General Data

- Gender : Male
- Birthday and age : 12/07/24，80 y/o
- Occupation : 無
- Date of Admission : 92-07-09

Chief complaint

- Upper abdominal fullness 30 minutes after having foods with sometimes epigastralgia for 2 months.

Present illness (1)

- This 80-year-old male patient received subtotal gastrectomy with Billroth II anastomosis for gastric cancer 50 years ago.
- He suffered from discomfort of post-prandial upper abdominal fullness with non-bilious vomiting since last year.

Present illness (2)

- The recent 2 months, the post-prandial upper abdominal fullness got more severe and frequent. Black-color stool with small caliber stool were noted.
- No bowel habit change.
- General weakness was noted.
- Body weight loss from 62 to 59.5 kg was noted during 2 months.

Past and Personal History

- Previous Admission and Operation : subtotal gastrectomy with Billroth II anastomosis for gastric cancer 50 years ago
- DM : denied
- HTN : denied

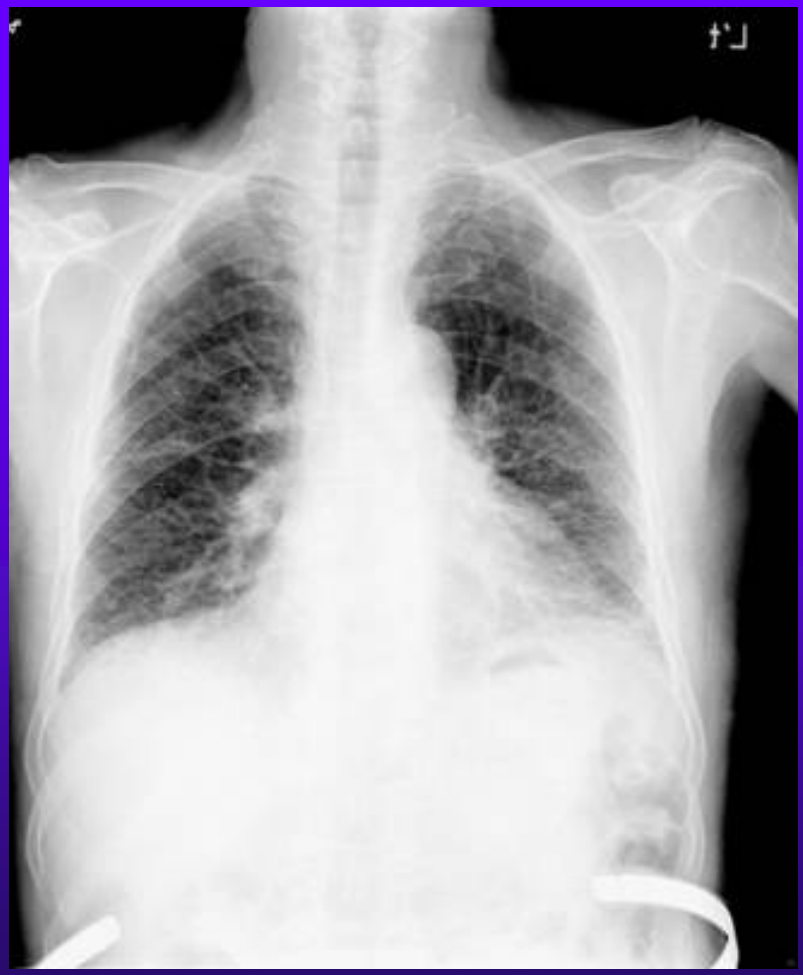
Physical examination

- Consciousness : clear
- Vital signs : TPR : 36.8/72/20 ,
  BP : 112/90
  G.A : weakness
- Neck: Virchow's node (-)
- Chest : breathing sound clear
- Heart : RHB without murmur
- Abdomen :soft and flat, no palpable mass
- DRE: refused (+)

