Duodenal Cancers

Epidemiology of Small bowel tumors

- Small bowel
  - 75 % of the length of GI tract (i.e., about 5-6 meters)
  - 90 % of the absorptive surface area of GI tract
  - Small bowel neoplasm
    - 2-5 % of all GI tumors
    - Incidence: < 1.0/ 100,000

      (0.3-2.0/100,000, age standardized)

Epidemiology of Small bowel tumors

- Small bowel cancer
  - Incidence rates

    - highest in North America and Western Europe

    - lowest in Asia and the Middle East
  - In US (2008)

    : 2% of total annual cancer incidence of digestive system

    (0.4% of total cancer cases, 0.2% of cancer deaths)
  - In Korea (2008) : 0.98% of all GI malignancy
  - cf. Colon cancer - 57% of cancers in the digestive system

Infrequency of tumorigenesis in SB

- Dilute and liquid contents of the small bowel : less mucosal irritation
- Rapid transit of intestinal contents : shorter exposure to carcinogens
- Lower bacterial load (particularly anaerobic bacteria)

  : less conversion of bile acids into potential carcinogens
- High concentration of the enzyme detoxifying carcinogen
- Abundant lymphoid tissue and high level of Ig A
- Alkaline pH
- Rapid turnover of intestinal mucosa

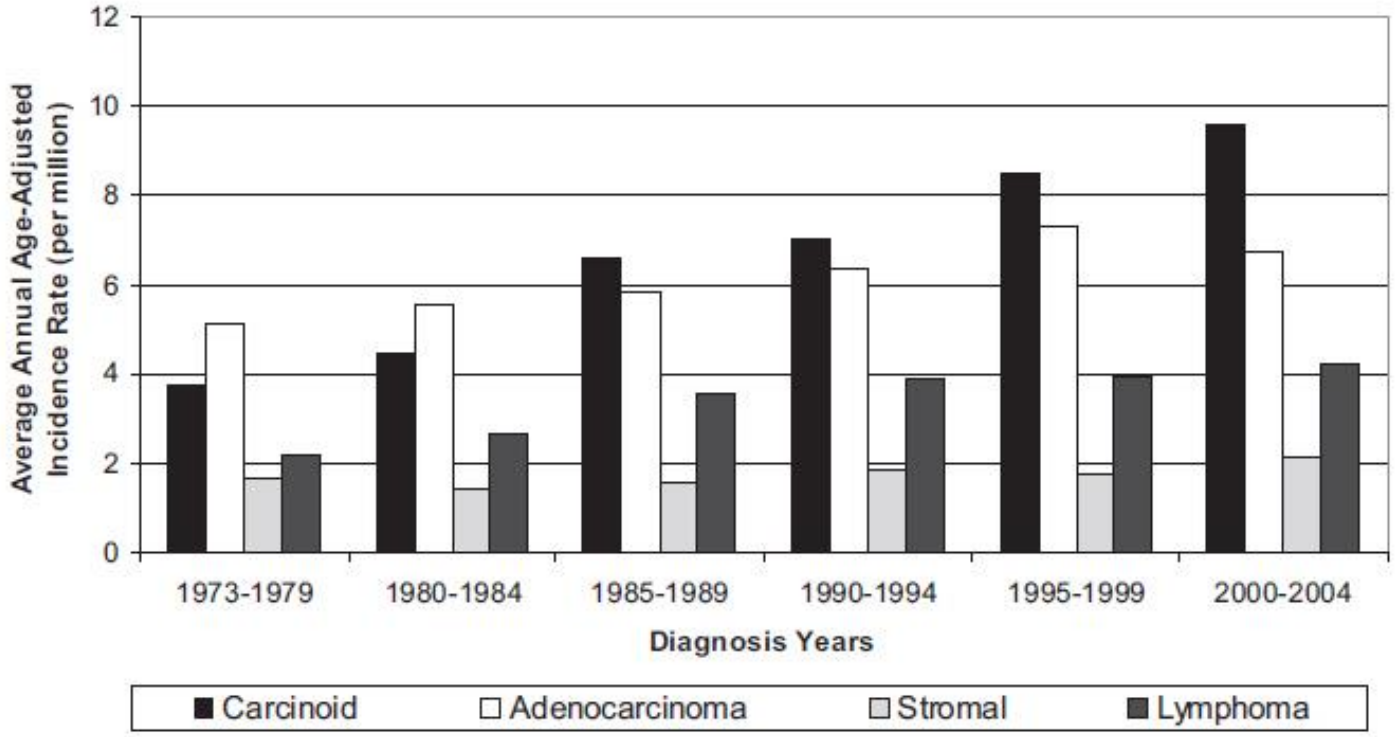
Small bowel tumors

Tumor	Frequency (%)
Benign neoplasm	
Leiomyoma	40
Lipoma	13-24
Adenoma	11-18
Lymphangioma	0-12
Fibroma	0-6
Hamartoma	0-6
Hemangioma	0-6
Aberrant pancreas, dermoid cyst, eosinophilic granuloma, angiodysplasias, hyperplastic polyp	Rare
Malignant neoplasm or lesions with malignant potential	
Adenocarcinoma	*25-40*
Carcinoid	20-50
Non-Hodgkin lymphoma	15-20
Gastrointestinal stromal tumor	8-27
Liposarcoma, myxoliposarcoma, lymphangiosarcoma	Rare

