General Data

- 王X村
- 78 y/o
- 男性

Chief Complaint

- Vomiting twice this early morning
- Fever up to 38.9ºC was noted

Present Illness (1)

- Old CVA with left side weakness for more than 10 years and with bed ridden in recent 3 years
- Parkinsonism with regular medical control
- HTN with regular medical control

Present Illness (2)

- Pseudoobstruction of colon history
- Appenditis s/p appendectomy
- Left inguinal hernia s/p OP

Present Illness (3)

- 4/29 at home

  sneeze、productive cough、chocking、vomiting with food、fever
- At ER

  fever 39.3ºC、bilateral coarse breath sound、Abd tenderness (diffuse)、rebounding pain

Lab

- WBC : 8600
- RBC : 3.63 (L) HGB : 9.4 (L)
- Hct : 28 (L)
- PT-FBI : 11.2 aPTT : 22.2
- BUN : 33(H) Cr : 2.1 (H)
- GOT : 18 GPT : 17
- Chol : 187 TG : 64

Image-CXR

- Calcification of aortic knob is atherosclerotic change
- Cardiomegaly
- Widening of upper mediastinum is due to shadow of dilating great vessels
- Diffusely peribronchial infiltrates at bil. lung fields

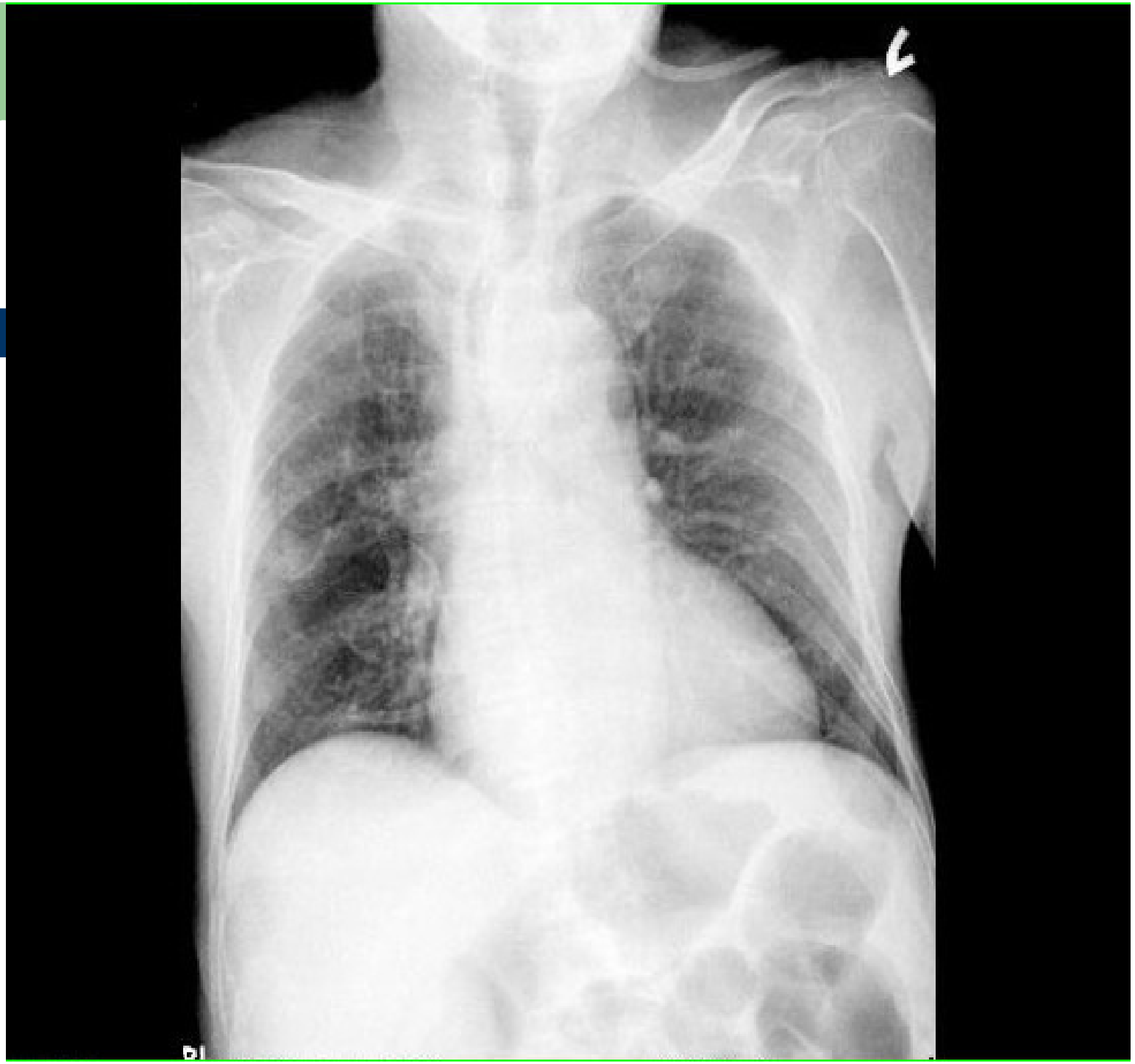
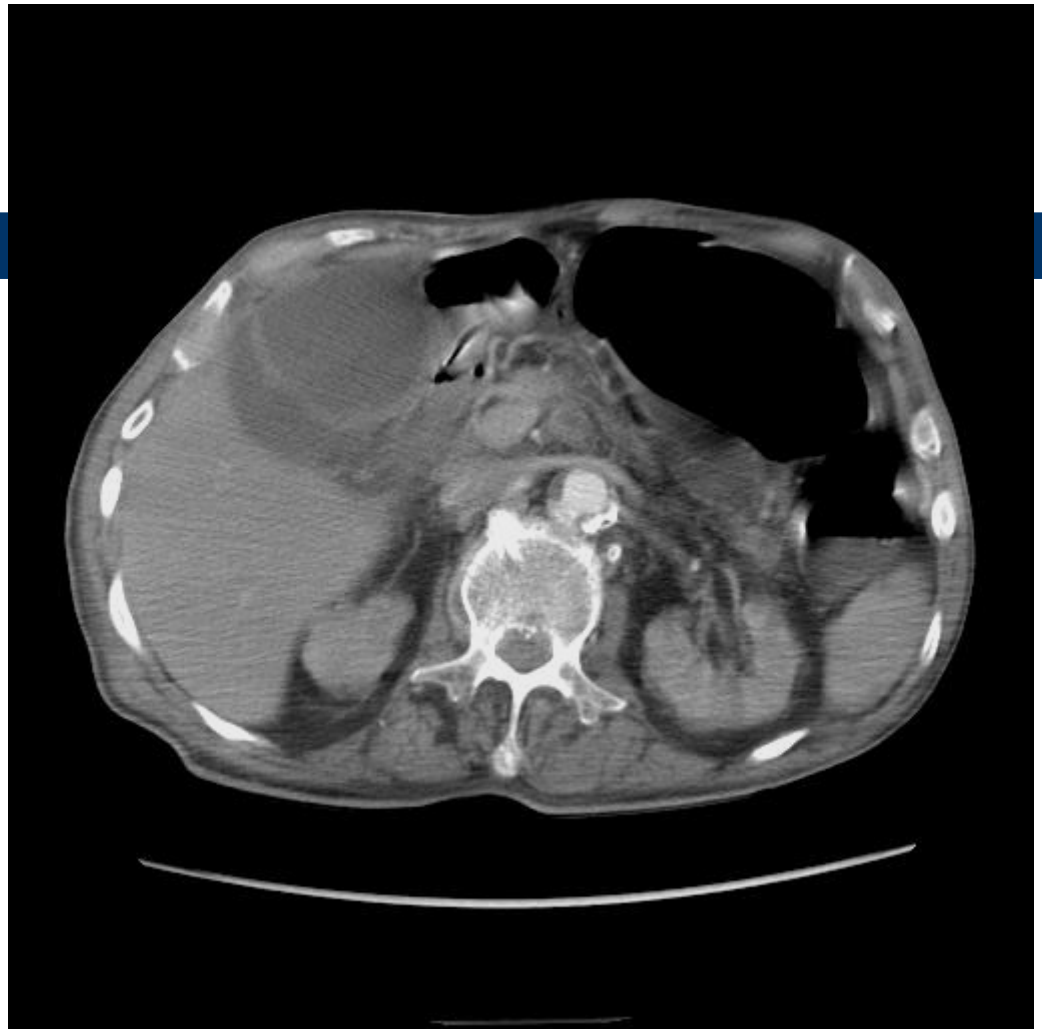


