

# Survival Kit for Postoperative CT Imaging After Gastric Non-Bariatric Surgery

Giedrė Kavaliauskienė  
Oslo University Hospital, Ullevål

# Gastrectomy Survival Kit:

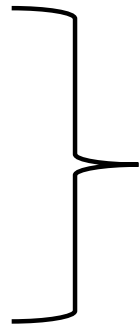
- 1. Be familiar with surgeries and radiological postsurgical anatomy**



# Gastrectomy

- Total gastrectomy

- Subtotal gastrectomy

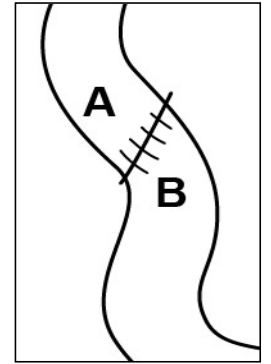
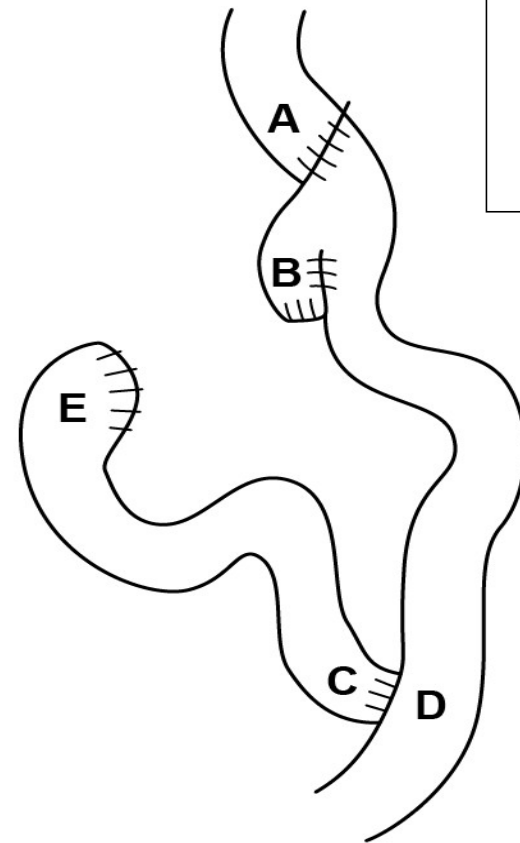
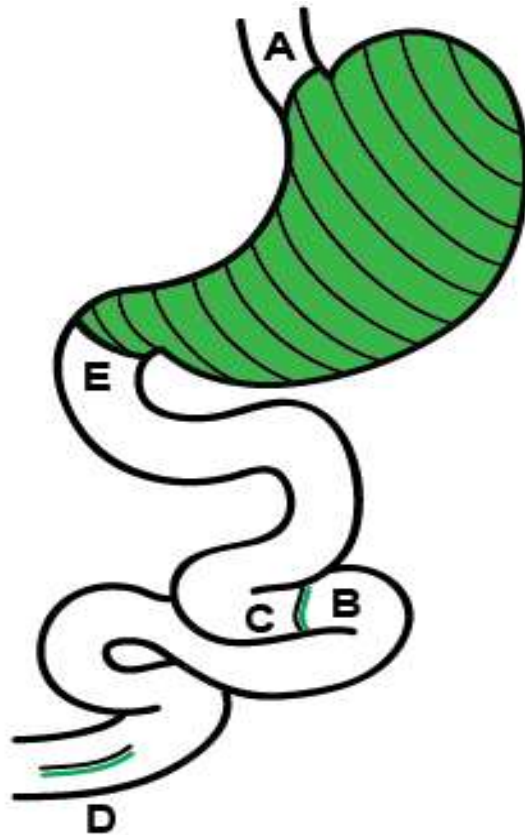


With Roux-en-Y anastomosis

- Partial gastrectomy

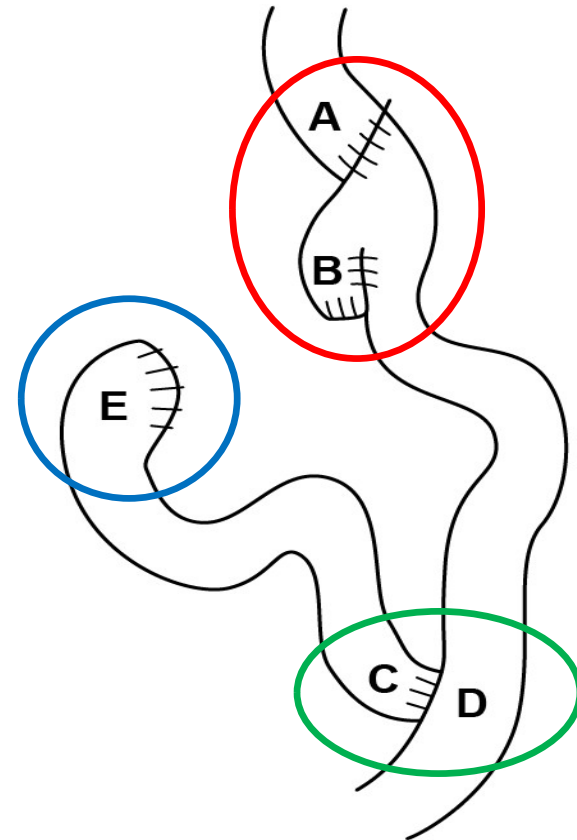
With Billroth (II) anastomosis

# Total Gastrectomy with Roux-en-Y Anastomosis

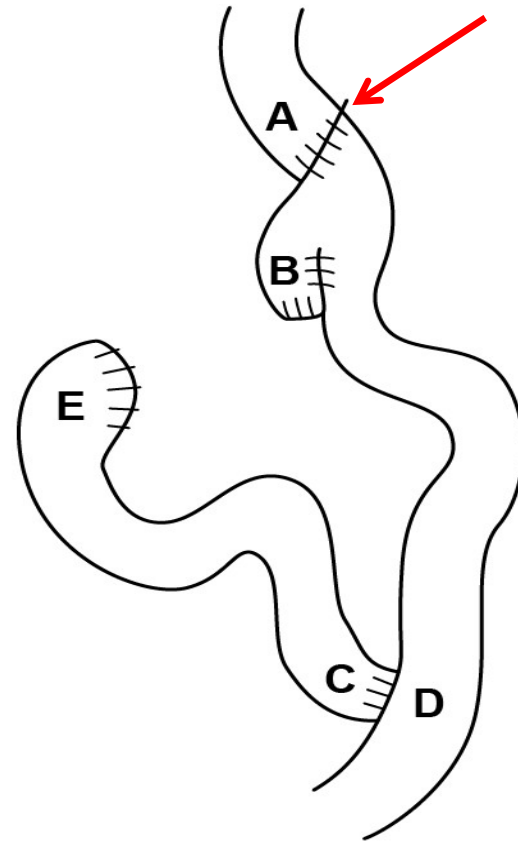
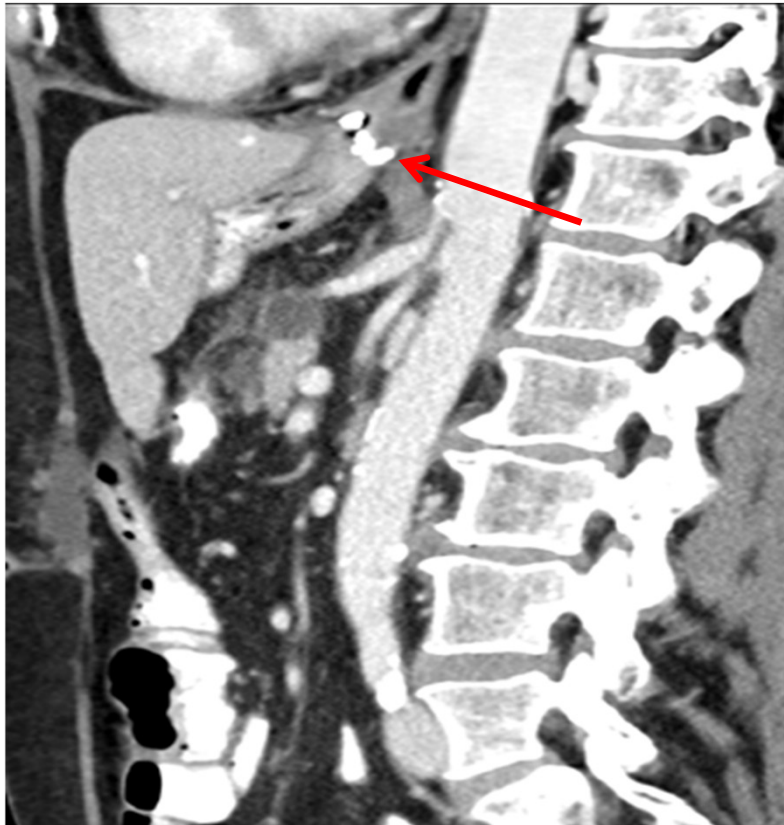