Conditions related to SB malignancy

Preexisting condition	Potential malignancy
Adenomatous polyps	Adenocarcinoma
Familial adenomatous polyposis	Adenocarcinoma
Peutz-Jeghers syndrome / hamartomatous polyps	Adenocarcinoma
Leiomyomas	Possible leiomyosarcoma
Neurofibromatosis	Leiomyosarcoma, carcinoid, adenocarcinoma
Crohn's disease	Adenocarcinoma
Celiac sprue	Lymphoma, adenocarcinoma
Immunosuppression	Lymphoma
HIV infection	Lymphoma, Kaposi sarcoma
Helicobacter pylori infection	Low-grade lymphoma (mucosal-associated lymphoid tissue)
Epstein-Barr virus infection	Lymphoma

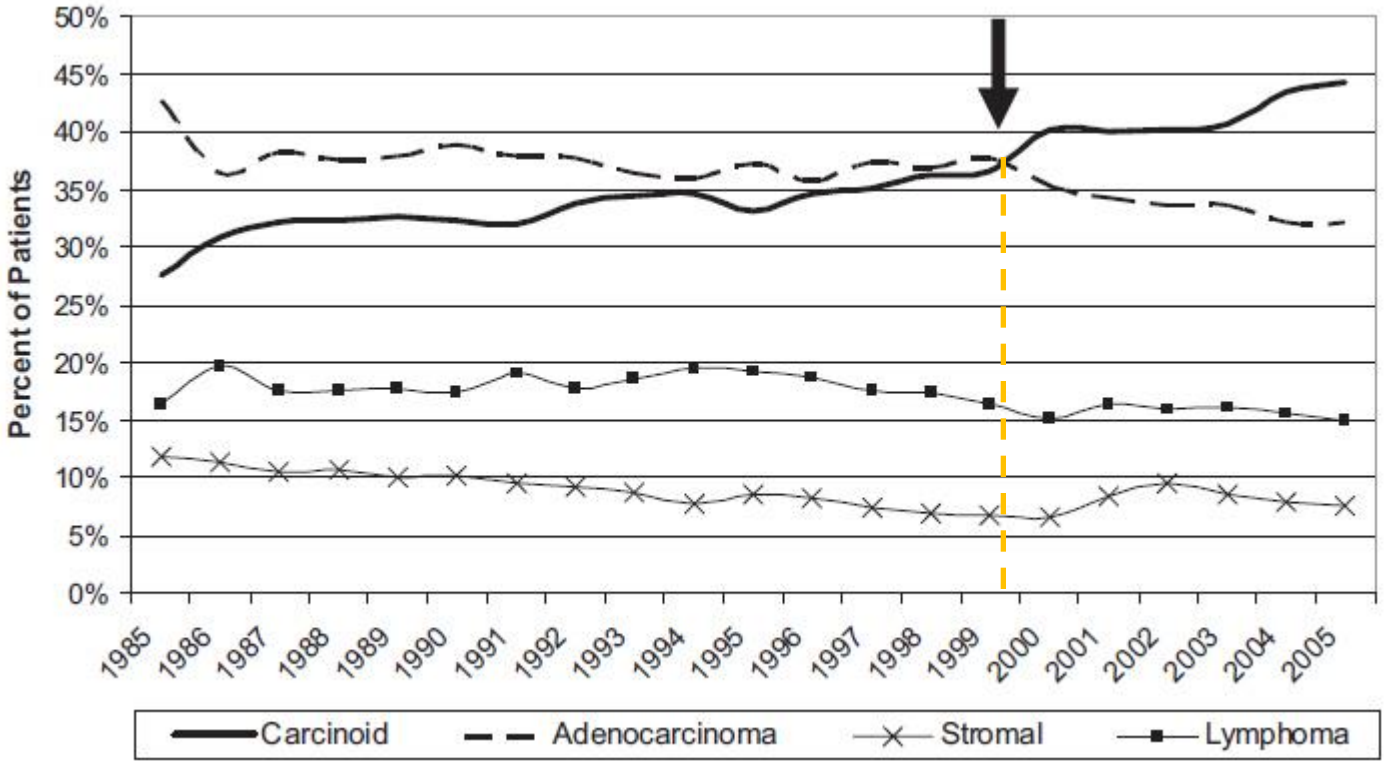
Average annual incidence rate
(SEER, 1973 to 2004)



Surveillance, Epidemiology and End Results (SEER)

Ann Surg 2009;249: 63–71

Changes in histologic subtypes
(NCDB, 1985 to 2005)



National Cancer Data Base (NCDB)