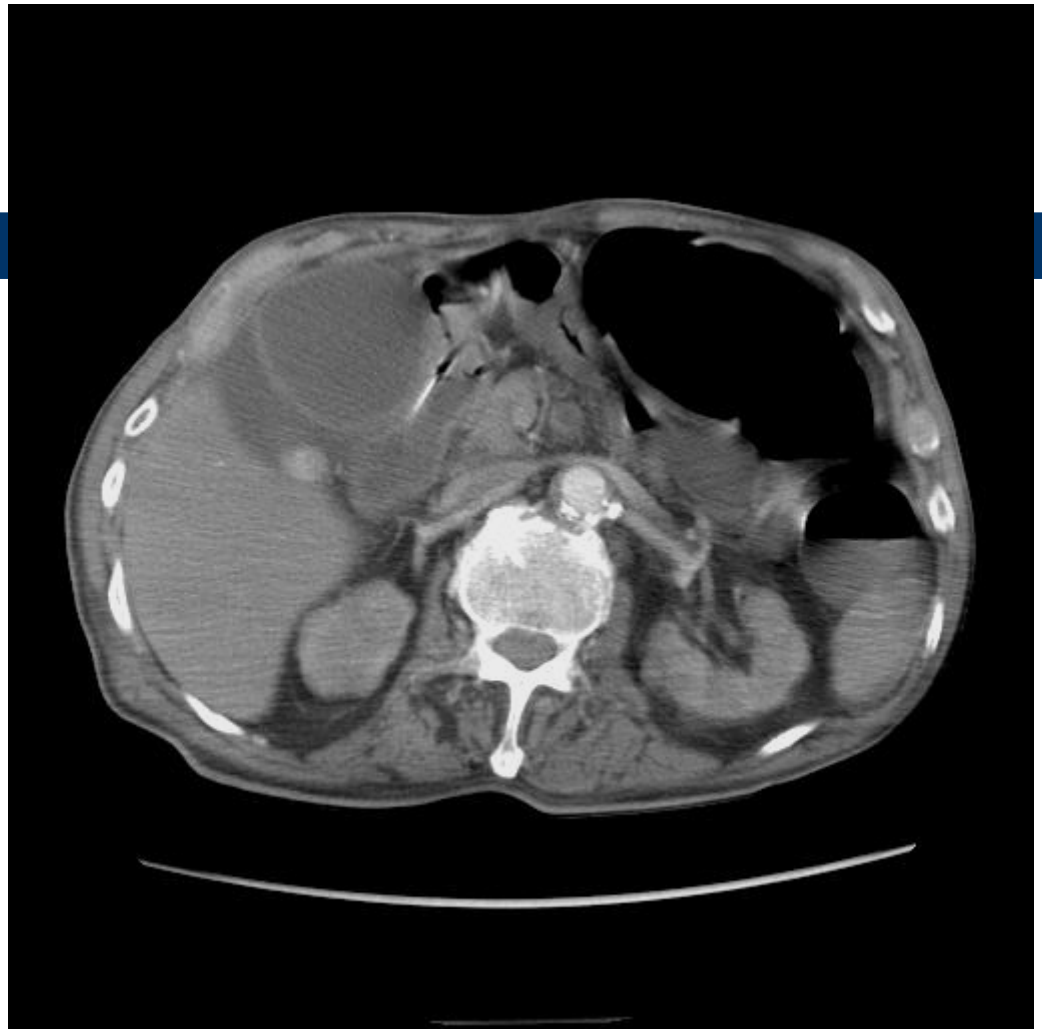
Image-KUB

- Prominent air shadow is noted of large and small intestine
- Dilate bowel segment at RLQ

Image-CT

- CT：
  1、Distension of colon before transverse to cecal colon , probably obsruction at Lt anterior lateral intraperioneum
  2、Gall bladder stone is noted and engorgement
  3、Severe atherosclerotic change of abdominal aorta with calcified and soft plaques, probably decrease arterial flow of SMA





Differential diagnosis

- Ischemic bowel disease
- Mechanical ileus
- Paralytic ileus

  Intra-abdominal inflammation or peritonitis

D/D – Ischemic Bowel Disease (1)

Plain film

- Dilation of part of the colon may be seen early
- Small bowel may also become dilated with thickening of the valvulae conniventes
- Localized pneumatosis coli

D/D – Ischemic Bowel Disease (2)

CT

- Thromboembolism in the mesenteric vessels
- Intramural or portal venous gas
- Segmental thickening of the bowel wall
- Absence of bowel wall enhancement with contrast-enhanced CT

D/D – Ischemic Bowel Disease (3)

CT

- Irregular narrowing of the bowel lumen due to mucosal edema (thumbprinting)
- Possible bowel dilatation proximal to the ischemic segment of the bowel

