



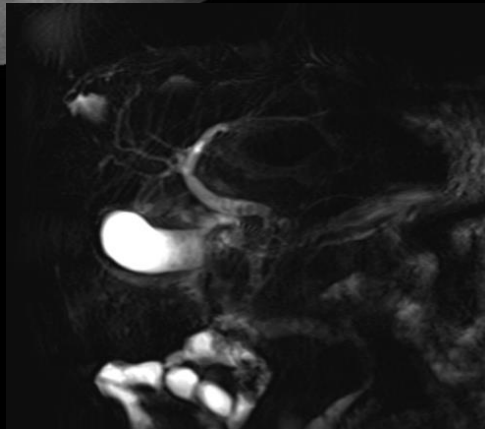
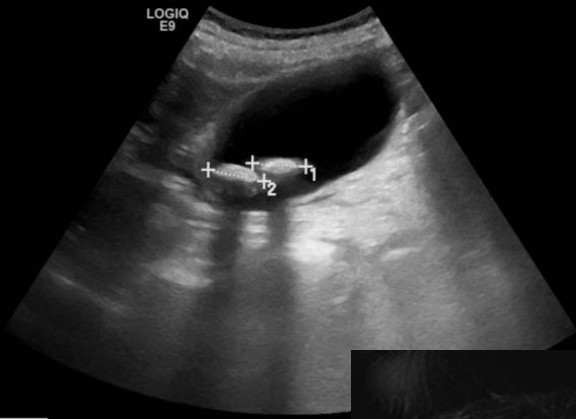
# Bariatric surgery complications