Ann Surg 2009;249: 63–71

Incidence & Proportion by subsite

Anatomic subsite and histology	Rate	Count	%
Duodenum			
Adenocarcinoma	3.0	2,062	58.7
NHL	0.5	340	9.7
Carcinoid	0.8	578	16.5
Sarcoma*	0.3	221	6.3
Other†	0.5	309	8.8
		3,510	100.0
Jejunum			
Adenocarcinoma	1.2	839	42.1
NHL	0.6	446	22.4
Carcinoid	0.4	279	14.0
Sarcoma*	0.4	322	16.2
Other†	0.1	105	5.3
		1,991	100.0
Ileum			
Adenocarcinoma	0.9	603	15.1
NHL	1.0	681	17.1
Carcinoid	3.2	2,282	57.3
Sarcoma*	0.4	264	6.6
Other†	0.2	153	3.8
		3,983	100.0

Ann Epidemiol 2009;19:58–69

The most common presenting symptom

- Patients with malignant small bowel neoplasms : more symptomatic
- The often vague and nonspecific nature of the symptoms

  → significant delay from onset of symptoms to diagnosis

  (in one series, averaging 30 weeks)

  - abdominal pain: 44 to 90% (intermittent and crampy)
  - weight loss : 24 to 44%
  - nausea and vomiting : 17 to 64%
  - gastrointestinal bleeding : 23-41%
  - Intestinal obstruction : 22 to 26%
  - perforation : 6 to 9%

Diagnosis of small bowel neoplasm

- There is no single best method for imaging the small intestine in a patient with a suspected small bowel tumor.

- There are no tumor markers that are sufficiently sensitive or specific for the diagnosis of any small bowel tumor.

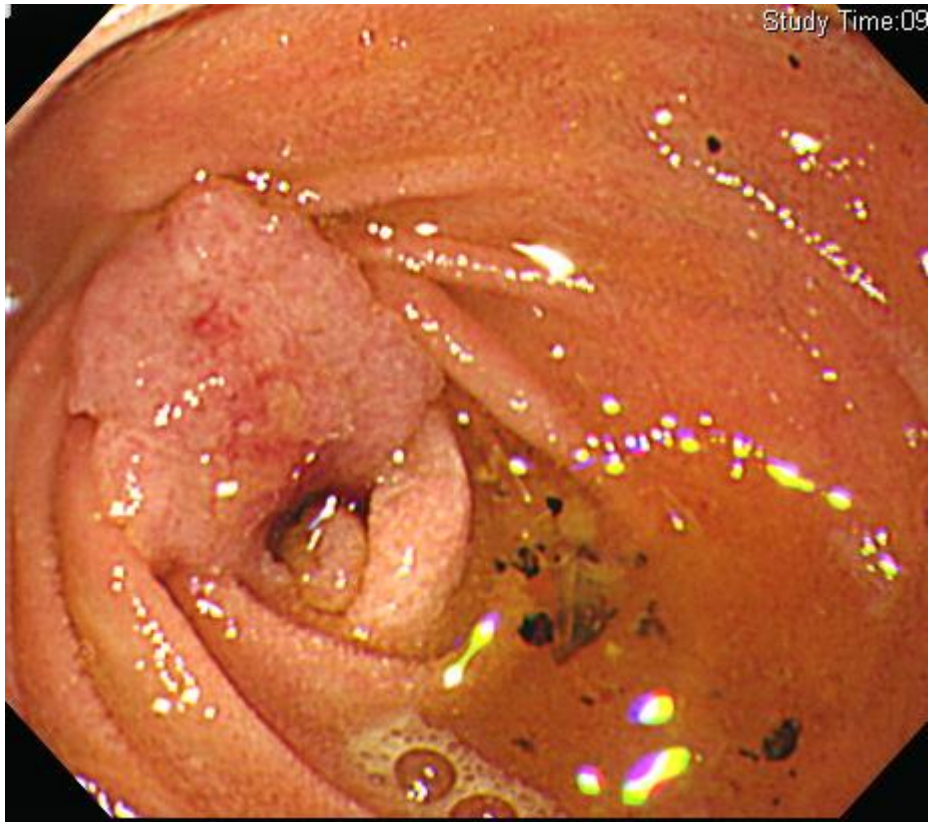
Treatment of duodenal cancer

- Adenocarcinoma
  - 1st and 2nd portion : pancreaticoduodenectomy rather than segmental resection
  - 3rd and 4th portion : segmental resection rather than pancreaticoduodenectomy
  - The role of neoadjuvant therapy is undefined
  - Postoperative oxaliplatin-based chemotherapy rather than surgery alone for patients with lymph node-positive