# Total Gastrectomy with Roux-en-Y Anastomosis

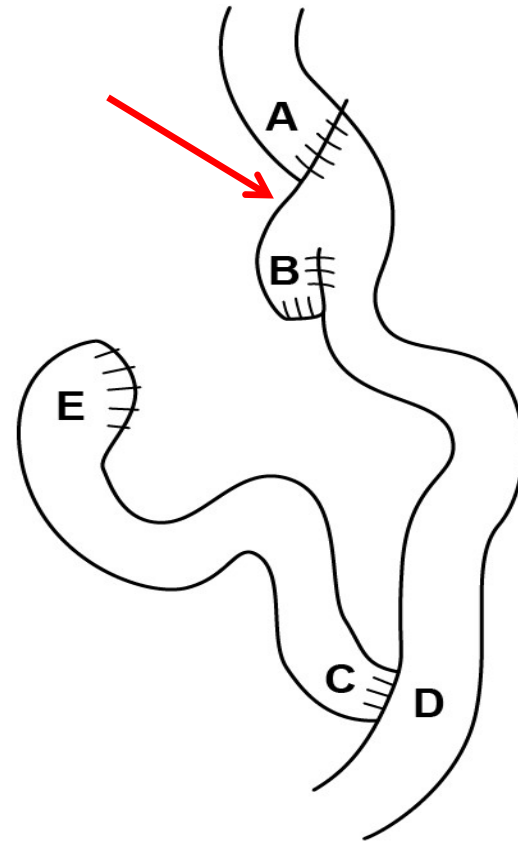
- Esophagojejunal (E-J) anastomosis
- Duodenal stump (DS)
- Jejunojejunal (J-J) anastomosis



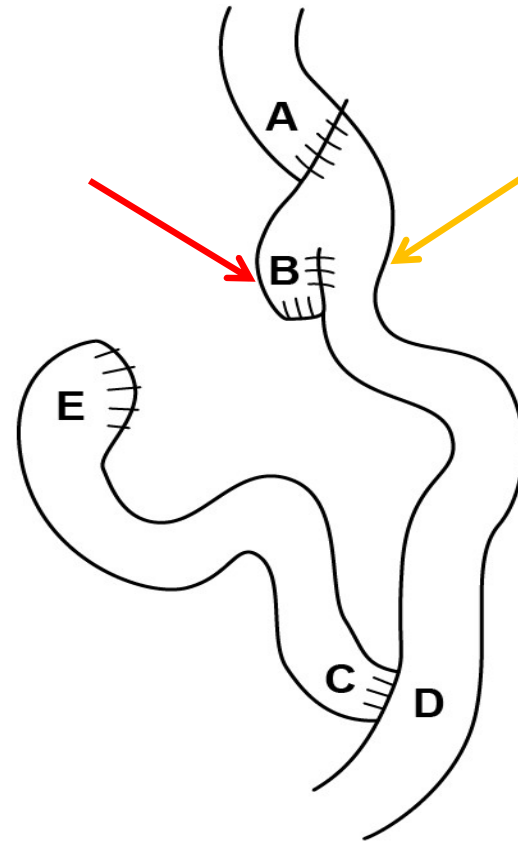
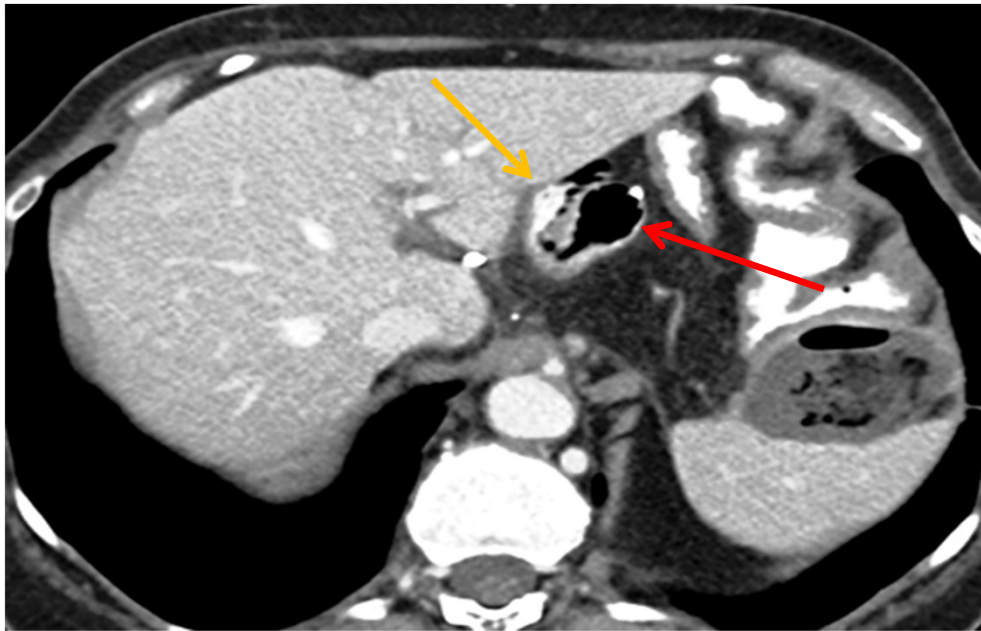
## E-J anastomosis



## E-J anastomosis

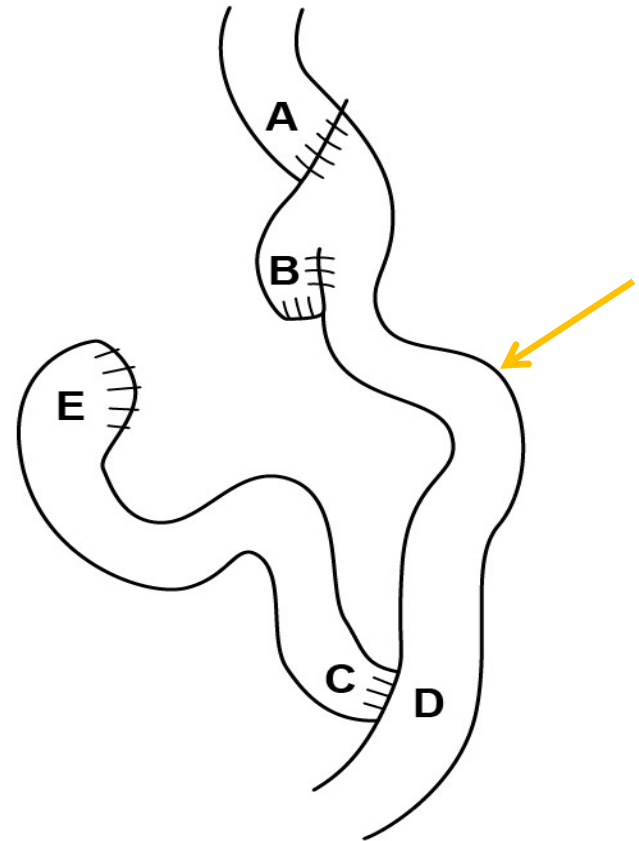
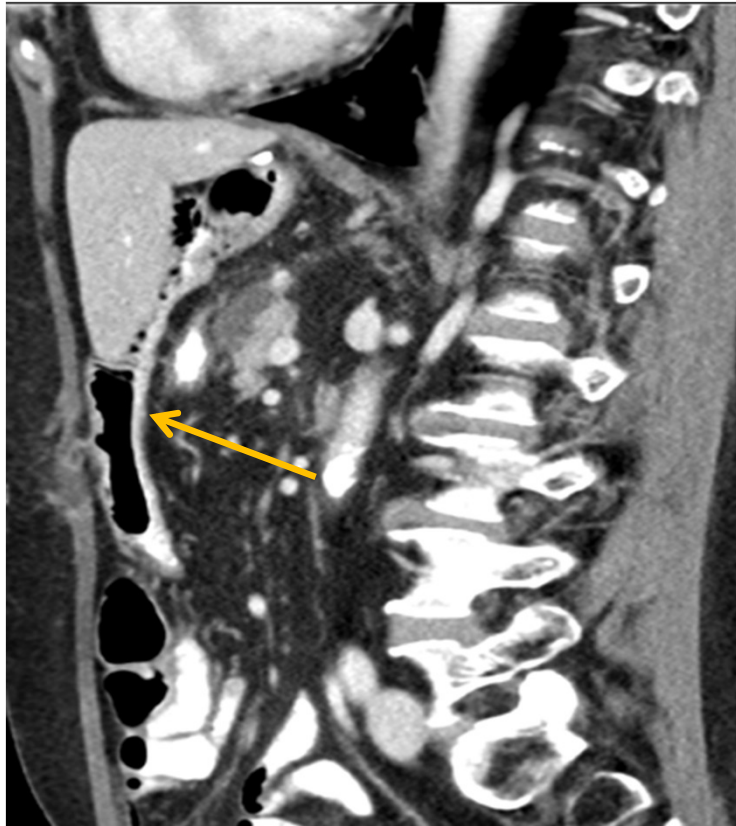