Tiina E Lehtimäki  
PhD, abdominal radiologist  
Helsinki



Päivystys- ja traumaradiologit

BMI >>



# BARIATRIC SURGERY



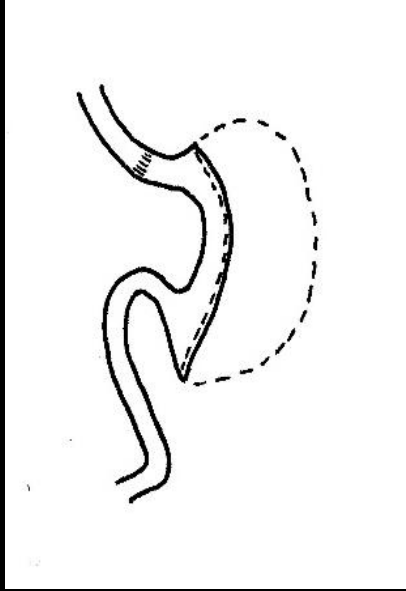
NO ROUTINE  
POST OP IMAGING

0,08 – 0,35%  
mortality

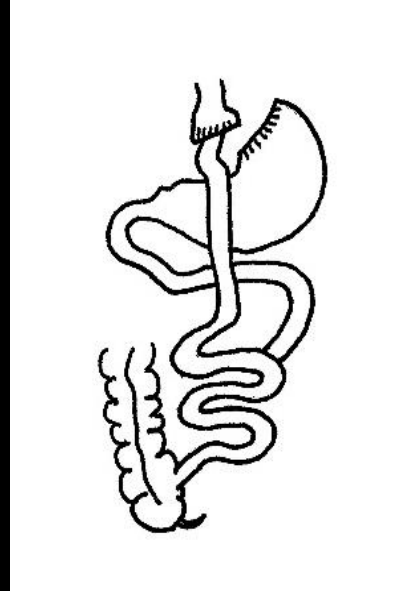
no  
complications

postoperative  
complications  
10-17%

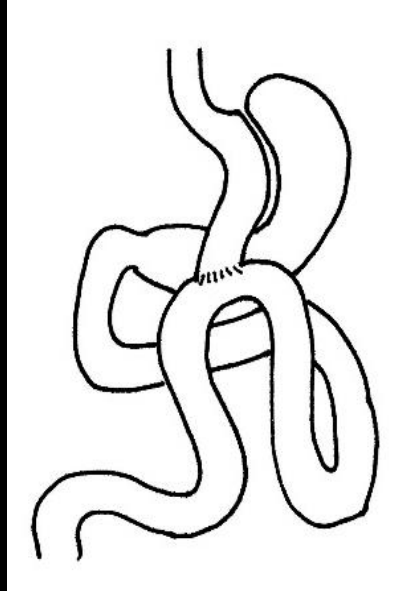
# SURGICAL TECHNIQUES



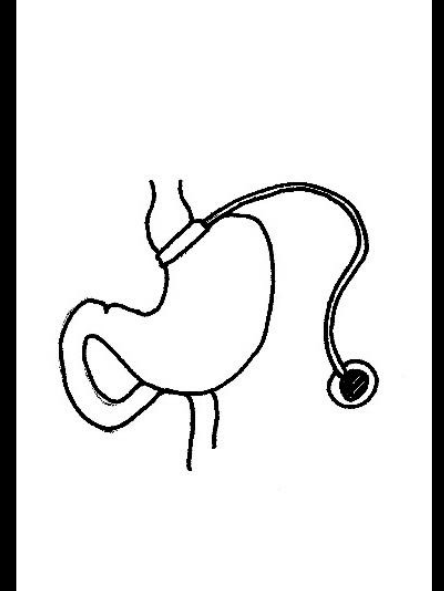
Sleeve  
Gastrectomy  
(SG)



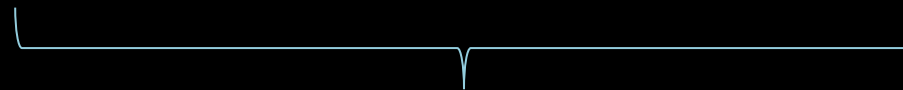
Roux-en-Y  
gastric bypass  
(RYGB)



One anastomosis  
gastric bypass  
(OAGB)



Gastric band



Bypass techniques

# COMPLICATIONS

## EARLY (~within 5 weeks)

Leakage

Stricture/Stenosis

Hematoma

Pulmonary embolism

Acute pancreatitis

Splenic / liver infarction

Ileus

Bowel ischemia

Infections / abscesses

Pneumonia

# COMPLICATIONS

EARLY (~within 5 weeks)

