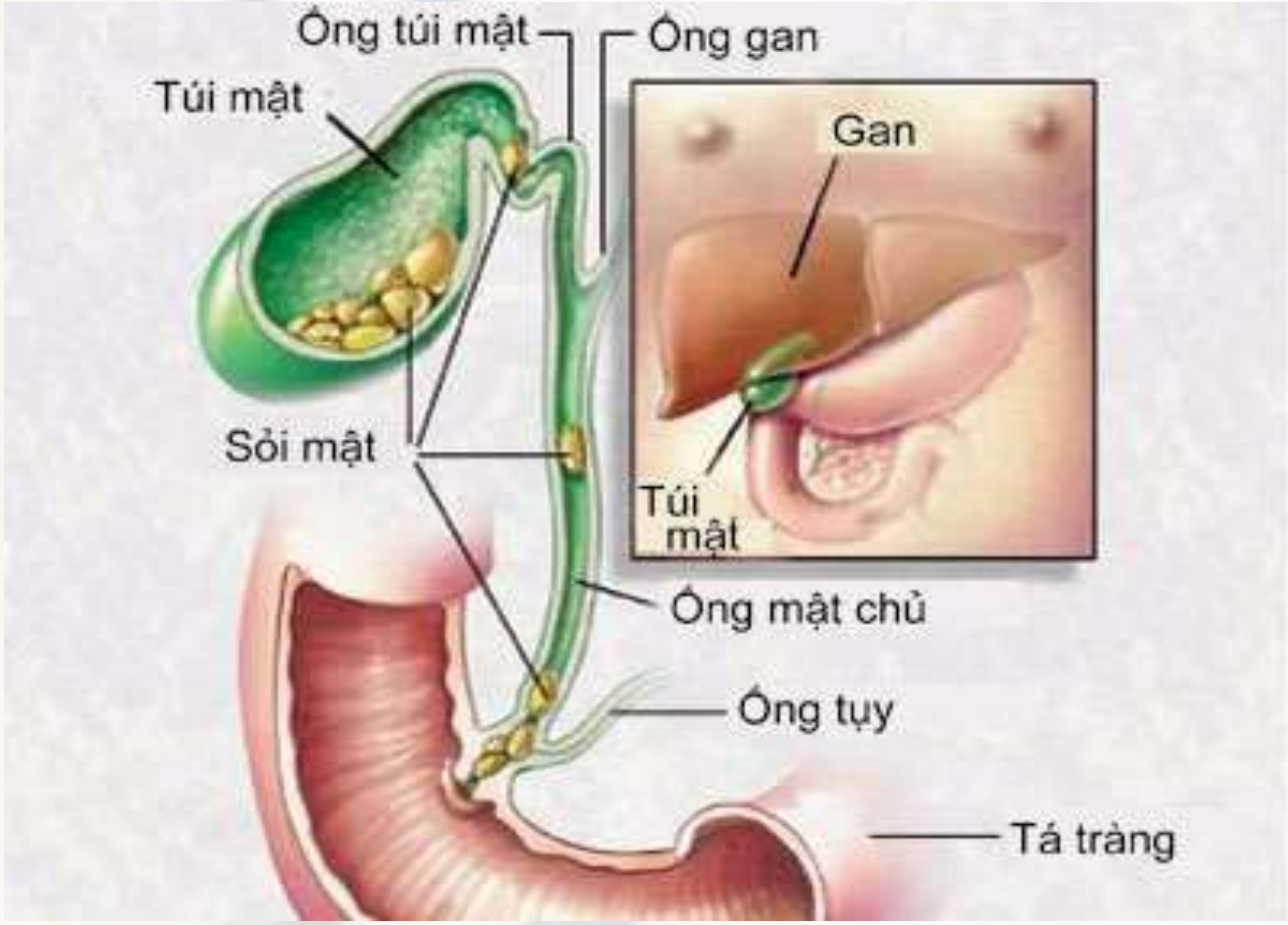
Triệu chứng lâm sàng:

Triệu chứng lâm sàng:

- Nhiều bệnh nhân có sỏi đường mật chình mà không có triệu chứng lâm sàng.
- Đường mật chính có các ống mật trong gan và ngoài gan.
- Các ống mật ngoài gan cũng có những đoạn khác nhau, cho nên những triệu chứng của bệnh cũng có những điểm khác nhau.

Triệu chứng lâm sàng:

1.Sỏi đường mật : Sỏi mật thường gây các triệu chứng do chúng làm viêm hoặc tắc ống túi mật hay ống mật chủ khi chúng di chuyển.



Triệu chứng lâm sàng:

Triệu chứng điển hình là đau (TCCN quan trọng):

- Tắc ống mật chủ hay ống mật do sỏi → tăng áp lực tại miệng tắc và áp lực trong lòng ống mật→ cơn đau tạng, cảm giác đè nén ở thượng vị hoặc hạ sườn phải sau dữ dội, liên tục hay lan sang vùng giữa bả vai, vai phải ra sau lưng, cơn đau kéo dài thất thường từ vài ba giờ tới vài ba ngày.
- Đau càng ngày càng tăng dần do áp lực ngày càng tăng.
- Giữa các cơn đau là thời gian hoàn toàn im lặng hoặc đau âm ỉ.
- Có thể có nôn và buồn nôn, sau nôn không bớt đau.
- Bệnh nhân thường nằm ở tư thế gập người, ôm bụng. Ở tư thế này có thể giúp bệnh nhân giảm đau chút đỉnh.

Triệu chứng lâm sàng:

- Triệu chứng toàn thân: viêm đường mật.
- Sốt: Tắc mật + nhiễm trùng đường mật→ viêm đường mật→ sốt: sốt cao, nhiệt độ 38-39° C, ớn lạnh, rét run.
- Nhiễm trùng huyết dễ xuất hiện trong viêm đường mật.
- Da vàng: xuất hiện rõ sau sốt 1- 2 ngày:
  - Tùy theo mức độ tắc mật.
  - Vị trí: tắc mật ở đoạn thấp ống mật chủ có dấu hiệu rõ hơn là sỏi trong gan.
- Ngứa nhiều.
- Phân bạc màu, nước tiểu sẫm màu.

Triệu chứng lâm sàng:

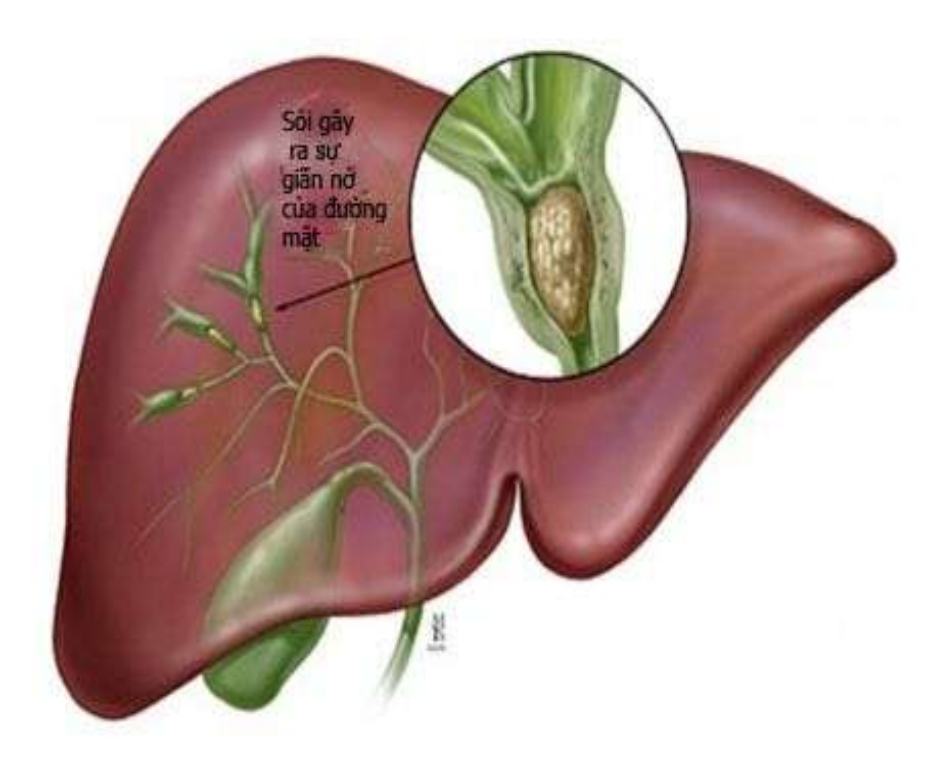
Triệu chứng thực thể :

- Phản ứng thành bụng,nhiều nhất ở vùng tam giác Chauffard-Rivet.
- Ấn đau vùng HSP.
- Gan có thể bình thường hoặc to
- Có thể ấn đau điểm Mayo-Robson

Triệu chứng lâm sàng:

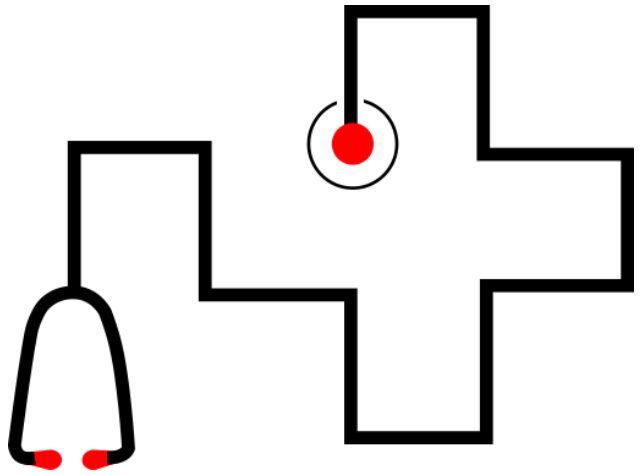
2.Sỏi đường mật trong gan:

- Sỏi đường mật trong gan đa số có triệu chứng. Bệnh cảnh thường gặp nhất là viêm đường mật cấp biểu hiện:



Triệu chứng lâm sàng:

- Đau hạ sườn phải.
- Sốt.
- Có thể có da vàng hoặc không tùy mức độ tắc nghẽn.
- Ngoài ra trong trường hợp nhiễm trùng nặng có thể có thêm 2 triệu chứng báo hiệu tiên lượng nặng là giảm tri giác và hạ huyết áp → Ngũ chứng Raynold.



Tiếp cận ban đầu
Cận lâm sàng

Flowchart for inititial response for acute biliary infection

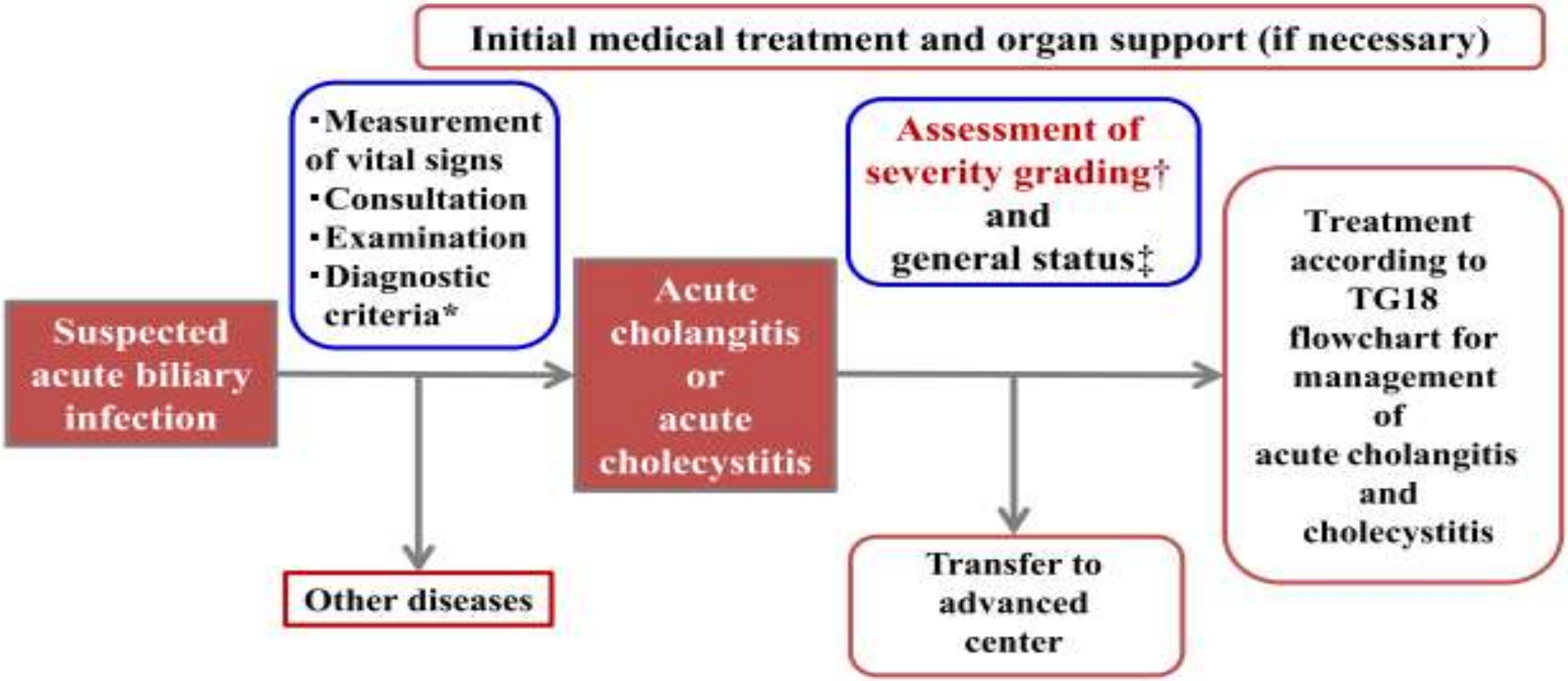


Fig. 1 TG18 flowchart for the initial response to acute biliary infection. *TG18/TG13 diagnostic criteria for acute cholangitis [4] and cholecystitis [7] should be used. †TG18/TG13 severity assessment criteria for acute cholangitis [4] and cholecystitis [7] should be used. ‡Charlson comorbidity index (CCI) [10] and the American Society of Anesthesiologists (ASA) Physical Status (PS) classification [11] should be referred to

Suspected acute biliary infection

- Tri giác
- Mạch
  Huyết áp
- Thể tích
  nước tiểu
- SpO2
  Nhịp thở
- Kết mạc mi mắt
- Dấu hiệu Murphy
  Đề kháng

Tiêu chuẩn chẩn đoán viêm đường mật cấp

Table 1 TG18/TG13 diagnostic criteria for acute cholangitis

A. Systemic inflammation

A-1. Fever and/or shaking chills

A-2. Laboratory data: evidence of inflammatory response

B. Cholestasis

B-1. Jaundice

B-2. Laboratory data: abnormal liver function tests

C. Imaging

C-1. Biliary dilatation

C-2. Evidence of the etiology on imaging (stricture, stone, stent, etc)

Suspected diagnosis: one item in A + one item in either B or C

Definite diagnosis: one item in A, one item in B and one item in C

A-2: Abnormal white blood cell counts, increase of serum C-reactive protein levels, and other changes indicating inflammation

B-2: Increased serum ALP, r-GTP (GGT), AST, and ALT levels

Thresholds

A-1	Fever		BT >38°C
A-2	Evidence of inflammatory response	WBC (×1,000/μl)	<4 or >10
		CRP (mg/dl)	≥1
B-1	Jaundice		T-Bil ≥2 (mg/dl)
B-2	Abnormal liver function tests	ALP (IU)	>1.5 × STD
		γGTP (IU)	>1.5 × STD
		AST (IU)	>1.5 × STD
		ALT (IU)	>1.5 × STD

Cited from Kiriyama et al. [4]

ALP alkaline phosphatase, *ALT* alanine aminotransferase, *AST* aspartate aminotransferase, *rGTP (GGT)* r-glutamyltransferase, *STD* upper limit of normal value

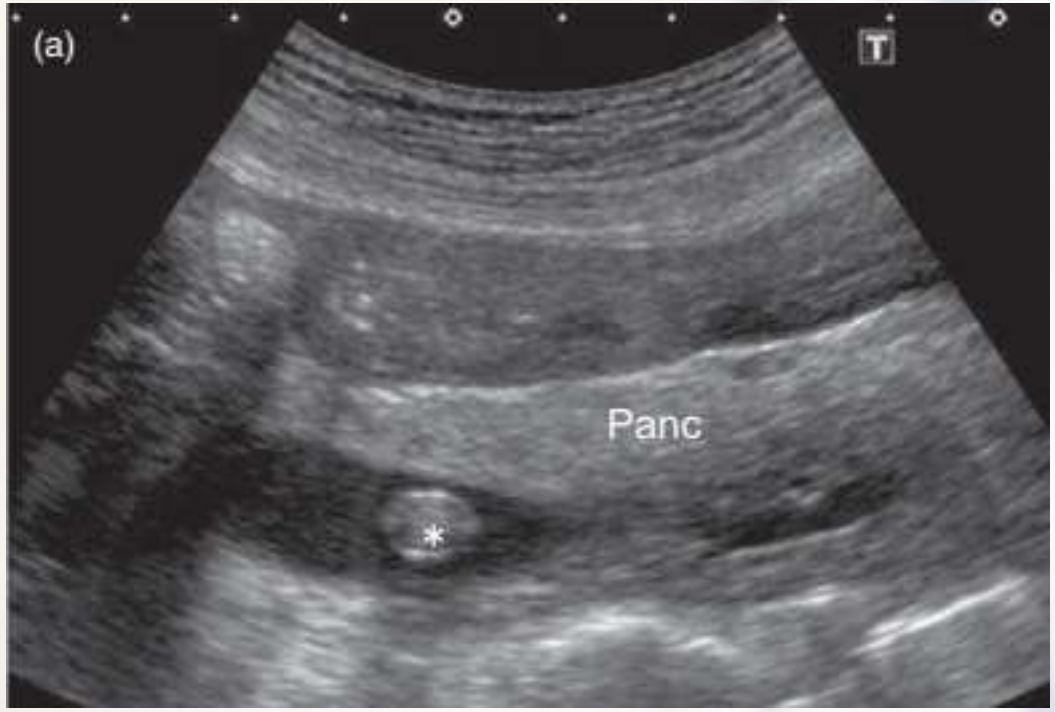
Cận lâm sàng xác định chẩn đoán

- Xét nghiệm máu: WBC, PLT, CRP, albumin, ALP, GGT, AST, ALT, BUN, creatinin, PT, INR -> Nếu có sốt cao thì thêm cấy máu.
- Siêu âm bụng: hình ảnh túi mật to, dày thật túi mật, sỏi túi mật, ứ dịch quanh túi mật, áp xe quanh túi mật, sỏi bùn trong túi mật và dấu Murphy siêu âm bụng (đau khi đầu dò đè vào túi mật)
- CT scans
- MRI/MRCP: Khuyến cáo dùng khi SÂ bụng hoặc CT-scan không cho chẩn đoán chắc chắn

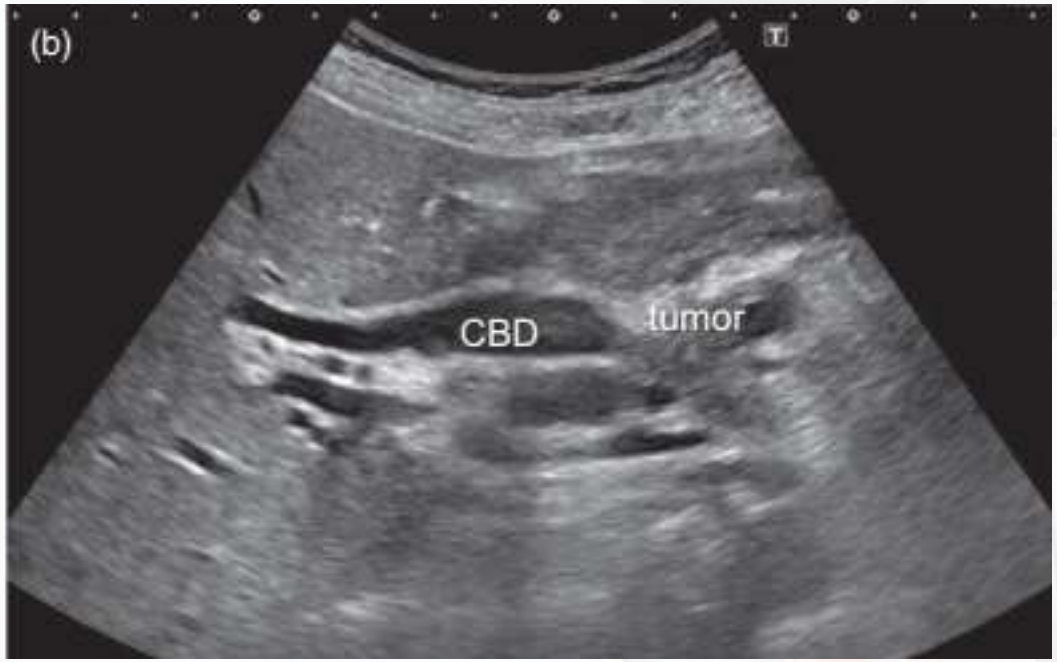
Giá trị của siêu âm

Phân tích ngang bởi Abboud:

- Dãn ống mật chủ: Độ nhạy 42%, độ đặc hiệu 96%
- Sỏi ống mật: Độ nhạy 38%, độ đặc hiệu 100%



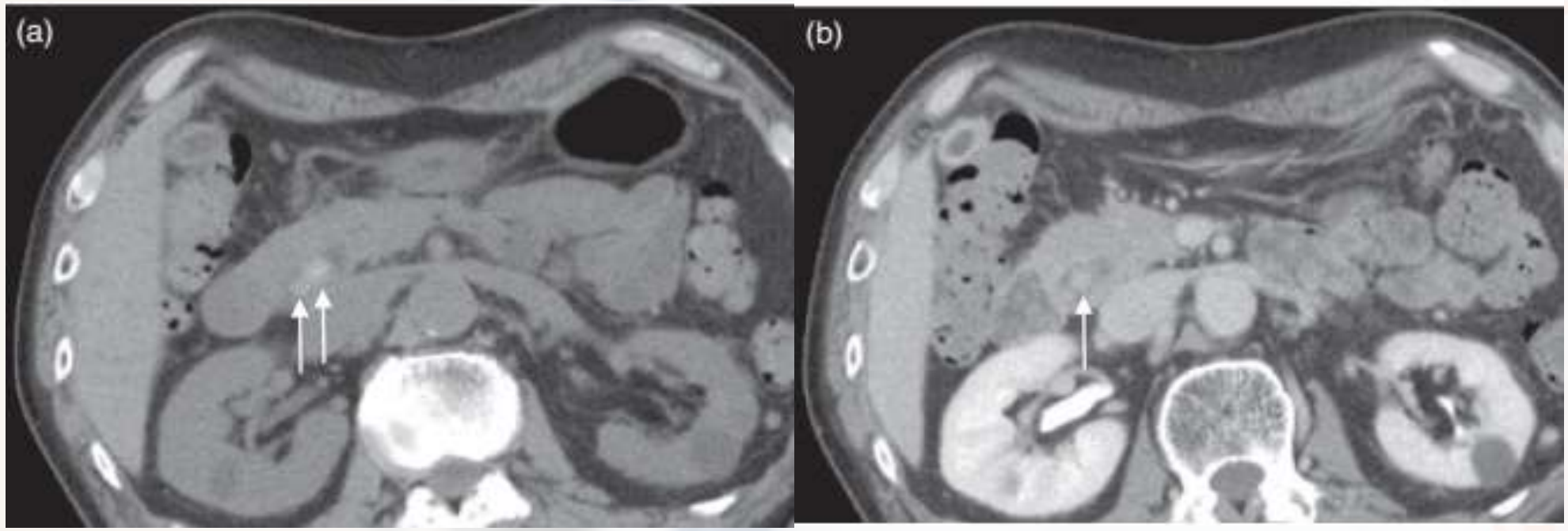
Sỏi OMC ở BN viêm đường mật cấp. Nốt phản âm dày với bóng âm kém ở OMC trong tụy



Viêm đường mật cấp gây ra bởi u đầu tụy
Hình ảnh ống mật chủ dãn

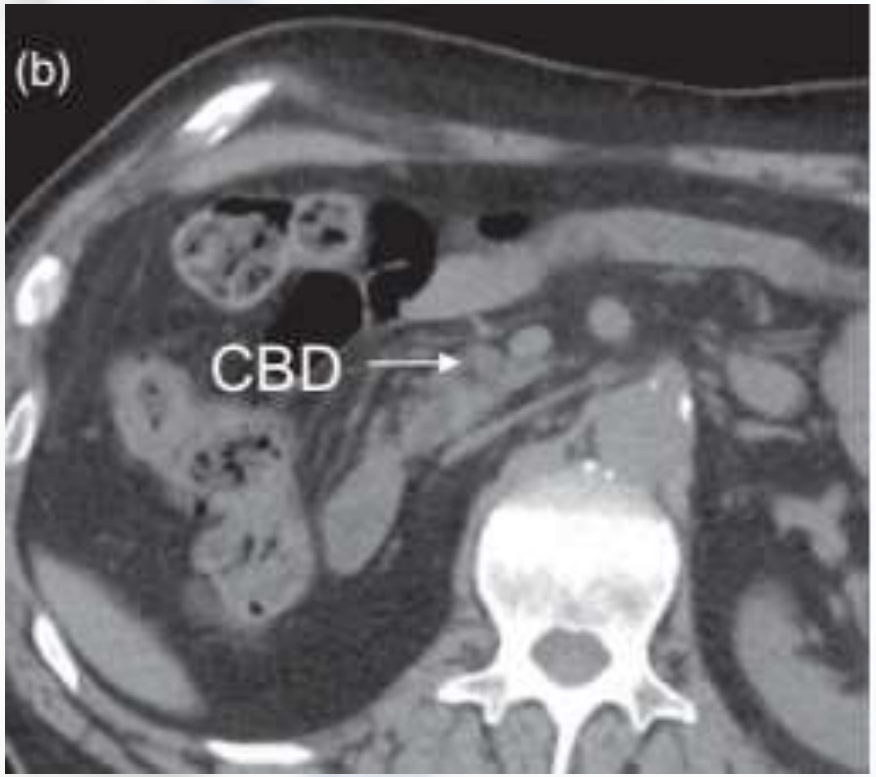
CT scans

- Không bị ảnh hưởng bởi hơi ruột => đánh giá khách quan các nốt tăng đậm độ trong đường mật.