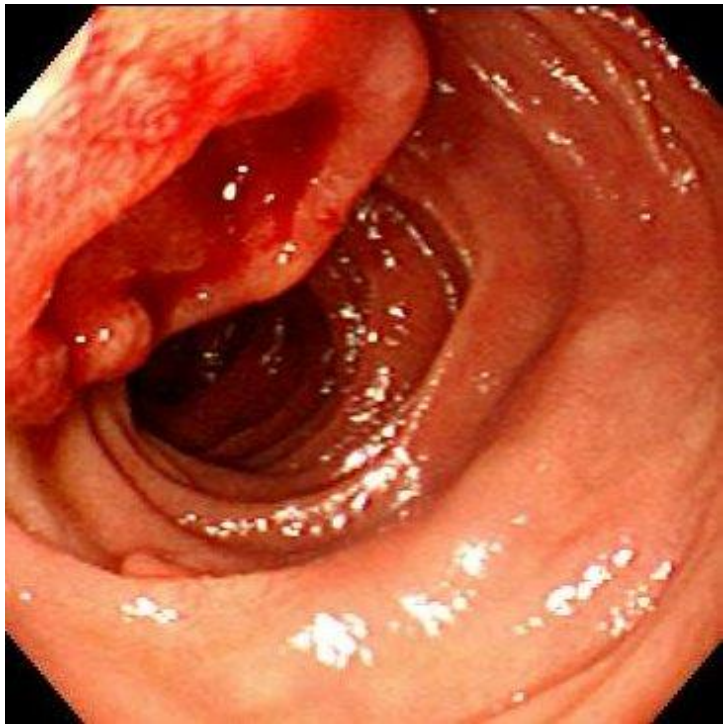
- Carcinoid
  - En block segmental resection

Duodenal adenocarcinoma (F/38)

- Segmental resection, Adenocarcinoma, PD, 3x2 cm perimuscular tissue, LN (-)