Lab data

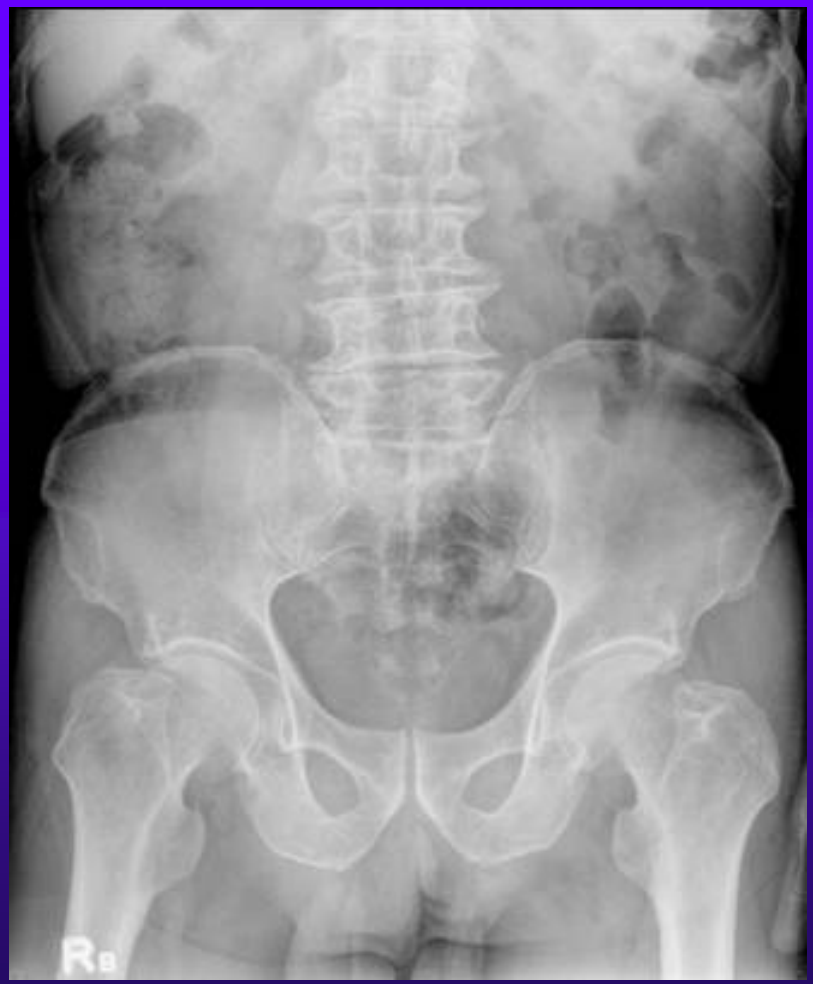
- Hgb: 8.9 g/dl
- Hct: 26.6 %
- MCV: 76.5 fL
- **CEA(血) 4.4 ng/ml**
- **Stool occult blood: 1+**

CXR on 2003/7/9



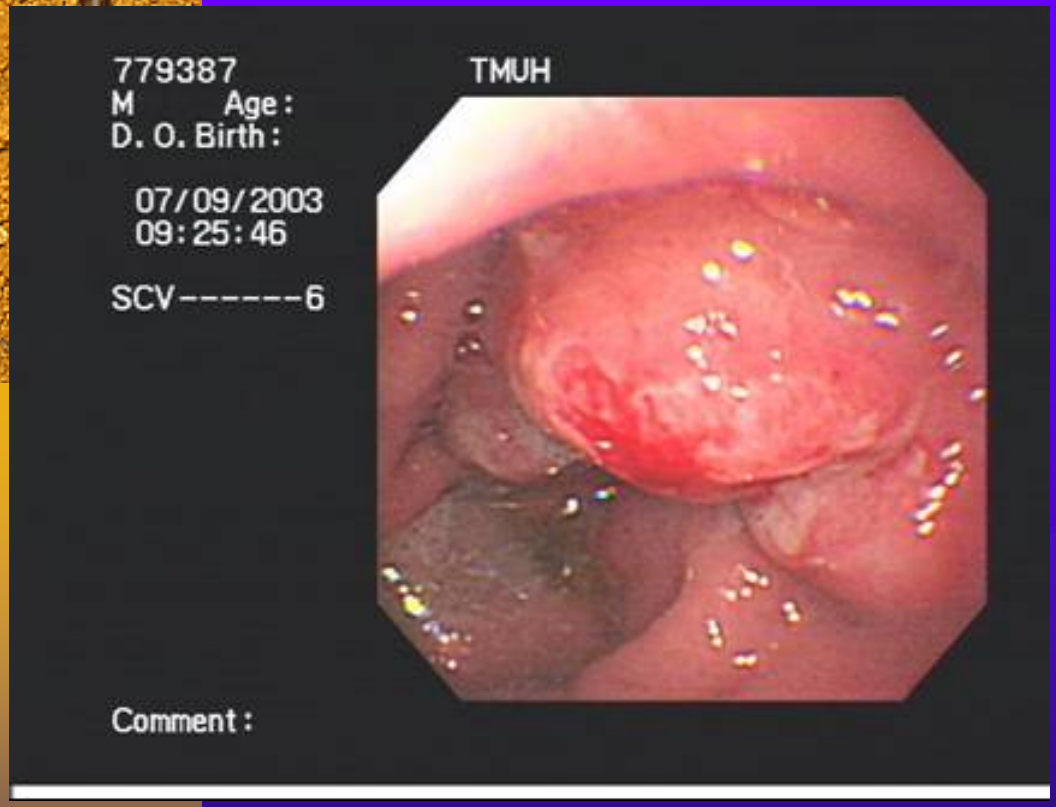
- Imaging findings：Infiltration in bilateral lower lungs due to infection? Normal size of bilateral hili, intact bony thoracic cage.