## E-J anastomosis (blind loop!)

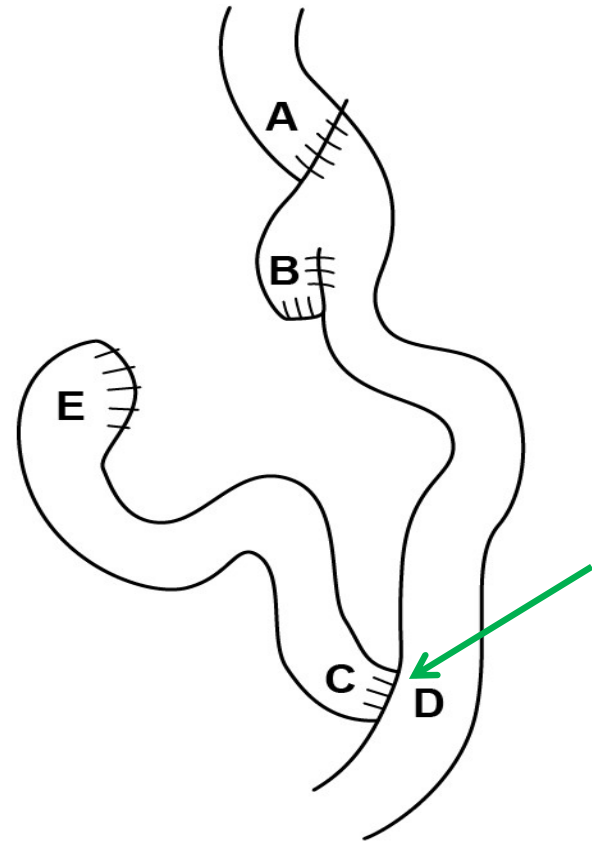




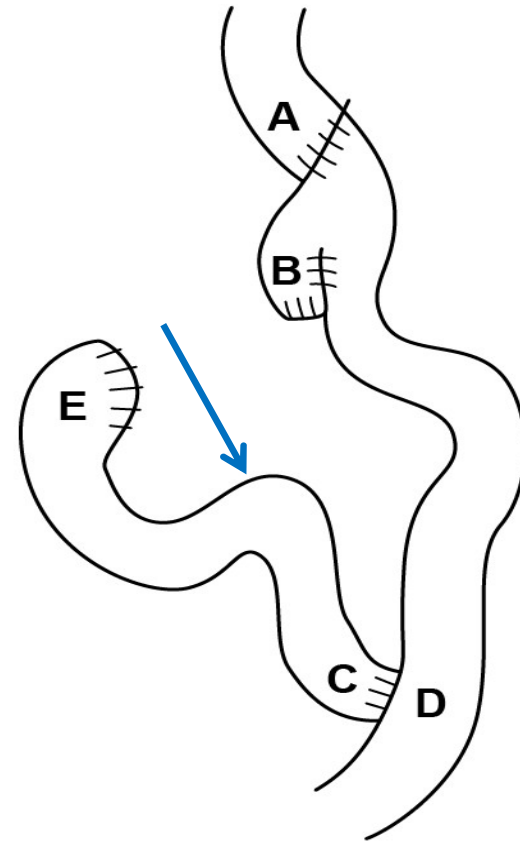
# Efferent/ Roux loop



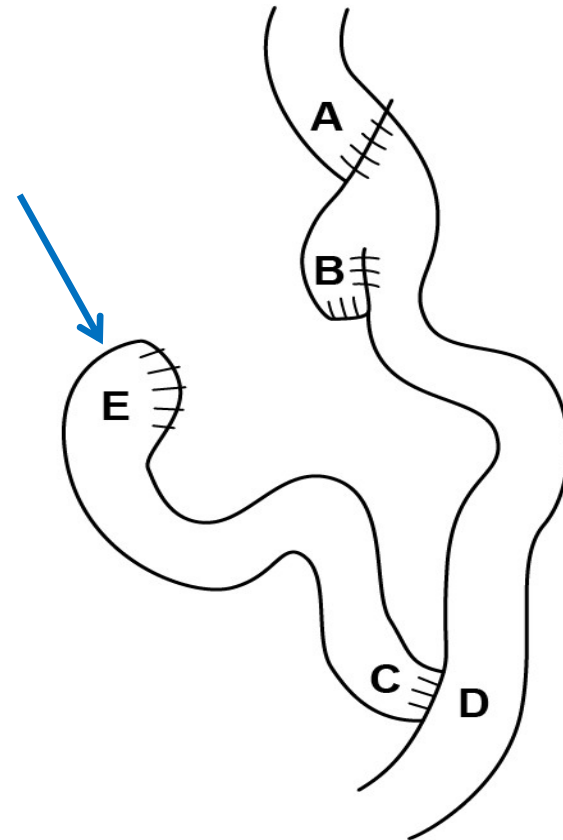
## J-J anastomosis



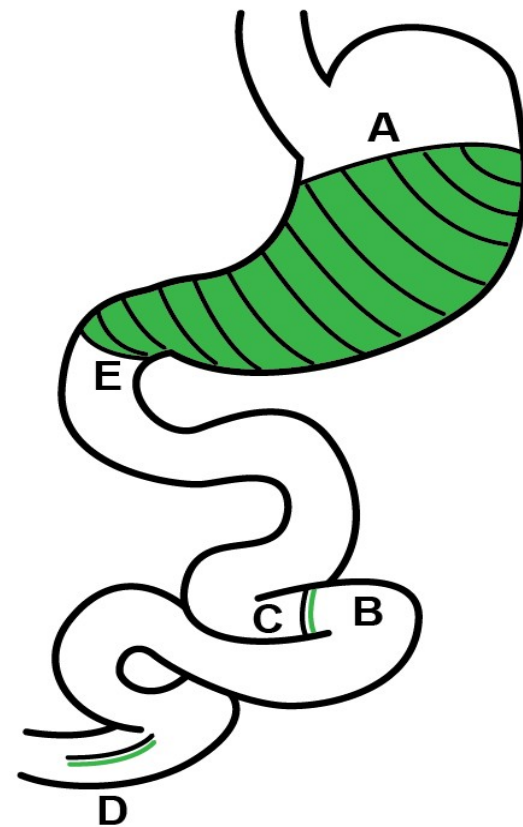
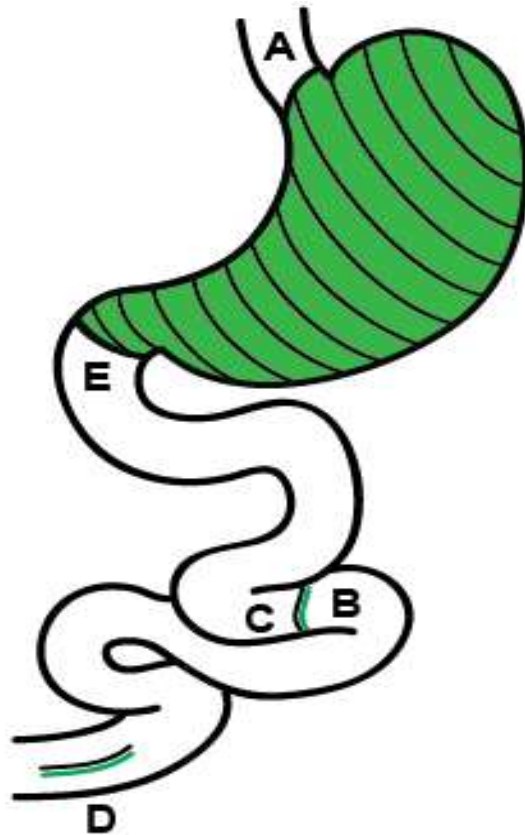
## Duodenal stump and afferent loop (biliopancreatic limb)



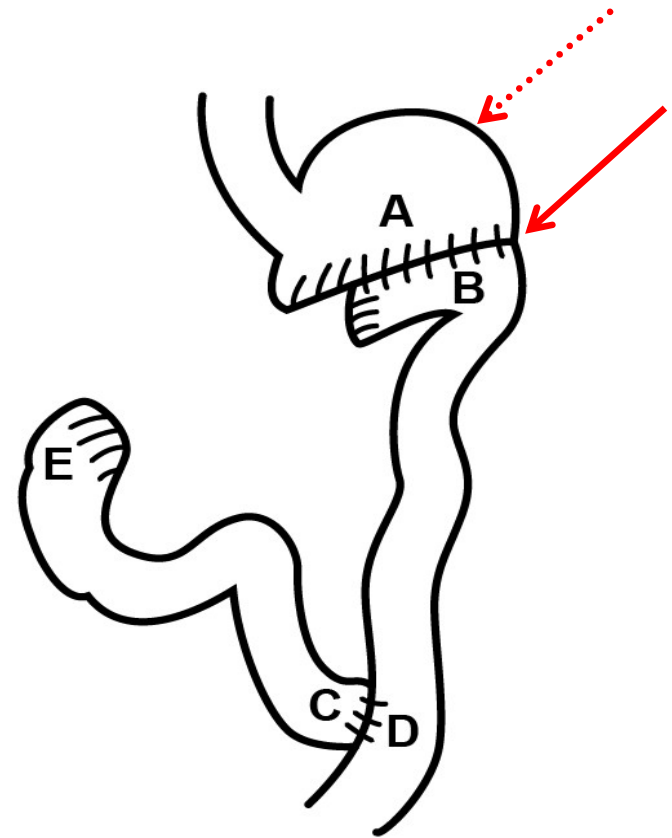
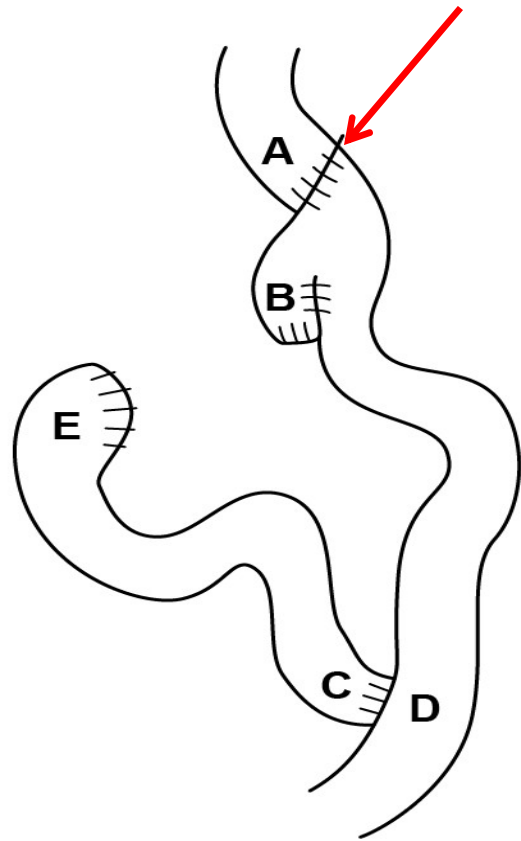
# Duodenal stump and afferent loop (biliopancreatic limb)