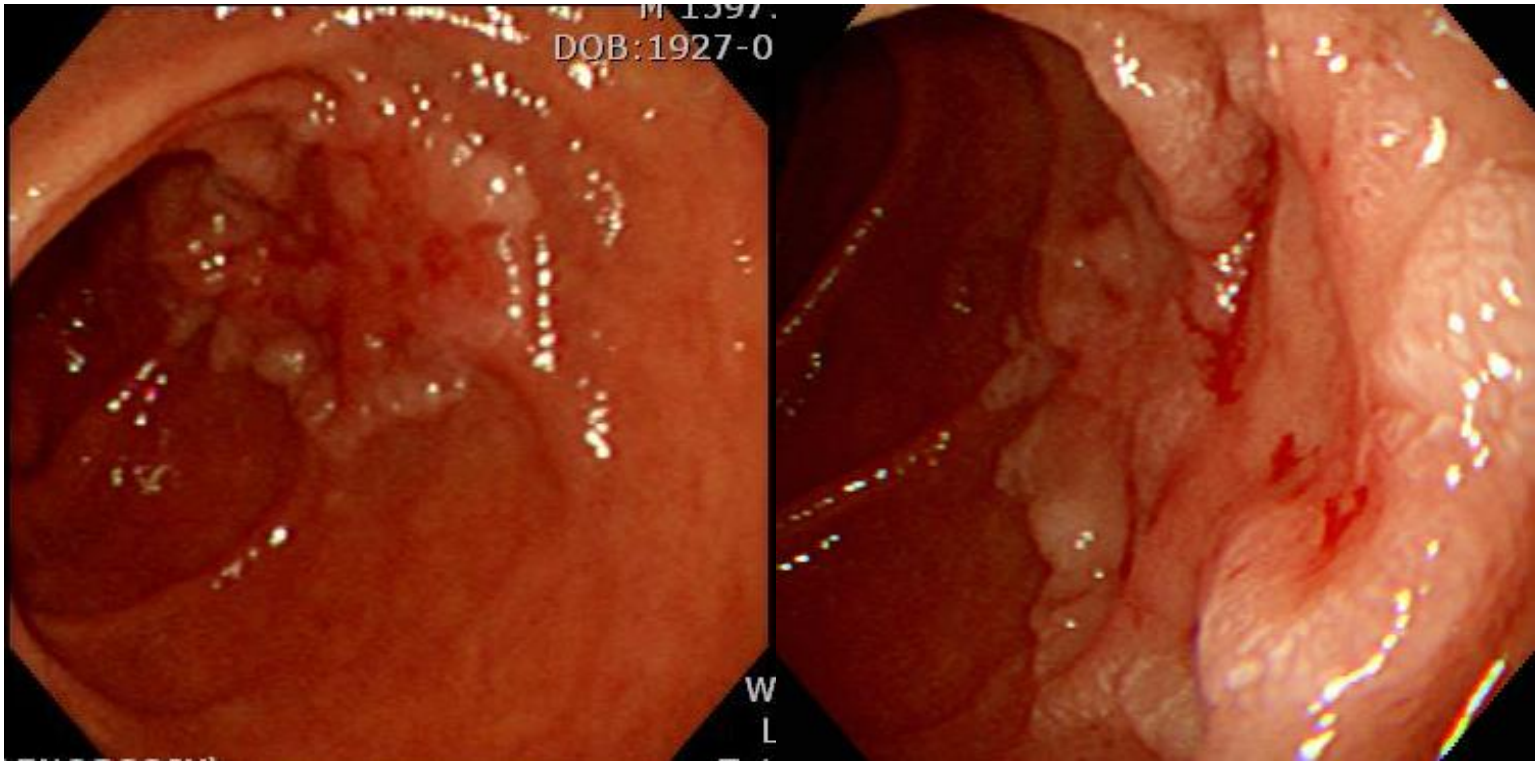
Lesions esay to miss : AOV ca



NSAID 복용중 발생한 epigastric pain으로 시행한 EGD에서
ampulla of Vater cancer가 발견되어 수술

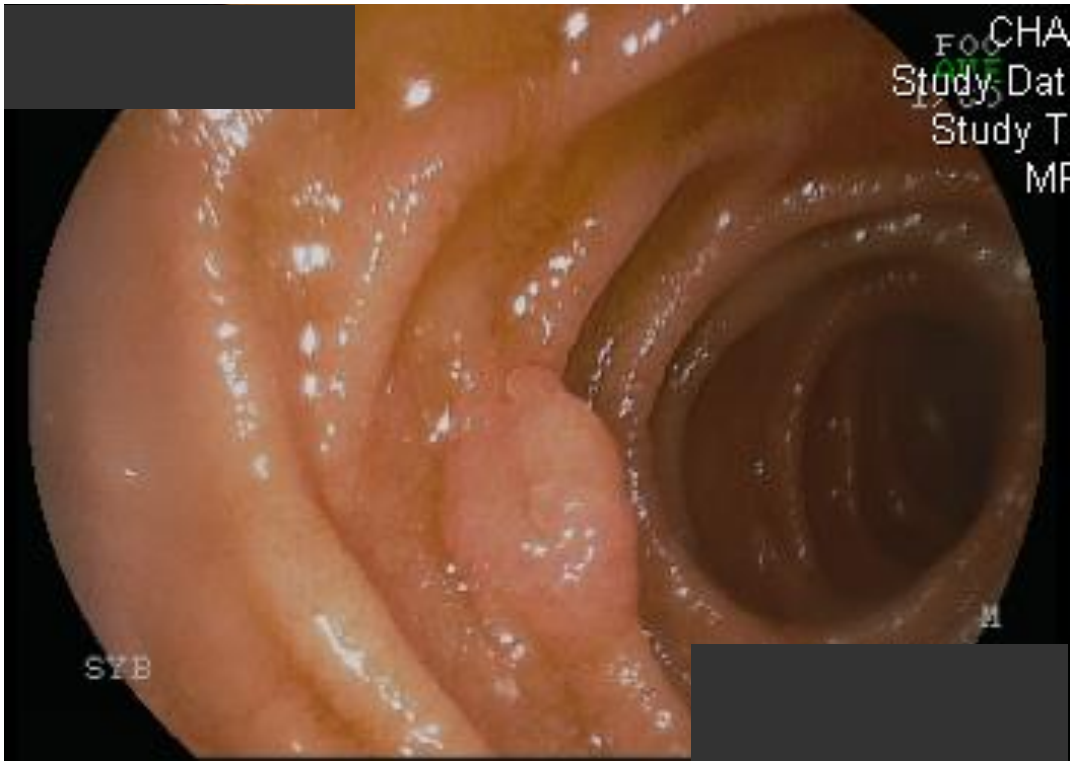
Duodenal adenocarcinoma (M/77)

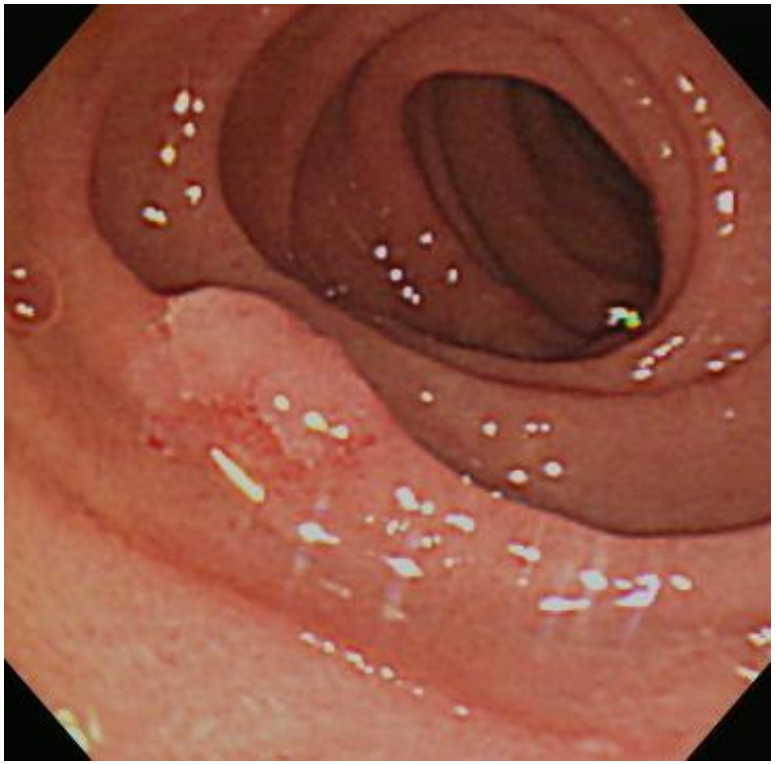
- No treatement and Follow up loss



Duodenal cancer (M/70)