Leakage

Stricture/Stenosis

Hematoma

LATE

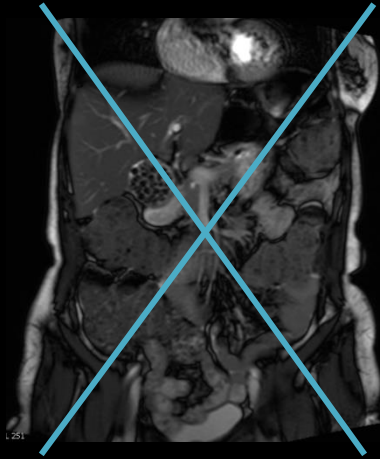
Fistula

Stricture/stenosis

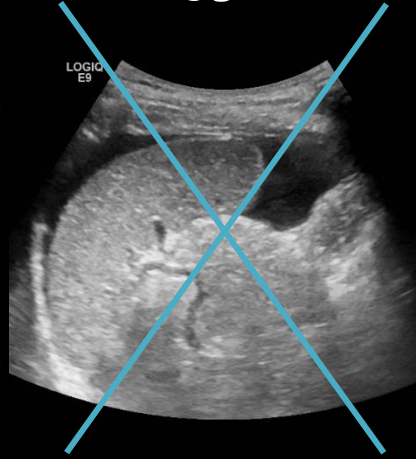
Internal hernia

# Complications - IMAGING

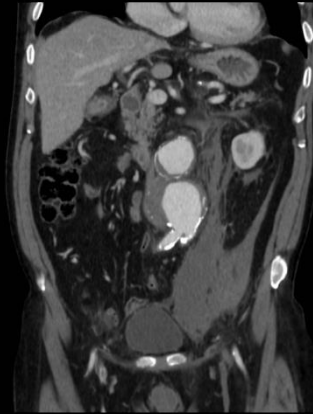
MRI



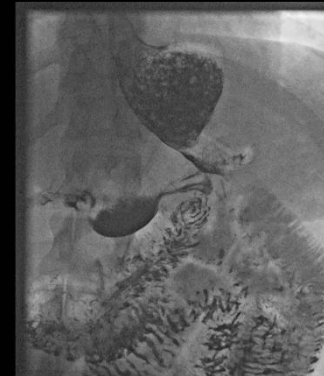
US



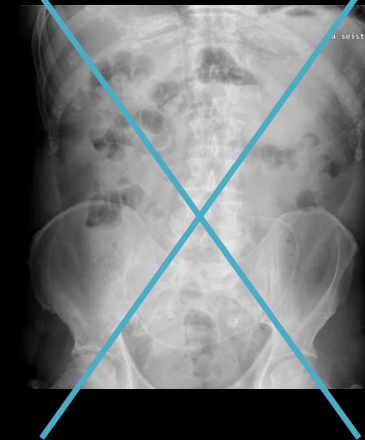
CT



FSS



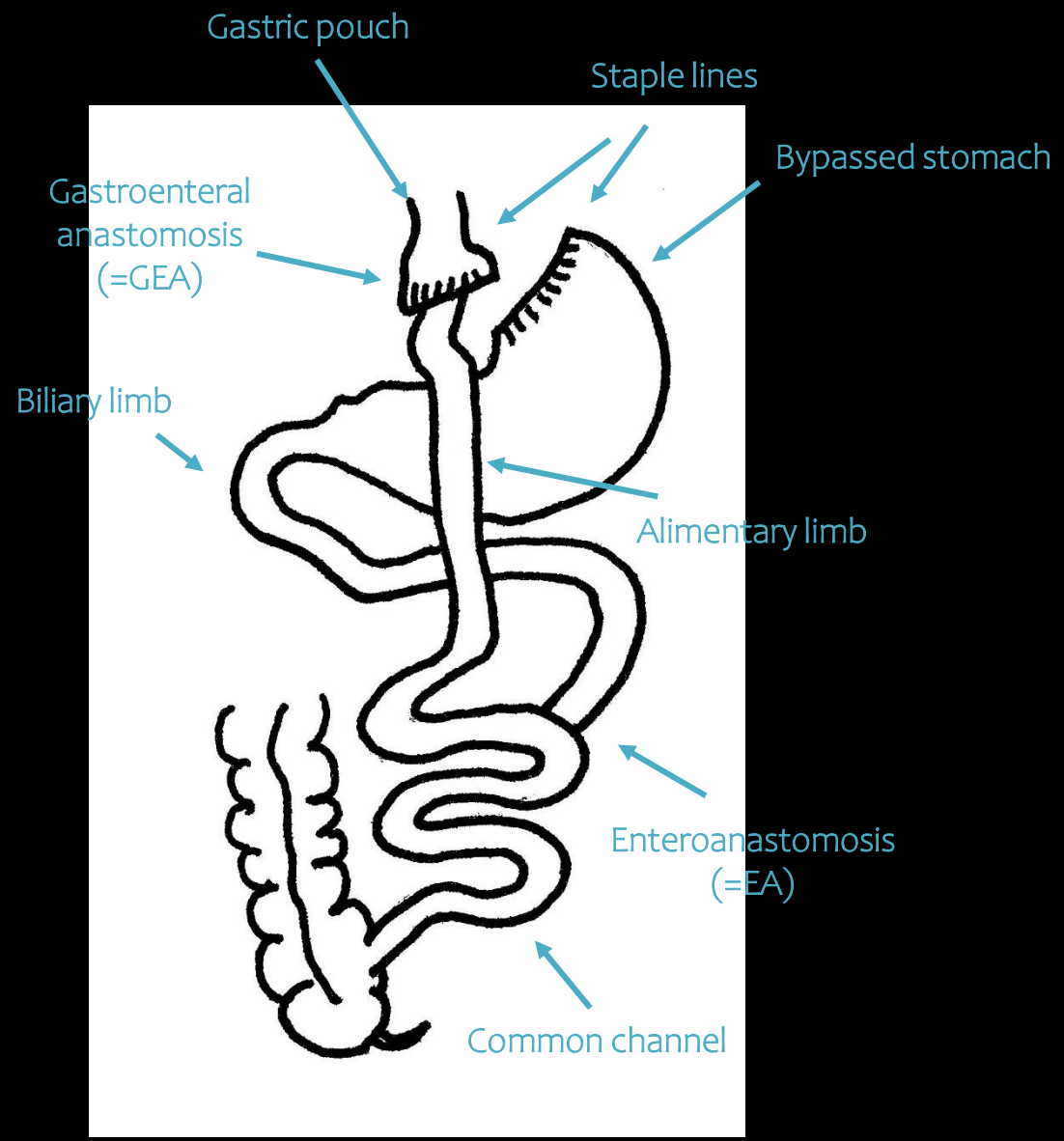
PLAIN FILMS



WHAT? WHERE?