# Total vs. Subtotal Gastrectomy with Roux-en-Y Anastomosis

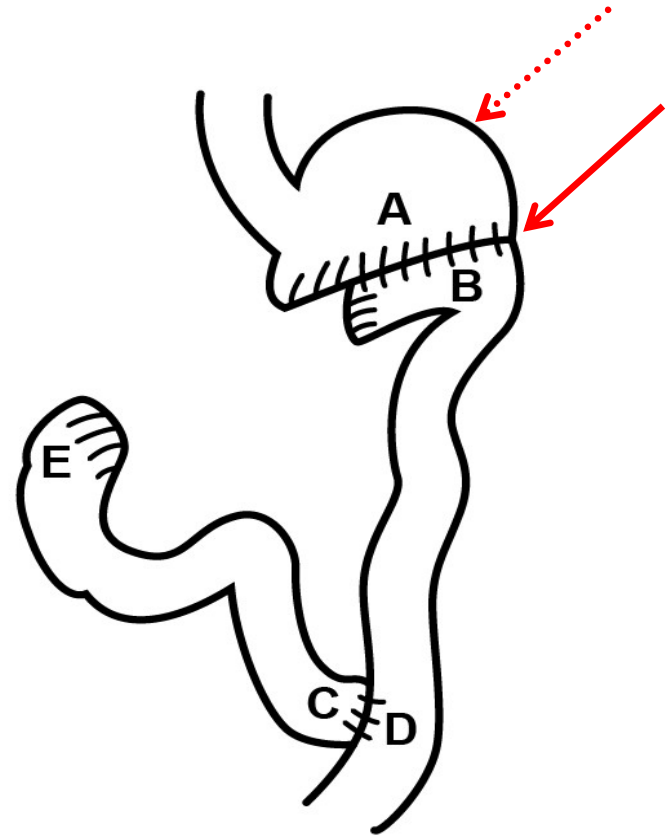


# Total vs. Subtotal Gastrectomy with Roux-en-Y Anastomosis

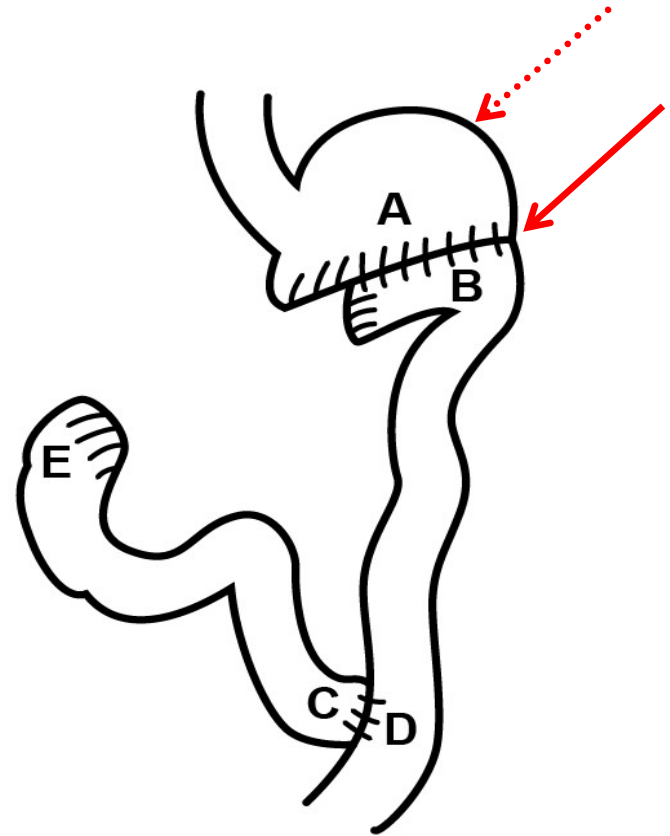
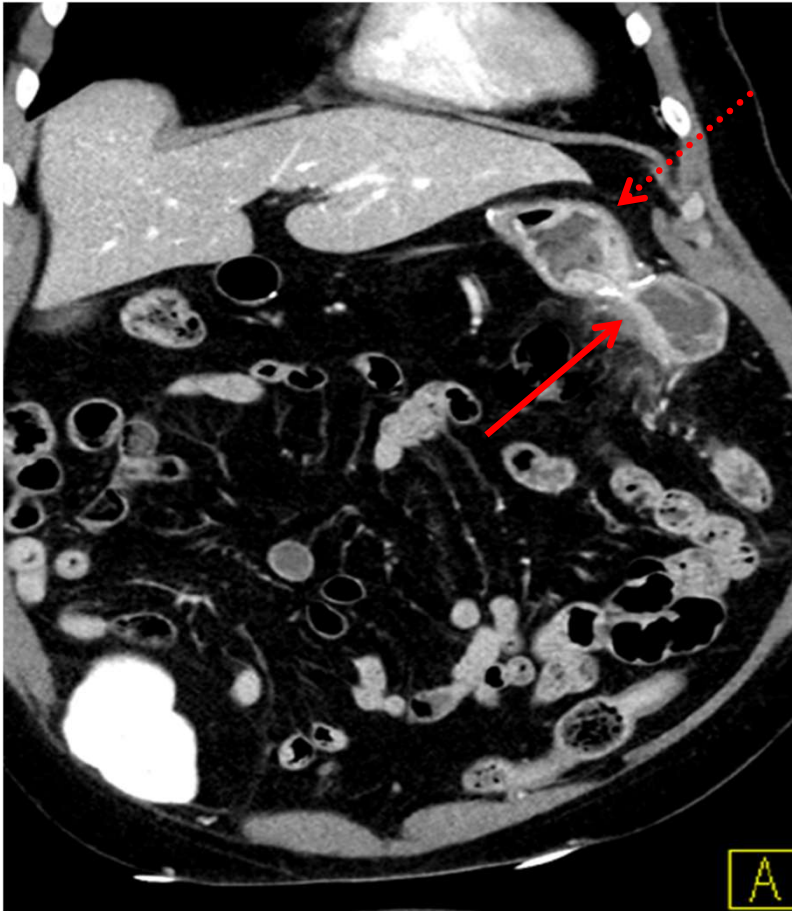




# Gastric remnant

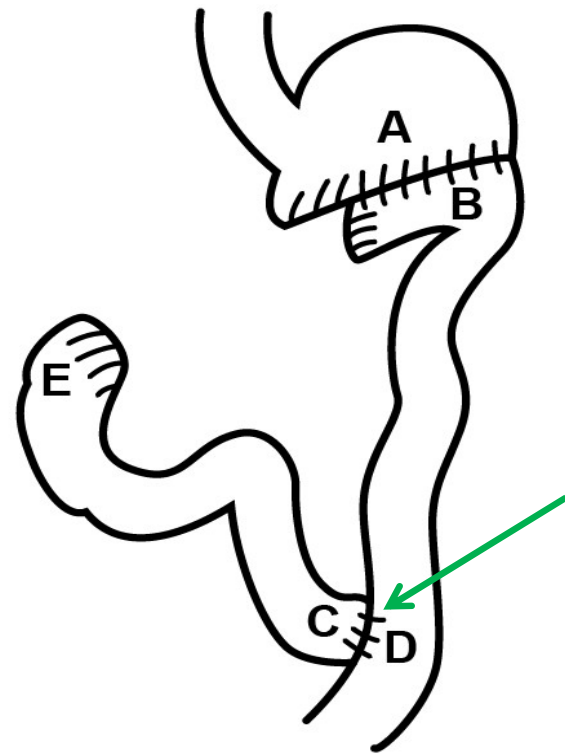
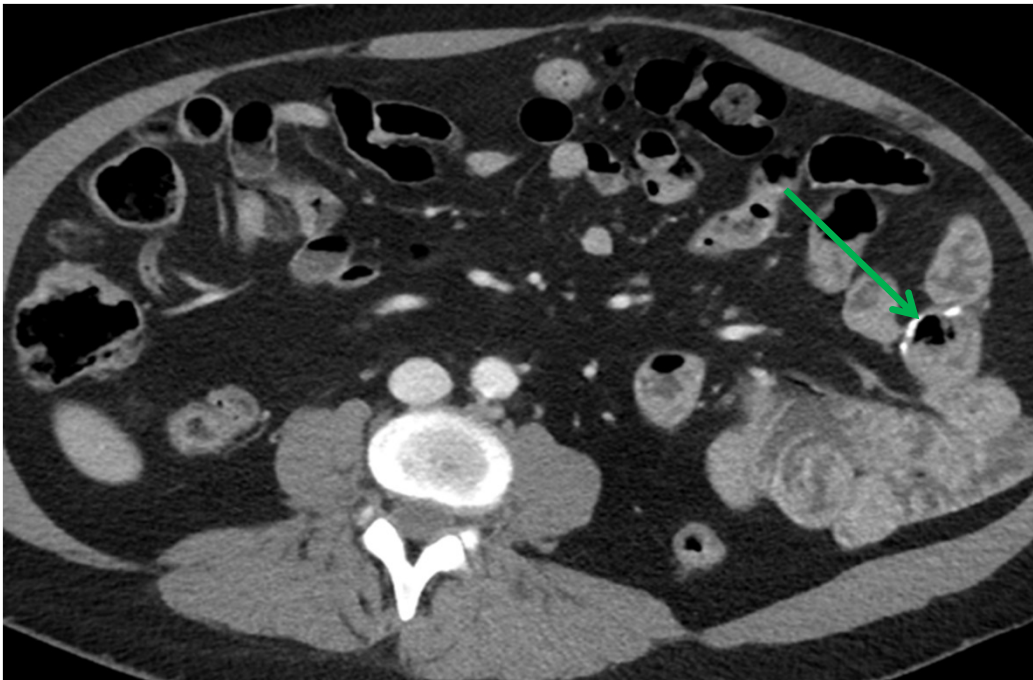


