

## Zollinger-Ellison : 1 1

· · · ·

Zollinger-Ellison 가

가  
Zollinger-Ellison

가

Zollinger-Ellison

가

가

가

가

(Fig.1E) CT

가

가

가

가 1000pg/mL

가

(1).

CT,

,

가

가

Zollinger- Ellison

Whipple

가

Zollinger-Ellison

2 cm

가

54

가 1

Zollinger-Ellison

가

5 Kg가

가

가

가

가

가

75%

CT

가

(Fig.1A).

(pylorus)

2cm가

가

(Fig.1B).

60%

(2),

가

25%

(Fig.1C).

MEN(multiple endocrine neoplasm) type

1

(Fig.1D)

(3).

가

가 1000pg/mL 가 48.9% 가 (1,4). 가 40-50% 가 CT, MRI,

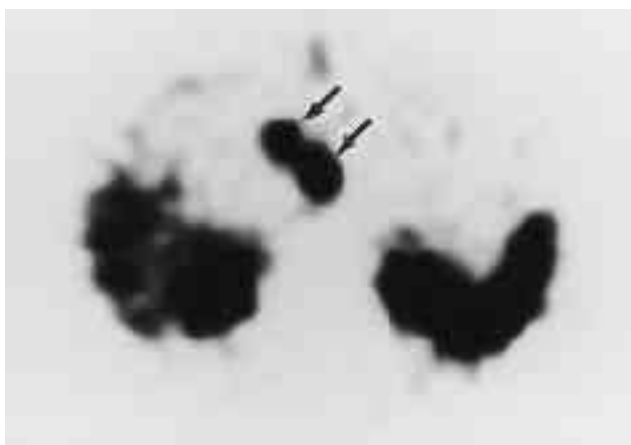
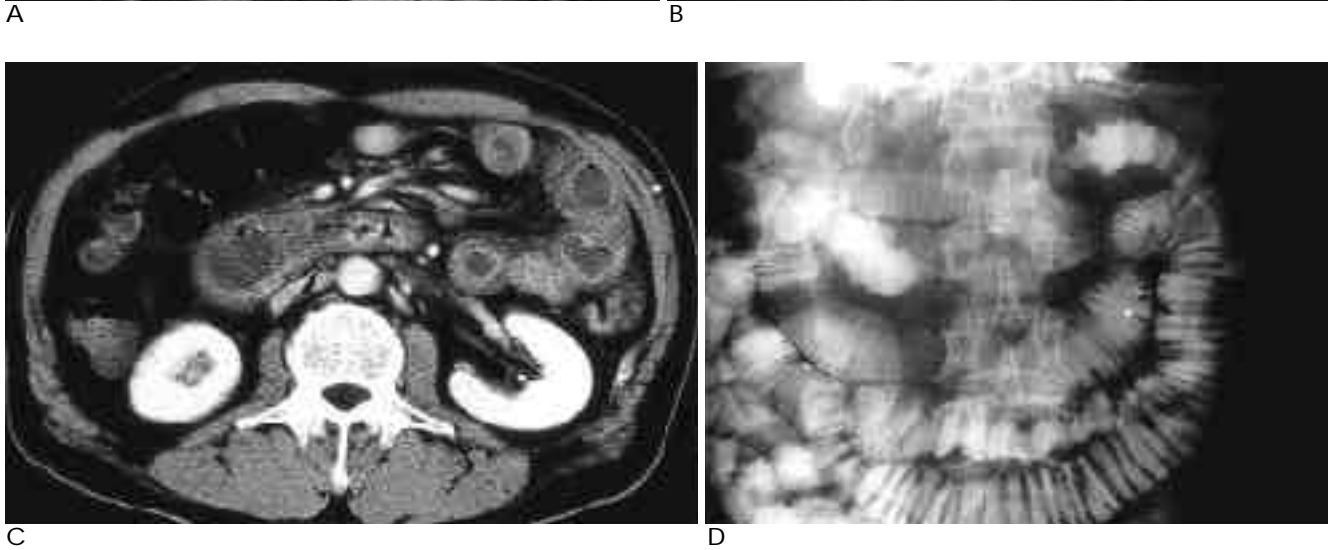
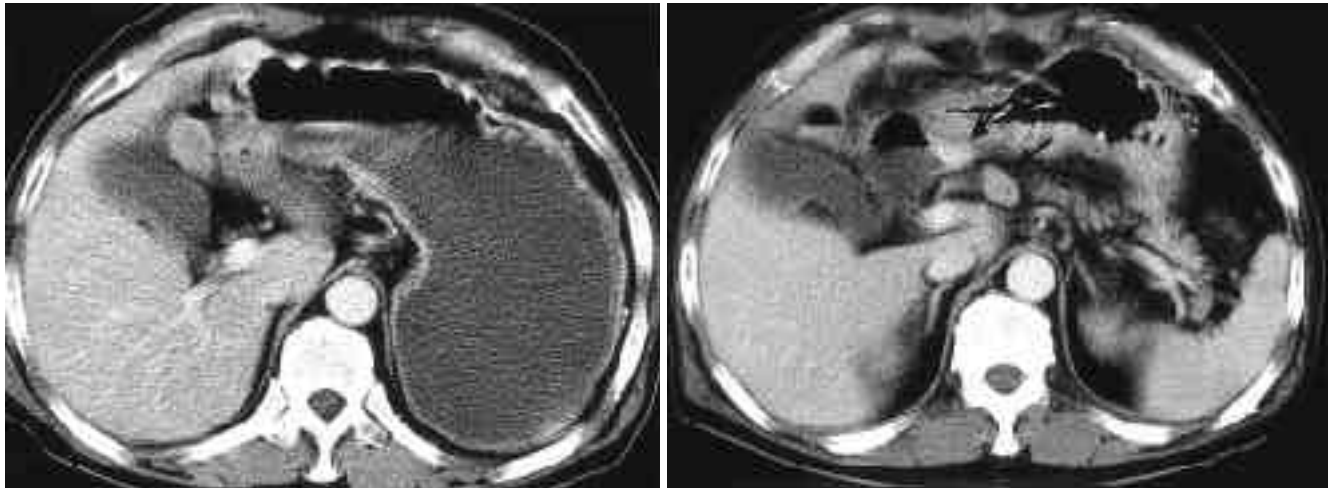