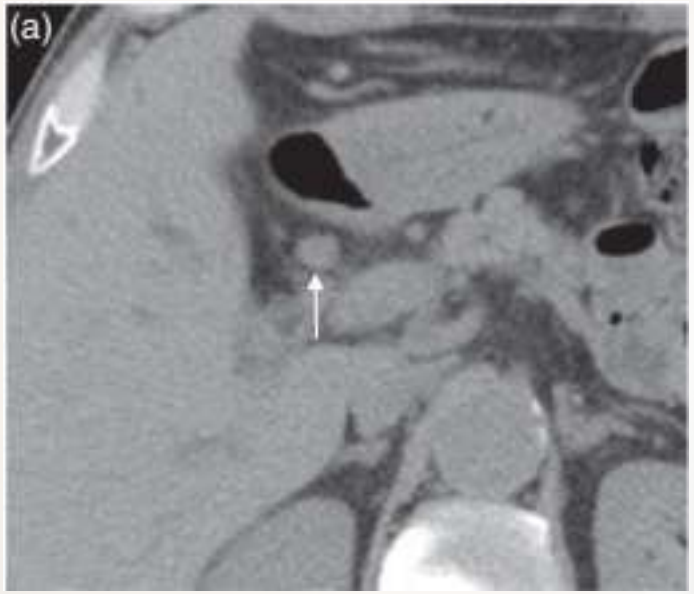
CT scans

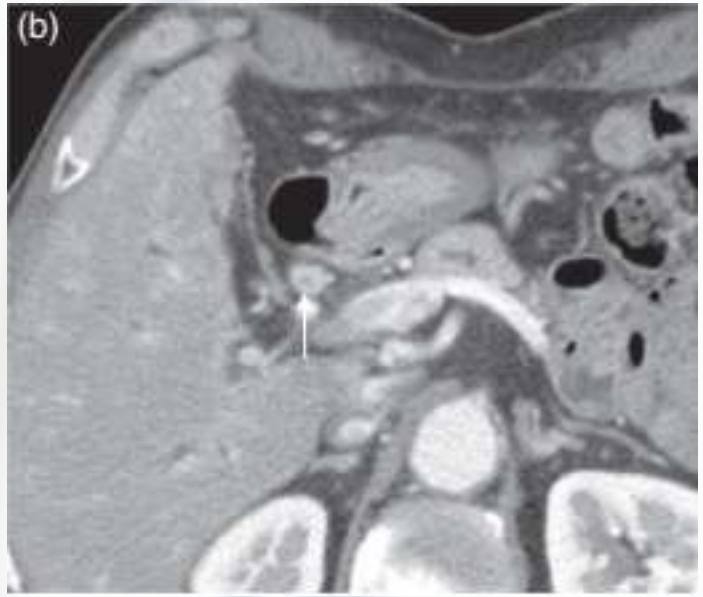
- Độ nhạy chẩn đoán từ 25-90% tùy thuộc bản chất sỏi (phụ thuộc vào lượng Calcium phosphate hoặc Calcium carbonate)

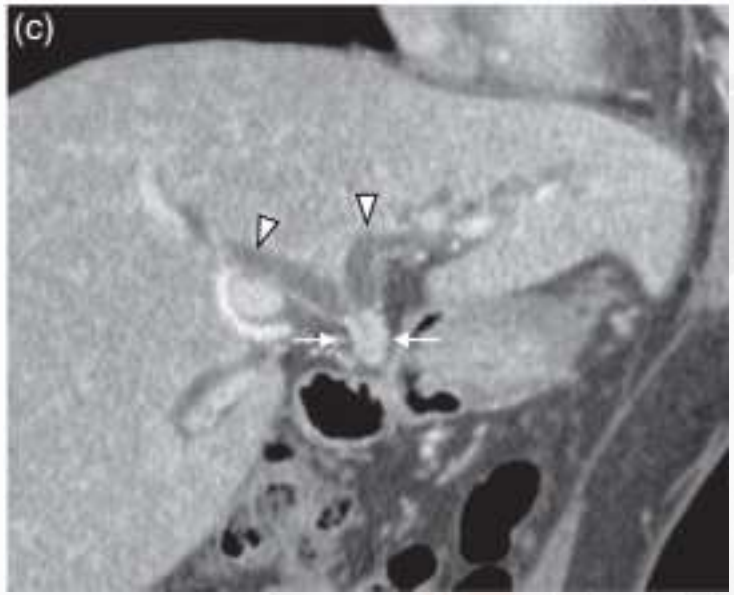


CT scans

- Xác định rõ sự dãn đường mật, đóng góp cho chẩn đoán nguyên nhân gây hẹp đường mật (carcinoma đường mật, u tụy)

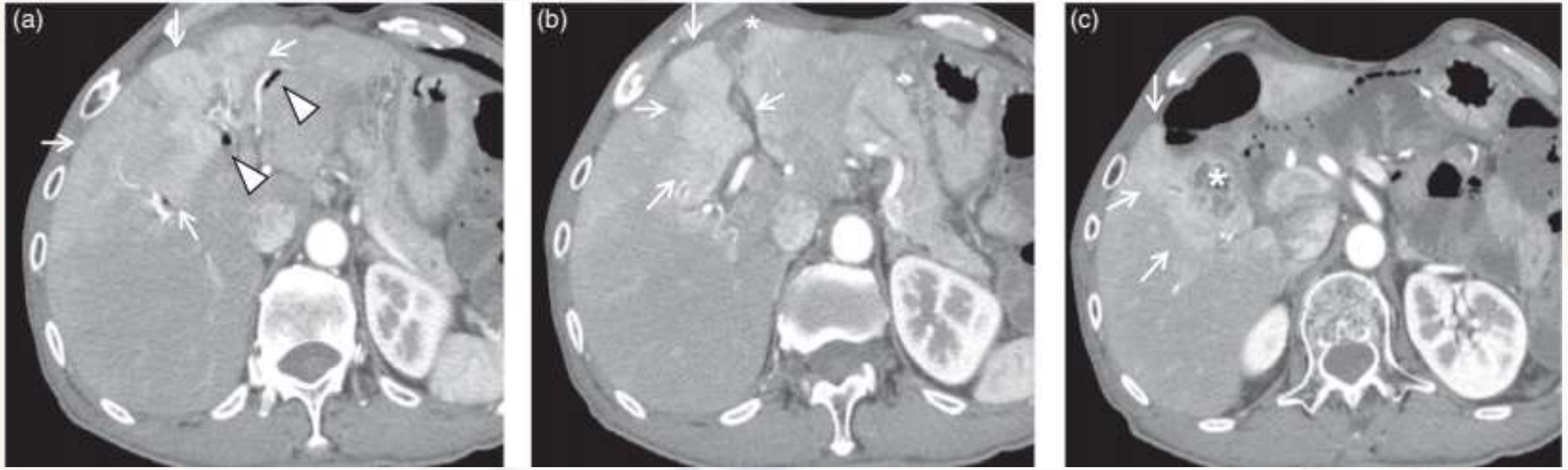






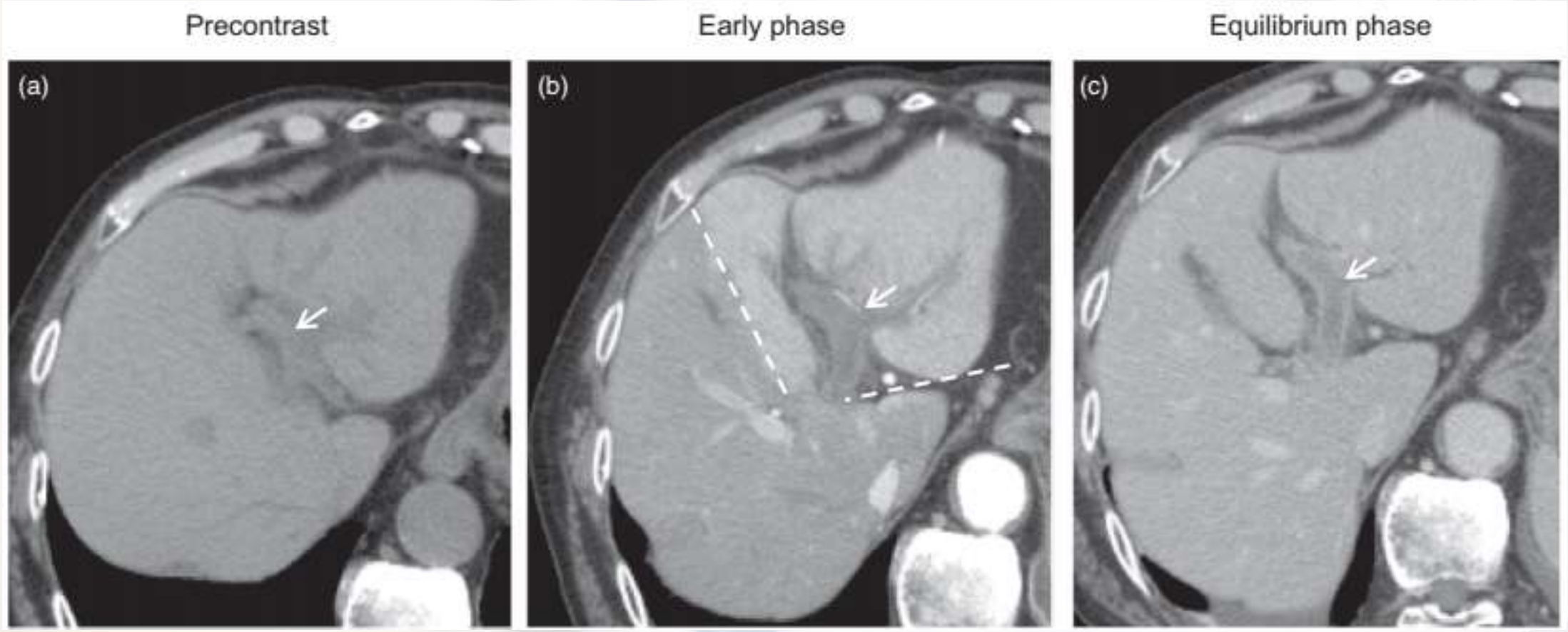
CT scans

- Hữu ích trong chẩn đoán biến chứng lân cận (ápxe gan, huyết khối tĩnh mạch cửa)



CT scans

- Hữu ích trong chẩn đoán biến chứng lân cận (ápxe gan, huyết khối tĩnh mạch cửa)



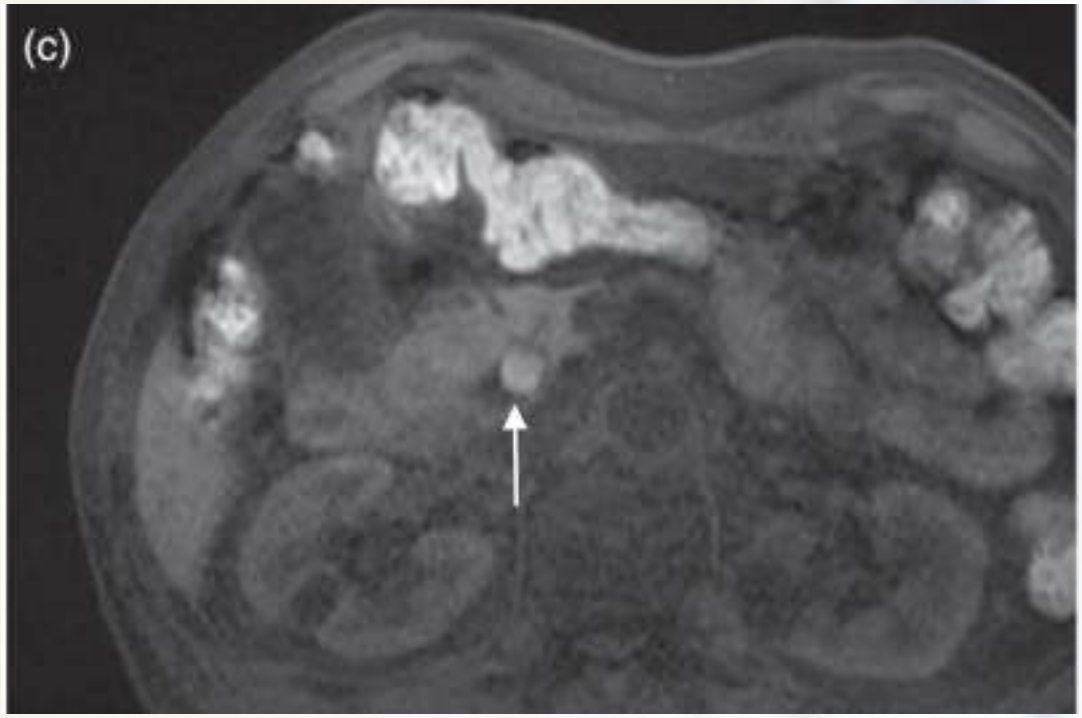
MRI

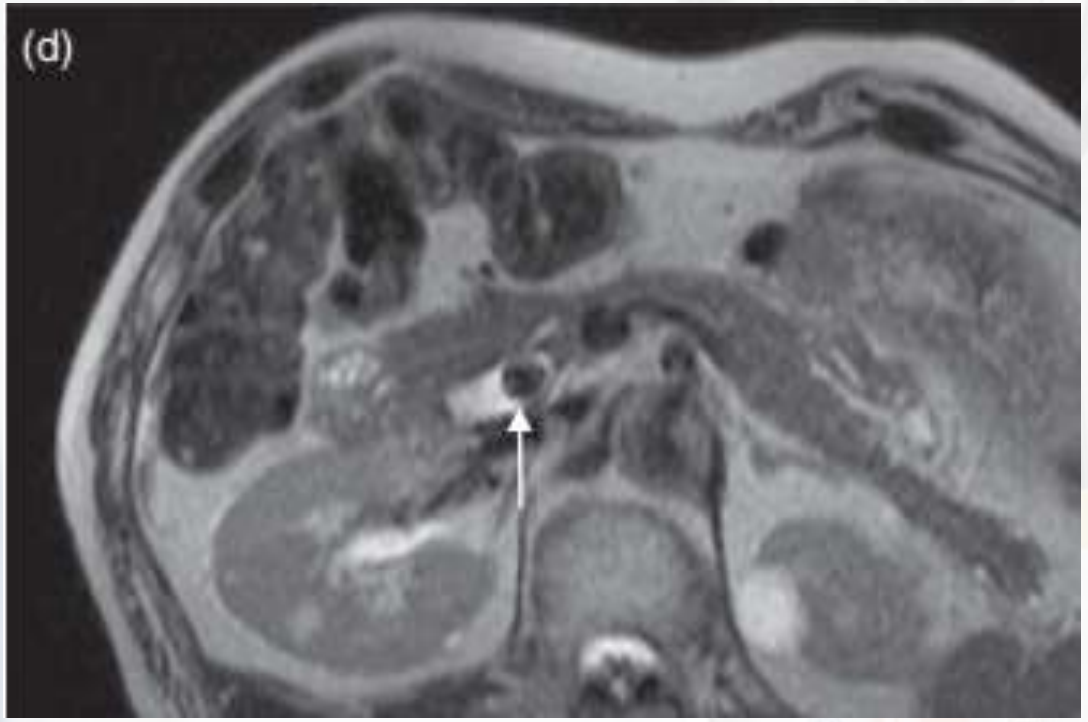
- MRI cho độ phân giải tương phản cao, cho phép phác họa đường mật mà không cần dung chất tương phản

- Nghiên cứu so sánh độ chính xác của MRCP/MRI, CT và SÂ bụng trong vàng da tắc nghẽn cho thấy MRCP có khả năng chẩn đoán tốt nhất với bệnh lý ác tính và lành tính đều là 98%

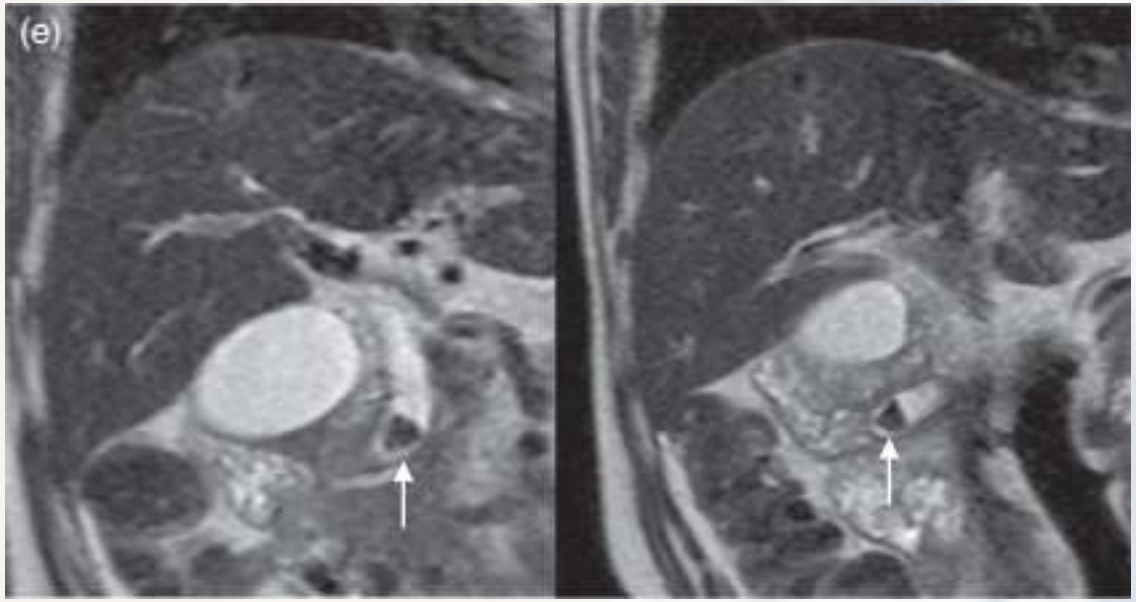
- Khuyến cáo thực hiện khi SÂ bụng hoặc CT không đưa ra được chẩn đoán chắc chắn.

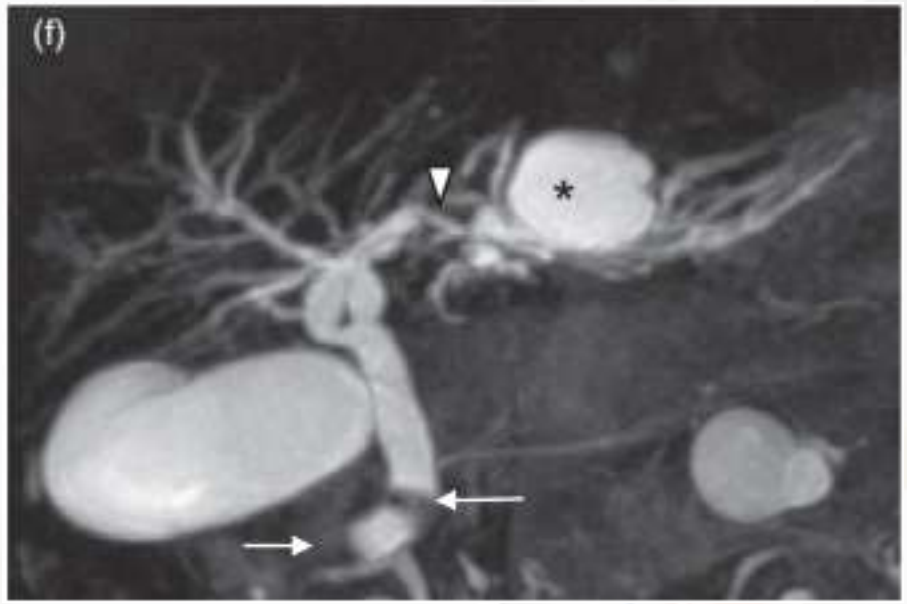
MRI





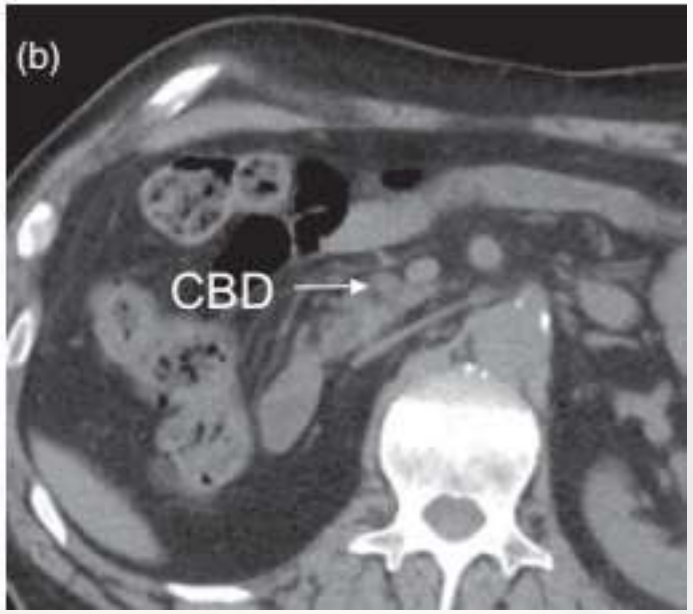
MRI

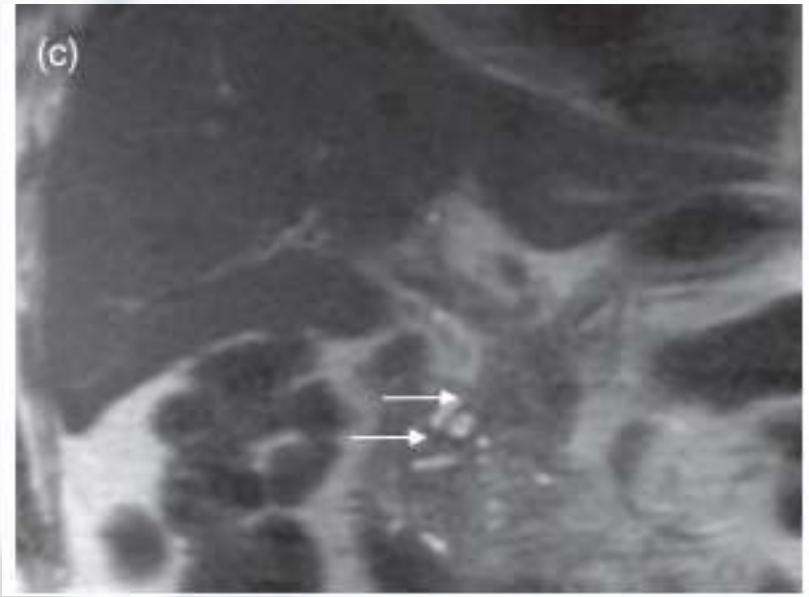


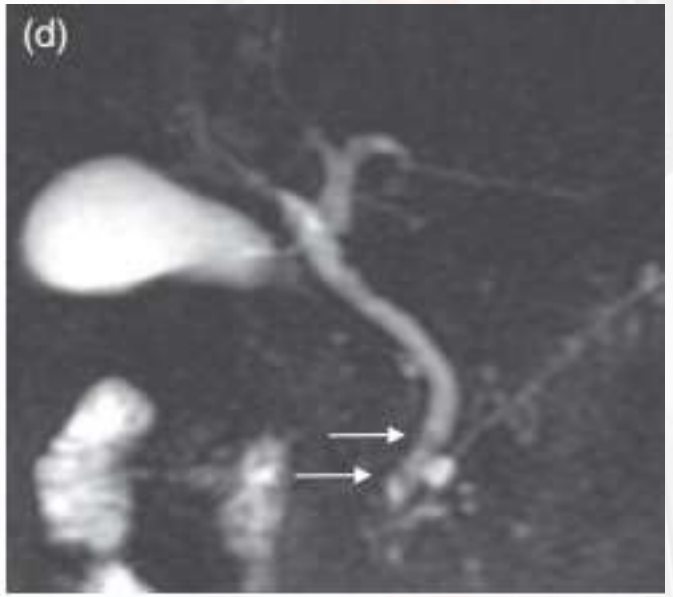


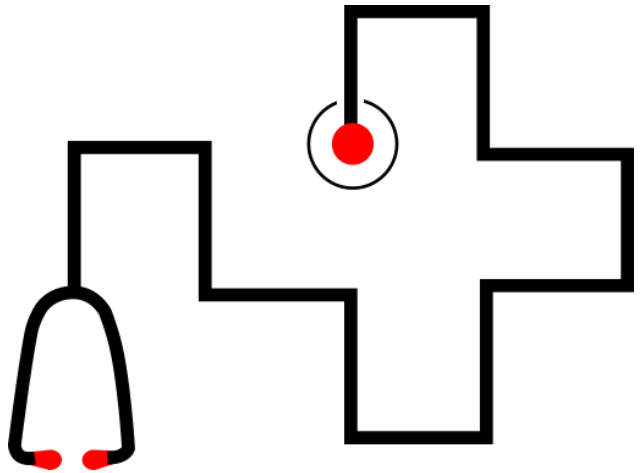
MRI

- Độ nhạy chẩn đoán cao hơn CT









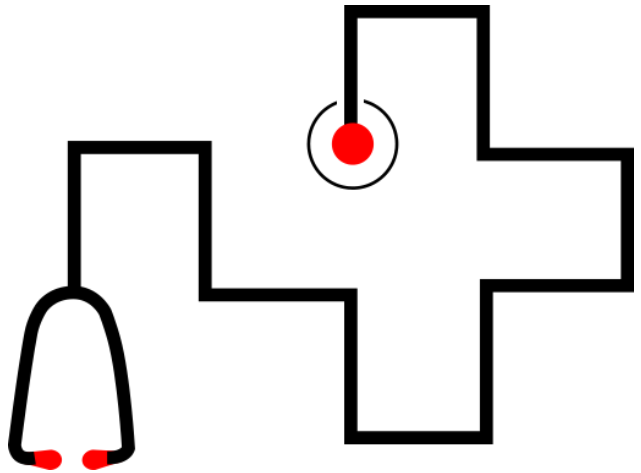
Điều trị ban đầu

Khởi đầu điều trị khi đã có chẩn đoán chắc chắn

- Bồi hoàn đủ dịch
- Kháng sinh.
- Giảm đau

Initial management

If the case is judged to be urgent, initial medical treatment should be started immediately including respiratory/circulatory management if required, without waiting for a definitive diagnosis.