WITH BOTH PERORAL AND IV CONTRAST

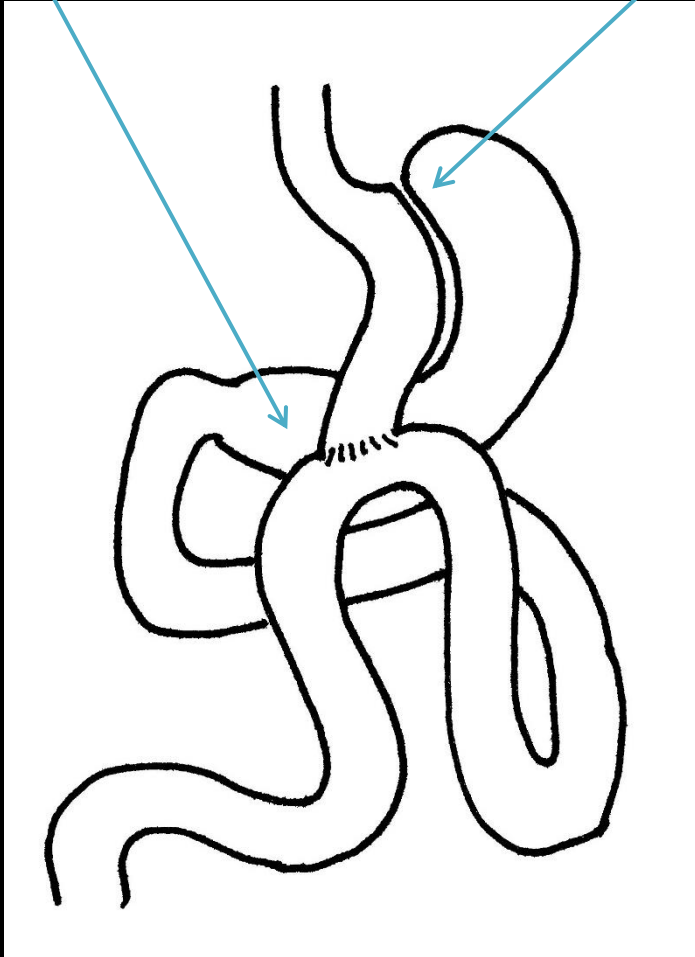
# CT anatomy - RYGB



# CT anatomy - OAGB "minibypass"

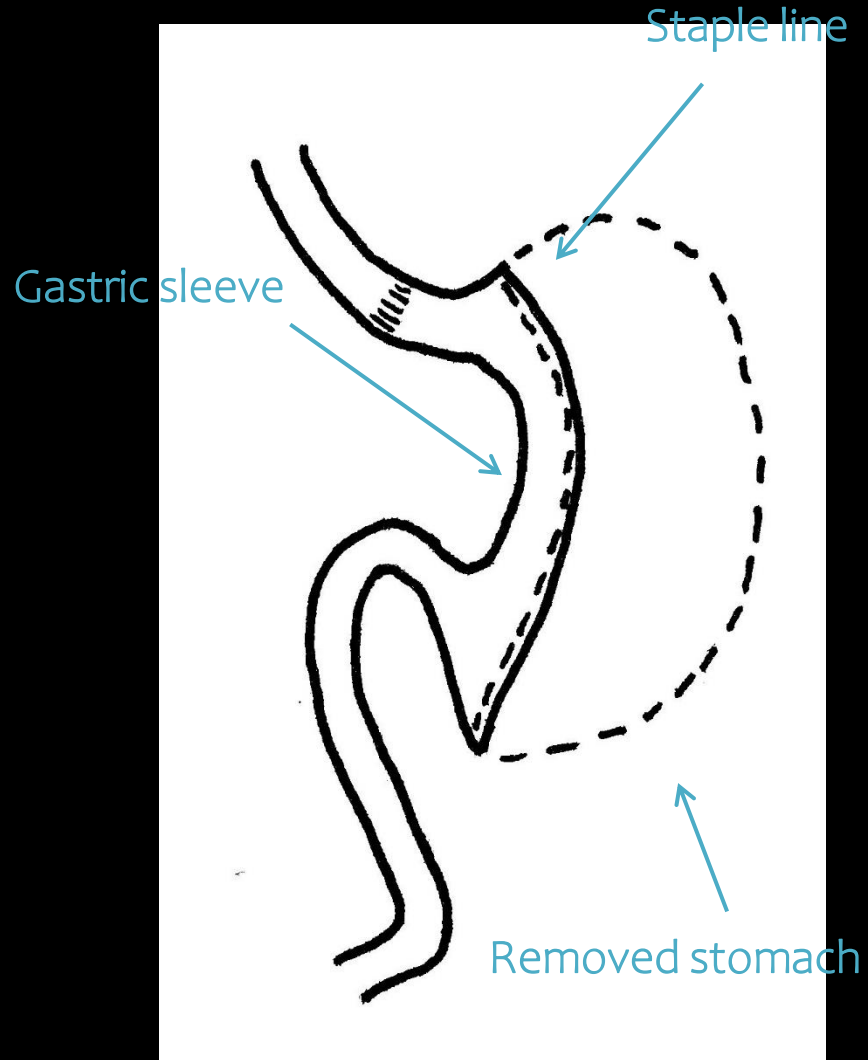
Anastomosis

Staple lines





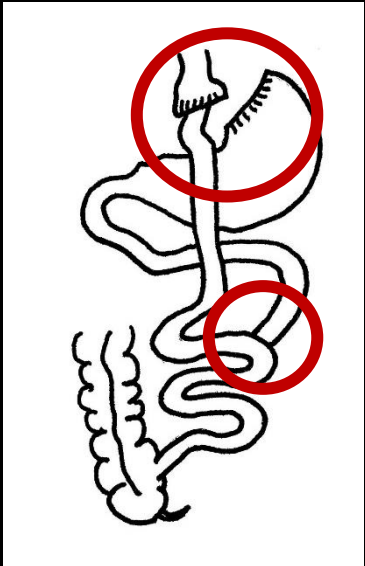
# CT anatomy - sleeve gastrectomy (SG)



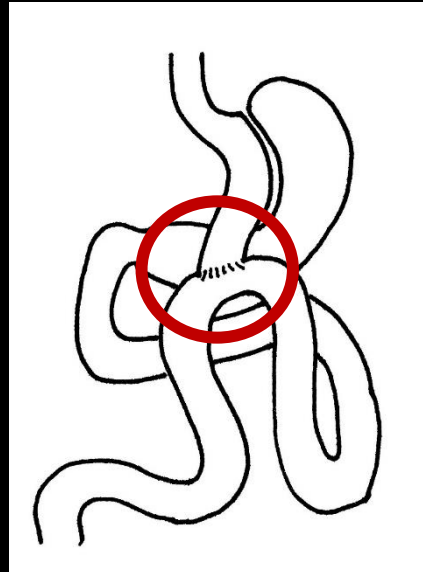
# Learning point - leakage

Free gas, contrast leakage, misty fat close to the anastomoses or staple line

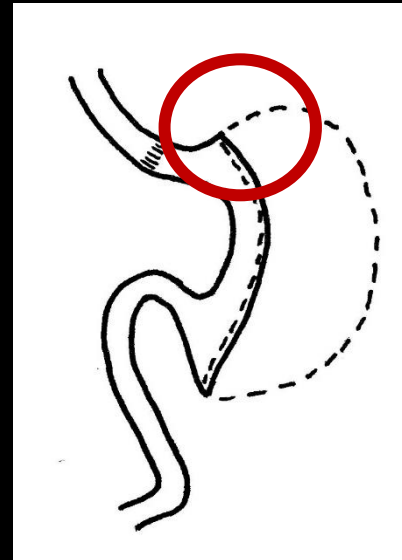
↙  
Fistula



Gastric bypass RYGB



OAGB "Mini gastric bypass"



Sleeve gastrectomy SG



# Learning point - hematoma

Hematomatous non-enhancing mass, hyperdense fluid

Where ?

How much ?