D/D – Mechanical Ileus (1)

Plain film

- Distention of small bowel loop
- Bowel larger than 3 cm in diameter is often associated with obstruction
- The more distal the obstruction, the more numerous the gas-fluid levels
- String-of-beads sign

D/D – Mechanical Ileus (2)

Plain film

- coffee bean sign (a gas-filled loop)
- pseudotumor (fluid-filled loop)
- Intramural gas

D/D – Mechanical Ileus (3)

CT

- A dilated proximal loop and a collapsed distal loop of small bowel
- A bowel diameter in excess of 2.5 cm is regarded as abnormal
- Feces sign

D/D – Paralytic Ileus (1)

Plain film

- Distended loops of bowel
- Air-fluid level
- Thickening of bowel wall
- Thumb printing of the mucosa
- Generalized peritonitis：ground-glass
- Perforation ：free air

D/D – Paralytic Ileus (2)

- CT
- MRI
- Ultrasound
- Nuclear media scan

Post-OP Diagnosis (1)

- Operation 5/2

  1、Small bowel necrosis, segmental, skipping (from 10cm distal to Triztz ligment to 80cm proximal to ileocecal valve)

  2、Resection of the necrotic bowel with end-to –end anastomosis

  3、Diagnosis：SMA fat embolism with small bowel necrosis

Post-OP Diagnosis (2)

- Operation 6/7

  1、Cyanotic change of residual small bowel and right colon

  2、SMA thrombosis

  3、Severe atherosclerosis of aorta

  4、Marked adhision among small bowel and bowel wall

  5、Diagnosis：SMA thrombosis with intestinal angina

Pathological Diagnosis (1)

- 5/2

  1、Intima hyperplasia with intimal thickening

  2、Proliferation of fibroblast-like cells and neovascularization

  3、The picture is consistent with embolism with organization

Pathological Diagnosis (2)

- 6/7

  1、Fibrous atheromatous plaque with hyalinization and focal calcification

  2、Focal hemosiderin deposition is noted

Discussion – Ischemic Bowel Disease

Etiology (1)

- Emboli from the heart
- Valvular lesions can also result in emboli to the mesenteric system
- Atherosclerotic debris
- Thrombosis typically occurs at the artery origin

Etiology (2)

- Mesenteric emboli account for 50% of all cases of mesenteric ischemia
- Nonocclusive mesenteric ischemia can occur without any arterial or venous abnormalities

Clinical Presentation (1)

- Chronic

  1、Abdominal pain

  2、Postprandial pain between 10 minutes and 3 hours after a meal

  3、Fear of eating

  4、Weight loss

Clinical Presentation (2)

- Chronic
  - 5、Vomiting
  - 6、Diarrhea or constipation
  - 7、Occult testing of stool：(+)

Clinical Presentation (3)

- Acute
  1、Sudden onset of symptoms
  2、History similar to persons with chronic ischemia
  3、Atherosclerotic disease

Lab

- Prothrombin time
- Activated partial thromboplastin time
- Complete blood cell count
- Chemistry studies

Image (1)

- X-ray

  Intramural air

  Air in the portal venous system

  Free air may be observed in the abdomen

Image (2)

- CT：

  1、Specific：

  SMA or superior mesenteric vein thrombosis

  Intestinal pneumatosis

  Portal venous gas

  Lack of bowel wall enhancement

  Ischemia of other organs

Image (3)

- CT：

  2、Non-specific：

  Distended bowel

  Absence of intestinal gas

  Thickened bowel wall

  Air-fluid levels

Treatment (1)

- Medical therapy
  1、Nonocclusive mesenteric ischemia
  2、Treating underlying disease
  3、Embolic disease ：papaverine
  4、Hypovolemia：fluid resuscitation
  5、Broad-spectrum antibiotics

Treatment (2)

- Surgical therapy

  1、Location of viable versus nonviable bowel

  2、SMA thrombosis ：entire small bowel and proximal colon

  3、SMA embolization ：proximal jejunum

  4、Retain every centimeter of viable bowel

  5、Emboli：embolectomy

Treatment (3)

- Surgical therapy
  - 6、Prosthetic bypass grafting
  - 7、Autogenous vein grafting

Prognosis

- Mortality rates are highest for patients with arterial thrombosis (70~87%),
- Nonocclusive mesenteric ischemia (70~80%)
- Arterial embolism (66~71%)
- Venous thrombosis (44%)