Đánh giá độ nặng

Diagnostic criteria and severity grading of acute cholangitis

Table 2. Causes of acute cholangitis (%)

Author	Year	Setting	*N*	Causes				
				GB stones	Benign stenosis	Malignant stenosis	Sclerosing cholangitis	Others/ unknown
Gigot[6]	1963–1983	University of Paris	412	48%	28%	11%	1.5%	—
Saharia and Cameron[7]	1952–1974	Johns Hopkins Hospital, USA	76	70%	13%	17%	0%	—
Pitt and Couse[8]	1976–1978	Johns Hopkins Hospital, USA	40	70%	18%	10%	3%	—
Pitt and Couse[8]	1983–1985	Johns Hopkins Hospital, USA	48	32%	14%	30%	24%	—
Thompson[9]	1986–1989	Johns Hopkins Hospital, USA	96	28%	12%	57%	3%	—
Basoli[10]	1960–1985	University of Rome	80	69%	16%	13%	0%	4%
Daida[11]	1979	Questionnaire throughout Japan	472	56%	5%	36%	—	3%

Diagnostic criteria and severity grading of acute cholangitis

Charcot's triad

Tokyo Guideline 2007

Tokyo Guideline 2013

Tokyo Guideline 2018

Diagnostic criteria and severity grading of acute cholangitis

- In 1877, Charcot was the first to describe the clinical triad of intermittent fever accompanied by chills, jaundice and right upper quadrant abdominal pain as a clinical manifestation of acute cholangitis. “The symptoms of hepatic fever”.

Diagnostic criteria and severity grading of acute cholangitis

Table 1. Incidence of clinical manifestation of acute cholangitis

Author	Disease	*n*	Charcot's triad (%)	Fever %	Jaundice %	Abdominal pain (%)	Reynold's pentad (%)	Shock %	Disturbed consciousness (%)
Csendes[10]	ASC	512	22	38.7	65.4	92.2		7	7.2
Thompson[11]	AC	66	About 60	100	66	59		7	9
Gigot[12]	AC	412	72				3.5	7.8	7
Boey[13]	AC	99	69.7	93.9	78.8	87.9	5.1	16.2	16.2
	SC	14					7	57	28
	NonSC	72					4	8	12
O'Connor[14]	AC	65	60				7.7	32	14
	SC	19	53				5	47	11
	NonSC	46	63				9	26	15
Lai[6]	Severe AC	86	56	66	93	90		64	
Haupert[15]	ASC	13	15.4	100	61.5	100	7.7	23.1	7.7
Welch[16]	ASC	5	50	80	60			0	20
	AOSC	15	50	88	67			33	27
Saharia[17]	AC	78		100	61.5	100		5.1	
Chijiiwa[8]	AOSC	27		63.0	70.3	96.3		25.9	22.2

AC, acute cholangitis; SC, suppurative cholangitis; AOSC, acute obstructive suppurative cholangitis

Diagnostic criteria and severity grading of acute cholangitis

- Charcot’s triad has been widely used as one of the most important diagnostic criteria.

- Charcot’s triad shows very high specificity (95.9%). However, due to the low sensitivity (26.4 %), it is not applicable in using as diagnosis criteria (level B).

Tokyo Guideline 2007

- The International Consensus Meeting for the Management of Acute Cholecystitis and Cholangitis, held on April 1–2, 2006, in Tokyo.
- A total of 29 experts from 22 countries and Japanese experts in this field attended the meeting.
- As the final product of this international consensus meeting, TG07 was published in 2007.

Diagnostic criteria and severity grading of acute cholangitis

Tokyo Guideline 2007

- More than 90% of the participants agreed that the four criteria.

(1) A history of biliary disease.

(2) The clinical manifestations

(3) Laboratory data indicative of the presence of inflammation

and biliary obstruction, and

(4) Imaging findings indicative of biliary obstruction and/or evidence of etiology were suitable making the diagnosis of acute cholangitis

Diagnostic criteria and severity grading of acute cholangitis

Tokyo guidelines 07

Table 3. Diagnostic criteria for acute cholangitis

A. Clinical context and clinical manifestations	1. History of biliary disease 2. Fever and/or chills 3. Jaundice 4. Abdominal pain (RUQ or upper abdominal)
B. Laboratory data	5. Evidence of inflammatory response[a] 6. Abnormal liver function tests[b]
C. Imaging findings	7. Biliary dilatation, or evidence of an etiology (stricture, stone, stent etc)
Suspected diagnosis	Two or more items in A
Definite diagnosis	(1) Charcot's triad (2 + 3 + 4) (2) Two or more items in A + both items in B and item C

[a] Abnormal WBC count, increase of serum CRP level, and other changes indicating inflammation

Diagnostic criteria and severity grading of acute cholangitis

Tokyo guidelines 07

Table 5. Criteria for severity assessment of acute cholangitis

Criterion	Severity of acute cholangitis		
	Mild (grade I)	Moderate (grade II)	Severe (grade III)
Onset of organ dysfunction	No	No	Yes
Response to initial medical treatment[a]	Yes	No	No

[a] Consisting of general supportive care and antibiotics

Diagnostic criteria and severity grading of acute cholangitis

Tokyo guidelines 07

Table 6. Definitions of severity assessment criteria for acute cholangitis

Mild (grade I) acute cholangitis

"Mild (grade I)" acute cholangitis is defined as acute cholangitis which responds to the initial medical treatment[a]

Moderate (grade II) acute cholangitis

"Moderate (grade II)" acute cholangitis is defined as acute cholangitis that does not respond to the initial medical treatment[a] and is not accompanied by organ dysfunction

Severe (grade III) acute cholangitis

"Severe (grade III)" acute cholangitis is defined as acute cholangitis that is associated with the onset of dysfunction at least in any one of the following organs/systems:

1. Cardiovascular system	Hypotension requiring dopamine ≧5μg/kg per min, or any dose of dobutamine
2. Nervous system	Disturbance of consciousness
3. Respiratory system	PaO2/FiO2 ratio < 300
4. Kidney	Serum creatinine > 2.0 mg/dl
5. Liver	PT-INR > 1.5
6. Hematological system	Platelet count < 100000 /μl

Note: compromised patients, e.g., elderly (>75 years old) and patients with medical comorbidities, should be monitored closely

[a]General supportive care and antibiotics

Tokyo guidelines 07

- The sensitivity is low (63.9 %)
- A history of biliary diseases and abdominal pain is not specific to biliary manifestations.
- The definition of Grade II in TG07 was ambiguous.

Diagnostic criteria and severity grading of acute cholangitis

Tokyo guidelines 13

Table 1 TG13 diagnostic criteria for acute cholangitis

A. Systemic inflammation

A-1. Fever and/or shaking chills

A-2. Laboratory data: evidence of inflammatory response

B. Cholestasis

B-1. Jaundice

B-2. Laboratory data: abnormal liver function tests

C. Imaging

C-1. Biliary dilatation

C-2. Evidence of the etiology on imaging (stricture, stone, stent etc.)

Suspected diagnosis: One item in A + one item in either B or C

Definite diagnosis: One item in A, one item in B and one item in C

Diagnostic criteria and severity grading of acute cholangitis

Tokyo guidelines 13

Thresholds

A-1	Fever		BT >38 °C
A-2	Evidence of inflammatory response	WBC (×1000/μL)	<4, or >10
		CRP (mg/dl)	≥1
B-1	Jaundice		T-Bil ≥2 (mg/dL)
B-2	Abnormal liver function tests	ALP (IU)	>1.5 × STD
		γGTP (IU)	>1.5 × STD
		AST (IU)	>1.5 × STD
		ALT (IU)	>1.5 × STD

Cited from the Ref. [8]

STD upper limit of normal value, *ALP* alkaline phosphatase, *γGTP* (*GGT*) γ-glutamyltransferase, *AST* aspartate aminotransferase, *ALT* alanine aminotransferase

Diagnostic criteria and severity grading of acute cholangitis

Tokyo guidelines 13

- The severity of acute cholangitis is classified as follows

- ❑ Grade III (severe): presence of organ dysfunction.
- ❑ Grade II (moderate): risk of increased severity without early biliary drainage.
- ❑ Grade I (mild).

Diagnostic criteria and severity grading of acute cholangitis

Tokyo guidelines 13

Table 4 TG13 severity assessment criteria for acute cholangitis

Grade III (Severe) acute cholangitis

"Grade III" acute cholangitis is defined as acute cholangitis that is associated with the onset of dysfunction in at least one of any of the following organs/systems:

1. Cardiovascular dysfunction	Hypotension requiring dopamine ≥5 μg/kg per min, or any dose of norepinephrine
2. Neurological dysfunction	Disturbance of consciousness
3. Respiratory dysfunction	PaO_2/FiO_2 ratio <300
4. Renal dysfunction	Oliguria, serum creatinine >2.0 mg/dl
5. Hepatic dysfunction	PT-INR >1.5
6. Hematological dysfunction	Platelet count <100,000/mm^3

Diagnostic criteria and severity grading of acute cholangitis

Tokyo guidelines 13

"Grade II" acute cholangitis is associated with any two of the following conditions:

1. Abnormal WBC count (>12,000/mm^3, <4,000/mm^3)
2. High fever (≥39 °C)
3. Age (≥75 years old)
4. Hyperbilirubinemia (total bilirubin ≥5 mg/dL)
5. Hypoalbuminemia (<STD × 0.7)

Grade I (mild) acute cholangitis

"Grade I" acute cholangitis does not meet the criteria of "Grade III (severe)" or "Grade II (moderate)" acute cholangitis at initial diagnosis.

Diagnostic criteria and severity grading of acute cholangitis

TG07 vs TG13

Table 2 Retrospective comparison of various diagnostic criteria of acute cholangitis in a multi-center study in Japan

	Charcot's triad (%)	TG07 (%)	The first draft criteria (with abdominal pain and history of biliary disease) (%)	TG13 (%)
Sensitivity	26.4	82.6	95.1	91.8
Specificity	95.9	79.8	66.3	77.7
[Positive rate]				
Acute cholecystitis	11.9	15.5	38.8	5.9

TG07 vs TG13

Table 1 Comparison of diagnostic rates of TG13 and TG07 [17]

Diagnostic status	No. of patients		*P*-value
	TG13	TG07	
Definite	4,430 (73.1%)	3,977 (65.6%)	
Suspected	1,024 (16.9%)	838 (13.8%)	
Cholangitis (definite or suspected diagnosis)	5,454 (90.0%)	4,815 (79.4%)	<0.0001
Non-cholangitis	609 (10.0%)	1,248 (20.6%)	

Cited from Kiriyama et al. [17]

Diagnostic criteria and severity grading of acute cholangitis

TG07 vs TG13

Table 1 Number of patients that meet Tokyo criteria comparing to Charcot Triad positivity

	Suspicious diagnosis (Tokyo 2007)	Definitive diagnosis (Tokyo 2007)	Suspicious diagnosis (Tokyo 2013)	Definitive diagnosis (Tokyo 2013)
Charcot triad Positive	29	29	29	23
Charcot triad Negative	26	12	20	12

Diagnostic criteria and severity grading of acute cholangitis

TG07 vs TG13

Table 2 Comparison of Tokyo criteria 2007 and 2013 (Number of patients)

		Suspicious diagnosis (2007)		Definitive diagnosis (2007)	
		Negative	Positive	Negative	Positive
Suspicious diagnosis (2013)	Negative	2	9	11	0
	Positive	3	46	8	41
Definitive diagnosis (2013)	Negative	4	21	18	7
	Positive	1	34	1	34

Diagnostic criteria and severity grading of acute cholangitis

TG07 vs TG13

Table 3 Thirty-day mortality rate relevant to the timing of biliary drainage and severity grading by TG13 [17]

Severity grade	30-day mortality according to the timing or absence of biliary drainage					
	Urgent biliary drainage			Urgent or early biliary drainage		
	Within 24 h (n = 2,709)	After 24 h or absence (n = 3,354)	P-value	Within 48 h (n = 3,730)	After 48 h or absence (n = 2,333)	P-value
Grade III (n = 1,521)	5.4% (42/781)	4.9% (36/740)	0.727	4.9% (50/1,017)	5.6% (28/504)	0.622
Grade II (n = 2,019)	1.7% (16/939)	3.4% (37/1,080)	<0.05	2.0% (25/1,272)	3.7% (28/747)	<0.05
Grade I (n = 2,523)	1.3% (13/989)	1.2% (18/1,534)	0.853	1.1% (16/1,441)	1.4% (15/1,082)	0.586
Total (n = 6,063)	2.6% (71/2,709)	2.7% (91/3,354)	0.873	2.4% (91/3,730)	3.0% (71/2,333)	0.164

Urgent performed on the admission day (within 24 h), *early* performed on the day following admission (24–48 h)

Cited from Kiriyama et al. [17]

TG07 vs TG13

- The TG13 diagnostic and severity grading criteria for AC can provide results quickly, are minimally invasive for the patients, and are inexpensive.

Diagnostic criteria and severity grading of acute cholangitis

- The TG13 diagnostic criteria are recommended to be used as the TG18 criteria because more patients with possible acute cholangitis can be diagnosed by using these criteria. (Recommendation 1, level D).

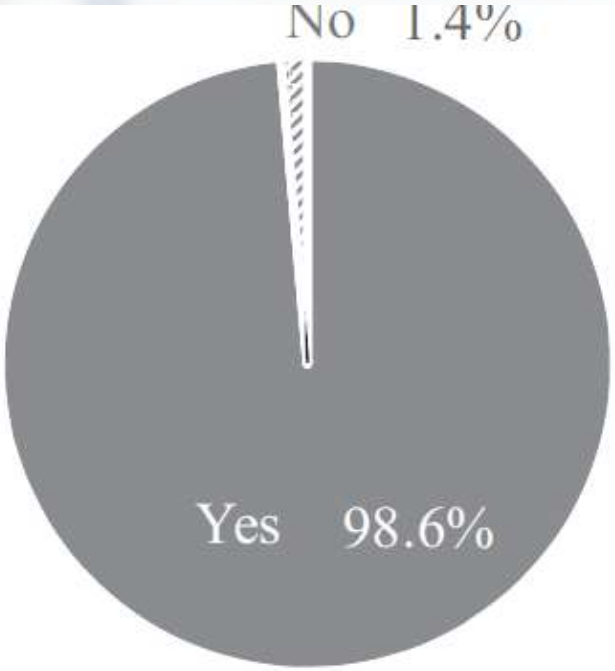


Fig. 1 Response to the question: "Do you agree with the suggestion that TG13 diagnostic criteria for acute cholangitis would be adopted as the TG13/TG18 criteria without revising setting?"

Diagnostic criteria and severity grading of acute cholangitis

Tokyo guidelines 18

Table 2 TG18/TG13 diagnostic criteria for acute cholangitis [4]

A. Systemic inflammation
- A-1. Fever and/or shaking chills
- A-2. Laboratory data: evidence of inflammatory response

B. Cholestasis
- B-1. Jaundice
- B-2. Laboratory data: abnormal liver function tests

C. Imaging
- C-1. Biliary dilatation
- C-2. Evidence of the etiology on imaging (stricture, stone, stent etc.)

Suspected diagnosis: one item in A + one item in either B or C

Definite diagnosis: one item in A, one item in B and one item in C

Tokyo guidelines 18

- The TG13 severity grading criteria are recommended to be used as the TG18 criteria because patients whose prognosis can potentially be improved by early biliary drainage can be identified by using these criteria. (Recommendation 1, level D)

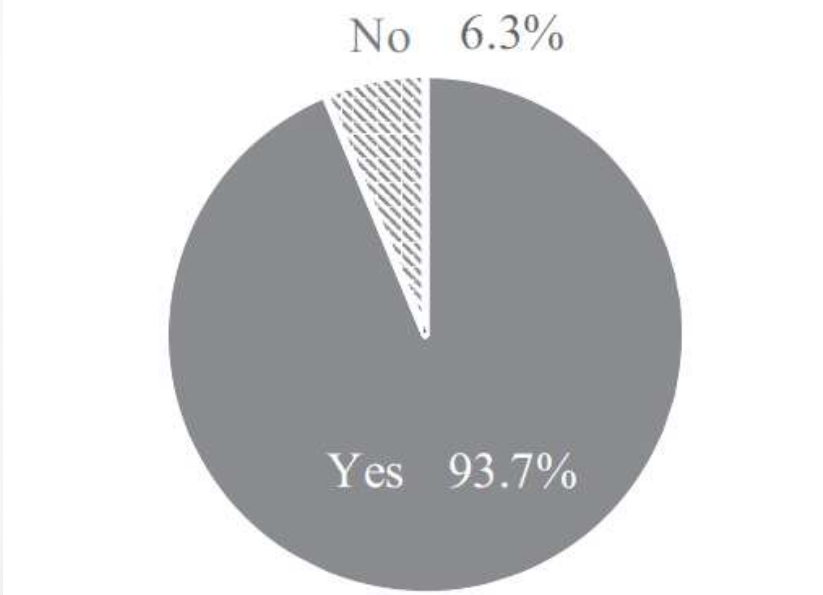


Fig. 10 Response to the question: "Do you agree with the suggestion that TG13 severity grading criteria for acute cholangitis would be adopted as the TG13/TG18 criteria without revising setting?"

Diagnostic criteria and severity grading of acute cholangitis

Table 4 TG18/TG13 severity assessment criteria for acute cholangitis [4]

Grade III (severe) acute cholangitis

"Grade III" acute cholangitis is defined as acute cholangitis that is associated with the onset of dysfunction at least in any one of the following organs/systems:

1. Cardiovascular dysfunction: hypotension requiring dopamine ≥5 μg/kg per min, or any dose of norepinephrine
2. Neurological dysfunction: disturbance of consciousness
3. Respiratory dysfunction: PaO_2/FiO_2 ratio <300
4. Renal dysfunction: oliguria, serum creatinine >2.0 mg/dl
5. Hepatic dysfunction: PT-INR >1.5
6. Hematological dysfunction: platelet count <100,000/mm^3

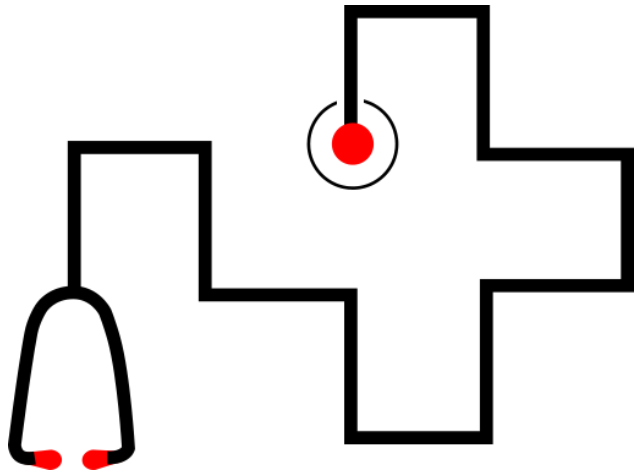
Grade II (moderate) acute cholangitis

"Grade II" acute cholangitis is associated with any two of the following conditions:

1. Abnormal WBC count (>12,000/mm^3, <4,000/mm^3)
2. High fever (≥39°C)
3. Age (≥75 years old)
4. Hyperbilirubinemia (total bilirubin ≥5 mg/dl)
5. Hypoalbuminemia (<STD[a]×0.7)

Grade I (mild) acute cholangitis

"Grade I" acute cholangitis does not meet the criteria of "Grade III (severe)" or "Grade II (moderate)" acute cholangitis at initial diagnosis.