## G-J anastomosis

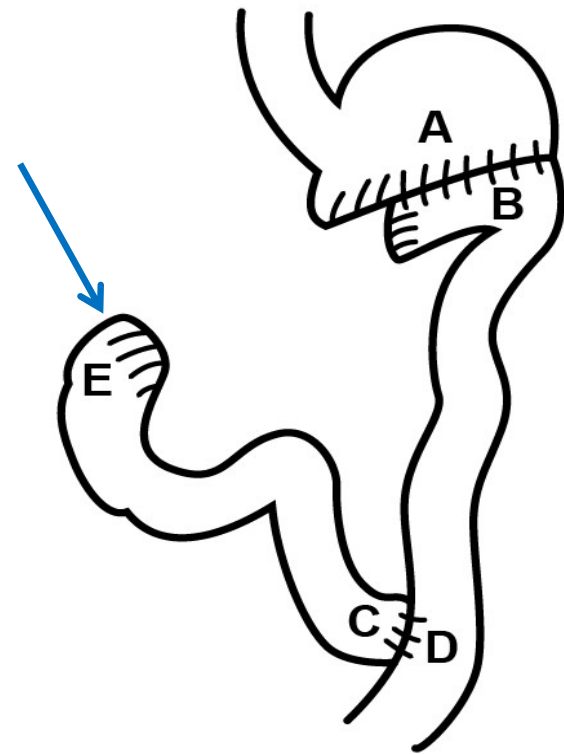
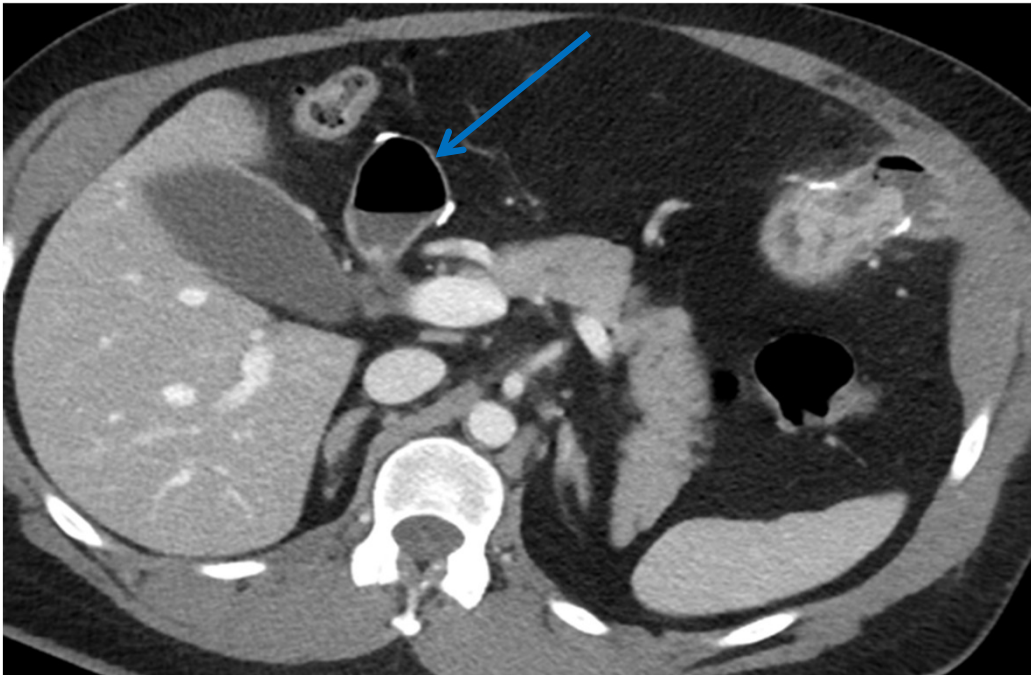




## J-J anastomosis



# Duodenal Stump



# Gastrectomy Survival Kit:

## **2. Be familiar with complications**



# Gastrectomy Complications

- Anastomotic leak (E-J, G-J and J-J)
- Duodenal stump leak
- Infection and abscess
- Bleeding
- Other organ injury
- Small bowel obstruction
- Strictures

# Gastrectomy Survival Kit:

**3. Leakage is one of the most important early complication**

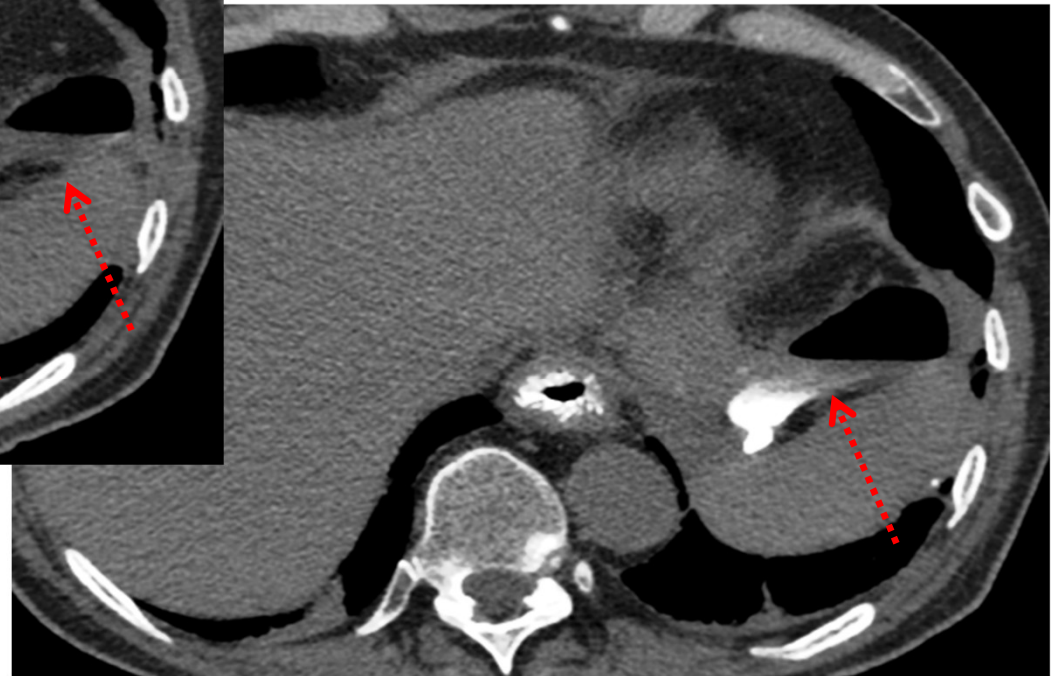
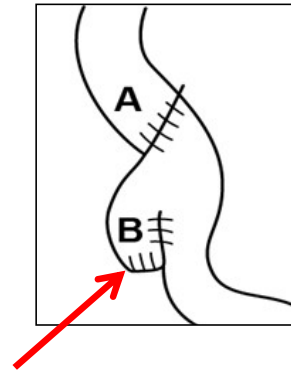
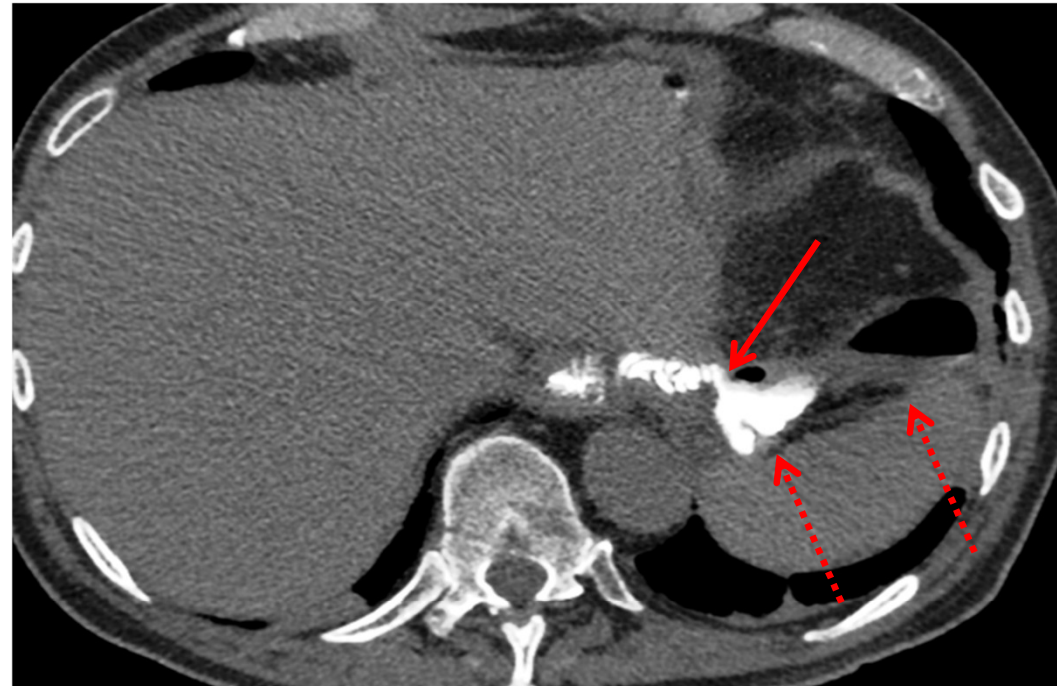