Fig. 1. A. Postcontrast CT scan shows gastric distension with massive gastric secretion.  
B. Postcontrast CT scan at the level of stomach pylorus shows highly enhancing mass measuring 2cm at pylorus(large arrow). There is a well enhancing lymph node around common hepatic artery(small arrow).  
C. Postcontrast CT scan at the level of duodenal third portion shows target appearance wall thickening of duodenum and jejunum.  
D. Small bowel series shows distension of small bowel loop and regular and irregular fold thickening of duodenum and jejunum. Ileum is spared.  
E. Indium octreotide SPECT shows two focal increase uptakes at duodenum and common hepatic artery area(arrows).

가  
가 30% 가  
CT 가  
가  
(6).  
CT 가 30-60%  
(7). CT  
가  
(3). 가  
Zollinger-Ellison 가  
가  
(15).  
가  
CT  
5 mm MRI  
(7). CT  
MRI가  
CT  
7 mm 가 5 mm  
65% (8).  
가  
75%-100% (9). 3 mm  
가  
(blind duodenectomy)  
가  
가  
가  
가

1. Kisker O, Bastian D, Bartsch D. Localization, malignant potential, and surgical management of gastrinomas. *World J Surg.* 1998;22: 651-657
2. Norton JA. Gastrinoma: advances in localization and treatment. *Surg Oncol Clin Nor Am.* 1998;7:845-861
3. Mignon M, Cadiot G. Diagnostic and therapeutic criteria in patients with Zollinger-Ellison syndrome and multiple endocrine neoplasia type 1. *J Int Med* 1998;243:489-494
4. Soga J, Yakuwa Y. The gastrinoma/ Zollinger-Ellison syndrome: statistical evaluation of a Japanese series of 359 cases. *J Hepato-Biliary-Panc Surg.* 1998;5:77-85
5. Yu F, Venzon DJ, Serrano J. Prospective study of the clinical course, prognostic factors, causes of death, and survival in pateints with long standing Zollinger-Ellison syndrome. *J Clin Oncol* 1999; 17:615-630
6. Reuter E, Semler P, Bser U. Detection of a small gastrinoma by combinedradiologic and scntigraphic techniques. *Clin Nucl Med* 1997;22:714-716
7. Frucht H, Doppman JL, Norton JA, et al. Gastrinomas: comparison of MR imaging with CT, angiography, and US. *Radiology* 1989;171: 713-717
8. Proye C, Boissel P. Preoperative imaging versus intraoperative localization of tumors in adult surgical patients with hyperinsulinemia: a multicenter study of 338 patients. *World J Surg* 1988;12:685-690
9. Gianello P, Gigot JF, Berthet F et al. Pre- and intraoperative localization of insulinomas: report of 22 observation. *World J Surg* 1988; 12:389-397

## **Zollinger-Ellison Syndrome : A Case Report<sup>1</sup>**

Dong Jin Jung, M.D., Hyun Kwon Ha, M.D., Pyo Nyun Kim, M.D.,  
Moon-Gyu Lee, M.D., Yong Ho Auh, M.D.

*<sup>1</sup>Department of Diagnostic Radiology, Asan Medical Center, College of Medicine University of Ulsan*

Zollinger-Ellison syndrome (ZES) involves hypergastinemia produced by a gastrin-secreting tumor. Not only can it cause an ulcer but may also behave as a malignant lesion, metastasizing to the liver or other organs. The development of potent antisecretory agents for controlling acid secretion as well as techniques for localizing these islet cell tumors, has led to greatly improved survival rates. We describe a case of Zollinger-Ellison syndrome, emphasising the radiologic findings, and including a review of the literature.

**Index words :** Intestines, abnormalities  
Intestines, radiography

Address reprint requests to : Dong Jin Jung., Department of Diagnostic Radiology, Asan Medical Center, College of Medicine, University of Ulsan  
#388-1 Poongnap-Dong, Songpa-Ku, Seoul 138-040, Korea.  
Tel. 82-2-224-4400 Fax. 82-2-476-4719