Điều trị

Flowchart for inititial response for acute biliary infection

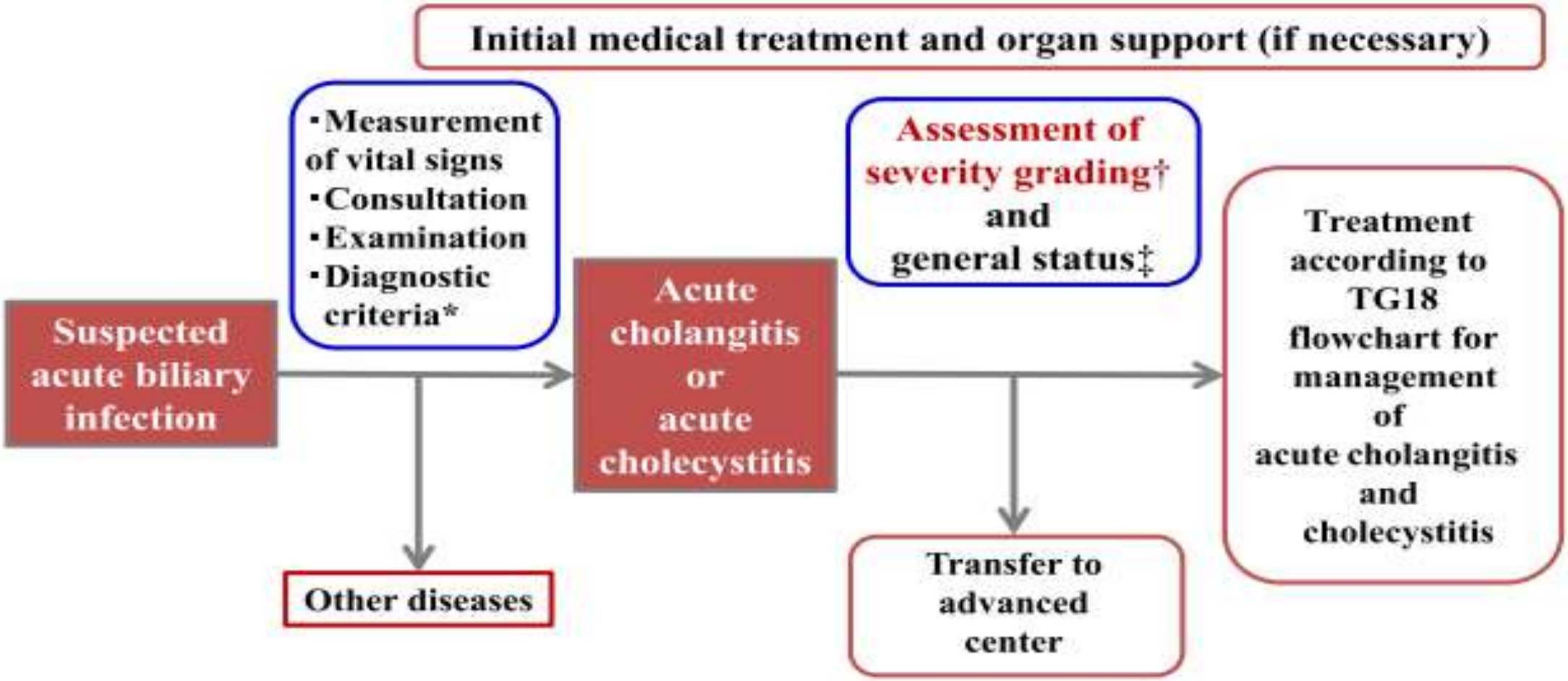


Fig. 1 TG18 flowchart for the initial response to acute biliary infection. *TG18/TG13 diagnostic criteria for acute cholangitis [4] and cholecystitis [7] should be used. †TG18/TG13 severity assessment criteria for acute cholangitis [4] and cholecystitis [7] should be used. ‡Charlson comorbidity index (CCI) [10] and the American Society of Anesthesiologists (ASA) Physical Status (PS) classification [11] should be referred to

Criteria diagnosis

Table 1 TG18/TG13 diagnostic criteria for acute cholangitis

A. Systemic inflammation
  A-1. Fever and/or shaking chills
  A-2. Laboratory data: evidence of inflammatory response
B. Cholestasis
  B-1. Jaundice
  B-2. Laboratory data: abnormal liver function tests
C. Imaging
  C-1. Biliary dilatation
  C-2. Evidence of the etiology on imaging (stricture, stone, stent, etc)

Suspected diagnosis: one item in A + one item in either B or C

Definite diagnosis: one item in A, one item in B and one item in C

A-2: Abnormal white blood cell counts, increase of serum C-reactive protein levels, and other changes indicating inflammation

B-2: Increased serum ALP, r-GTP (GGT), AST, and ALT levels

Thresholds

A-1	Fever		BT >38°C
A-2	Evidence of inflammatory response	WBC (×1,000/μl)	<4 or >10
		CRP (mg/dl)	≥1
B-1	Jaundice		T-Bil ≥2 (mg/dl)
B-2	Abnormal liver function tests	ALP (IU)	>1.5 × STD
		γGTP (IU)	>1.5 × STD
		AST (IU)	>1.5 × STD
		ALT (IU)	>1.5 × STD

Cited from Kiriyama et al. [4]

ALP alkaline phosphatase, *ALT* alanine aminotransferase, *AST* aspartate aminotransferase, *rGTP (GGT)* r-glutamyltransferase, *STD* upper limit of normal value

Table 2 TG18/TG13 diagnostic criteria for acute cholecystitis

A. Local signs of inflammation etc.
  (1) Murphy's sign, (2) RUQ mass/pain/tenderness
B. Systemic signs of inflammation etc.
  (1) Fever, (2) elevated CRP, (3) elevated WBC count
C. Imaging findings
  Imaging findings characteristic of acute cholecystitis

Suspected diagnosis: one item in A + one item in B

Definite diagnosis: one item in A + one item in B + C

Cited from Yokoe et al. [7]. Acute hepatitis, other acute abdominal diseases, and chronic cholecystitis should be excluded

CRP C-reactive protein, *RUQ* right upper abdominal quadrant, *WBC* white blood cell

Severity grading for acute cholangitis

Table 3 TG18/TG13 severity assessment criteria for acute cholangitis

Grade III (severe) acute cholangitis

"Grade III" acute cholangitis is defined as acute cholangitis that is associated with the onset of dysfunction at least in any one of the following organs/systems:

1. Cardiovascular dysfunction: hypotension requiring dopamine ≥5 μg/kg per min, or any dose of norepinephrine
2. Neurological dysfunction: disturbance of consciousness
3. Respiratory dysfunction: PaO_2/FiO_2 ratio <300
4. Renal dysfunction: oliguria, serum creatinine >2.0 mg/dl
5. Hepatic dysfunction: PT-INR >1.5
6. Hematological dysfunction: platelet count <100,000/mm^3

Grade II (moderate) acute cholangitis

"Grade II" acute cholangitis is associated with any two of the following conditions:

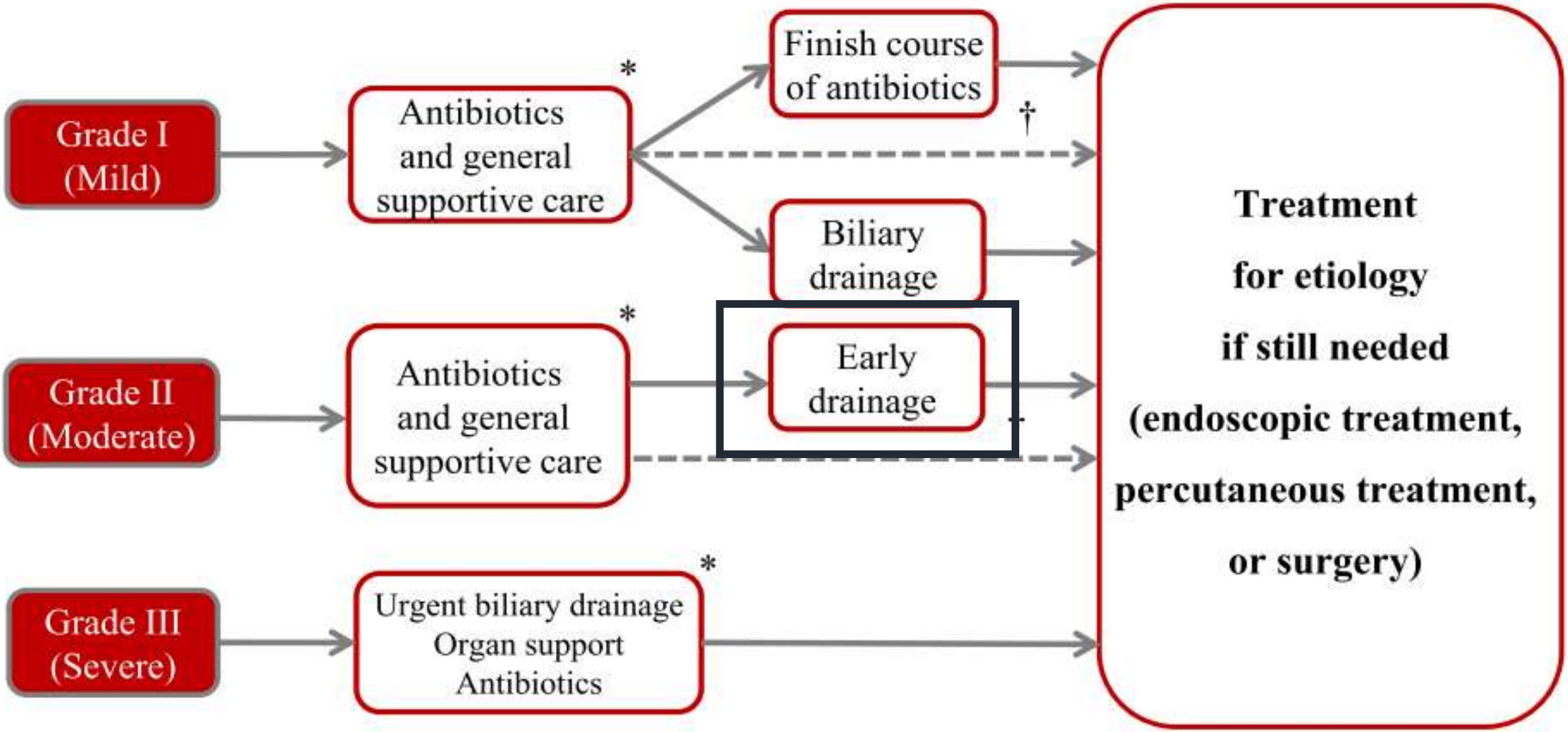
1. Abnormal WBC count (>12,000/mm^3, <4,000/mm^3)
2. High fever (≥39°C)
3. Age (≥75 years)
4. Hyperbilirubinemia (total bilirubin ≥5 mg/dl)
5. Hypoalbuminemia (<STD × 0.7)

Grade I (mild) acute cholangitis

"Grade I" acute cholangitis does not meet the criteria of "Grade III (severe)" or "Grade II (moderate)" acute cholangitis at initial diagnosis

Cited from Kiriyama et al. [4]

Treatment


Grade I (Mild)
Antibiotics and general supportive care
*
Finish course of antibiotics
†
Biliary drainage
Grade II (Moderate)
Antibiotics and general supportive care
*
Early drainage
†
Grade III (Severe)
Urgent biliary drainage
Organ support
Antibiotics
*
Treatment for etiology if still needed (endoscopic treatment, percutaneous treatment, or surgery)

Early drainage in Acute Biliary Infection

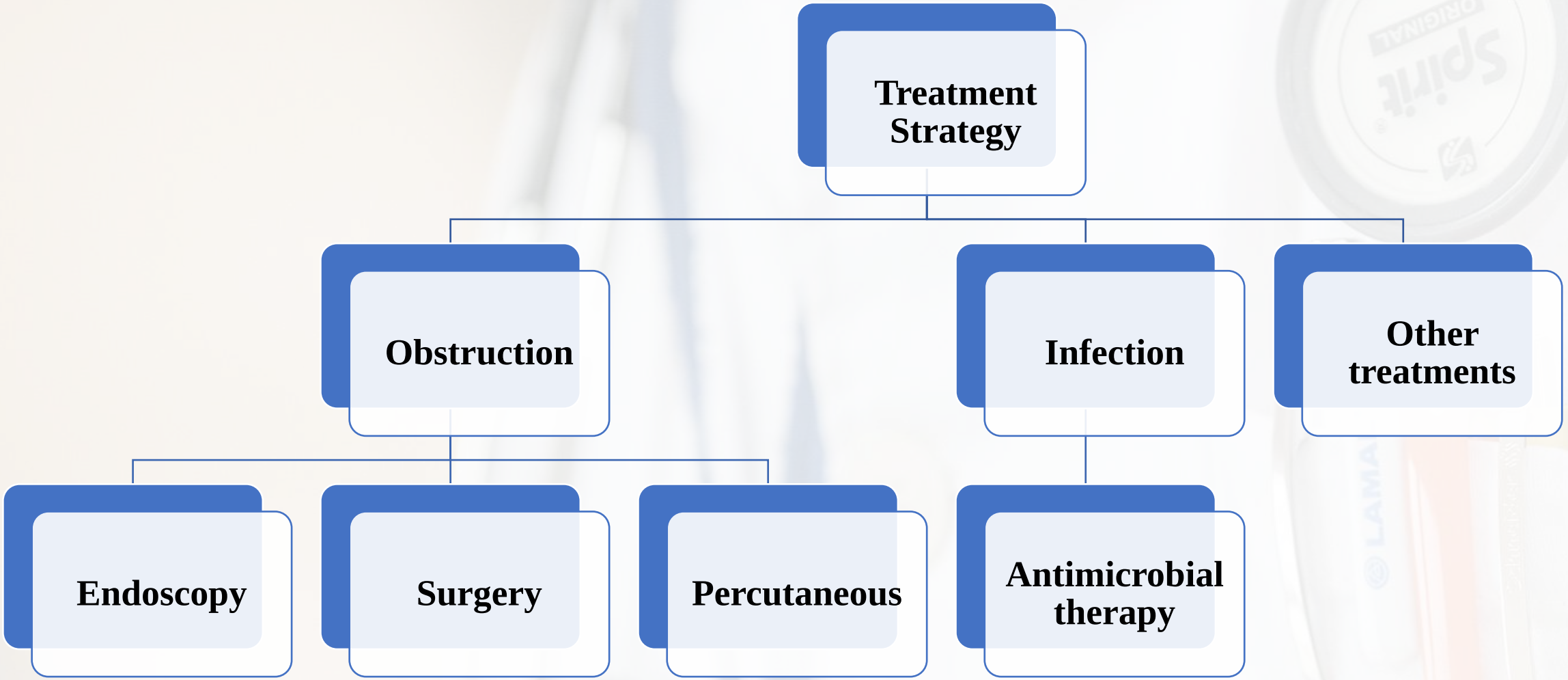
- A multicenter joint study carried out in Japan and Taiwan found that **for moderate cholangitis, mortality was significantly lower in** 944 **patients who underwent drainage within 24 h compared with** 1,081 **patients who either underwent drainage after longer than 24 h or did not undergo drainage** (1.7% vs. 3.4%, P = 0.0172), **but that there was no significant difference for mild or severe cholangitis**

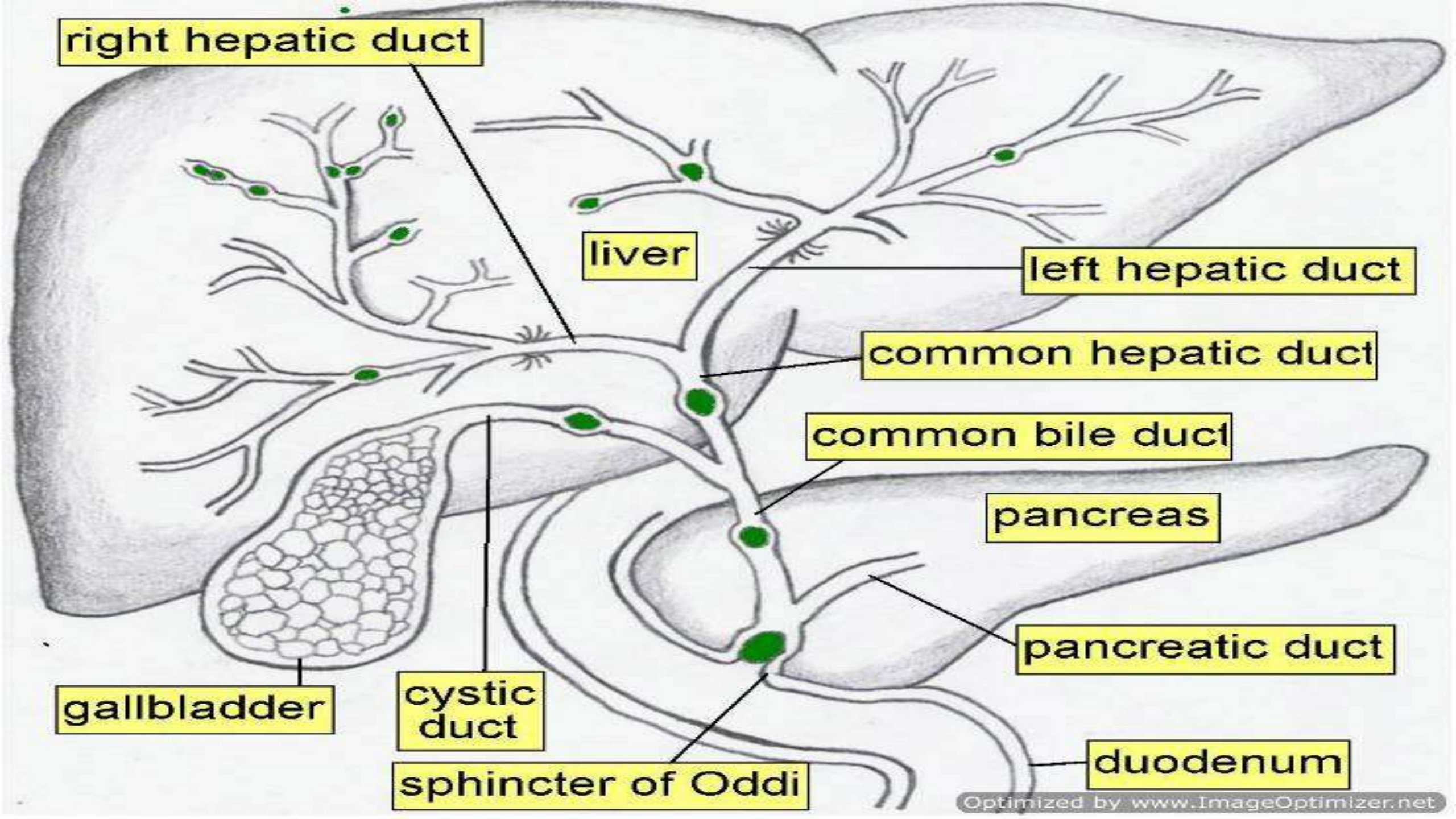
- In the other observational study, which compared 130 patients with mild or moderate cholangitis who underwent drainage within 24 h and 82 who underwent drainage after longer than 24 h, although there was no significant difference in mortality which was zero in both groups, the mean duration of hospitalization was significantly shorter for patients who underwent drainage within 24 h (6.8 days vs. 9.2 days, P < 0.01 (CS) [17].

Treatment Principles

- Blood culture should be taken into consideration before antibiotics are started.
- Bile samples should be taken during biliary drainage and cultured.
- †Principles of treatment for acute cholangitis consist of antimicrobial administration, biliary drainage, and treatment of the etiology.
- For patients with mild or moderate choledocholithiasis, if possible the etiology should be treated at the same time as biliary drainage is performed

Treatment Strategy





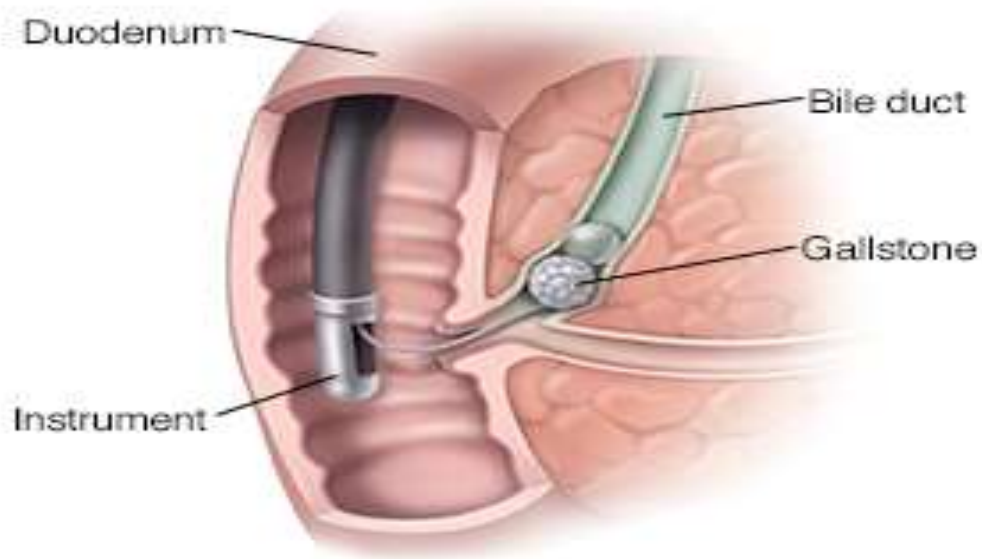
Sỏi ống mật chủ

- Lấy sỏi qua nội soi mật tụy ngược dòng
- Mở ống mật chủ lấy sỏi (mổ mở / nội soi)
- Nối mật ruột
- Lấy sỏi qua da

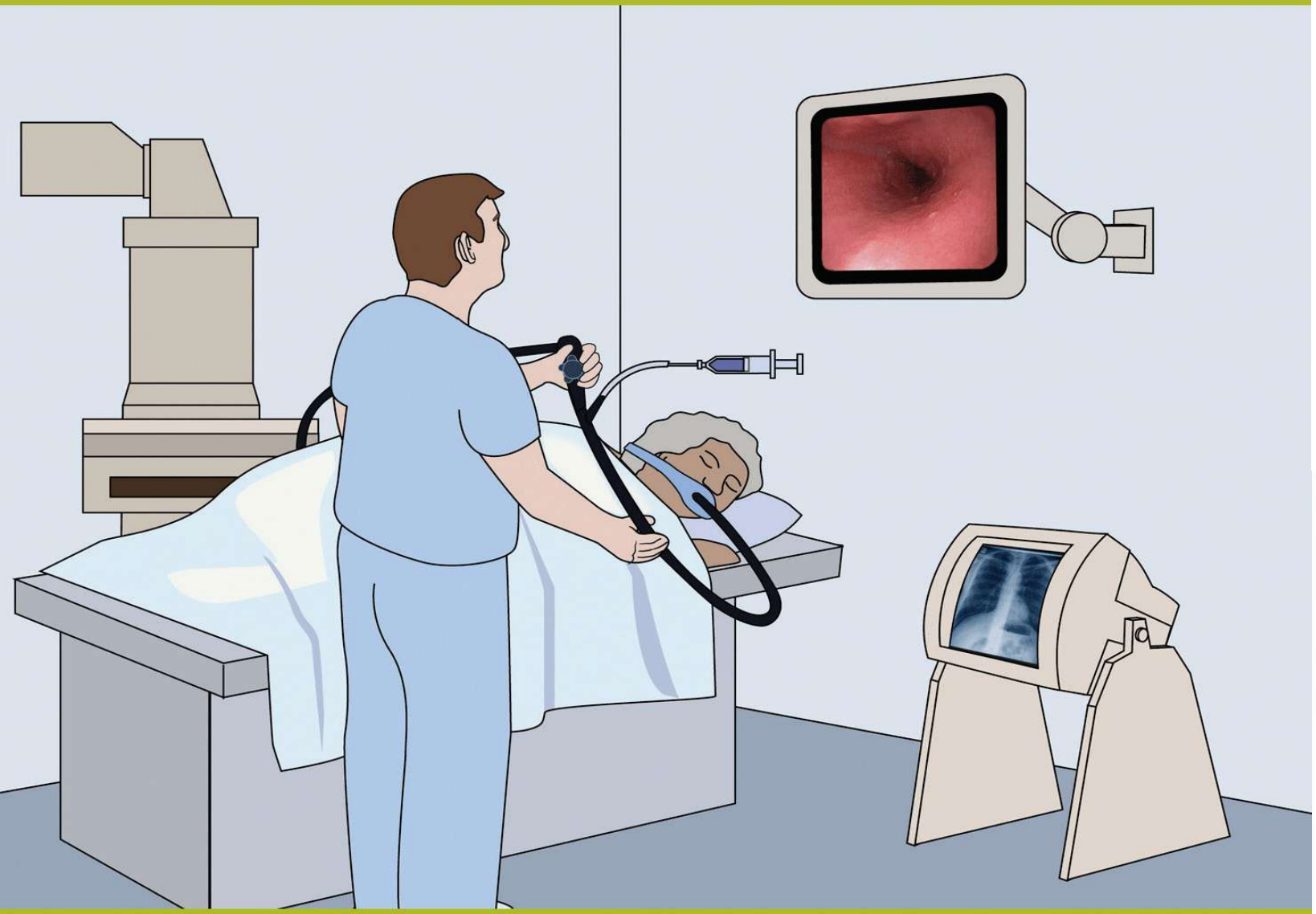
Lấy sỏi qua nội soi mật tụy ngược dòng

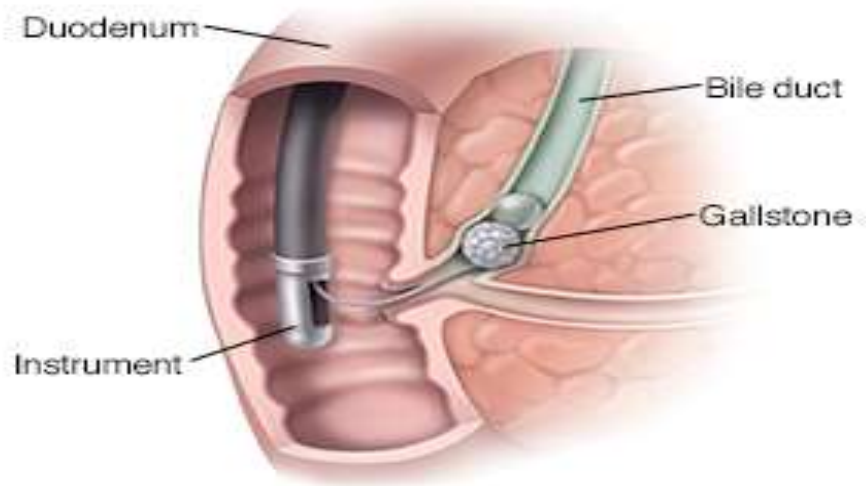
Chỉ định:

