

· · · ·  
· · · ·

= Abstract =

### Endoscopic Findings of Ectopic Pancreas in the Stomach

Byung Kyu Park, M.D., Soo Jin Park, M.D., Yong Whan Baik, M.D.  
Jun Sang Ko, M.D., Yong Chan Lee, M.D., Si Young Song, M.D.  
Jae Bock Chung, M.D., Young Myoung Moon, M.D., Jin Kyung Kang, M.D.  
and In Suh Park, M.D.

Department of Internal Medicine, Institute of Gastroenterology  
Yonsei University College of Medicine, Seoul, Korea

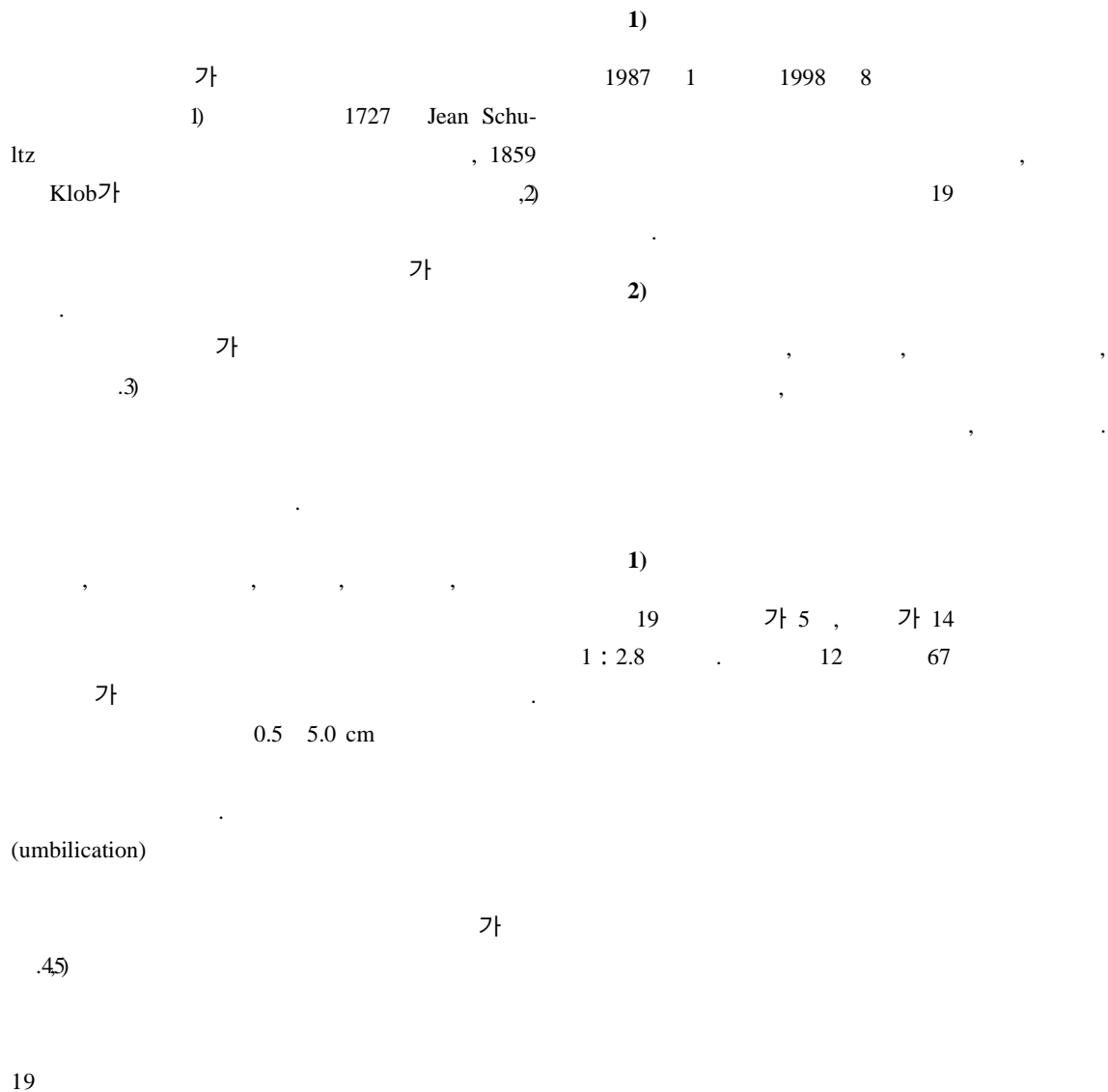
**Background/Aims:** Ectopic pancreas in the stomach is a relatively uncommon abnormality. Although its typical finding on endoscopy was described as a submucosal nodule with central umbilication, it is still difficult to differentiate ectopic pancreas from other pathologies. So we investigated the endoscopic findings of ectopic pancreas in the stomach. **Methods:** Between Jan. 1987 and Aug. 1998, nineteen patients who underwent gastroendoscopy and were histologically diagnosed as ectopic pancreas by various methods, were encountered at the Department of Internal Medicine, Severance Hospital, Yonsei University. The clinicopathologic records of all the patients were reviewed. **Results:** The mean age of the patients was 39.3 years old with a male to female ratio of 1 : 2.8. Endoscopically, seventeen cases (89.5%) were suggestive of submucosal tumors. Submucosal tumors combined with umbilication were in 4 cases (21.1%), with ulceration in 2 cases (10.5%), erosion in 5 cases (26.3%), ulceration and erosion in 1 case (5.3%), and normal mucosa in 5 cases (26.3%) respectively. The size of ectopic pancreas was in the range of 0.8 3.0 cm, except in one case which measured 6.0 cm. The location of ectopic pancreas was in the antrum in 18 cases (94.7%), and in the angle in 1 case (5.3%). The endoscopic diagnoses were ectopic pancreas in 5 cases (26.3%), submucosal tumor in 12 cases (63.1%), gastric polyp in 2 cases (10.5%). The methods of histologic diagnosis of ectopic pancreas in 3 cases (15.8%) was by endoscopic biopsy, by endoscopic submucosal resection in 10 cases (52.6%), and by operation in 6 cases (31.6%). **Conclusions:** Ectopic pancreas in the stomach is found in various morphology, presented as submucosal tumors in the