# CT signs of anastomotic leakage:

## **Direct signs of leakage:**

- Wall defect/ wall discontinuity
- Oral contrast leak

# E-J Leak After Total Gastrectomy

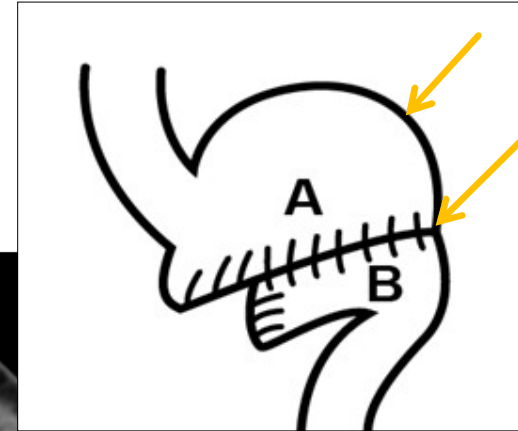
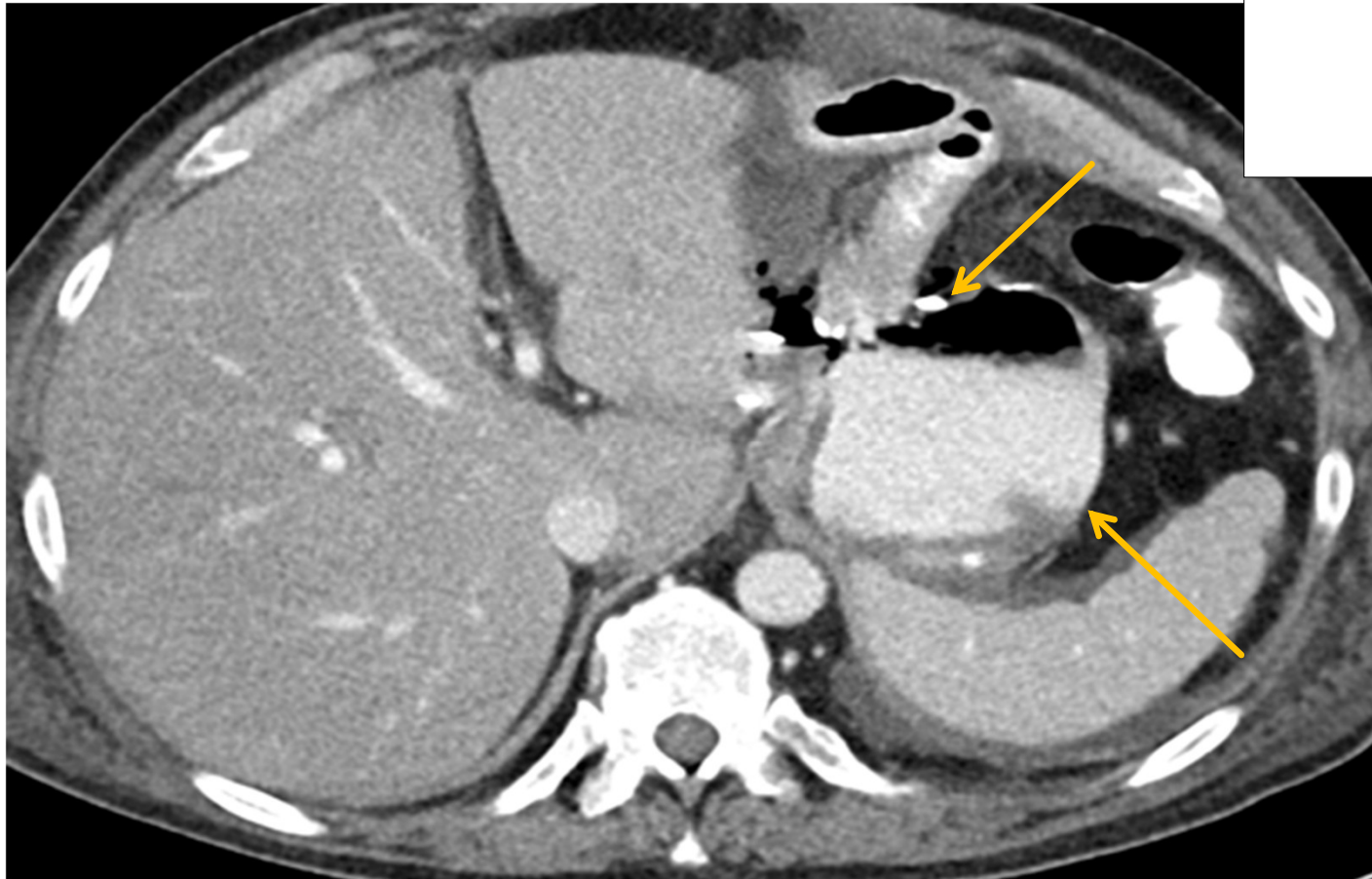


# Oral contrast after gastrectomy

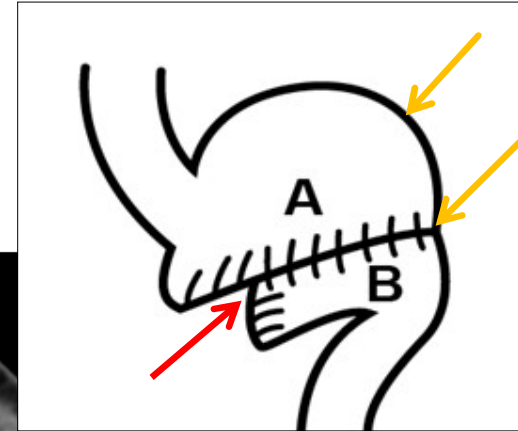
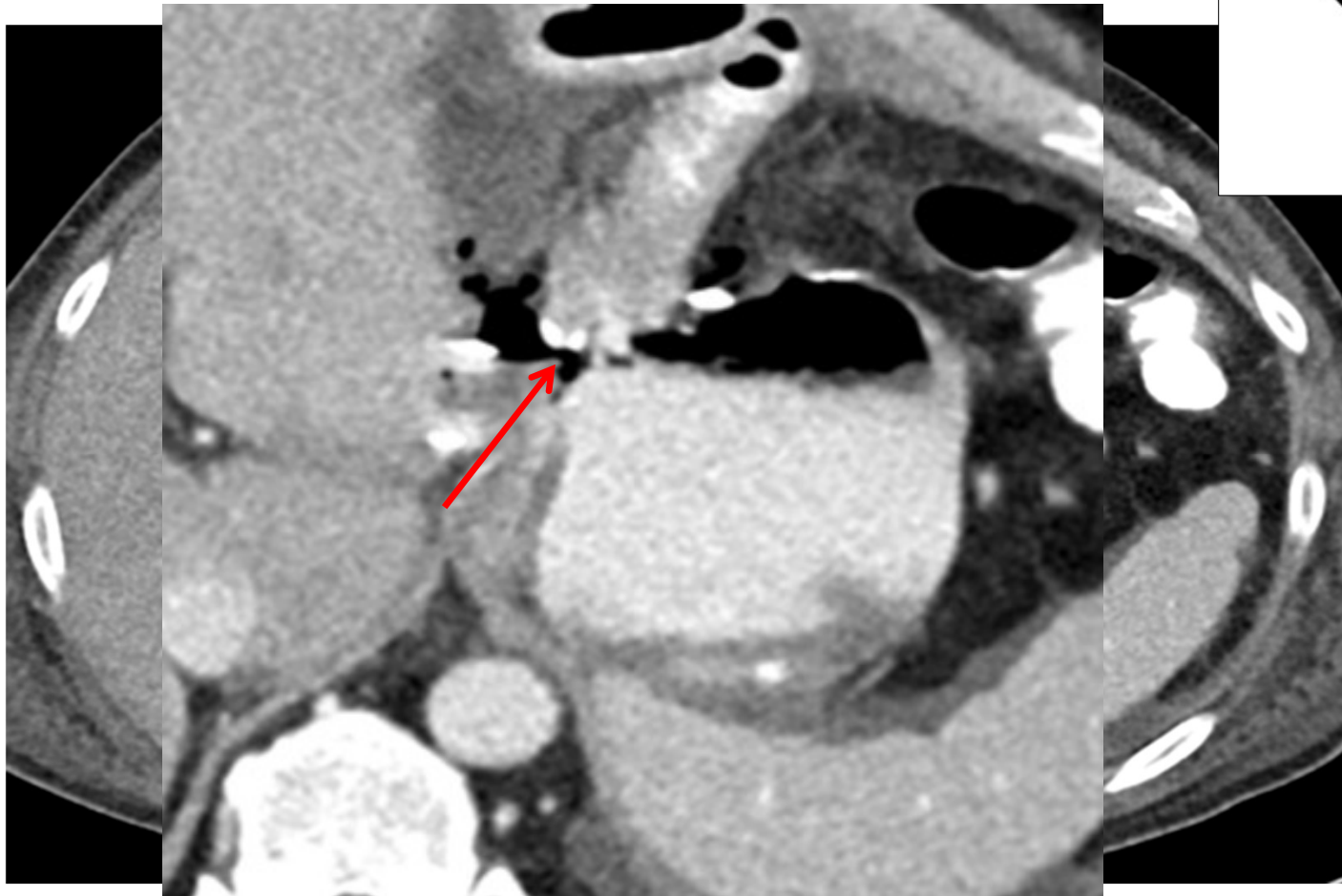
- Do not use Barium or other non-water-soluble oral contrast!
- Gastrografin is water-soluble and is relatively safe even if bowel obstruction is complicated by perforation, but complications are still possible.
- Ullevål hospital uses only IV contrast solutions with sterile water for perforation or leakage cases.
- **Gastrectomies-** oral contrast
  - Total 250 ml 10% solution of IV contrast before CT:  
250 ml sterile water with 25 ml IVC (350 mgI/ml)