KUB on 2003/7/9



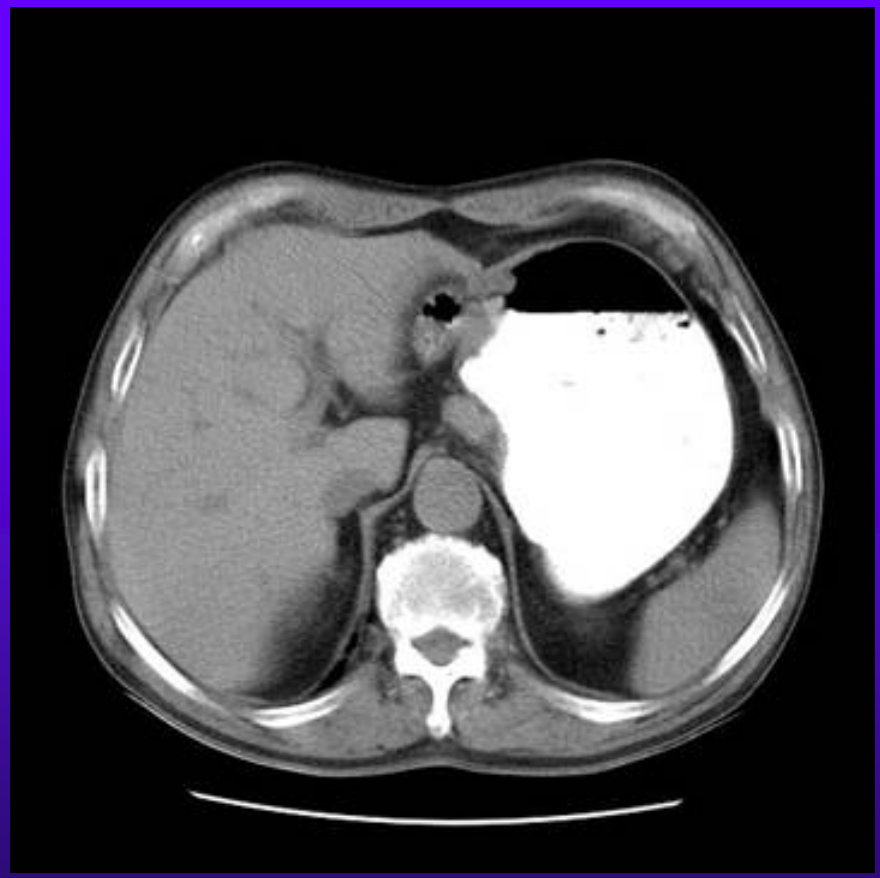
- Negative finding of the abdomen, well visible of bilateral psoas outlines and no significant abnormality in pelvic cavity.
  Degenerative change of lumbar spine with spurs formation.