---

: 1999 1 14 , : 1999 6 23  
: , 134, : 120-752,  
Tel: 361-6070, Fax: 365-2125

antrum. Because histological diagnosis by endoscopic forcep biopsy is difficult in many cases, endoscopic submucosal resection or operation should be considered. (**Korean J Gastrointest Endosc 19: 739-746, 1999**)

**Key Words:** Ectopic pancreas, Endoscopy



**Fig. 1.** Age and sex distribution.

39.3 (Fig. 1).  
 2) 12 (63.1%) 가  
 3 (15.8%), 1 (5.3%)  
 가 3 (15.8%) (Fig. 2).  
 3) 19  
 , 2 (10.5%)가  
 , 가 가 4  
 (21.1%), 5 (26.3%), 2 (10.5%),

가 1 (5.3%),  
 5 (26.3%) . 1  
 (Table 1, Fig. 4 6).  
 18 (94.7%), 1  
 (5.3%) .  
 4 (21.1%), 6 (31.6%),  
 7 (36.7%) 1 (5.3%) (Fig. 3).  
 0.5 0.9  
 cm 2 , 1.0 1.4 cm 7 , 1.5 1.9 cm 4 ,  
 2.0 2.4 cm 4 , 3.0 cm가 1 , 6 cm가  
 1 (Table 2).  
 4)  
 19  
 5 (26.3%) 14 12  
 (63.1%) , 2 (10.5%)