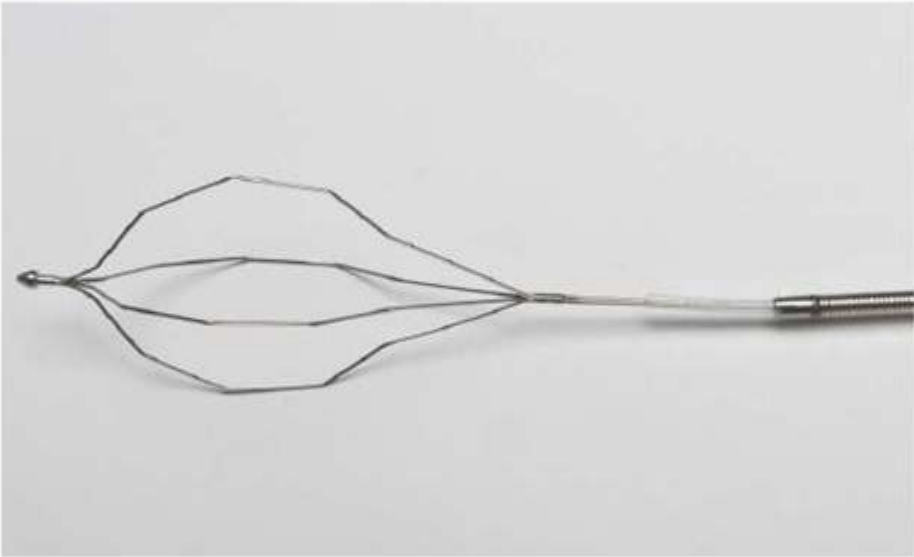
- Sỏi đường mật chính ngoài gan
- Sỏi nhỏ (không quá 2 – 3 cm), ít sỏi
- Sót sỏi sau mổ không lưu lại ống Kerh
- Bệnh nhân già yếu



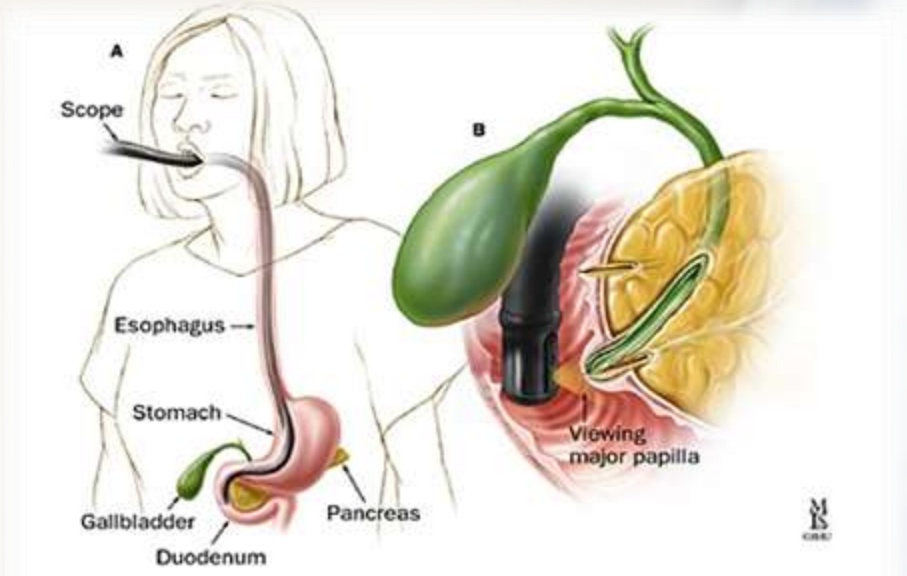
Lấy sỏi qua nội soi mật tụy ngược dòng

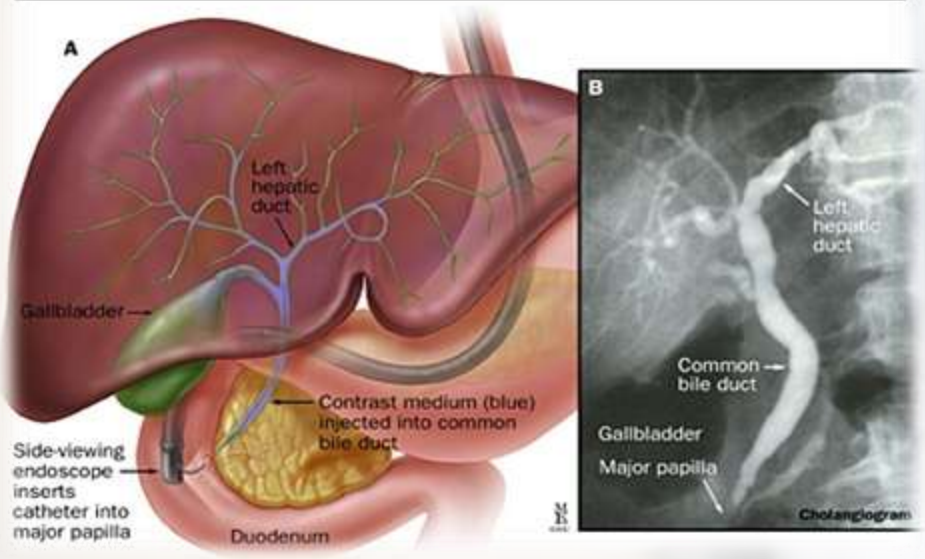


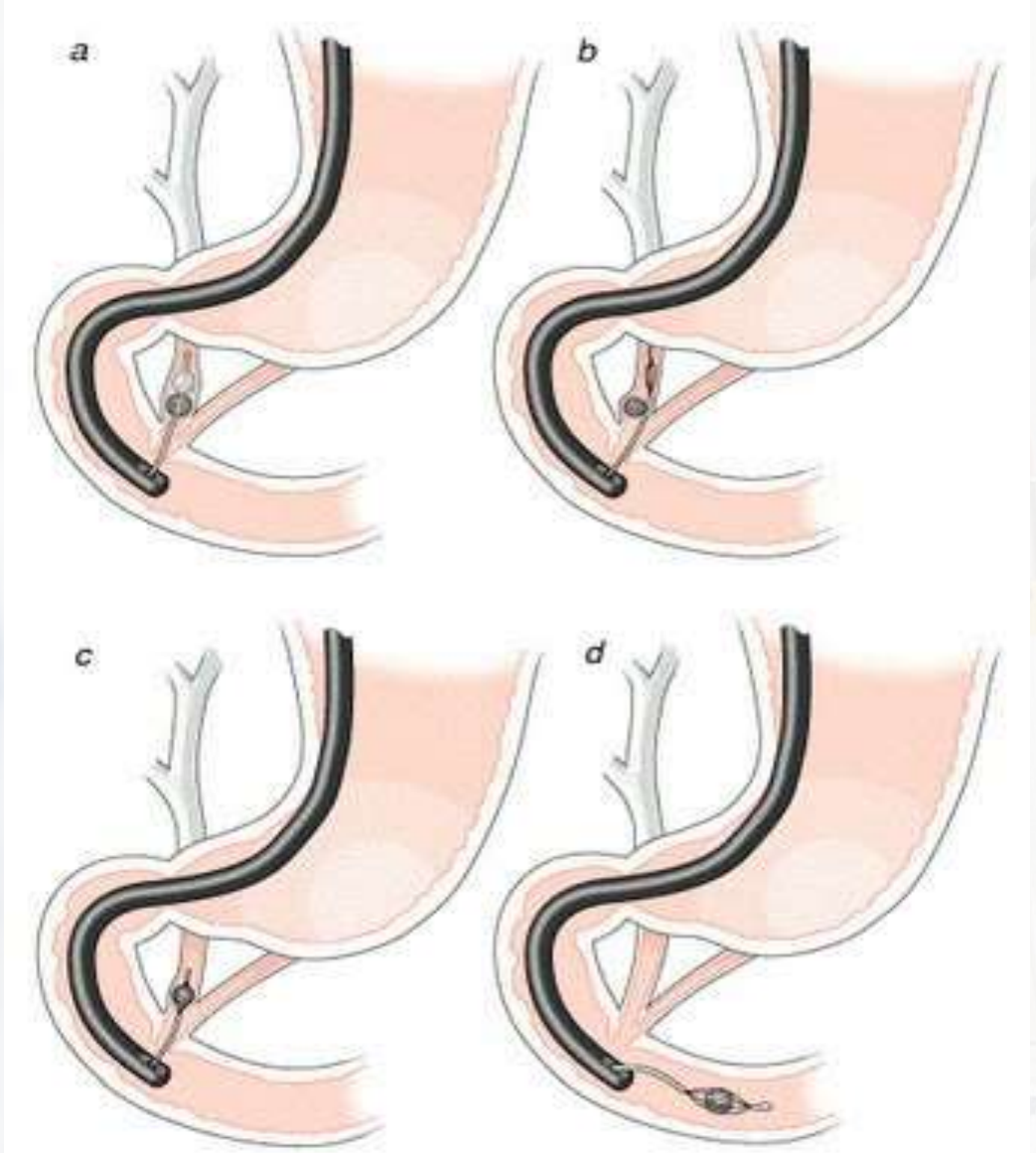




Lấy sỏi qua nội soi mật tụy ngược dòng







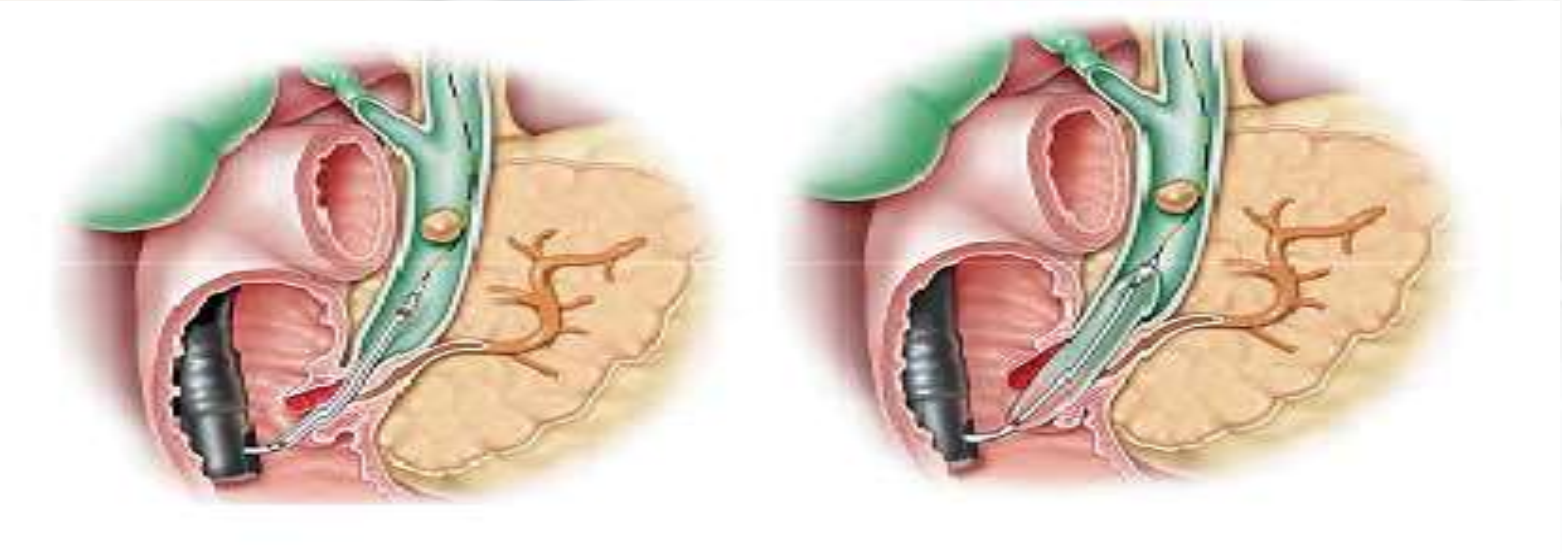
Lấy sỏi qua nội soi mật tụy ngược dòng

- During ERCP, a gastroenterologist uses a special endoscope (a long, flexible tube with a light and camera at the end) to examine the inside of the digestive system.
- The doctor identifies the place where the bile duct comes into the intestine and then feeds a tiny catheter (a plastic tube) into the duct and squirts in a contrast agent while X-rays are taken.
- The contrast agent allows the doctors to see the bile ducts, the gallbladder, and the pancreatic duct on the X-rays.
- Once the source of the problem is identified, the doctor may then treat it by performing one of the following procedures:

    - **Sphincterotomy.** This involves making a small incision (cut) in the opening of the pancreatic duct or the bile duct, which can help small gallstones, bile, and pancreatic juice to drain appropriately.
    - **Stent placement.** A stent is a drainage tube that is placed in the bile duct or the pancreatic duct to hold the duct open and allow it to drain.
    - **Gallstone(s) removal.** ERCP can remove gallstones from the bile duct, **but not from the gallbladder itself.**

Lấy sỏi qua nội soi mật tụy ngược dòng

EST vs EBPD



EST = Endoscopic Billiary Sphincterotomy
EBPD = Endoscopic Papillary Balloon Dilation

EST vs EBPD

EST	EPBD
A pull-type sphincterotomy incision is performed below the transverse fold	A small balloon up to 8-mm (now 10-mm) in diameter is advanced into the bile duct across the papilla
- it provides not only drainage but also clearance of bile duct stones at a single session in patients with choledocholithiasis - allow bile duct access, providing biliary drainage	- Reserve ampulla - Coagulopathy : cirrhosis, CRD v.v…
Bleeding	Pancreatitis
Long-term outcomes : more complications : sphincter dysfunction, stone recurrence, mechanical lithotripsy may be risk factors	

EST vs EBPD

Am J Gastroenterol. 2004 Aug;99(8):1455-60.

Endoscopic balloon dilation of the biliary sphincter compared to endoscopic biliary sphincterotomy for removal of common bile duct stones during ERCP: a metaanalysis of randomized, controlled trials.

Baron TH[1], Harewood GC.

Author information

Abstract

OBJECTIVES: To compare the effect of endoscopic balloon dilation (EPBD) of the papilla with that of endoscopic biliary sphincterotomy (EST) in the treatment of patients with common bile duct stones.

METHODS: Searches of computerized bibliographic and scientific citations, and review of citations in relevant primary articles. Eight fully published prospective, randomized trials in English that compared EPBD with EST for the removal of common bile duct stones were subjected to metaanalysis.

RESULTS: EPBD compared with EST resulted in similar outcomes with regards to overall successful stone removal (94.3% vs 96.5%) and overall complications (10.5% vs 10.3%). Bleeding occurred less frequently with EPBD (0% vs 2.0%, p = 0.001). Post-ERCP pancreatitis occurred more commonly in the EPBD group (7.4% vs 4.3%, p = 0.05). No significant differences were seen in the rates of perforation or infection. Patients undergoing EPBD were more likely to require mechanical lithotripsy for stone extraction (20.9% vs 14.8%, p = 0.014).

CONCLUSIONS: On the basis of lower rates of bleeding, EPBD should be the preferred strategy over EST for endoscopic removal of common bile duct stones in patients with coagulopathy. Although EPBD is theoretically attractive for use in young patients for biliary sphincter preservation, the rate of pancreatitis is higher with EPBD and cannot be routinely recommended at this time.

EST vs EBPD : short-term and long-term outcomes

- Furthermore, EST can cause a permanent loss of the sphincter function and resultant duodenobiliary reflux, putting patients at increased risk of long-term biliary complications including biliary stone recurrence, cholecystitis, and ascending cholangitis.

- Endoscopic papillary balloon dilation (EPBD) is a possible alternative to EST, particularly in patients with coagulopathy, for example, those on antithrombotic agents or with liver cirrhosis, or chronic renal failure on hemodialysis. One of the major advantages of EPBD over EST is that EPBD potentially preserves the sphincter function and, therefore, might reduce the risk of long-term biliary complications. Recent studies have shown a lower rate of stone recurrence after EPBD as compared with EST

EST vs EBPD : short-term and long-term outcomes

Gastrointest Endosc. 2010 Dec;72(6):1185-91. doi: 10.1016/j.gie.2010.07.006. Epub 2010 Sep 25.

Long-term outcomes after endoscopic sphincterotomy versus endoscopic papillary balloon dilation for bile duct stones.

Yasuda I[1], Fujita N, Maguchi H, Hasebe O, Igarashi Y, Murakami A, Mukai H, Fujii T, Yamao K, Maeshiro K, Tada T, Tsujino T, Komatsu Y.

⊕ Author information

Abstract

OBJECTIVE: Endoscopic sphincterotomy (ES) is a well-established standard method for treating common bile duct stones. However, biliary sphincter function is impaired after the treatment, and this may influence the long-term outcomes. In this study, we aimed to compare the long-term outcomes after ES with those after endoscopic papillary balloon dilation (EPBD) because the latter procedure is expected to preserve biliary sphincter function better than ES.

DESIGN: A prospective follow-up of the original cohort in a previously randomized, controlled trial to compare the early outcomes after ES and EPBD.

SETTING: Eleven centers, including 6 clinical practices and 5 academic institutions.

PATIENTS: A total of 282 patients with common bile duct stones were randomly selected to undergo ES (n = 144) or EPBD (n = 138) in the previous study.

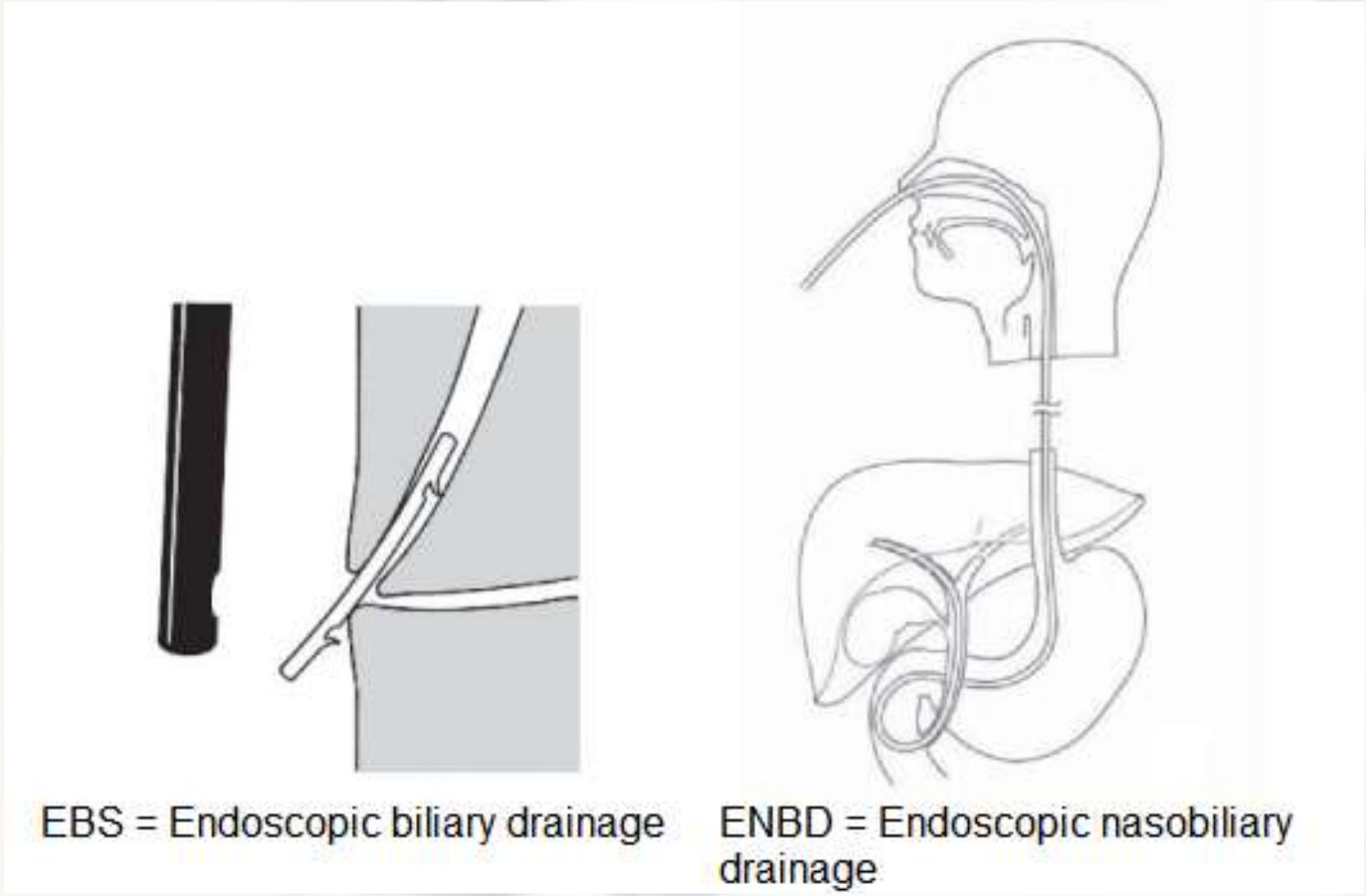
INTERVENTIONS: ES or EPBD.

MAIN OUTCOME MEASUREMENTS: Complications after ES or EPBD occurring during long-term follow-up.

RESULTS: The patients were followed up annually after the treatment. The median duration of the follow-up was 6.7 years. Morbidity was observed in 36 (25.0%) and 14 (10.1%) of the patients who underwent ES and EPBD, respectively (P = .0016). Kaplan-Meier analysis revealed a significantly higher incidence of biliary complications in the ES group than in the EPBD group (P = .0011). Multivariate analysis showed that ES, periampullary diverticulum, and in situ gallbladder stones were independent risk factors for stone recurrence.

CONCLUSIONS: During long-term follow-up, patients who underwent ES had significantly more biliary complications than those who underwent EPBD. The biliary sphincter dysfunction after ES results in additional late complications.

Drainage : ENBD vs EBS



EBS = Endoscopic biliary drainage

ENBD = Endoscopic nasobiliary drainage

Techniques of biliary drainage for acute cholangitis: Tokyo Guidelines

Drainage : ENBD vs EBS

ENBD (endoscopic nasobiliary drainage)	EBS (Endoscopic Biliary Stenting)
External drainage	Internal Drainage
a 5-Fr to 7-Fr tube is placed in the bile duct as an external drainage over the guidewire	a 7- to 10-Fr plastic stent is placed in the bile duct as an internal drainage over the guidewire
- No additional EST is required - Clogging in the tube (external drain) can be washed out - Bile cultures can be done	
Discomfort self-extraction and dislocation of the tube (especially in elderly patients) Loss of electrolytes and fluid	Infection

Drainage : ENBD vs EBS

Format: Abstract Send to

Hepatogastroenterology. 2015 May;62(139):558-63.

Comparison Between Endoscopic Biliary Stenting and Nasobiliary Drainage in Patients with Acute Cholangitis due to Choledocholithiasis: Is Endoscopic Biliary Stenting Useful?

Otani K, Ueki T, Matsumura K, Maruo T, Minoda R, Otsuka Y, Kawamoto K, Noma E, Mitsuyasu T, Matsui T.

Abstract

BACKGROUND/AIMS: To clarify whether or not use of an endoscopic biliary stenting (EBS) is superior to endoscopic nasobiliary drainage (ENBD) in cases of acute cholangitis due to choledocholithiasis.

METHODOLOGY: Of 447 patients with choledocholithiasis who were treated in the Department of Gastroenterology, Fukuoka University Chikushi Hospital between January 1994 and September 2006, the subjects were 99 moderate acute cholangitis patients who underwent endoscopic drainage as initial treatment. Clinical efficacy, complications and patient satisfaction (meal intake rete) were investigated in the EBS group (67 patients) and the ENBD group (32 patients).

RESULTS: There were no significant differences in the improvement in inflammation, total bilirubin, or biliary enzymes between the EBS and ENBD groups. Catheter occlusion was seen in three patients (4%) in the EBS group, and the catheter was self-extracted by three patients (10%) in the ENBD group.

CONCLUSION: In moderate acute cholangitis due to choledocholithisis, the treatment efficacy and safety of EBS are equal to those of ENBD, and EBS appears to be a better choice in elderly patients in particular.