# G-J Leak After Subtotal Gastrectomy



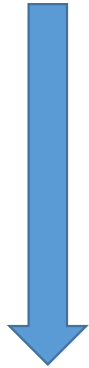
# G-J Leak After Subtotal Gastrectomy



# CT signs of anastomotic leakage:

## **Direct signs of leakage:**

- Wall defect/ wall discontinuity
- Oral contrast leak



False negative results

# Gastrectomy Survival Kit:

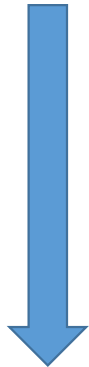
4. Oral contrast is very important for leakage diagnosis, but absence of oral contrast leak **CAN NOT** exclude leakage



# CT signs of anastomotic leakage:

## Direct signs of leakage:

- Wall defect/ wall discontinuity
- Oral contrast leak

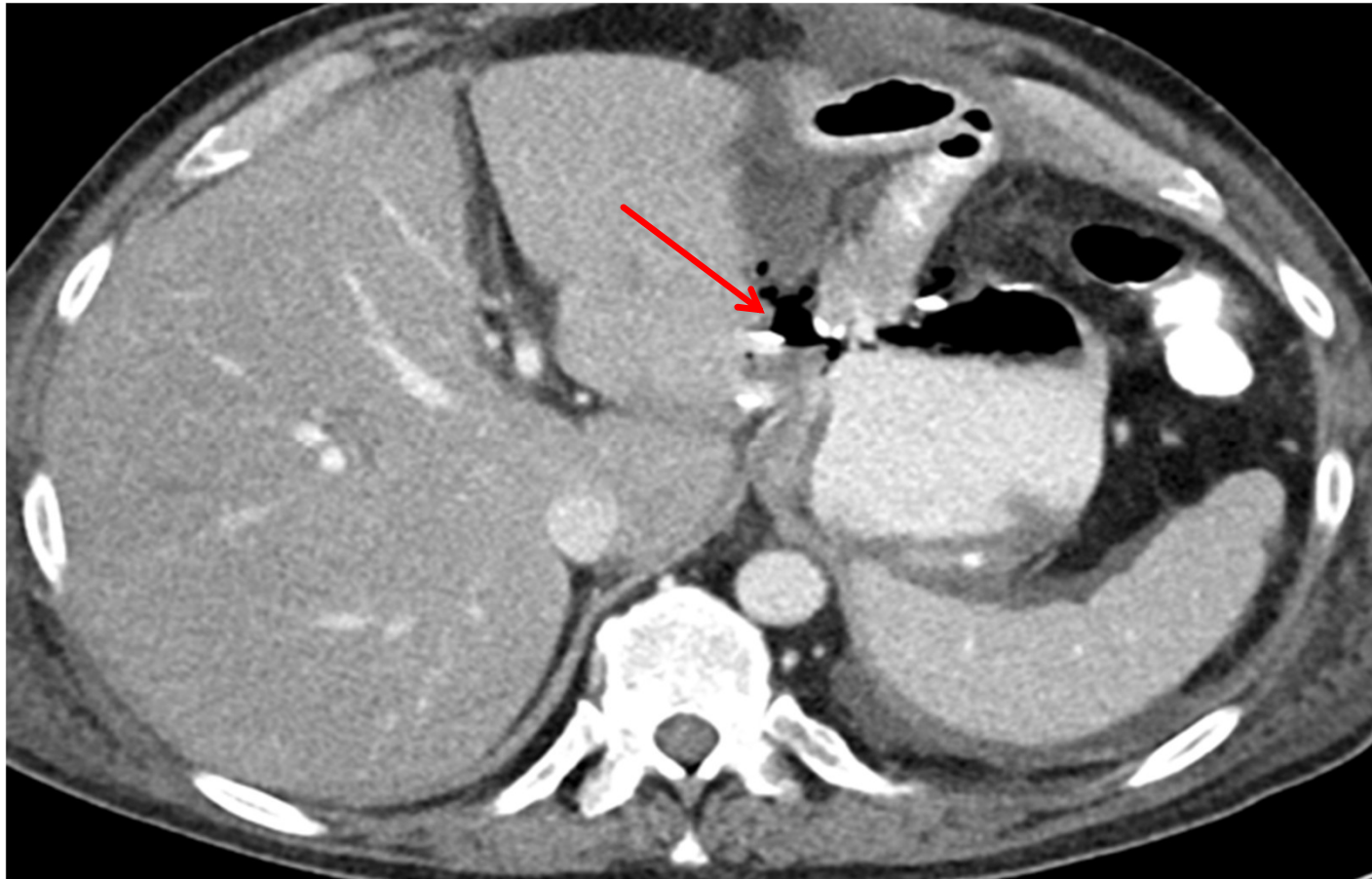


False negative results

## Indirect signs of leakage:

- Perianastomotic *air* collections
- Large perianastomotic fluid collection and fat infiltration (more than around other anastomosis)
- Excessive free fluid
- Excessive free air

## G-J Leak After Subtotal Gastrectomy





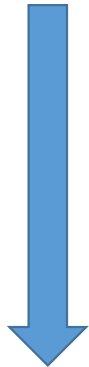
## G-J Leak After Subtotal Gastrectomy



# CT signs of anastomotic leakage

## Direct signs of leakage:

- Wall defect/ wall discontinuity
- Oral contrast leak



False negative results

## Indirect signs of leakage:

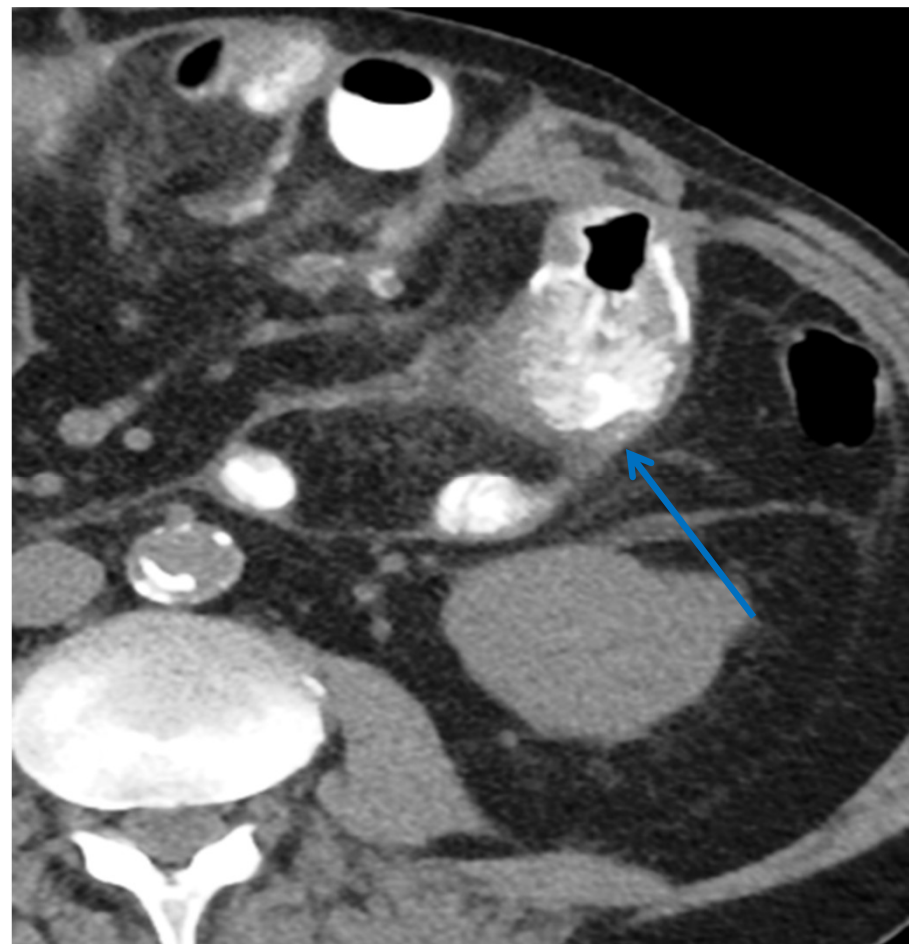
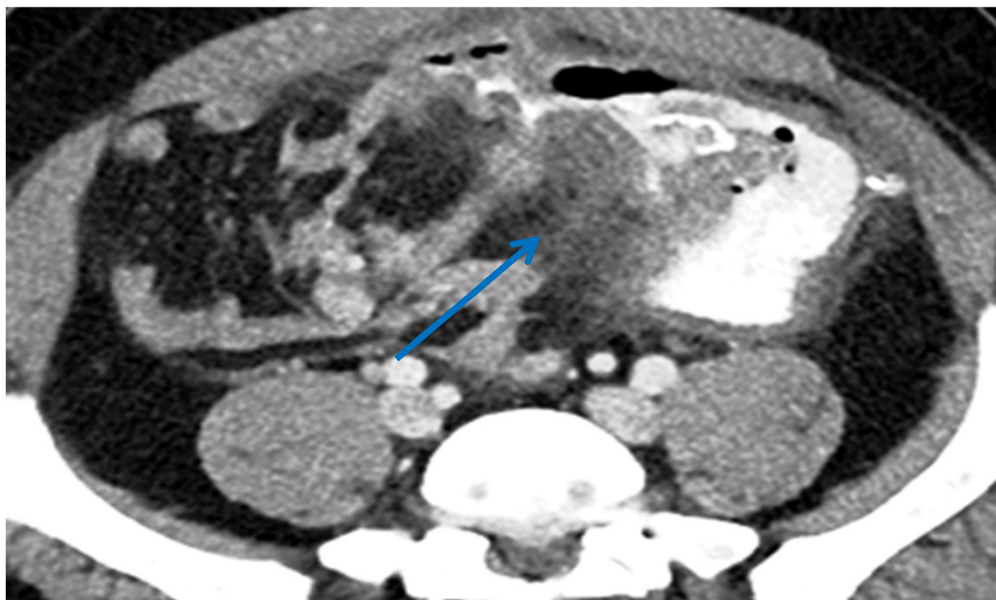
- Perianastomotic *air* collections
- Large perianastomotic fluid collection and fat infiltration (more than around other anastomosis)
- Excessive free fluid
- Excessive free air



