The impact of early detection of malignant biliary obstruction by endoscopic ultrasound on clinical outcomes after surgical resection

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Introduction

- Computerized tomography (CT) scan and endoscopic ultrasound (EUS) are the main diagnostic tools for detecting periampullary cancers.
- EUS allows the detection of small tumors missed by CT scan in patients presenting with bile duct obstruction. However, the impact of EUS in diagnosing small tumors on clinical outcomes is yet to be explored.

Objectives

- To compare the tumor recurrence rate and survival benefit of patients following pancreaticoduodenectomy (PD) for periampullary cancers detected by abdominal CT vs. EUS after negative CT.

Methods and Materials

- A retrospective review of the EUS and surgery database from 2009 to 2021 and patients with periampullary cancers who underwent PD were recruited.
- The patients were divided into CT group (lesions detected by CT) and EUS group (lesions detected by EUS after negative CT)
- The recurrence rate and overall mortality rate between the two groups were compared.
- 429 patients were enrolled. 372 patients were diagnosed by CT scan, and EUS diagnosed 57 patients after CT scans failed to detect the cause of bile duct obstruction.

Results

Table 1. Baseline characteristics between CT and EUS group

	CT group(N=372)	EUS group(N=57)	P value
Age (years), mean	64.5±11.6	66.1±14	0.34
Male gender	188 (50.5)	27(47.4)	0.66
Clinical presentation			
• Jaundice	296(79.6)	43(75.4)	0.48
• Weight loss	256(68.8)	31(54.4)	0.03
• Loss of appetite	229(61.6)	28(49.1)	0.07
• Abdominal pain	146(39.2)	28(49.1)	0.16
Laboratory findings			
• TB (mg/dL), median	8(2-16)	3(1-11)	0.03
• AST (IU/L), median	70.5(41-133.5)	56(28-109)	0.17
• ALT (IU/L), median	65.5(40.5-137)	63(29-122)	0.27
• ALP (IU/L), median	328(173-539.5)	272(117-414)	0.05
• Alb (gm/dl), mean	3.6±0.7	3.7±0.7	0.16
• Hct (%), mean	33.7±5.7	35.3±5.5	0.04
Imaging			
• CBD diameter(mm),mean	16.9±5.9	14.5±5.1	0.01
• IHD dilatation(N,%)	319(87.9)	49(87.5)	0.94
• PD dilatation(cm), mean	1±2	1±1	0.25

The distribution of periampullary cancer

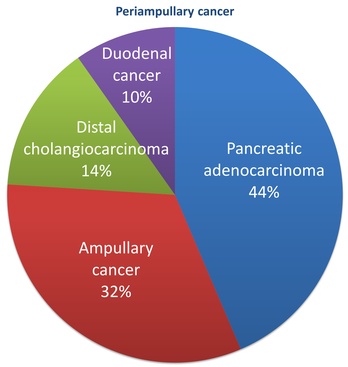

Figure 1 Distribution of periampullary cancer

Comparison of clinical outcomes between 2 groups after pancreaticoduodenectomy

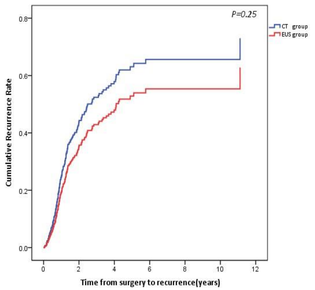

Figure 2. Overall tumor recurrence rate

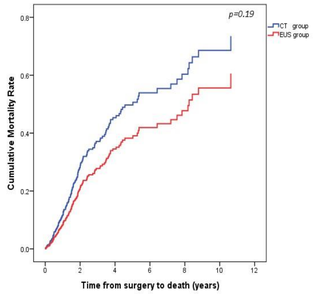

Figure 3. Overall tumor mortality rate

Comparison of clinical outcomes in subgroup analysis of PDAC and cholangiocarcinoma between 2 groups after pancreaticoduodenectomy

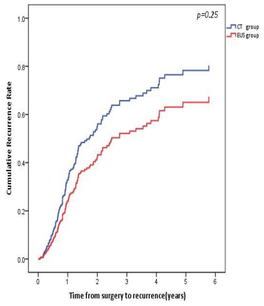

Figure 4. . Overall tumor recurrence rate

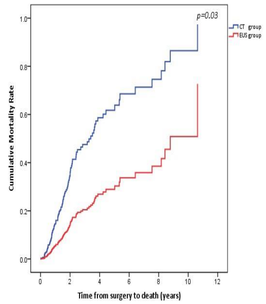

Figure 5. Overall tumor mortality rate

Summary

- EUS group trend towards lower recurrence rate and mortality rate than CT group.
- Subgroup analysis in patients with PDAC and cholangiocarcinoma showed lower mortality rate in EUS group significantly (*p=0.03*).

Conclusions

- EUS added a diagnostic value in the early detection of periampullary cancers, which may lead to a survival benefit, especially in PDAC and cholangiocarcinoma.

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