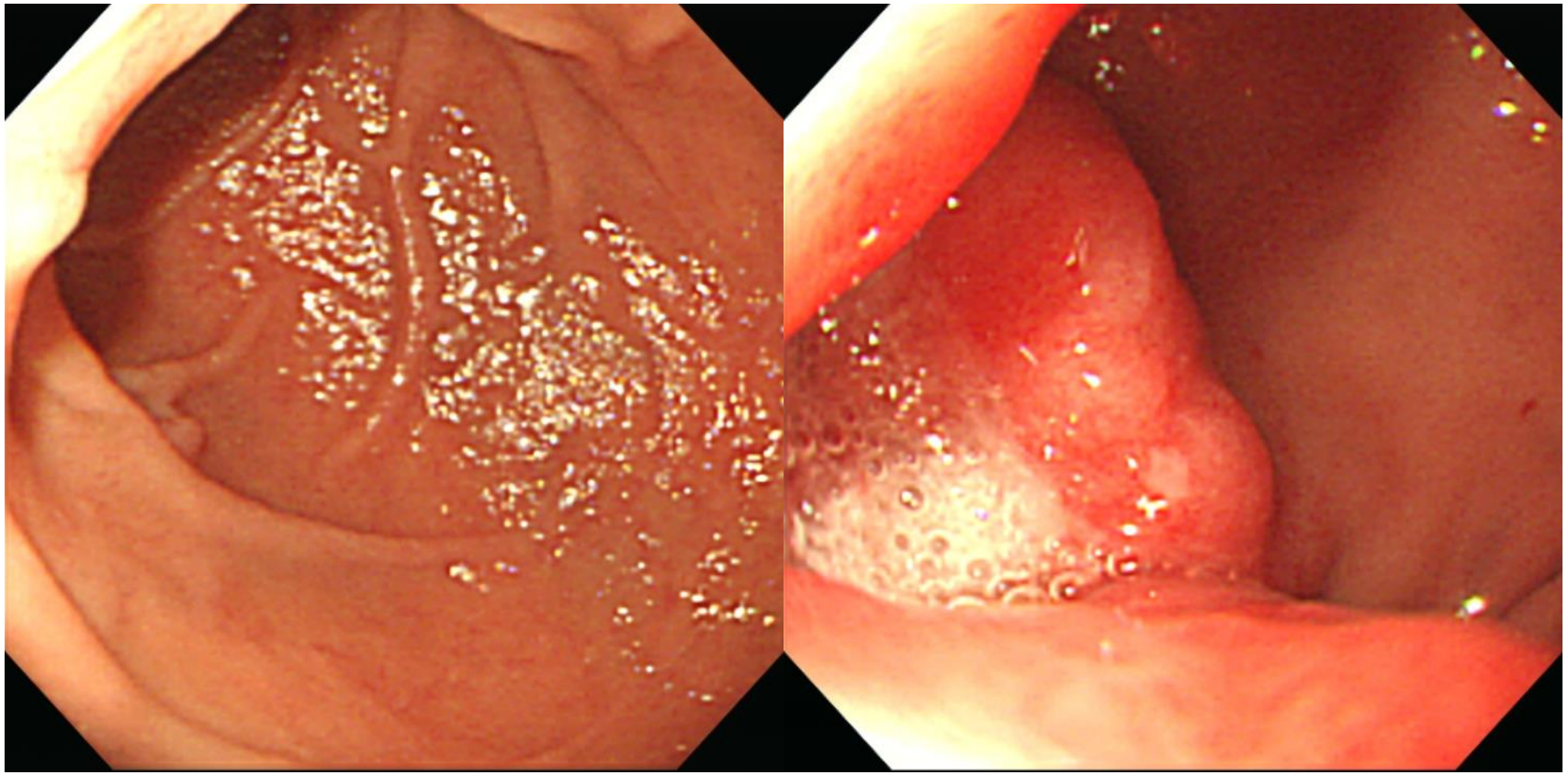
- Partial resection and Roux-en Y duodenojejunostomy, 0.6 x 0.3 cm, adenocarcinoma (W/D) , lamina propria, negative resection margin





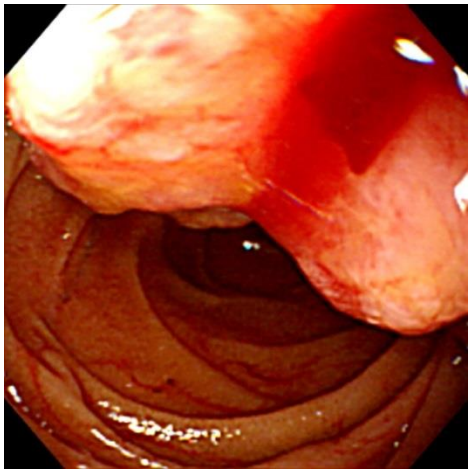
Duodenal adenocarcinoma (M/62)