Panendoscopy on 2003/7/9



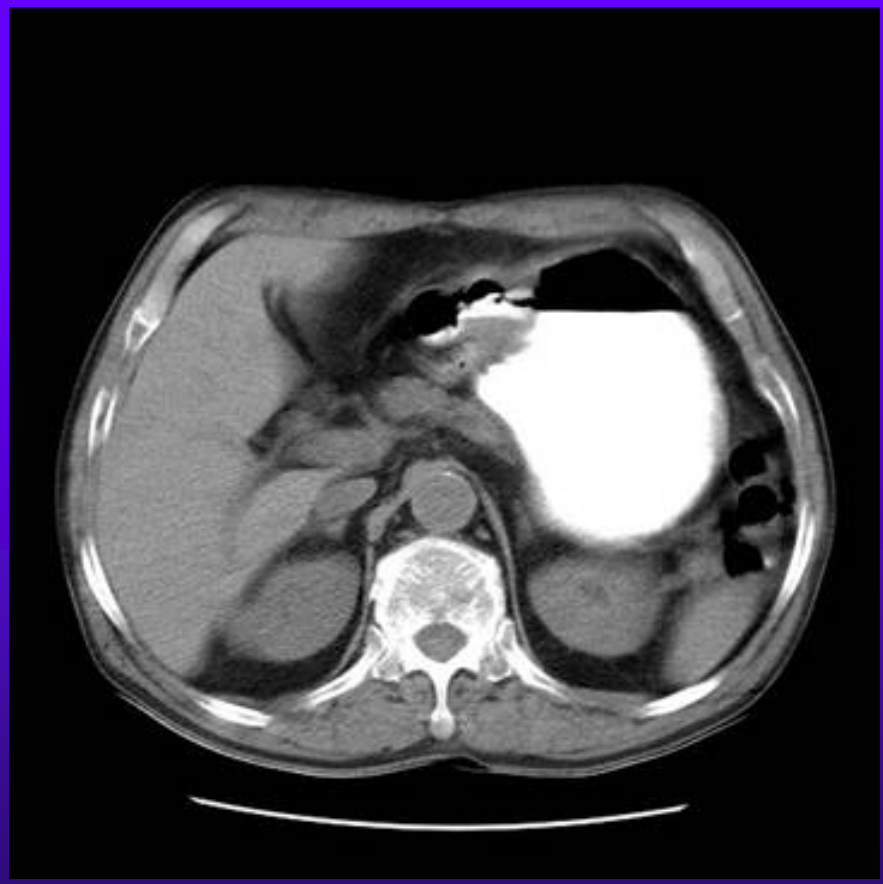
- Status of subtotal gastrectomy, Bill. II anastomosis was found. A huge tumor mass arising mainly from GCS to AW of residual stomach, easy tough bleeding, was observed.

Abd. CT on 2003/7/10 pre-C (1)



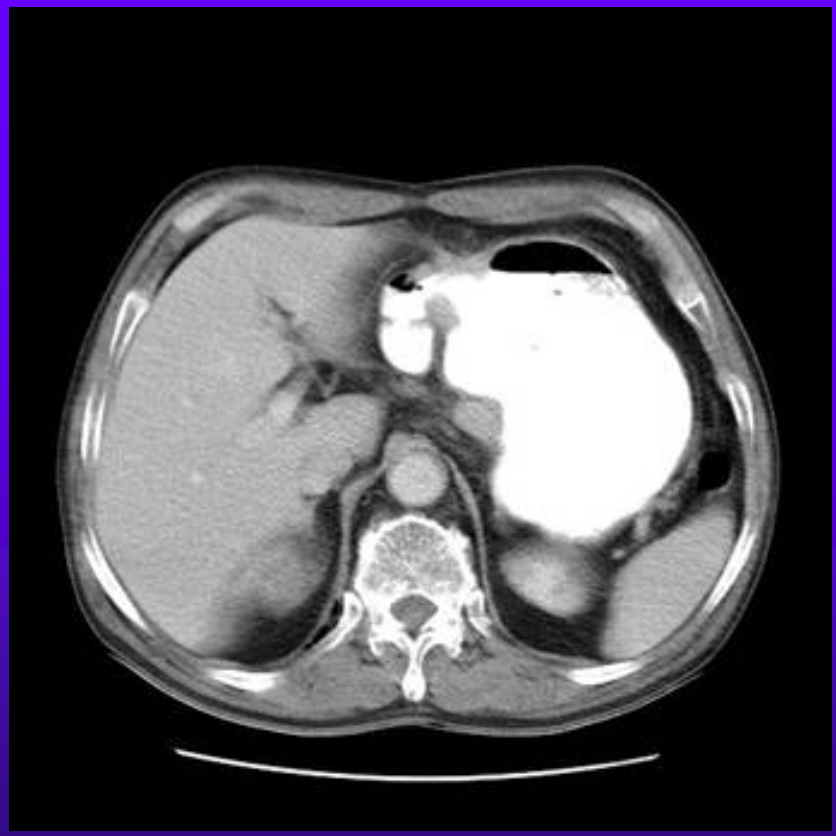
- There is abnormal distention of stomach with residue food.There is thickening of mucosal
with annular constriction at distal portion (anastomosis). It is suggest correlate with UGI series and endoscopy.

