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ENDOSCOPIC ULTRASOUND PREDICTION OF SURVIVAL IN ESOPHAGEAL CANCER

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Endoscopic ultrasound (EUS) has been shown to be the most accurate imaging modality for preoperative T- and N- staging in esophageal cancer. Esophageal cancer (EsoCa) often presents at an advanced stage, but a subset of patients may be cured by surgery. We prospectively followed patients after EUS for EsoCa staging to determine the utility of EUS in predicting survival. **Methods:** 91 consecutive patients who underwent EUS (Olympus GF-UM20) for Eca over a 42 month period were reviewed. Survival data was obtained on 56 patients.
Results: For those with surgical pathologic staging, EUS had a 70% T-stage accuracy and an 84% N-stage accuracy. Survival data are based on EUS T- and N-stage are depicted below. There was a trend towards lower survival with higher T-stage. This was significant at 6 mo. for T4 vs. T3 (RR 0.38, 0.15-0.97) and for T4 vs. all others combined (RR 0.33, 0.14-0.77). There was a trend for decreased survival for N1 lesions which approached statistical significance ($p<0.16$ at 6 mo., $p<0.16$ at 9 mo., $p<0.12$ at 12 mo., $p<0.10$ at 15 mo.)[Fisher's two-tailed exact test].

Survival in months by EUS T- and N-stage

# Alive	3 mo	6 mo	9 mo	12 mo	15 mo	18 mo	24 mo
T1	3/3	2/2	2/2	1/1	1/1	1/1	
T2	13/14	9/11	8/10	6/9	5/9	4/9	1/5
T3	26/28	16/21	14/20	10/17	8/16	5/9	2/6
T4	8/9	3/8	1/2	1/2			
N0	9/9	7/7	7/7	5/5	4/4	4/4	1/1
N1	41/45	23/35	18/27	13/24	10/22	6/15	2/10
Total	50/54	30/42	25/34	18/29	14/26	10/19	3/11

Conclusions: (1) EUS had a 70% T-stage accuracy and an 84% N-stage accuracy. (2) EUS T-staging predicts decreased survival for T4 lesions when compared with other all other lesions at 6 mo. (3) There is trend towards lower survival with each higher T stage at 6, 9, 12 and 15 mo. (4) At 6 mo. there is a strong trend towards decreased survival associated with the presence of malignant appearing nodes. (5) With a greater duration of follow-up from our cohort, we expect differences in survival based on EUS T- and N-stage to obtain greater statistical significance.

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ENDOSCOPIC ULTRASONOGRAPHY WITH ENDOSCOPIC RETROGRADE PANCREATOGRAPHY IS USEFUL FOR DIAGNOSIS OF PANCREATIC CYSTIC DISEASES

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Fifty-nine patients including 11 mucinous cystadenocarcinoma (MCAC), 23 mucinous cystadenoma(MCA), 7 serous cystadenoma (SCA), 12 pseudocyst(PC), 3 retention cyst(RC) and 3 solid cystic tumor(SCT) were studied by endoscopic ultrasonography(EUS) and endoscopic retrograde pancreatography(ERP). Pathological diagnosis was performed for resected specimens. Their average sizes in diameters (cm) measured by EUS were 4.9, 3.1, 3.0, 3.5, 5.0 and 2.7, respectively.

	EUS		ERP	
Disease	Septa	Mural nodules	Communication to the MPD	Signs of chronic pancreatitis
MCAC	11/11	11/11	6/10	1/10
MCA	22/23	11/23	18/23	3/23
SCA	6/7	0/7	0/6	0/6
PC	4/12	3/12	5/12	6/12
RC	1/3	0/3	1/3	0/3

Septa in cysts were noted in most patients with MCAC, MCA and SCA. SCA is characterized by microcystic patterns lacking a communication with the main pancreatic duct(MPD). EUS showed mural nodule of cysts in all of MCAC and a half of MCA. No mural nodule was observed by EUS in SCA and RC. Communications between cysts and MPD was found in 78% to 42% of MCA, MCAC and PC. Chronic pancreatitis was detected in 50% of PC(Table). Dilatation of MPD was noted in 80% of MCAC and 43% of MCA (data not shown).

In summary, 1. pancreatic cysts showing mural nodule by EUS were thought to be mucinous cystic neoplasms including MCAC and MCA but impossible to differentiate MCAC from MCA, 2. although mural nodules in EUS image was noted in patients with PC, a half of the patients showed signs of chronic pancreatitis by ERP, and 3. the definite diagnosis of SCA is possible by EUS and ERP.