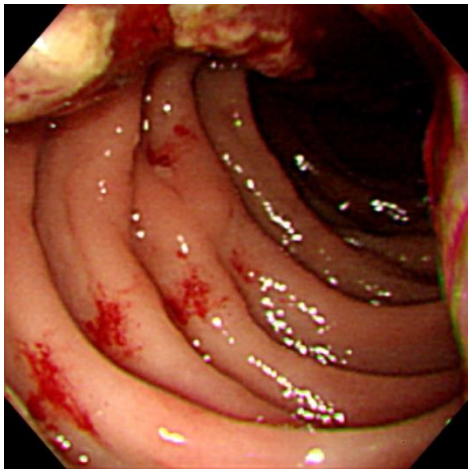
- Whipple's resection, adenocarcinoma (M/D), 3.5 x 3cm, subserosa, L (+), LN (+, 3/10) -> adjuvant CCRT -> refer to other hospital



Duodenal adenocarcinoma (M/68)

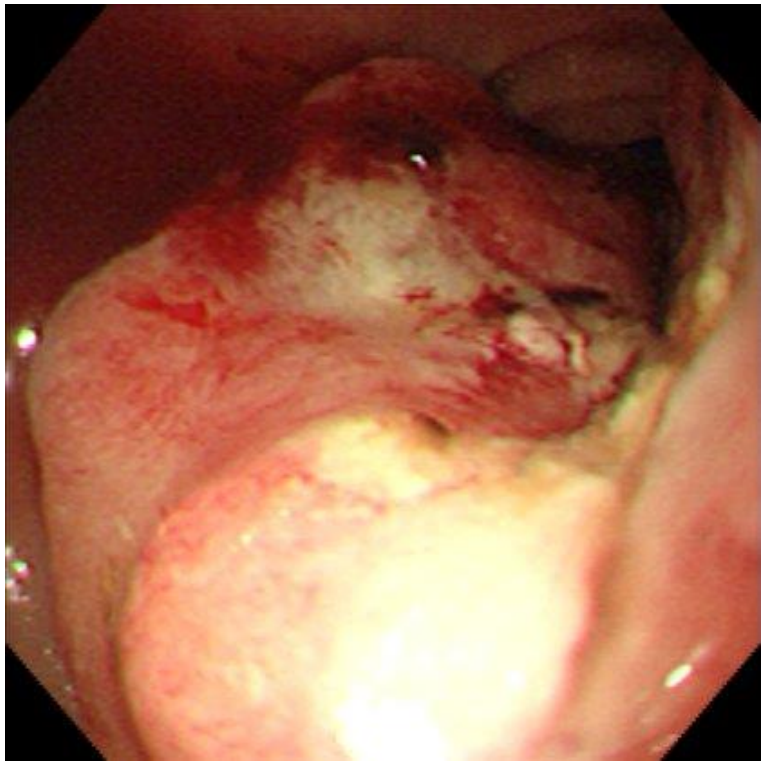
- SMA, pancreas, stomach metastasis -> Death 4 months after Dx.





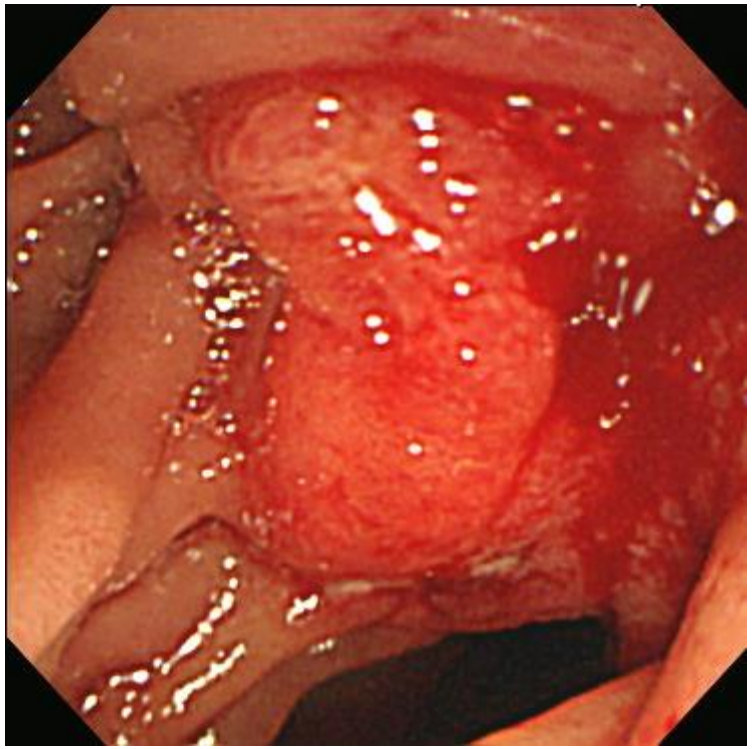
Duodenal adenocarcinoma (M/71)