**Table 1.** Endoscopic Findings of Ectopic Pancreas

Type	No. of case (%)
Submucosal tumor with Umbilication	17 (89.5)
Erosion	4 (21.1)
Ulceration	5 (26.3)
Normal mucosa	2 (10.5)
Erosion & ulceration	5 (26.3)
Poyp	1 (5.3)
	2 (10.5)
<b>Total</b>	<b>19 (100.0)</b>

**Fig. 2.** Symptoms for endoscopic examination.

**Table 2.** Size of Ectopic Pancreas

Size (cm)	No. of case (%)
0.5 0.9	2 (10.5)
1.0 1.4	7 (36.7)
1.5 1.9	4 (21.1)
2.0 2.4	4 (21.1)
3.0	1 (5.3)
6.0	1 (5.3)
<b>Total</b>	<b>19 (100.0)</b>

**Fig. 3.** Location of the ectopic pancreas.

**Table 3.** Methods of Histological Diagnosis

Methods	No. of case (%)
Endoscopic biopsy	3 (15.8)
Endoscopic submucosal resection	10 (52.6)
Operation	6 (31.6)
Total	19 (100.0)

5) 15  
3 16 10 , 6  
(Table 3).

6) 19  
6.0 cm  
(ectopic pancreas, heterotopic pancreas, aberrant pancreas)  
가

.1)  
0.55% 13.7%  
,16)  
500 1 .1)  
7) 21,014 17  
0.08%

가 . Dolan 3) 50  
, Amstrong 8)  
51  
가  
.138

가  
(primitive endodermal evagination)  
가 , 6

Meckel .8)  
가  
가 .379,10 Dolan 3) 212  
(38.2%), (36.3%), (15.0%)  
90%가, Meckel ,  
가 .11)  
0.5 5.0 cm

.45)  
가  
가

48 3 가  
10 ,  
4 6 .  
3 2가 가  
2 , . Gilmore 5)

39 secretin  
19 4 amylase가 가

가  
가 가 가  
가 가  
16)

가  
Tanaka 12) 0.4 5.0 cm, Am-  
strong 8) 0.2 2.4 cm, Lai 9) 0.2 2.5 cm  
7) 0.7 2.8 cm  
0.5 5.0 cm  
1  
3 cm  
75%가

.7,13-15)  
85 95%가  
5 6 cm .13-15)

51 5 cm .2) .16)  
19 18 가 1 가  
가 가 , , , ,  
.39)

, , 27 38%  
가 . .389 19 15 가  
가 가 .  
19 15 .

1  
 . Dolan 3) 가  
 33 6 ,  
 가  
 . Amstrong 8) 34 13  
 가 1.5 cm  
 가  
 1987 1  
 , 1998 8  
 , , , , , ,  
 .1417) 19  
 , , , , 1) 12 67 39.3  
 , .1820) 5 , 14 1 : 2.8 .  
 12 (63.1%) 가  
 3 (15.8%), 1 (5.3%)  
 가 3 (15.8%)  
 가 .  
 가 . Tanaka 12) 16  
 2 . 2) 17 가 ,  
 , 2 가 ,  
 , 가 가 ,  
 Barobosa 1) .17) 가 가 4 (21.1%), 5 (26.3%),  
 2 (10.5%),  
 가 1 (5.3%), 5 (26.3%)  
 . 1  
 . 18 (94.7%), 1  
 (5.3%) .  
 4 (21.1%), 6 (31.6%),  
 7 (36.7%) 1 (5.3%) .  
 가 1 cm 가 7 (36.7%), 1 2 cm가 10  
 (52.6%), 3.0 cm가 1 (5.3%) 6.0 cm가 1  
 (5.3%) .  
 가  
 가 3)  
 .11,12) 5 (26.3%) 14 12  
 (63.1%) , 2 (10.5%)