False positive results



J-J anastomosis, expected postoperative findings

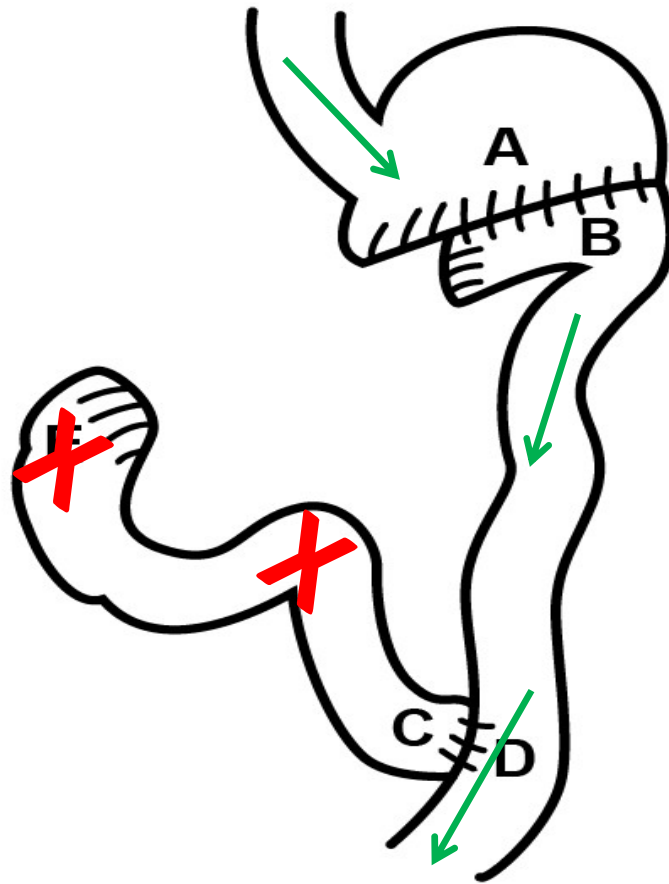


# Gastrectomy Survival Kit:

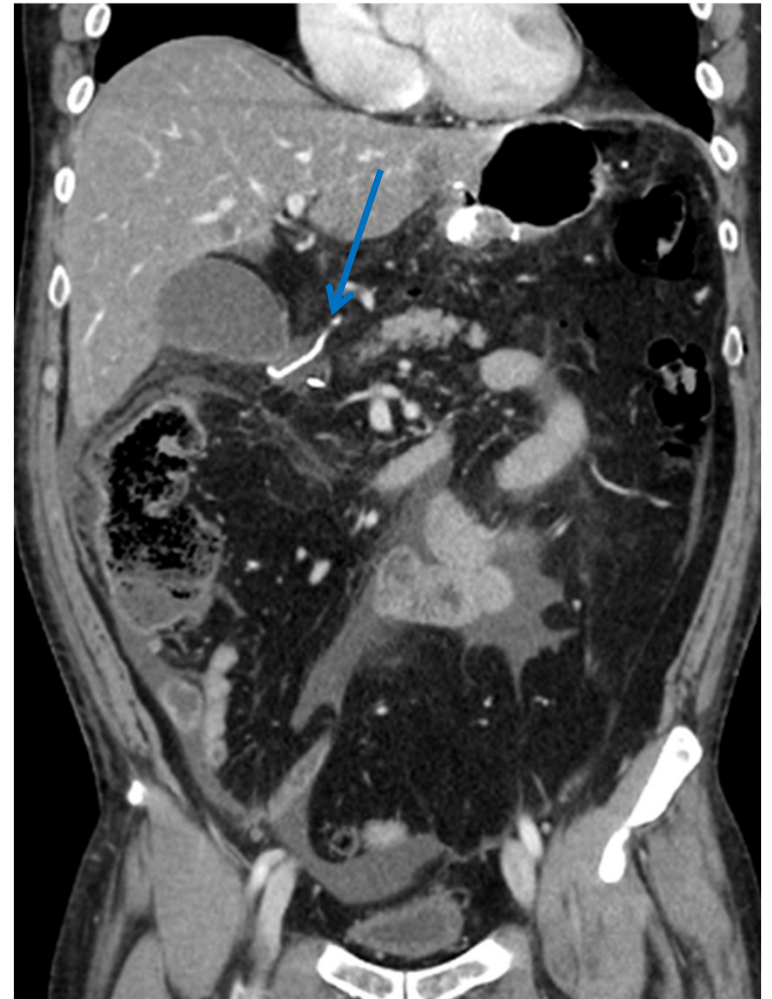
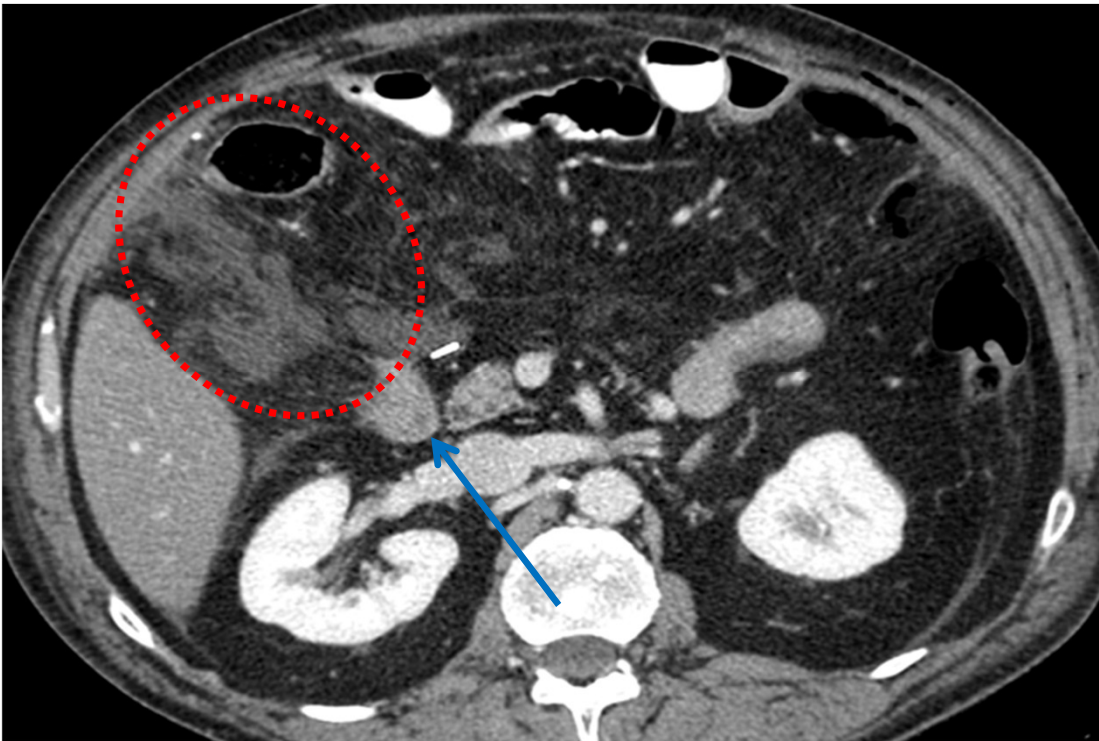
**5. There are postoperative areas where oral contrast can not reach**



# Duodenal Stump Leak: Does Oral Contrast Help?



# Duodenal Stump Leak After Subtotal Gastrectomy



# Gastrectomy Survival Kit Summary:

1. Be familiar with surgeries and radiological postsurgical anatomy
2. Be familiar with complications
3. Leakage is one of the most important complication (3 different sites of possible leakage after gastrectomy)
4. Oral contrast is very important for leakage diagnosis, but absence of oral contrast leak CAN NOT exclude leakage, be aware of false negative results
5. There are postoperative areas where oral contrast can not reach
6. Remember other (indirect) signs of leakage, but be aware of false positive results



Thank You!