Extravasation -> active bleeding ?

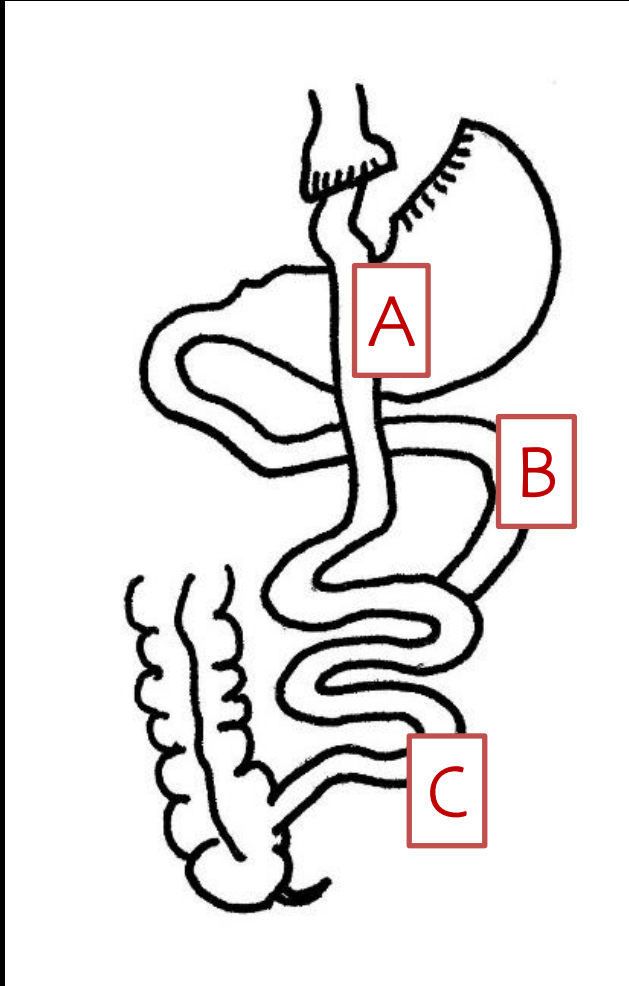
# Learning point - obstruction

Where?

Why?

Perforation?

Ischemia?



- Stenosis
- Stricture
- Invagination
- Internal herniation
- Angulus stricture
- non-GBP-related

# Learning point – internal hernias

Displaced clustered bowel loops

Stretched vessels

swirl sign – vessel compression

Displaced anastomosis

Obstruction ?

Bowel ischemia ?

Perforation ?

Mesocolic

At enteroenterostomy

Behind the Roux limb

# Learning point – gastric band

Stasis

Misplacement

Band erosion

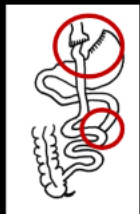
# TAKE TO WORK

## Know the postsurgical anatomy

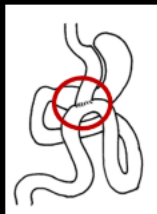
NO PANIC!

### Learning point - leakage

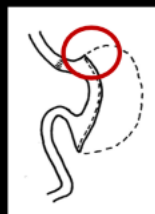
Free gas, contrast leakage, misty fat close to the anastomoses or staple line



Gastric bypass RYGB



OAGB "Mini gastric bypass"



Sleeve gastrectomy SG



Fistula

### Learning point - hematoma

Hematomatous non-enhancing mass, hyperdense fluid

Where?  
How much?  
Extravasation -> active bleeding?

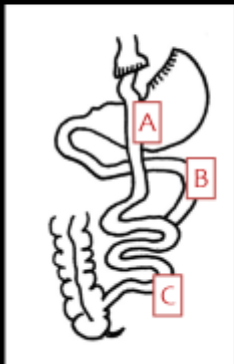
### Learning point - obstruction

Where?

Why?

Perforation?

Ischemia?



- Stenosis
- Stricture
- Invagination
- Internal herniation
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- non-GBP-related

### Learning point – internal hernias

Displaced clustered bowel loops  
Stretched vessels  
swirl sign – vessel compression  
Displaced anastomosis

Obstruction?  
Bowel ischemia?  
Perforation?

Mesocolic  
At enteroenterostomy  
Behind the Roux limb

The END