Abd. CT on 2003/7/10 pre-C (2)



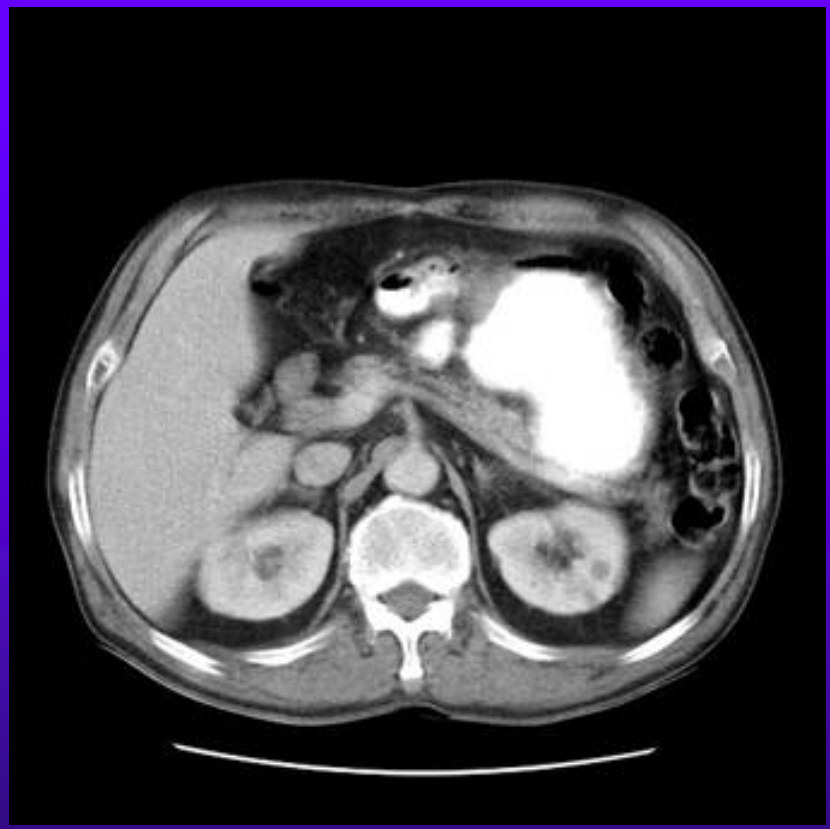
- There is no abnormal gross focal lesion of hepatic parenchyma,gall bladder, spleen,pancreas ,adrenal glands and kidneys.No obvious intraperitoneal fluid collection is noted.

Abd. CT on 2003/7/10 post-C (1)



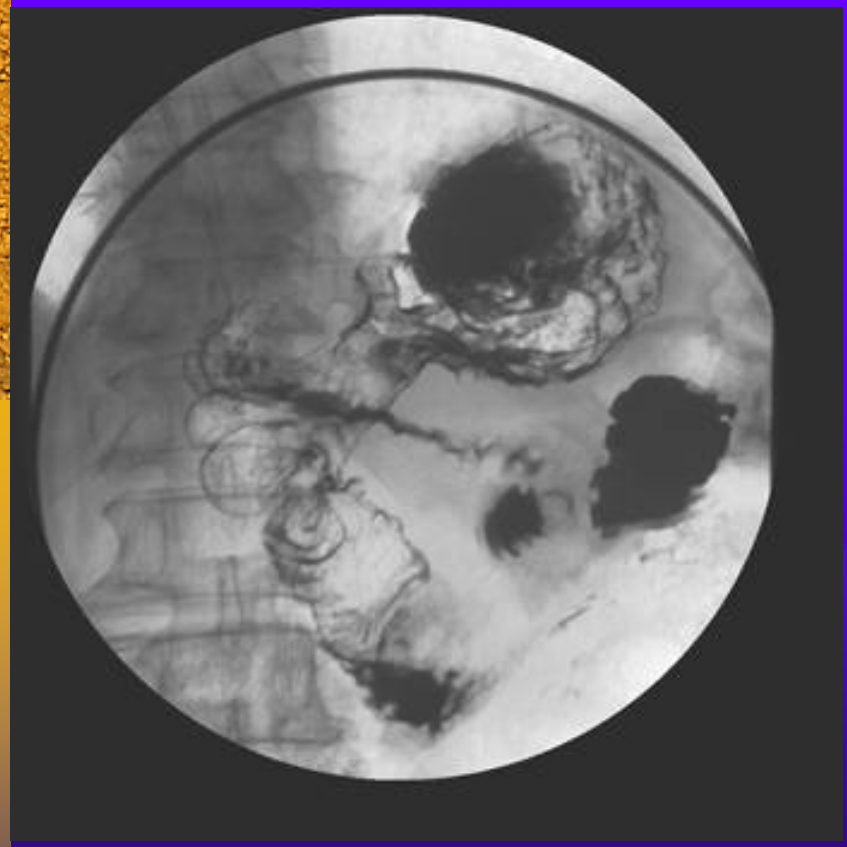
- There is no definite lymph node enlargement in the paraaortic region and pelvic side walls.
  There is suspicious thrombotic aneurysm at about right common iliac artery.
  Visible lung field shows chronic interstitial fibrotic change.