In conclusion, EUS in combination with ERP was beneficial for the differential diagnosis of pancreatic cystic diseases.

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ENDOSCOPIC ULTRASOUND (EUS) CHARACTERIZATION OF THE MEDIASTINAL "DRAPING" NODE (MDN).

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Introduction: EUS is an important modality for mediastinal lymph node staging in patients with esophageal or lung cancers. In predicting malignant status of lymph nodes, the node size is an important parameter. However, a benign appearing large mediastinal draping node is frequently seen on EUS examinations. We report the prevalence of this mediastinal draping node (MDN). **Methods**: Specific evaluation for the presence of MDN was performed on 124 consecutive patients who underwent upper EUS evaluations (Olympus GFUM-20) at our institution during the period from 7/95 to 12/96. The location, echo texture, size and shape of the MDN was recorded in each patient. Correlation was made with the patient's clinical diagnosis. **Results**: Eighty-seven of 124 (70%) patients were found to have MDN. Forty-two (48%) of these patients had a benign diagnosis and 45 (52%) had a malignant diagnosis (primary malignancy: esophageal-7, pancreatic-18, gastric-10, ampullary-2, cholangiocarcinoma-1, lung-2, others-5). The location of MDN ranged from 26cm to 34cm with 94% between 27-32cm (just below the carina). EUS-guided FNA (Pentax FG32UA echoendoscope/GIP-Mediglobe needle) was initially performed on 3 patients, and all cytologies revealed benign lymphocytes. An additional patient underwent surgery for esophageal cancer, and the MDN was a histologically normal lymph node.

Table I: Dimensions of Mediastinal Draping Node:

	Average (cm)	Range (cm)
LONG AXIS	1.46 +/- 0.59	0.6-3.3
SHORT AXIS	0.51 +/- 0.22	0.2-1.2

Table II: Shape, Echo Pattern of Mediastinal Draping Node:

Shape	Triangular (45%)	Oval/oblong (55%)	
Echotexture	Hyperechoic Center (67%)	Heterogenous (30%)	Hypoechoic (3%)

Conclusions: 1) A mediastinal draping lymph node (MDN) is frequently detected in both patients with malignant and benign diagnosis. 2) Endosonographers should be aware of the MDN, which is typically found between 27-32 cm, with a triangular or oval shape, and with a hyperechoic center.

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THICKENED INNER HYPOECHOIC LAYER OF THE GALLBLADDER WALL IN THE DIAGNOSIS OF ANOMALOUS PANCREATICOBILIARY DUCTAL UNION.

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Background: An anomalous pancreaticobiliary ductal union (APBD) is a high risk factor for the biliary tract carcinoma, most of them are not diagnosed before overt malignancy. The early diagnosis of APBD is an important clinical problem to be resolved. We have evaluated the gallbladder wall in APBD patients by endoscopic ultrasonography (EUS).
Methods: Clinicopathological features and ultrasonographic findings of the gallbladder in 33 consecutive patients with APBD between 1986 and 1995 were studied in relation to two subtypes of APBD, i.e., undilated type (n=17) and dilated type (n=16). The gallbladder wall was evaluated with conventional ultrasonography (US) and/or EUS. The histological examinations of 25 resected gallbladders were made.
Results: Fourteen (82%) of the 17 undilated type APBD had diffuse thickened gallbladder wall of 4 mm or more, whereas 5 (31%) of the 16 dilated type had ($p<0.01$). The thickened gallbladder wall was sonographically demonstrated to consist of two layers as diffuse thickened inner hypo- and outer hyperechoic layer. The mucosal hyperplasia was histologically found in 8 (89%) of 9 cases demonstrating thickened inner hypoechoic layer on EUS. A frequent association of mucosal hyperplasia was observed in 10 (91%) of 11 undilated type APBD underwent cholecystectomy. In addition, the presence of anomalous union was demonstrated by EUS in 9 (82%) patients of 11 undilated type APBD and all of 7 dilated type. The characteristic ultrasonographic pattern of diffuse thickened inner hypoechoic layer was observed exclusively mucosal hyperplasia of the gallbladders associated with APBD among 2085 EUS examinations performed during the same period.
Conclusions: Diffuse thickened inner hypoechoic layer of the gallbladder wall was frequently observed in APBD patients, especially in those with undilated type, on US and/or EUS, and was histologically corresponded to mucosal hyperplasia of the gallbladder mucosa. Thickened inner hypoechoic layer is a useful ultrasonographic sign to indicate mucosal hyperplasia of the gallbladder and particularly, the possible coexistence of undilated type APBD before overt malignancy.