- poorly differentiated carcinoma -> refuse to surgery and f/u loss



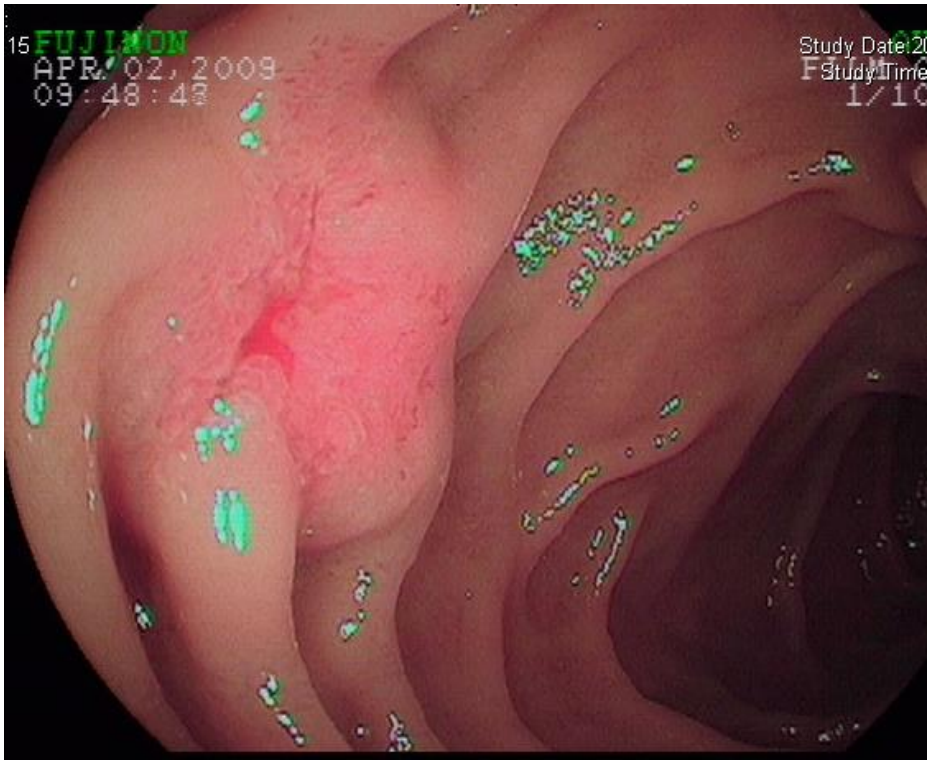
Duodenal ca with pancreas invasion (M/61)

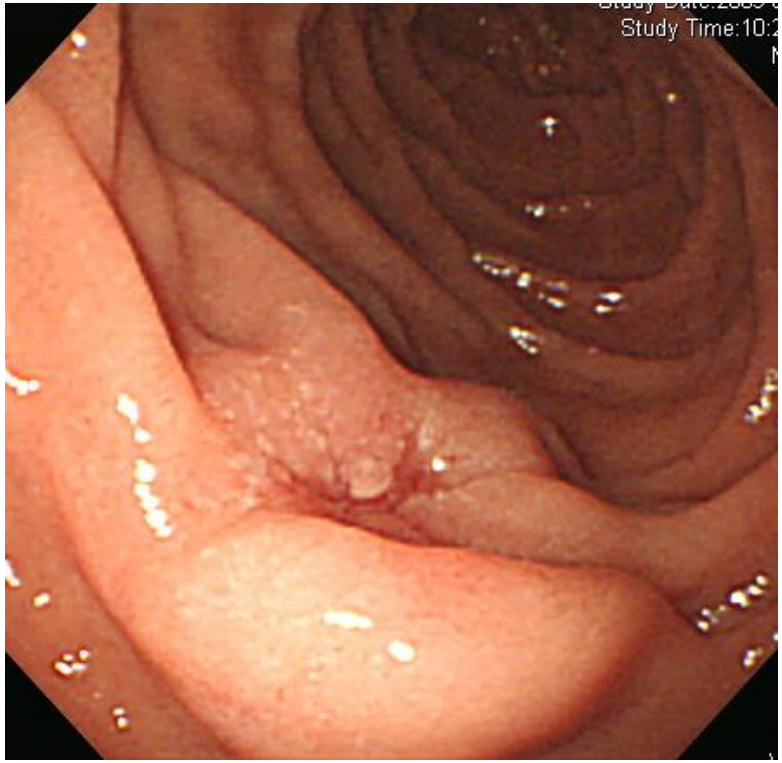
- PPPD, Adenocarcinoma (M/D), L(+), LN (+, 3/26) -> recur -> refer



Duodenal neuroendocrine cancer (M/47)

- Whipple’s operation, 1x1 cm, periduodenal soft tissue, LN (+, 2/23)





Duodenal cancer at 4th portion (M/60)

- Whipple's operation, adenocarcinoma (P/D), 7x2.5 cm perimuscular tissue, L (-), LN (+, 4/32)