Abd. CT on 2003/7/10 post-C (2)



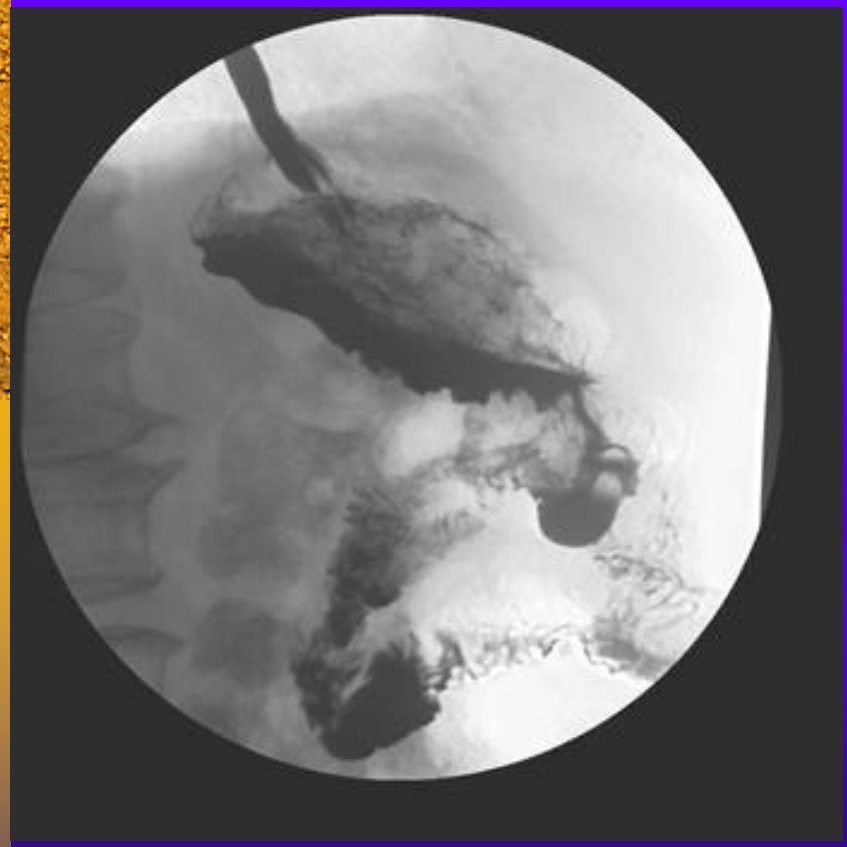
- Impression：
  Clinical information:Advanced gastric ca,S/P subtotal gastrectomy, Billroth II. Residue tumor with gastric outlet narrowing at distal portion (anastomosis).

UGI series on 2003/7/11 (1)