PMID: 26897928

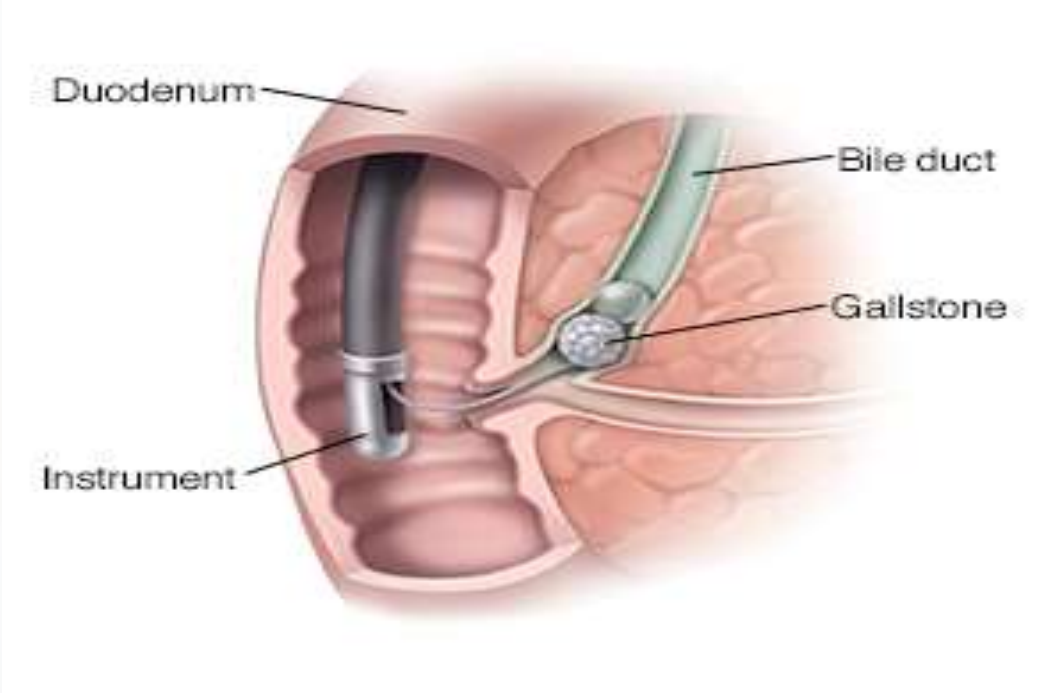
Lấy sỏi qua nội soi mật tụy ngược dòng

Lợi ích :

- Gần như không đau, bệnh nhân xuất viện sau 1 ngày
- Theo con đường sinh lý tự nhiên

Biến chứng (5-10%)

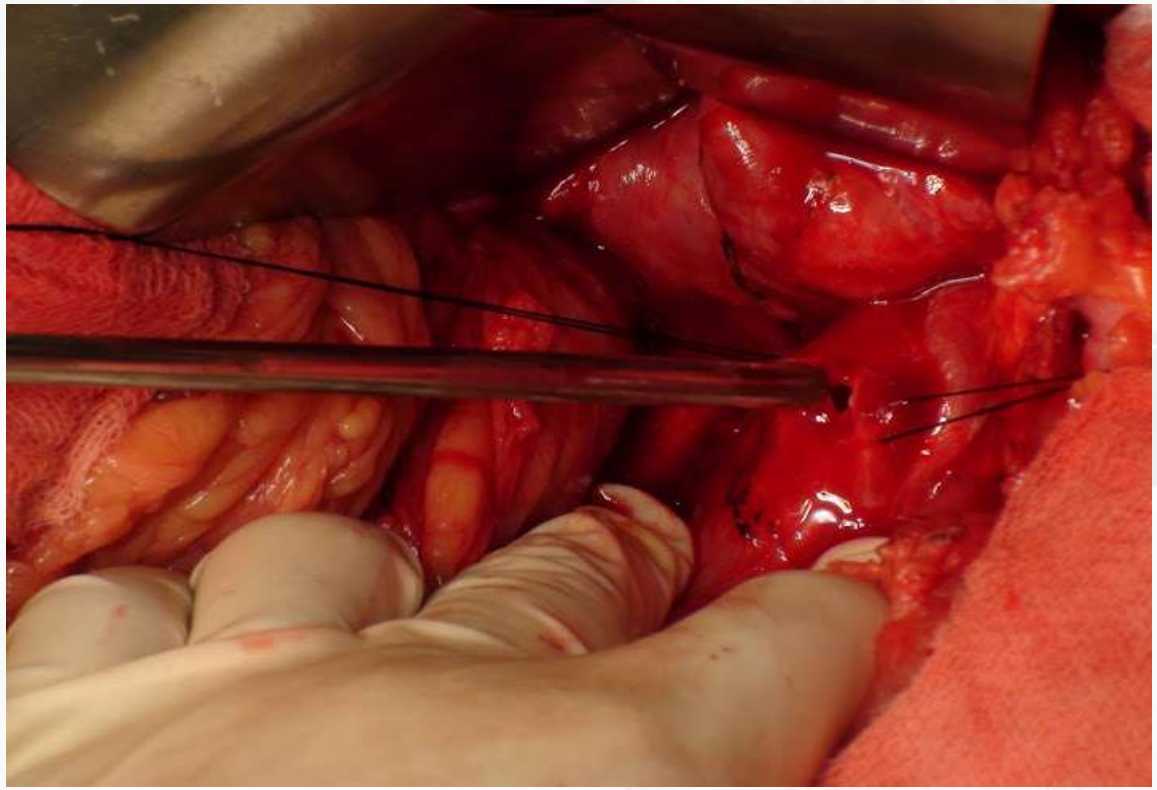
- Viêm tụy cấp (3-7%)
- Chảy máu : 2%
- Thủng tá tràng, thủng ống mật (1%)
- Viêm đường mật ngược dòng
- Chít hẹp cơ vòng Oddi
- Kẹt rọ khi lấy sỏi



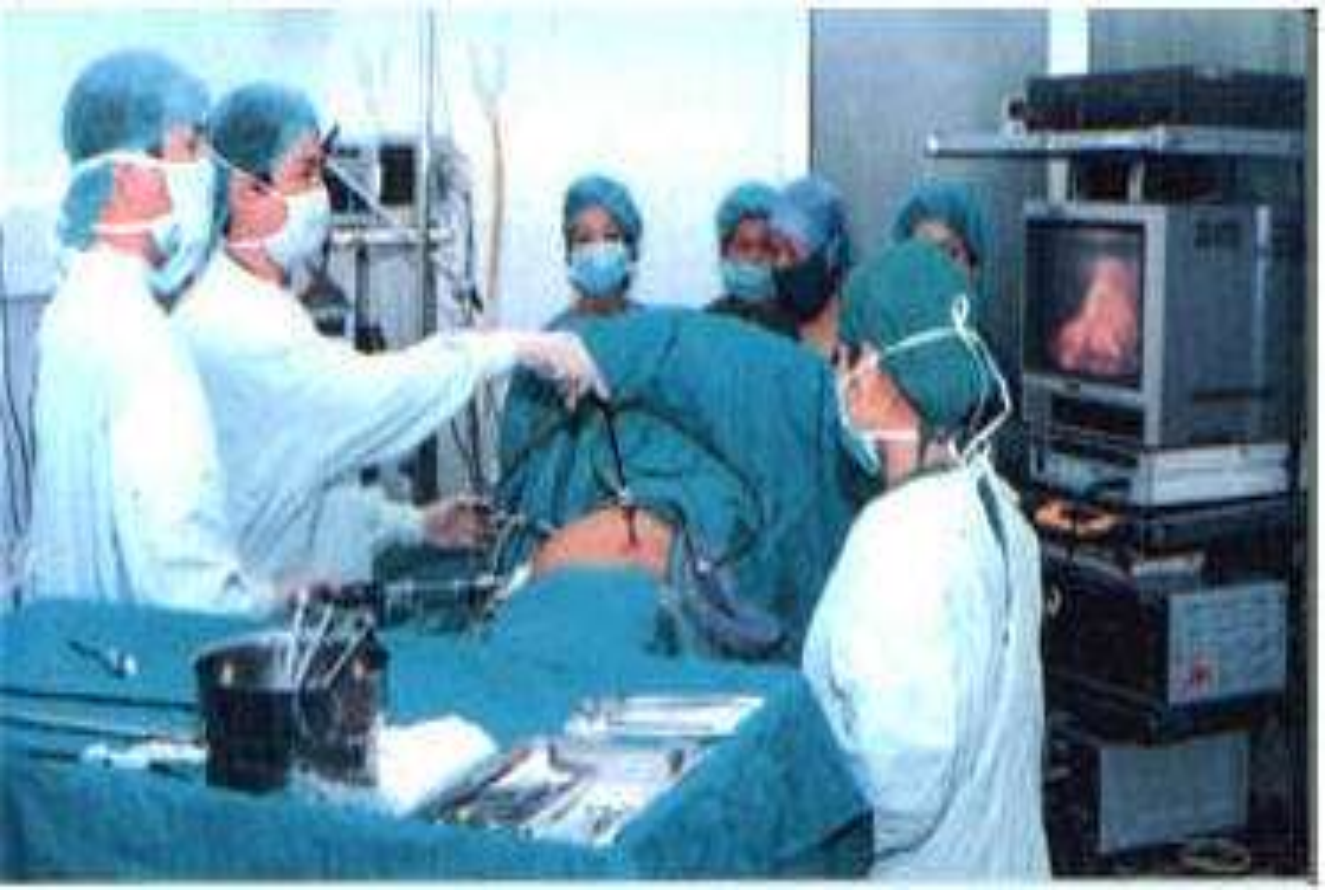
Mở ống mật chủ lấy sỏi

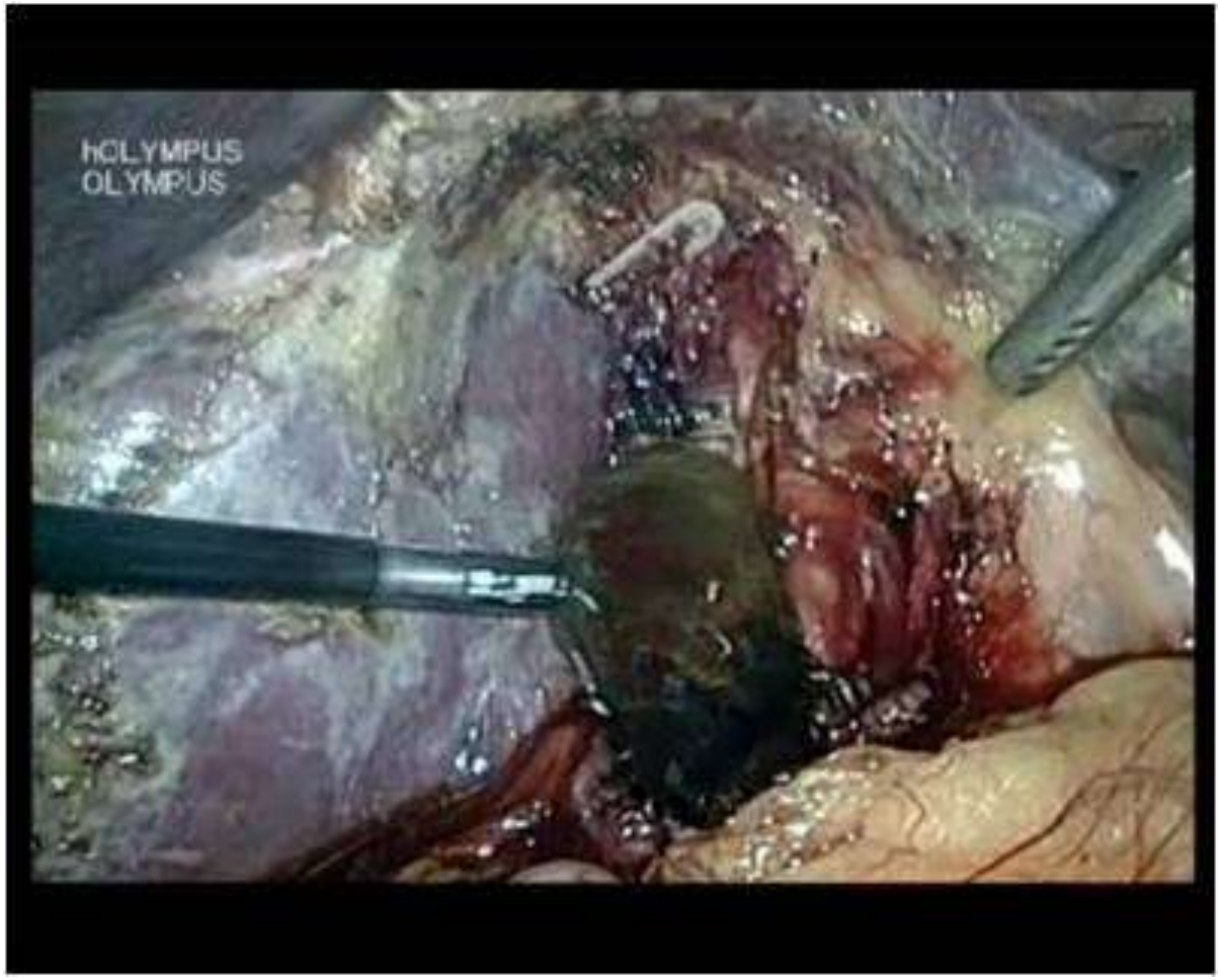
Chỉ định

- Thất bại với ERCP
- Sỏi lớn, nhiều sỏi
- Nếu có hẹp đường mật: nong hay tạo hình ống mật chủ
- Ống mật chủ > 10mm



Mở ống mật chủ lấy sỏi

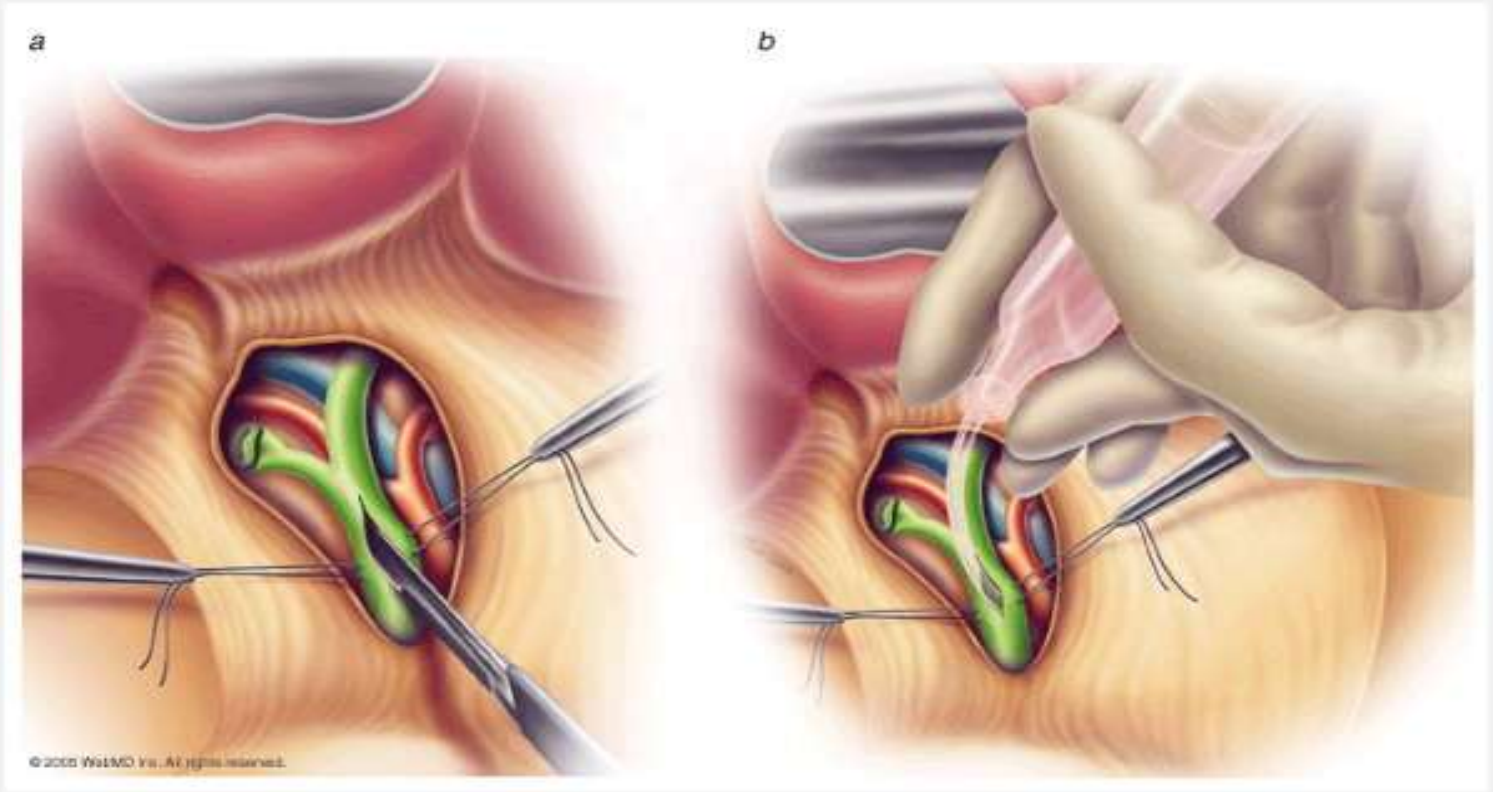


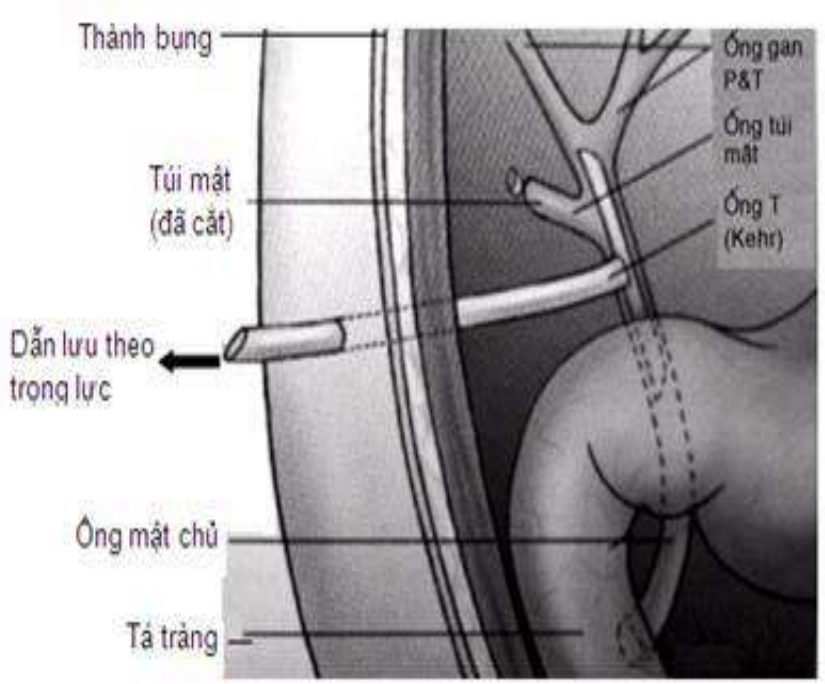


Mở ống mật chủ lấy sỏi

Sau mổ có thể lựa chọn :

- Khâu kín OMC
- Đặt ống dẫn lưu Kerh





Hình 18.4. Hệ thống đường dẫn mật và dẫn lưu ống mật chủ bằng ống T (Kehr)

Khâu kín ống mật chủ sau mổ

- Thực hiện khi đã kiểm tra đường mật đã sạch hết sỏi

- Ưu điểm :
  1. Không mất dịch mật
  2. Tránh các biến chứng của ống Kehr
  3. Giảm thời gian nằm viện

Đặt ống dẫn lưu Kehr

- Theo dõi phản ứng của da tại chân ống kehr, nếu có sung, nóng, đỏ, đau thì thay băng hằng ngày.
- Theo dõi số lượng và tính chất của dịch mật:
- Sau phẫu thuật, chưa có nhu động ruột, cơ vòng Oddi bị viêm, phù nề nên dịch mật chủ yếu ra ngoài qua ống kehr: **300-500ml/24h**
- Khi có trung tiện (3-4 ngày sau mổ), một phần dịch mật xuống tá tràng nên lượng dịch qua ống kehr ra ngoài giảm, còn **200-300ml/24h**
- Từ ngày thứ 5,6 trở đi, lượng dịch còn **150-200ml/24h**

Đặt ống dẫn lưu Kehr

- Bình thường, dịch mật có màu xanh đen ánh vàng
- Nếu Kehr không ra dịch thì có thể do dịch mật rò vào khoang bụng, để lâu gây thấm mật phúc mạc, rồi viêm phúc mạc mật, khi đó cần lau rửa ổ bụng
- Trường hợp nghẹt ống kehr, dịch mật có mủ, máu, cặn sỏi trong gan, khi đó ta cần thông lại ống bằng cách bơm rửa ống kehr với bơm tiêm loại 5ml,bơm 5ml NaCl 9‰ từ từ nhẹ tay vào Kehr để thông lòng ống nếu thấy nặng tay thì hút ra, không cố bơm tiếp.

Rút ống Kehr sớm

- Chụp XQ đường mật kiểm tra vào ngày HP7, cột ODL, rút vào ngày HP8
- Thông thường sau 2-4 tuần
- Phụ thuộc vào vị trí đưa ống Kehr ra ngoài
- Ngày nay để thuận tiện cho soi đường mật sau mổ qua đường ống Kehr, ống Kehr nên được đưa ra ngoài ở vùng thượng vị, ngay trên vị trí mở OMC thay vì dưới HSP

Mở ống mật chủ lấy sỏi

- **Biến chứng**

- Chảy máu
- Rò mật (do phẫu thuật hoặc do lỏng lẻo Kehr)
- Tụ dịch ổ bụng
- Viêm tụy cấp
- Áp xe tồn lưu
- Nhiễm trùng vết mổ

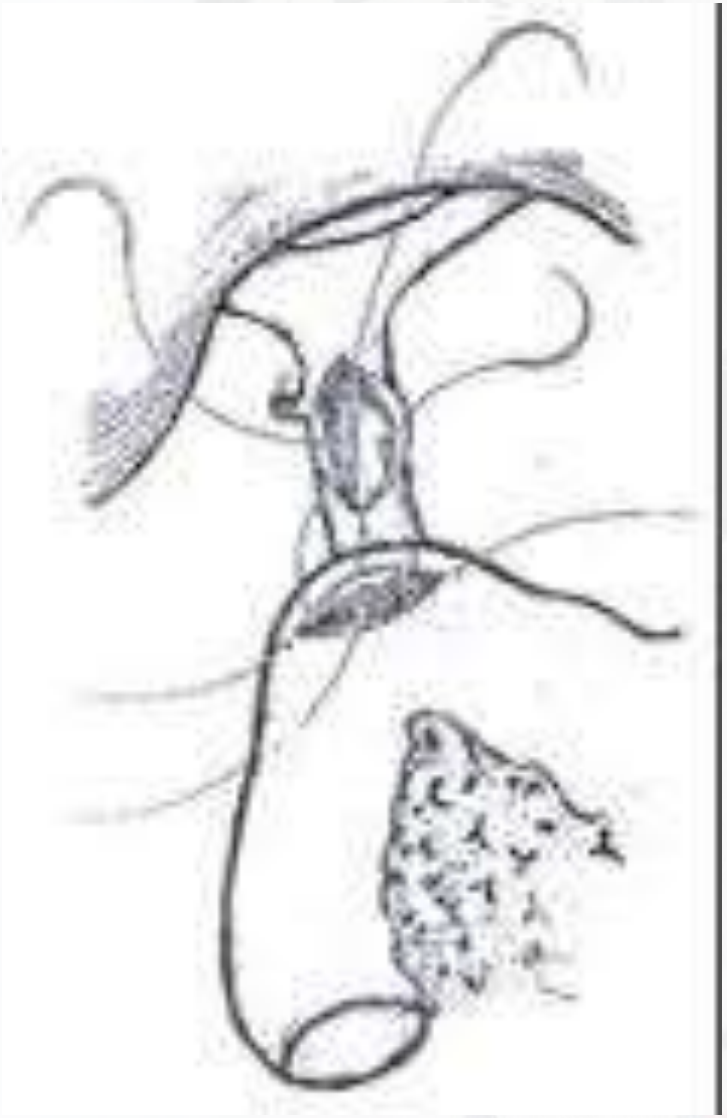
Mở ống mật chủ lấy sỏi + Nối mật ruột

Chỉ định:

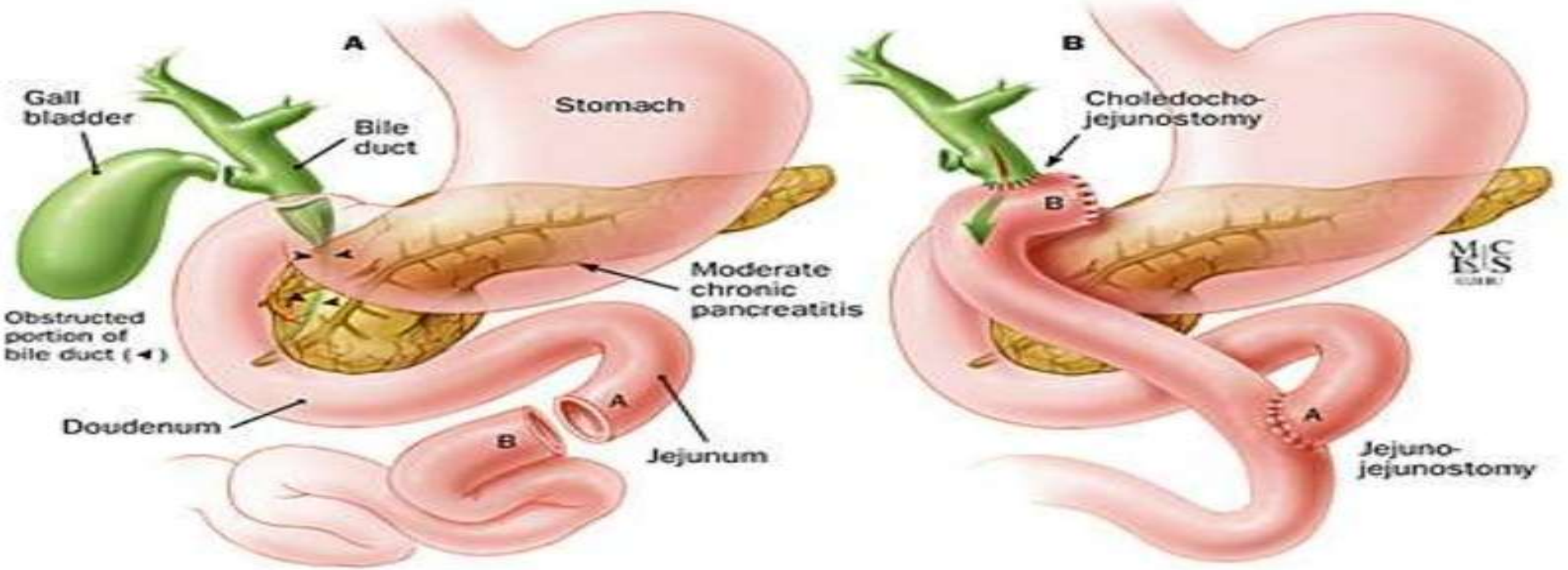
- Hẹp đường mật ngoài gan
- Sỏi quá nhiều nghẹt trong các ống mật
- Sỏi trong gan không lấy được hết
- Sỏi mật tái phát nhiều lần