- 4) 15  
3 (20.0%)  
16 10 (52.6%)  
6 (31.6%)
- 가
- 1) Barbosa JJ, Dockerty MB, Waugh JM: Pancreatic heterotopia. *Surg Gynecol Obstet* 82: 527, 1946
  - 2) Martinez NS, Morlock CG, Dockerty MB, Waugh JM, Weber HM: Heterotopic pancreatic tissue involving the stomach. *Ann Surg* 147: 1, 1958
  - 3) Dolan RV, ReMine WH, Dockerty MB: The fate of heterotopic pancreatic tissue. *Arch Surg* 109: 762, 1974
  - 4) Nebel OT, Farrell RL, Kirchner JP, Macionus RF: Aberrant pancreas-An endoscopic diagnosis. *Am J Gastroenterol* 60: 295, 1973
  - 5) Gilmore PR, Agarwal VP: Endoscopic evaluation of heterotopic pancreas. *Gastrointest Endoscopy* 35: 563, 1989
  - 6) Feldman M, Weinberg T: Aberrant pancreas: a cause of duodenal symptom. *JAMA* 148: 893, 1952
  - 7) : 24: 1403, 1992
  - 8) Amstrong CP, King PM, Dixon JM, Macleod LB: The clinical significance of heterotopic pancreas in the gastrointestinal tract. *Br J Surg* 68: 384, 1981
  - 9) Lai ECS, Tompkins RK: Heterotopic Pancreas: Review of a 26 year experience. *Am J Surg* 151: 697, 1986
  - 10) : 28: 629, 1985
  - 11) Monig SP, Selzner M, Priv.-doz MR, Edit S: Heterotopic pancreas: a difficult diagnosis. *Dig Dis Sci* 41: 1238, 1996
  - 12) Tanaka K, Tsunoda T, Eto T, Yamada M, Tajima Y, Shimogama H, Yamaguchi T, Matsuo S, Izawa K: Diagnosis and management of heterotopic pancreas. *Int Surg* 78: 32, 1993
  - 13) Barrocas A, Fontenelle LJ, Williams MJ: Gastric heterotopic pancreas: a case report and review of literature. *Am Surg* 5: 361, 1973
  - 14) DeBord JR, Majarakis JD, Nyhus LM: An unusual case of heterotopic pancreas of the stomach. *Am J Surg* 141: 269, 1981
  - 15) Palmer ED: Benign intramural tumors of the stomach. *Medicine* 80: 81, 1951
  - 16) Teixeira CR, Haruma K, Shimamoto T, Tsuda T, Okamoto S, Sumii K, Kajiyama G: Heterotopic pancreas diagnosed by endoscopic ultrasonography and endoscopic injection of ethanol to make a histologic diagnosis. *J Clin Gastroenterol* 15: 52, 1992
  - 17) Jeng KS, Yang KC, Kuo SH: Malignant degeneration of heterotopic pancreas. *Gastrointest Endosc* 37: 196, 1991
  - 18) : 17: 195, 1997
  - 19) : 24: 334, 1992
  - 20) : 53: 450, 1997

- Fig. 4.** Endoscopic and microscopic finding of a case of ectopic pancreas. Endoscopic finding shows a submucosal tumor with erosion and ulceration on mucosal surface on the anterior wall of the antrum (A) and microscopic view shows a well demarcated ectopic pancreas in the submucosal layer (B) (H&E stain,  $\times 10$ ).
- Fig. 5.** Endoscopic and gross finding of a case of ectopic pancreas. Endoscopic finding shows a submucosal tumor with normal mucosal surface on the anterior wall of the antrum (A) and gross finding shows a yellowish ectopic pancreas after endoscopic submucosal resection (B).
- Fig. 6.** Various endoscopic findings of the ectopic pancreas. Submucosal tumor with umbilication (A), submucosal tumor with erosion (B), gastric polyp with nodular and elevated mucosa (C), gastric polyp with lobulated and elevated mucosa (D).