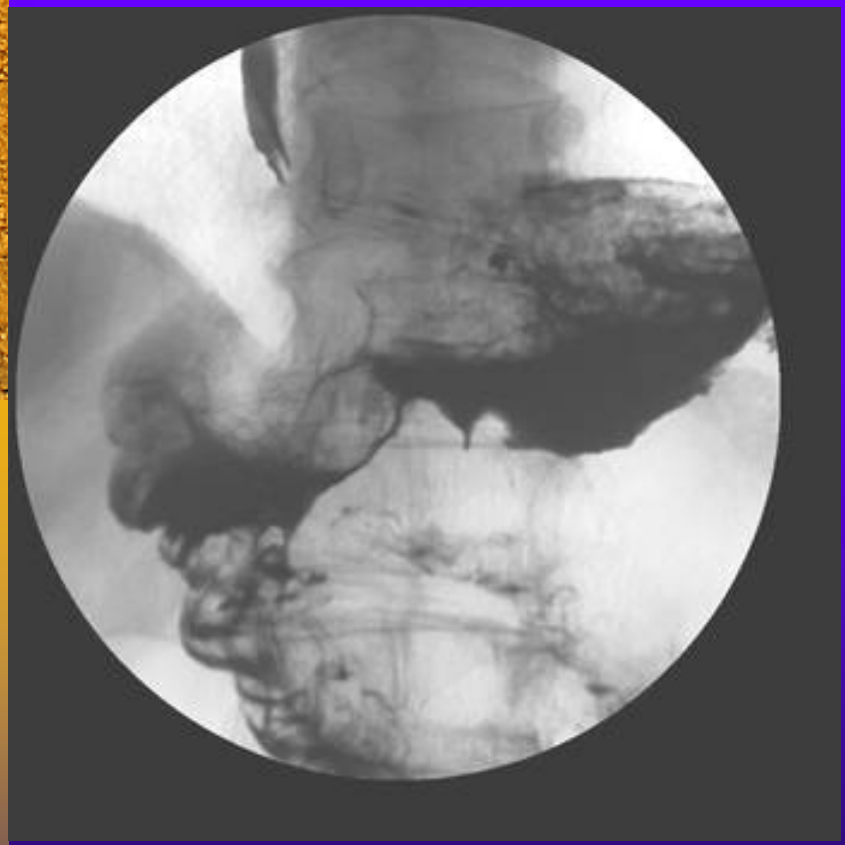
- There is S/P subtotal gastrectomy and BII anastomosis status. There is an annular irregular mucosal filling defect at the anastomosis site, measured about 4cm in length. A persisted barium pooling lesion is also noted within this region.

UGI series on 2003/7/11 (2)



- Gastric malignancy is firstly considered. Smooth passage of the contrast is noted with no definite obstruction.

UGI series on 2003/7/11 (3)



- Impression：
  Gastric malignancy at the anastomosis site is firstly considered.

Summary of the image findings

- Abdominal CT:

  Residue tumor with gastric outlet narrowing at distal portion (anatomosis).

  no abnormal gross focal lesion of hepatic parenchyma

  no definite lymph node enlargement in the paraaortic region

- UGI series:

  annular irregular mucosal filling defect at the anastomosis site, about 4cm,

  Gastric malignancy at the anastomosis site is firstly considered

Differential diagnosis (1)

- Gastric Stump carcinoma
- Carcinoma of stomach
- Chronic gastric or duodenal ulceration
- Post-op stenosis

Differential diagnosis, Gastric Stump carcinoma

- Gastric **stump** carcinomas are often of the polypoid type.
- They appear as irregular filling defects with narrowing and wall rigidity at the anastomotic region or in the gastric remnant on barium study or on CT.

Differential diagnosis, Gastric Stump carcinoma

- More rarely gastric **stump carcinoma** presents as an ulcerated or infiltrative lesion. The radiological features of the infiltrative form are decreased gastric volume and focal wall rigidity.

Differential diagnosis, gastric ca :

- Radiological diagnosis:
- Double contrast barium study is able to detect more than 95% of gastric carcinomas

Differential diagnosis, gastric ca (1):

- A B1 lesion is seen as a irregular filling defect of varying size with occasionally a visible stalk. Double contrast will reveal an irregular filling defect with a rough lobulated surface and sometimes superficial ulceration.

Differential diagnosis, gastric ca (2):

- A B2 lesion is visible as a sharply circumscribed ulcer crater, exceeding 3 cm in diameter. Radiating folds converging to the edge of the ulcer are blunted or fused.

Differential diagnosis, gastric ca (3):

- The B3 tumors are usually larger and barium filling will reveal not only a filling defect but also rigidity of the gastric wall extending beyond the ulcer crater, due to the diffuse tumor infiltration.

Differential diagnosis, gastric ca (4):

- B4 tumors, called scirrhous tumors or linitis plastica, are diffusely infiltrating lesions involving the prepyloric antrum or the whole stomach. They are characterized by a reduction and deformity of the gastric lumen associated with a loss of pliability of the walls and a nodular or ulcerated pattern of the mucosa.

Differential diagnosis, ulcer

- Radiographically, gastric ulcers appear as round or oval collections of barium. They may also be linear, rectangular or serpiginous. Large ulcers are more likely to cause complications such as bleeding and perforation.