Chống chỉ định

- OMC không dãn <14mm
- Viêm teo đường mật
- Viêm tụy cấp do sỏi kẹt bóng Vater
- Tá tràng khó di động, phù nề, gỡ dính

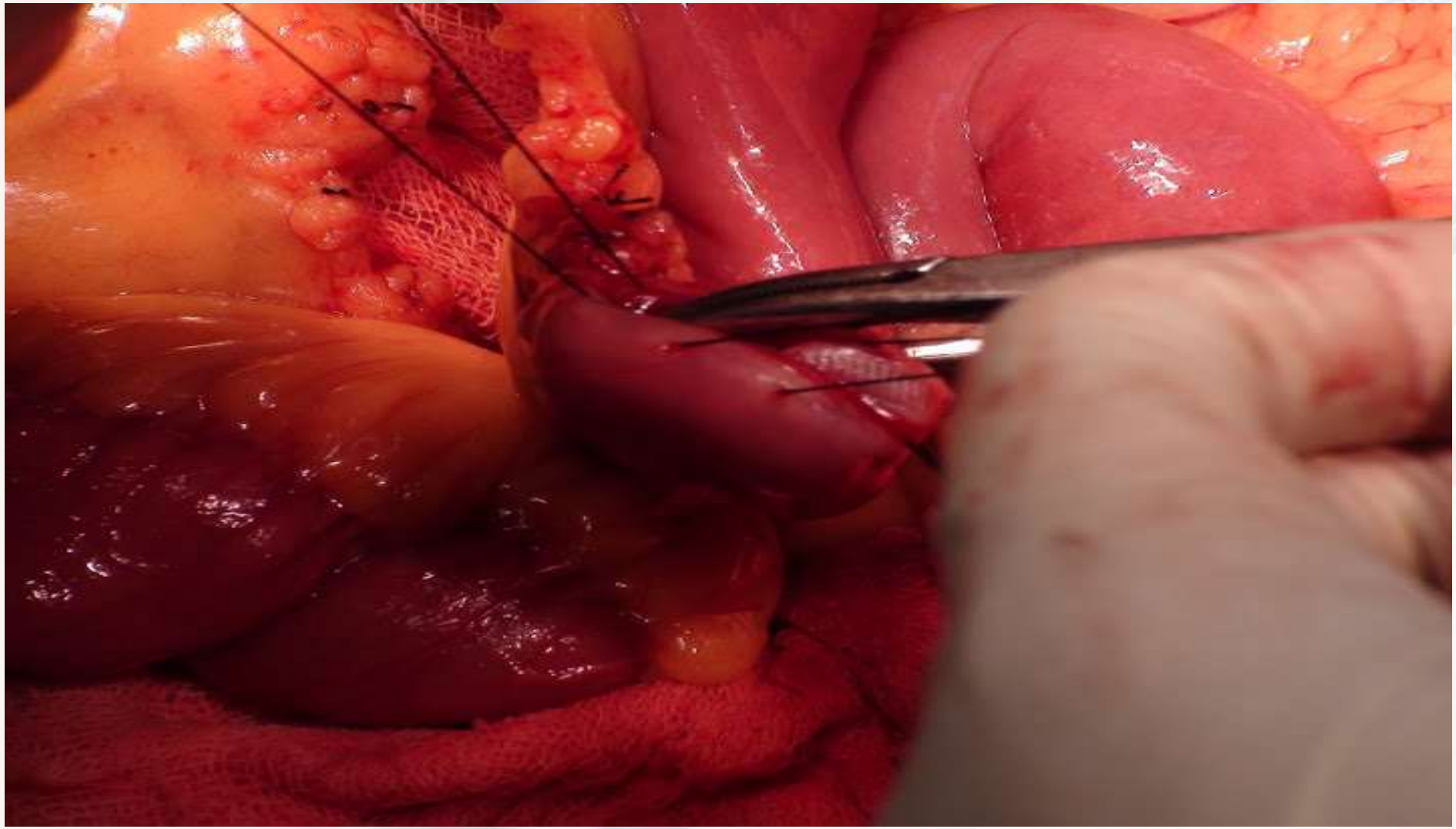


Mở ống mật chủ lấy sỏi + Nối mật ruột



HEPATICOJEJUNOSTOMY

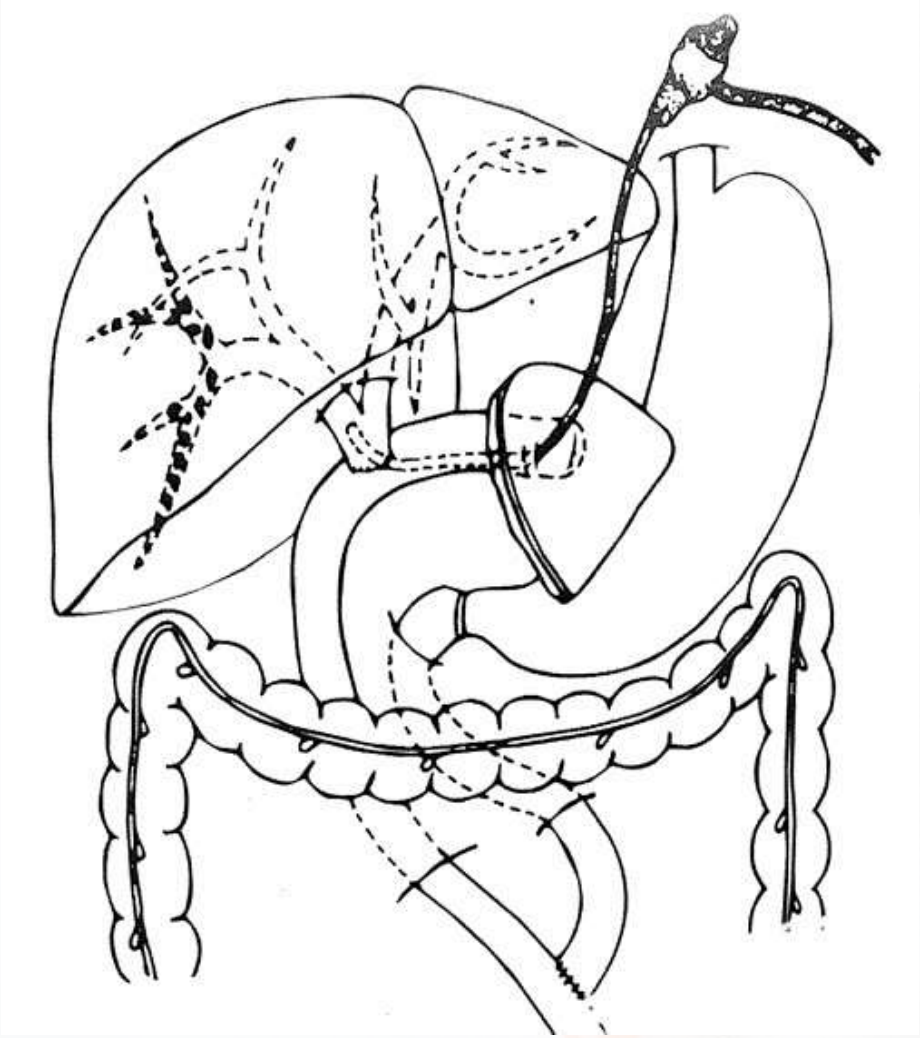
Mở ống mật chủ lấy sỏi + Nối mật ruột



Mở ống mật chủ lấy sỏi + Nối mật ruột

Biến chứng

- Xì rò miệng nối
- Nhiễm trùng đường mật ngược dòng
- Giun chui đường mật qua miệng nối
- Cắt phạm vào gan, các cấu trúc khác lân cận

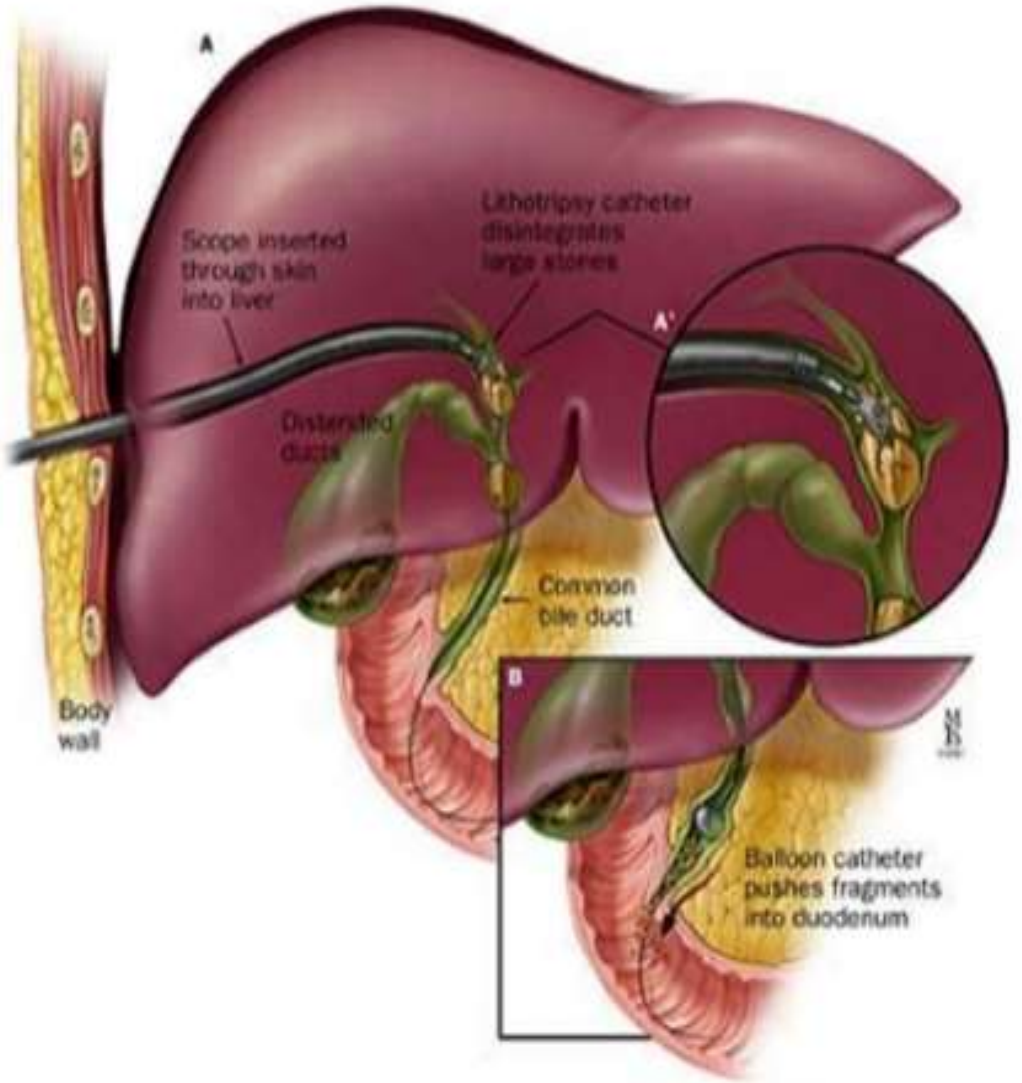


Lấy sỏi xuyên gan qua da

Chỉ định:

- Sỏi trong gan với OMC không dã
- Sỏi đường mật đã được nối mật
- Không can thiệp phẫu thuật được
- Thất bại với các phương pháp kh

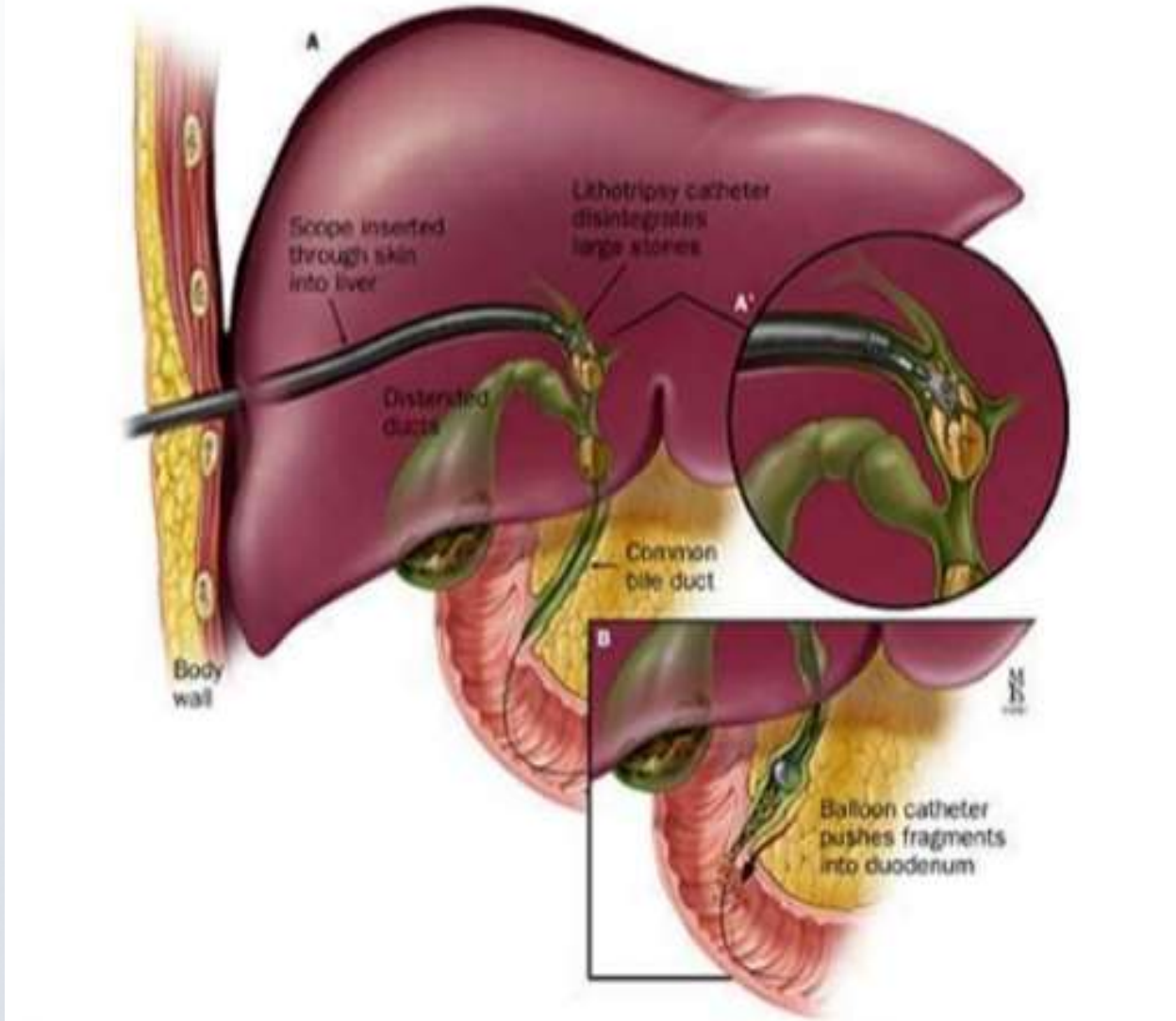
hoặc sỏi tái phát quá nhiều lần



Lấy sỏi xuyên gan qua da

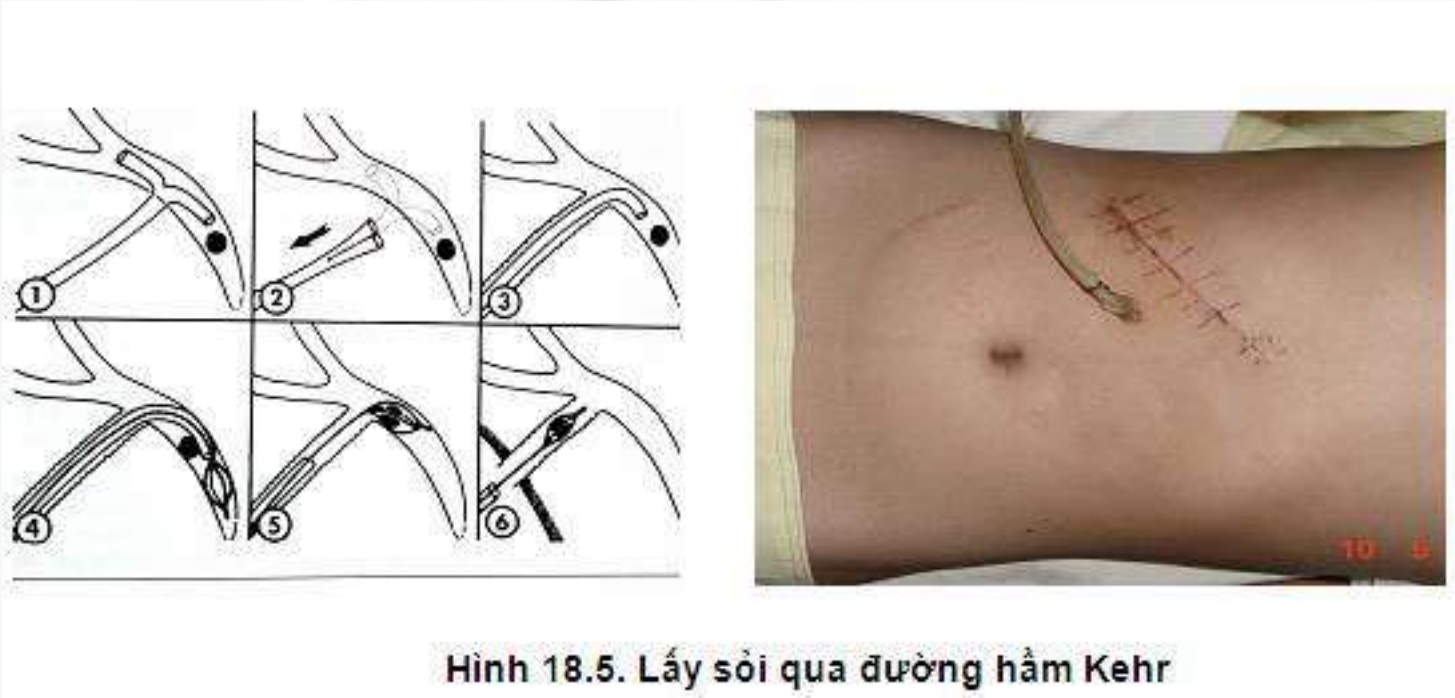
Biến chứng :

- XH trong phúc mạc,
- Viêm phúc mạc mật
- Abces quanh phúc mạc.

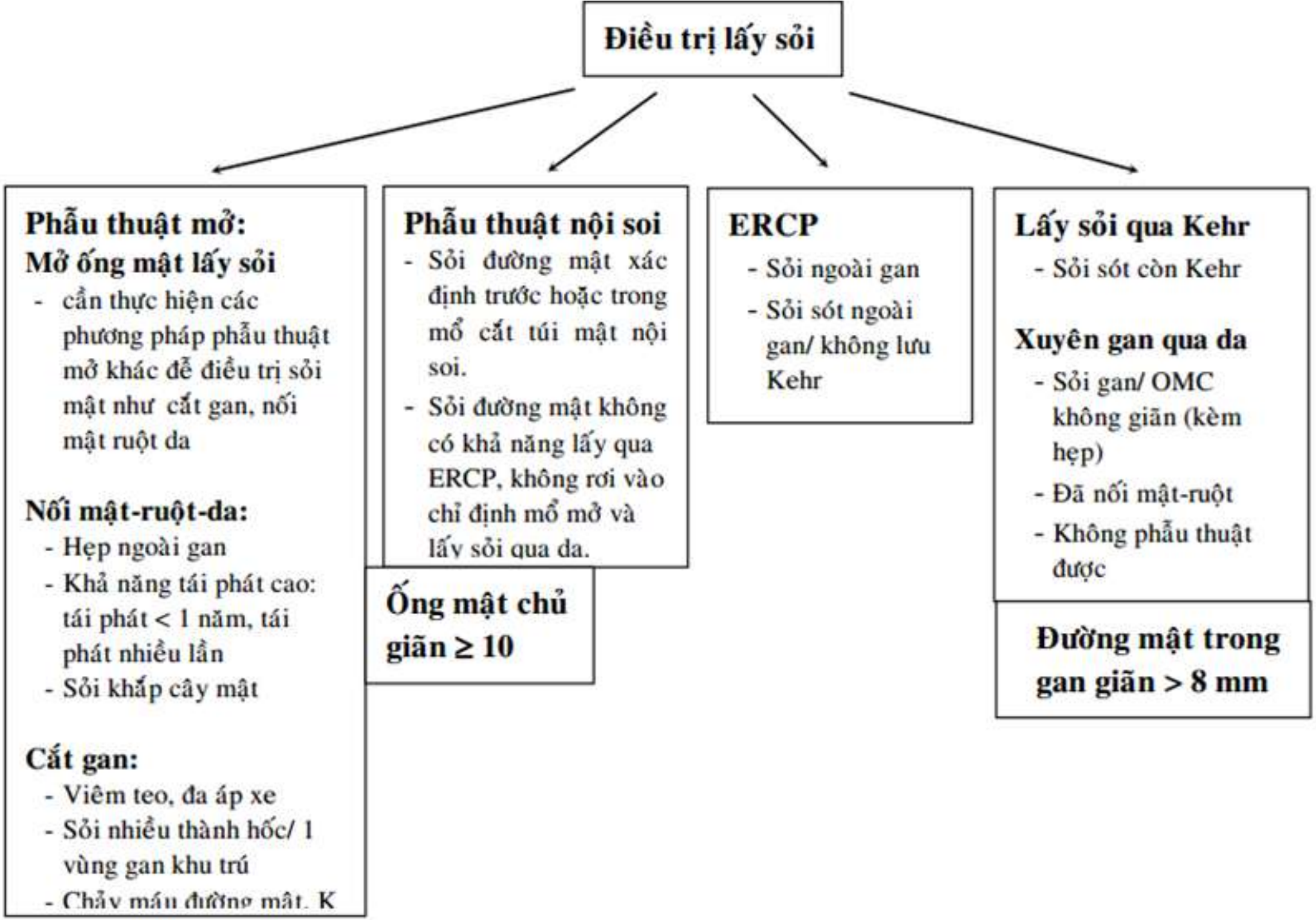


Lấy sỏi qua đường hầm đặt Kehr

Chỉ định: tất cả các trường hợp sót sỏi hay còn sỏi sau mổ có lưu ống dẫn lưu Kehr



Hình 18.5. Lấy sỏi qua đường hầm Kehr


Điều trị lấy sỏi
Phẫu thuật mở:
Mở ống mật lấy sỏi
- cần thực hiện các phương pháp phẫu thuật mở khác để điều trị sỏi mật như cắt gan, nối mật ruột da
Nối mật-ruột-da:
- Hẹp ngoài gan
- Khả năng tái phát cao: tái phát < 1 năm, tái phát nhiều lần
- Sỏi khắp cây mật
Cắt gan:
- Viêm teo, đa áp xe
- Sỏi nhiều thành hốc/ 1 vùng gan khu trú
- Chảy máu đường mật, K
Phẫu thuật nội soi
- Sỏi đường mật xác định trước hoặc trong mổ cắt túi mật nội soi.
- Sỏi đường mật không có khả năng lấy qua ERCP, không rơi vào chỉ định mổ mở và lấy sỏi qua da.
Ống mật chủ giãn ≥ 10
ERCP
- Sỏi ngoài gan
- Sỏi sót ngoài gan/ không lưu Kehr
Lấy sỏi qua Kehr
- Sỏi sót còn Kehr
Xuyên gan qua da
- Sỏi gan/ OMC không giãn (kèm hẹp)
- Đã nối mật-ruột
- Không phẫu thuật được
Đường mật trong gan giãn > 8 mm

