

Clinical characteristics of acute cholangitis due to stent occlusion in malignant biliary obstruction

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Background / aims

- Biliary stent insertion has been known as useful management in not only malignant biliary obstruction (MBO) but also difficult bile duct stone. However, acute cholangitis is developed by stent occlusion and it can be fatal in immunocompromised hosts such as patients with malignancy.
- This study aimed to analyze the clinical characteristics of acute cholangitis in MBO according to Tokyo guideline (TG) 2018

Methods

- **Study design** : Retrospective
- **Study duration** : From January 2016 to June 2018
- **Inclusion criteria**
 - Patients performed previous stent insertion via ERCP
 - Patients with acute cholangitis d/t stent occlusion
- **Enrolled patients** : 180 patients (Benign 123, Malignant 57)
 - Benign : CBD stone, benign stricture
 - Malignant : Pancreas head cancer, CBD cancer, AoV cancer, Metastatic cancer,

Results: Diagnostic criteria of TG 18 in enrolled patients

Parameters in the TG 2018 diagnosis criteria	Benign (N=123)	Malignant (N=57)	P value
A. Clinical manifestation, n, (%)			
1. Fever and/or chill	91 (73.9)	53 (92.9)	0.028
2. Evidence of inflammatory marker (Leukocytosis or Leukopenia or Elevated CRP or Procalcitonin)	105 (85.4)	46 (80.7)	0.348
B. Laboratory findings			
3. Jaundice	102 (82.9)	56 (98.2)	0.105
4. Abnormal liver function test	117 (95.1)	56 (98.2)	0.519
C. Imaging findings			
5. Bile duct dilatation (compared with previous examination)	108 (87.8)	28 (49.1)	0.019
6. Evidence of an etiology (stricture, stone or stent)	123 (100)	123 (100)	-
Suspected diagnosis			
1 item in A & 1 item in B or C-5 in C	102 (82.9)	53 (92.9)	0.066
Definite diagnosis			
1 item in A & 1 item in B & C-5 in C	108 (87.8)	29 (50.9)	0.042

Results: Etiology of biliary obstruction and types of stents

Etiology of bile duct obstruction	n, (%)
Benign obstruction (n=123)	
CBD stone	111 (90.2)
Benign biliary stricture	
Chronic pancreatitis	6 (4.9)
Liver transplantation	4 (3.3)
Post cholecystectomy stricture	2 (1.6)
Malignant biliary obstruction (n=57)	
Distal CBD cancer	24 (42.1)
Pancreatic head cancer	19 (33.3)
Ampulla of Vater cancer	12 (21.1)
Metastatic cancer	2 (3.5)
Type of stents	n, (%)
Plastic stent	
7F diameter	124 (68.9)
10F diameter	24 (13.3)
Metal stent	
Covered type	12 (6.7)
Uncovered type	20 (11.1)

Results: Baseline characteristics of enrolled patients

Characteristics	Benign (N=123)	Malignant (N=57)	P value
Age , years, mean (SD)	68.5 (11.1)	72.8 (15.6)	0.86
Male , n (%)	85 (69.1)	39 (68.4)	0.69
Comorbidities			
DM	40 (32.5)	19 (33.3)	0.73
Cardiovascular/Cerebrovascular disease	64 (52.0)	27 (47.4)	0.56
Vital sign			
Shock (systolic \leq 90mmHg), n (%)	10 (8.1)	8 (14.0)	0.08
Pulse rate, mean (SD)	89.6 (12.3)	81.5 (14.1)	0.42
Body temperature, °C, mean (SD)	38.3 (1.1)	38.1 (0.9)	0.19
Laboratory finding			
WBC ($\times 10^9/L$)	12.1 (4.5)	12.6 (6.3)	0.66
Neutrophil, mean (SD)	0.84 (0.1)	0.86 (0.09)	0.57
Platelet ($\times 10^9/L$)	249.5 (126)	287.9 (97.8)	0.63
Total bilirubin, mg/dl, mean (SD)	8.7 (6.8)	10.7 (9.1)	0.56
AST, U/L, mean (SD)	82.8 (66.1)	94.6 (21.6)	0.75
ALT, U/L, mean (SD)	128.0 (119.6)	104.3 (107.7)	0.42
ALP, U/L, mean (SD)	297.7 (231.5)	510.0 (266.1)	0.06
GGT, U/L, mean (SD)	455.4 (371.5)	609.1 (322.8)	0.59
CRP, U/L, mean (SD)	11.4 (4.2)	15.8 (3.4)	0.24

Results: Clinical characteristics between benign group and malignant group

Characteristics	Benign (N=123)	Malignant (N=57)	P value
Fever duration , day, mean (SD)	2.6 (1.5)	4.2 (3.1)	0.033
Pain , n (%)	109 (88.6)	26 (45.6)	<0.001
Pain score , VAS	6.9 (3.3)	4.8 (2.9)	0.042
Hospital stay , days, mean (SD)	5.4 (3.6)	7.9 (2.8)	0.049
ICU Admission , n, (%)	9 (7.3)	6 (10.5)	0.183
Detection of microorganism in blood culture , n (%)	41 (33.3)	21 (36.8)	0.561
Detection of carbapenem resistant organism in blood culture , n (%)	11 (8.9)	4 (7.0)	0.729
Suppurative cholangitis , n (%)	33 (26.8)	26 (45.6)	0.038
Severity assessment , n (%)			
Grade I	33 (26.8)	8 (14.0)	0.347
Grade II	61 (49.6)	40 (70.2)	0.482
Grade III	29 (23.6)	9 (15.8)	0.298
30-day mortality , n (%)	2 (1.6)	3 (5.3)	0.188

Summary

- **Fever** was observed **more frequently** and **duration of fever was longer** than in cholangitis with malignant biliary obstruction.
- In malignant patients, **bile duct dilatation may not be prominent** although stent occlusion was developed.
- In malignant patients, **pain caused by cholangitis may not be severe** however, **suppurative cholangitis was more common**.
- **Hospital stay was longer** in malignant patients but **30-day mortality was not different** in two groups

Conclusions

- **Definite diagnosis of acute cholangitis is difficult** in malignant patients with stent occlusion since pain and bile duct dilatation may not be definite.
- However, **severe infection status such as suppurative cholangitis should be considered** in malignant patients with bile duct stent when fever and jaundice were observed.