Differential diagnosis, ulcer

- Most gastric ulcers are located on the lesser curvature or in the antrum of the stomach
- Chronic duodenal ulceration will cause scarring and deformity

Impression:

- Gastric stump carcinoma at the anastomosis site is firstly considered due to image finding and personal history

Operation findings on 2003/7/16

- Ca at gastrojejunostomy margin, deep ulcer, 3*2*1.5 cm with serosa invasion.
- Marked adhesion of liver to gastric Ca – partial resection
- Cancer along mesocolon with invasion to near T-colon.
- Lymph node enlarged in lesser sac and mesentery

Operation method on 2003/7/16

- Total gastrectomy with Roux-en-Y esophagojejunostomy
- Segmental resection of T-colon with end to end anastomosis
- Feeding jejunostomy
- Cholecystectomy

Pathological report:

- stomach, adenocarcinoma, moderately-differentiated
- Small intestine, adenocarcinoma, invasive
- Lymph node, perigastric, adenocarcinoma, metastatic (9/40)
- Liver, partial resection, adenocarcinoma, directly involving the capsule
- Esophagus, no carcinoma involvement
- Omentum, no carcinoma involvement
- colon, transverse, no carcinoma involvement
- Lymph node, pericolic, no carcinoma involvement (0/2)

Discussions

Gastric stump carcinoma

- Recurrent Ca - usually considered a 2nd if >10 yrs
- **Carcinoma** of the gastric **stump** may develop 20 or more years following gastric surgery for benign peptic ulcer disease.
- **Stump carcinoma** appears to be more common following a Billroth II anastomosis (20%)

Gastric stump carcinoma

- Adenocarcinoma occurring preferentially at the site of the anastomosis.
- Carcinoma occurs more frequently, 2–6 times than in the no operated stomach.

Gastric stump carcinoma

- It is related to reflux of bile and pancreatic secretions into the stomach following partial resection provoking chronic atrophic gastritis and other premalignant mucosal changes.

Gastric stump carcinoma

- A specific feature of carcinoma of the gastric stump is that the neoplastic infiltration of the mucosa is limited to the mucosa of the gastric border of the anastomosis sparing the jejunal mucosa although the deeper layers of the jejunum may be invaded.

Metastatic pattern of lymph node and surgery for gastric stump cancer.

Han SL, Hua YW, Wang CH, Ji SQ, Zhuang J.

- 67 patients with GSC were analyzed retrospectively
- RESULTS: The metastatic rates of LN were as follows:

  63.3% in right cardia, 33.3% in left cardia, 75.0% in lesser curvature, 53.3% in greater curvature, 40.0% in celiac artery, 60.0% in splenic hilus, 72.7% in splenic artery, 36.1% in hepatoduodenal ligament, 8.3% in retropancreatic, 21.4% in para-aortic, 50% in supra-diaphragm, 16.7% in LN within jejunal mesentery
- The overall 5-year survival rate of GSC was 17.9%
- CONCLUSIONS: the results imply that GSC has a wide range of LN metastases,

J Surg Oncol. 2003 Apr;82(4):241-6

Metastatic pattern of lymph node and surgery for gastric stump cancer.

Han SL, Hua YW, Wang CH, Ji SQ, Zhuang J.

- Suggestion: that radical operation for B-I patients needs removal of gastroduodenectomy anastomosis and the above lymph nodes.
- and that B-II patients need removal of 10 cm of jejunum besides gastrojejunostomy anastomosis, and clearance of LN within its mesentery, in addition to B-I GSC.

J Surg Oncol. 2003 Apr;82(4):241-6

Discussions: Adenocarcinoma of stomach

- Malignant tumor arising from the epithelium of the stomach. Adenocarcinoma accounts for 95% of gastric malignancies, the remaining 5% being composed of sarcomas.

Adenocarcinoma of stomach

- Gastric carcinoma is most frequent in the antrum (60%) followed by cardia (25%) and body.

Adenocarcinoma of stomach

- The gross appearance of adenocarcinoma has served as the basis for their classification as proposed by Bormann:
- polypoid fungating (B1),
- ulcerated (B2),
- ulcerated and infiltrating (B3),
- diffuse infiltrating (B4).

Adenocarcinoma of stomach

- Staging of gastric carcinomas can be performed by CT and endoluminal ultrasound (EUS).
- CT: Accuracy 50 to 70 %.
- The thickness of gastric wall.
- Extension of the tumor
- direct extension to the adjacent organs
- Lymph nodes

Adenocarcinoma of stomach

- Standard therapy for attempted cure is radical surgery.
- Radiotherapy or chemotherapy have not yet been shown to increase the disease free interval.