Sỏi ống mật chủ + Sỏi trong gan

- Phẫu thuật mở ống mật chủ lấy sỏi (Mổ mở / Mổ nội soi)
- Lấy sỏi qua nội soi mật tụy ngược dòng: không thể lấy được sỏi đường mật trong gan nên thường để giải áp đường mật tạm thời
- Lấy sỏi qua da
- Mở ống mật chủ lấy sỏi + Cắt gan

Phẫu thuật mở ống mật chủ lấy sỏi

- Soi đường mật trong mổ để lấy sỏi gan
- Kết hợp tán sỏi : điện – thủy lực
- Nếu không thể lấy hết sỏi, lấy thông qua đường hầm ống Kehr sau

Lấy sỏi qua da

- Chỉ nên áp dụng khi khó khăn, không thể mổ được
- Thời gian nằm viện lâu, tiếp cận sỏi khó trong 1 số trường hợp
- Bệnh nhân đã mổ nhiều lần

Mở ống mật chủ lấy sỏi + Cắt gan

- Chỉ định :
  - Có tình trạng hẹp ống phân thùy hay hạ phân thùy
  - Gan xơ, teo do tắc mật lâu ngày
  - Sỏi tái phát
  - Áp xe gan đường mật
- Cắt thùy gan trái thường hay được thực hiện nhất

Cắt túi mật + lấy sỏi OMC qua ống túi mật

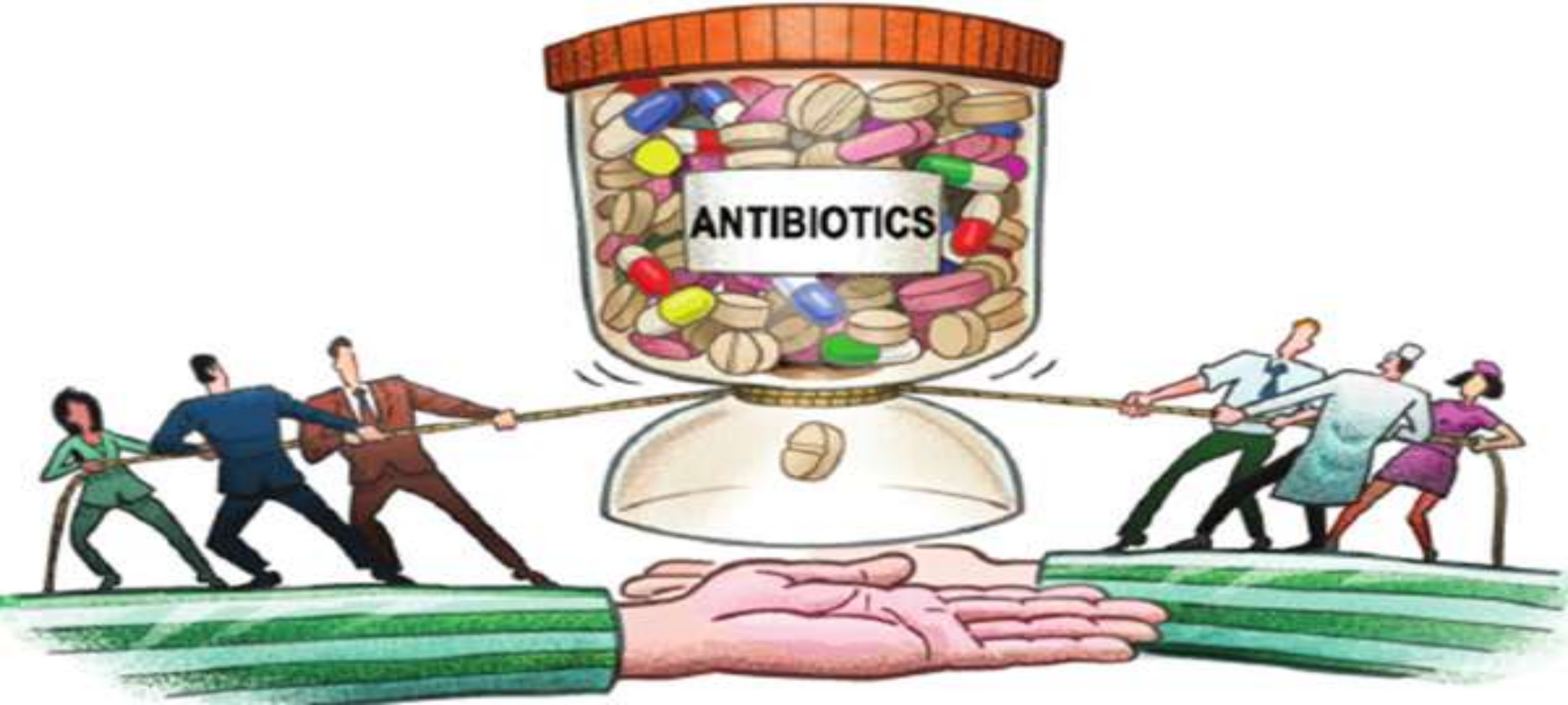
- Có chỉ định khi túi mật dãn
- Nếu cần, nong ống túi mật
- Dùng ống soi đường mật qua ống túi mật lấy sỏi ống mật chủ

Sỏi trong gan

Can thiệp khi có triệu chứng + nhiễm trùng + tắc mật

1. Mở OMC lấy sỏi, dẫn lưu Kehr + lấy sỏi sau mổ qua đường hầm ống Kehr
2. Cắt gan
3. Mở nhu mô gan lấy sỏi
4. Lấy sỏi qua da
5. Nối mật – da qua trung gian túi mật hay quai hỗng tràng kiểu Y hay quai ruột biệt lập :
   - Sỏi trong gan tái phát nhiều lần (>3 lần)
   - Sỏi tái phát nhanh (< 6 tháng)
   - Có tình trạng hẹp đường mật
6. Lấy sỏi qua đường túi mật hay qua đường mật – ruột – da

Antimicrobial therapy



Antimicrobial therapy

- Antimicrobial therapy is a mainstay of the management for patients with acute cholangitis and/or cholecystitis.
- Prudent antimicrobial usage and early de-escalation or termination of antimicrobial therapy are now important parts of decision-making
- In the TG18 guidelines, empiric therapy is defined as antimicrobial therapy until the cultures and susceptibility testing results are available.
- Once causative microorganisms and the susceptibility testing results are available, antimicrobial therapy should be adjusted to specific antimicrobial agents targeting the organisms. This process is defined as de-escalation of antimicrobial therapy in the TG18 guidelines

Antimicrobial therapy : Agents

Isolated microorganisms from bile cultures	Proportions of isolated organisms (%)
Gram-negative organisms	
Escherichia coli	31–44
Klebsiella spp.	9–20
Pseudomonas spp.	0.5–19
Enterobacter spp.	5–9
Acinetobacter spp.	–
Citrobacter spp.	–
Gram-positive organisms	
Enterococcus spp.	3–34
Streptococcus spp.	2–10
Staphylococcus spp.	0[a]
Anaerobes	4–20
Others	–

Isolated microorganisms from blood cultures	Proportions of isolates (%)	
	Community-acquired infections[a]	Healthcare-associated infections[b]
Gram-negative organisms		
Escherichia coli	35–62	23
Klebsiella spp.	12–28	16
Pseudomonas spp.	4–14	17
Enterobacter spp.	2–7	7
Acinetobacter spp.	3	7
Citrobacter spp.	2–6	5
Gram-positive organisms		
Enterococcus spp.	10–23	20
Streptococcus spp.	6–9	5
Staphylococcus spp.	2	4
Anaerobes	1	2
Others	17	11

Antimicrobial therapy : Specimen

- Bile cultures should be obtained at the beginning of any procedure performed. Gallbladder bile should be sent for culture in all cases of acute cholecystitis except those with grade I severity. (Recommendation 1, level C)
- Blood cultures are not routinely recommended for grade I community-acquired acute cholecystitis. (Recommendation 2, level D)

Positive rates of bile cultures range from 28% to 93% for acute cholangitis and positive rates of either bile or gallbladder cultures range from 29% to 54% for acute cholecystitis

On the other hand, previous studies indicated that positive rates of blood cultures among patients with acutecholangitis ranged from 21% to 71% [13]. A recent multicenter study of patients with acute cholangitis show ed the proportions of positive blood cult ures were 15.2%, 21%, and 25.7% by TG13 severity grade I, II, an d III, respectively [7]. For acute cholecystitis, the prevalence of positive blood cultures is less than acute cholan gitis, and in the last two decades it has been reported to range from 7.7% to 15.8%

Antimicrobial therapy : Time

- Regarding the timing of therapy, therapy should be initiated as soon as the diagnosis of biliary infection is suspected. **For patients in septic shock**, antimicrobials should be administered within **1 h** of recognition

- **For other patients, as long as 6 h** may be spent obtaining definitive diagnostic studies prior to beginning antimicrobial therapy.

- Antimicrobial therapy **should definitely be started before any procedure**, either percutaneous, endoscopic, or operative, is performed. In addition, anaerobic therapy is appropriate if a biliary-enteric anastomosis is present

Antimicrobial therapy : Time

- **The duration** of therapy for patients with acute cholangitis **is for 4 to 7 days** once the source of infection is controlled by integrating the above studies and expert opinion (Table 5).

- **When bacteremia with Gram-positive bacteria** such as Enterococcus spp. and Streptococcus spp**. is present**, it is prudent to offer antimicrobial therapy for **2 weeks** since these organisms are well-known to cause infective **endocarditis.**

- The incidence of endocarditis among patients with acute cholangitis has been reported 17 (0.3%) out of 6,147 patients with acute cholangitis

Antimicrobial therapy : Recommendations

Table 3 Antimicrobial recommendations for acute biliary infections

	Community-acquired biliary infections				Healthcare-associated biliary infections[e]
Severity	Grade I		Grade II	Grade III[e]	
Antimicrobial agents	Cholangitis	Cholecystitis	Cholangitis and cholecystitis	Cholangitis and cholecystitis	Healthcare-associated cholangitis and cholecystitis
Penicillin-based therapy	Ampicillin/sulbactam[b] is not recommended without an aminoglycoside	Ampicillin/sulbactam[b] is not recommended without an aminoglycoside	Piperacillin/tazobactam	Piperacillin/tazobactam	Piperacillin/tazobactam
Cephalosporin-based therapy	Cefazolin[a], or cefotiam[a], or cefuroxime[a], or ceftriaxone, or cefotaxime ± metronidazole[d]	Cefazolin[a], or cefotiam[a], or cefuroxime[a], or ceftriaxone, or cefotaxime ± metronidazole[d]	Ceftriaxone, or cefotaxime, or cefepime, or cefozopran, or ceftazidime ± metronidazole[d]	Cefepime, or ceftazidime, or cefozopran ± metronidazole[d]	Cefepime, or ceftazidime, or cefozopran ± metronidazole[d]
	Cefmetazole,[a] Cefoxitin,[a] Flomoxef,[a] Cefoperazone/sulbactam	Cefmetazole,[a] Cefoxitin,[a] Flomoxef,[a] Cefoperazone/sulbactam	Cefoperazone/sulbactam		
Carbapenem-based therapy	Ertapenem	Ertapenem	Ertapenem	Imipenem/cilastatin, meropenem, doripenem, ertapenem	Imipenem/cilastatin, meropenem, doripenem, ertapenem
Monobactam-based therapy	–	–	–	Aztreonam ± metronidazole[c]	Aztreonam ± metronidazole[d]
Fluoroquinolone-based therapy[c]	Ciprofloxacin, or levofloxacin, or pazufloxacin ± metronidazole[d]	Ciprofloxacin, or levofloxacin, or pazufloxacin ± metronidazole[d]	Ciprofloxacin, or levofloxacin, or pazufloxacin ± metronidazole[c]	–	–
	Moxifloxacin	Moxifloxacin	Moxifloxacin		

[a] Local antimicrobial susceptibility patterns (antibiogram) should be considered for use

[b] Ampicillin/sulbactam has little activity left against *Escherichia coli*. It is removed from the North American guidelines [6]

[c] Fluoroquinolone use is recommended if the susceptibility of cultured isolates is known or for patients with β-lactam allergies. Many extended-spectrum β-lactamase (ESBL)-producing Gram-negative isolates are fluoroquinolone-resistant

[d] Anti-anaerobic therapy, including use of metronidazole, tinidazole, or clindamycin, is warranted if a biliary-enteric anastomosis is present. The carbapenems, piperacillin/tazobactam, ampicillin/sulbactam, cefmetazole, cefoxitin, flomoxef, and cefoperazone/sulbactam have sufficient anti-anerobic activity for this situation

[e] Vancomycin is recommended to cover *Enterococcus* spp. for grade III community-acquired acute cholangitis and cholecystitis, and healthcare-associated acute biliary infections. Linezolid or daptomycin is recommended if vancomycin-resistant *Enterococcus* (VRE) is known to be colonizing the patient, if previous treatment included vancomycin, and/or if the organism is common in the community

Antimicrobial therapy : Recommendations

	Community-acquired biliary infections	
Severity	Grade I	
Antimicrobial agents	Cholangitis	Cholecystitis
Penicillin-based therapy	Ampicillin/sulbactam[b] is not recommended without an aminoglycoside	Ampicillin/sulbactam[b] is not recommended without an aminoglycoside
Cephalosporin-based therapy	Cefazolin[a], or cefotiam[a], or cefuroxime[a], or ceftriaxone, or cefotaxime ± metronidazole[d]	Cefazolin[a], or cefotiam[a], or cefuroxime[a], or ceftriaxone, or cefotaxime ± metronidazole[d]
	Cefmetazole,[a] Cefoxitin,[a] Flomoxef,[a] Cefoperazone/ sulbactam	Cefmetazole,[a] Cefoxitin,[a] Flomoxef,[a] Cefoperazone/ sulbactam
Carbapenem-based therapy	Ertapenem	Ertapenem
Monobactam-based therapy	–	–
Fluoroquinolone-based therapy[c]	Ciprofloxacin, or levofloxacin, or pazufloxacin ± metronidazole[d]	Ciprofloxacin, or levofloxacin, or pazufloxacin ± metronidazole[d]
	Moxifloxacin	Moxifloxacin

Antimicrobial therapy : Recommendations

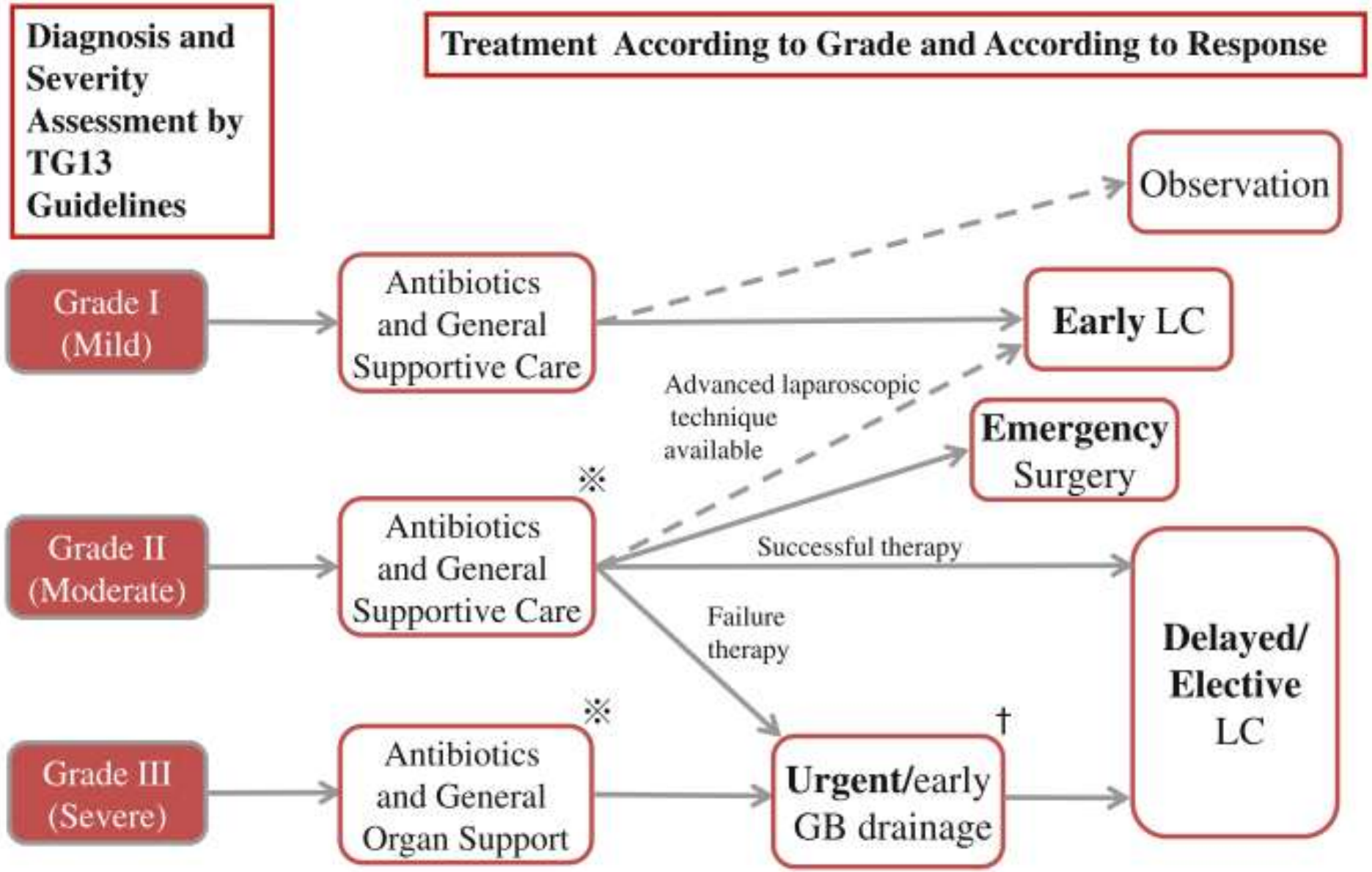
	Community-acquired biliary infections	
Severity	Grade I	
Antimicrobial agents	Cholangitis	Cholecystitis
Penicillin-based therapy	Ampicillin/sulbactam[b] is not recommended without an aminoglycoside	Ampicillin/sulbactam[b] is not recommended without an aminoglycoside
Cephalosporin-based therapy	Cefazolin[a], or cefotiam[a], or cefuroxime[a], or ceftriaxone, or cefotaxime ± metronidazole[d]	Cefazolin[a], or cefotiam[a], or cefuroxime[a], or ceftriaxone, or cefotaxime ± metronidazole[d]
	Cefmetazole,[a] Cefoxitin,[a] Flomoxef,[a] Cefoperazone/ sulbactam	Cefmetazole,[a] Cefoxitin,[a] Flomoxef,[a] Cefoperazone/ sulbactam
Carbapenem-based therapy	Ertapenem	Ertapenem
Monobactam-based therapy	–	–
Fluoroquinolone-based therapy[c]	Ciprofloxacin, or levofloxacin, or pazufloxacin ± metronidazole[d]	Ciprofloxacin, or levofloxacin, or pazufloxacin ± metronidazole[d]
	Moxifloxacin	Moxifloxacin

Antimicrobial therapy : Recommendations

	Community-acquired biliary infections	
Severity	Grade II	Grade III[e]
Antimicrobial agents	Cholangitis and cholecystitis	Cholangitis and cholecystitis
Penicillin-based therapy	Piperacillin/tazobactam	Piperacillin/tazobactam
Cephalosporin-based therapy	Ceftriaxone, or cefotaxime, or cefepime, or cefozopran, or ceftazidime ± metronidazole[d] Cefoperazone/sulbactam	Cefepime, or ceftazidime, or cefozopran ± metronidazole[d]
Carbapenem-based therapy	Ertapenem	Imipenem/cilastatin, meropenem, doripenem, ertapenem
Monobactam-based therapy	–	Aztreonam ± metronidazole[c]
Fluoroquinolone-based therapy[c]	Ciprofloxacin, or levofloxacin, or pazufloxacin ± metronidazole[c] Moxifloxacin	–

Antimicrobial therapy : Recommendations

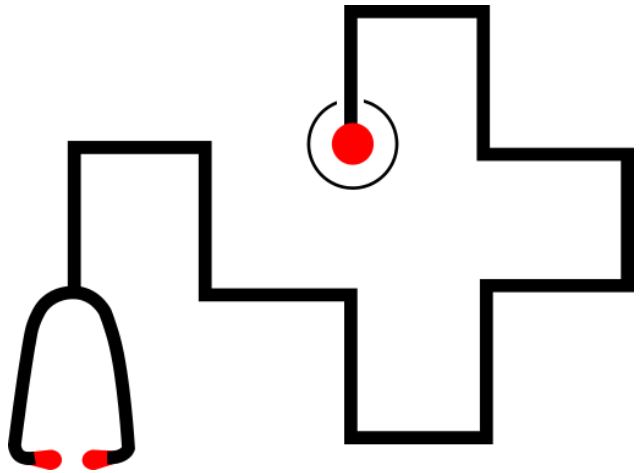
Severity	Healthcare-associated biliary infections[e]
Antimicrobial agents	Healthcare-associated cholangitis and cholecystitis
Penicillin-based therapy	Piperacillin/tazobactam
Cephalosporin-based therapy	Cefepime, or ceftazidime, or cefozopran ± metronidazole[d]
Carbapenem-based therapy	Imipenem/cilastatin, meropenem, doripenem, ertapenem
Monobactam-based therapy	Aztreonam ± metronidazole[d]
Fluoroquinolone-based therapy[c]	–



LC: laparoscopic cholecystectomy, GB: gallbladder

※ Performance of a blood culture should be taken into consideration before initiation of administration of antibiotics.

† A bile culture should be performed during GB drainage.



Tóm tắt

Management bundle of acute cholangitis

- When acute cholangitis is suspected, perform a diagnostic assessment every 6 to 12 h using TG18 diagnostic criteria until a diagnosis is reached.

- Perform abdominal US, followed by a CT scan, MRI, MRCP, and HIDA scan as required.

- Use the severity assessment criteria to assess severity repeatedly: at diagnosis, within 24 h after diagnosis, and from 24 to 48 h after diagnosis.

Management bundle of acute cholangitis

- As soon as a diagnosis has been made, provide initial treatment. The treatment is as follows: sufficient fluid replacement, electrolyte compensation, and intravenous administration of analgesics and full-dose antimicrobial agents.

- In patients with Grade I (mild) disease, if no response to the initial treatment is observed within 24 h, perform biliary tract drainage immediately.

- In patients with Grade II (moderate) disease, perform biliary tract drainage immediately along with the initial treatment. If early drainage cannot be performed because of a lack of facilities or skilled personnel, consider transferring the patient.

Management bundle of acute cholangitis

- In patients with Grade III (severe) disease, perform urgent biliary tract drainage along with the initial treatment and give general supportive care. If urgent drainage cannot be performed because of a lack of facilities or skilled personnel, consider transferring the patient.

- In patients with Grade III (severe) disease, supply organ support (e.g. noninvasive/invasive positive pressure ventilation, use of vasopressors and antimicrobial agents) immediately.

Management bundle of acute cholangitis

- Perform blood culture or bile culture, or both, in Grade II (moderate) and III (severe) patients.

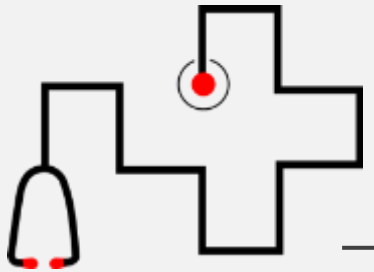
- Consider treating the etiology of acute cholangitis with endoscopic, percutaneous, or operative intervention once the acute illness has resolved. Cholecystectomy should be performed for cholecystolithiasis after the acute cholangitis has resolved.

- If the hospital is not equipped to perform endoscopic or percutaneous transhepatic biliary drainage or provide intensive care, transfer patient with moderate or severe cholangitis to a hospital capable of providing these treatments.

Take home message

- Tiếp cận chẩn đoán viêm đường mật, phân loại mức độ nặng nhẹ, và điều trị theo phân loại Tokyo Guideline 2018

- Lựa chọn phương pháp điều trị nào tùy thuộc vào tình trạng của bệnh nhân và nhiều yếu tố khác nhau, phải tùy trường hợp cụ thể.



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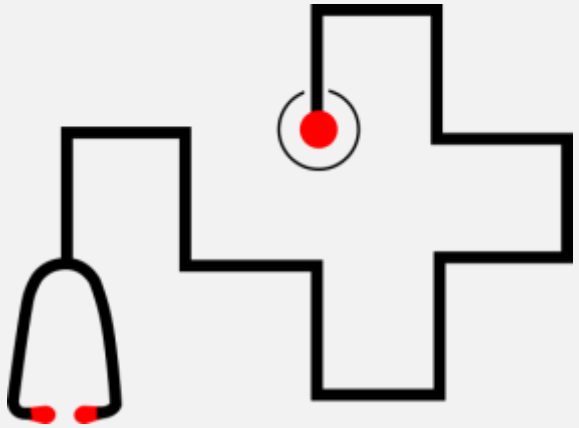

Thank you

For your attention