Survival Kit for Postoperative CT Imaging After Bowel surgery

Giedrė Kavaliauskienė Oslo University Hospital, Ullevål







Colorectal Surgeries

Colon resections

Right hemicolectomy

Transvere colectomy

Left hemicolectomy

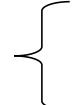
Sigmoid resection

Subtotal colectomy

Total colectomy

Hartmann's procedure

Rectal resections



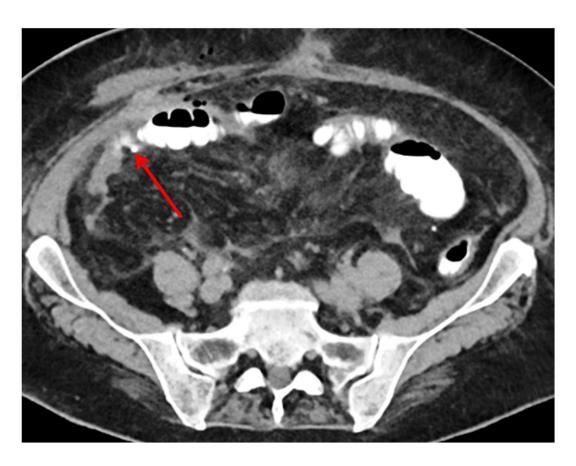
High anterior rectal resection

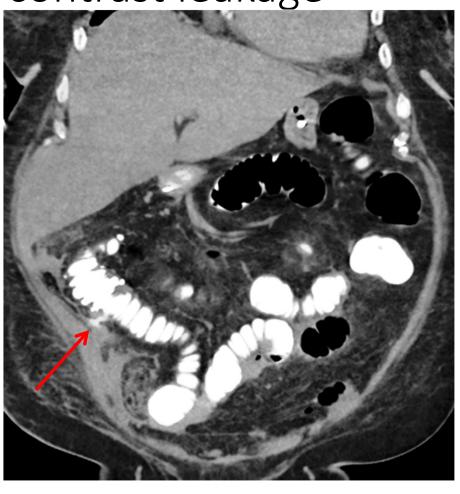
• Low anterior rectal resection

Complications after Colorectal Surgery:

- Anastomotic leakage
- Abscess
- Fistulas
- Bleeding and hematomas
- Small bowel obstruction
- Anastomotic strictures
- Adjacent organ injuries (duodenum, spleen, ureters, urinary bladder etc.)

Right hemicolectomy, oral contrast leakage



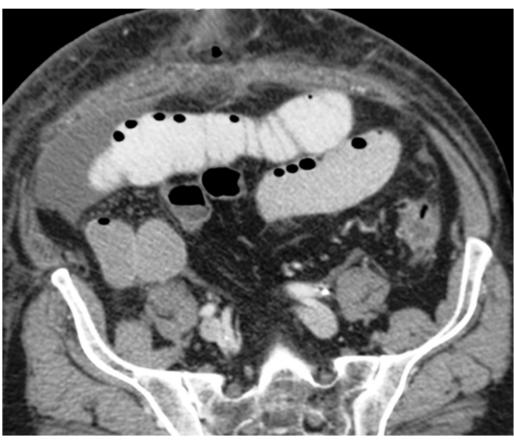


Luminal Contrast

- Gastrectomies- oral contrast
 - Total 250 ml 10% solution of IV contrast before CT:
 250 ml sterile water with 25 ml IVC (350 mgl/ml)
- Small bowel resection- oral contrast
 - Total 1 liter 4% solution of IV contrast 1-2 hours prior CT
 1 liter sterile water with 40 ml IV contrast (350 mgl/ml)
- Right colon resection- oral contrast
 - Total 1 liter 4% solution of IV contrast > 2 hours prior CT
 1 liter sterile water with 40 ml IV contrast (350 mgl/ml)
- Left colon resection- rectal contrast
 - 300-500 ml 6% solution of IV contrast on CT table
 500 ml sterile water with 30 ml IV contrast (350 mgl/ml)

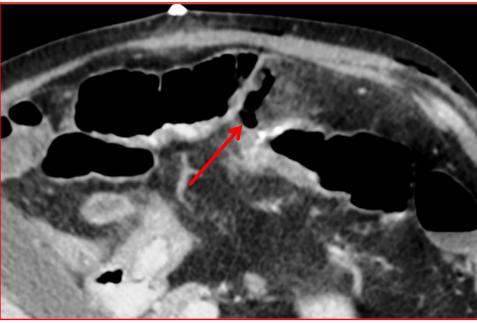
Extended right hemicolectomy. Leakage?





Extended Right Hemicolectomy, leakage





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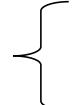
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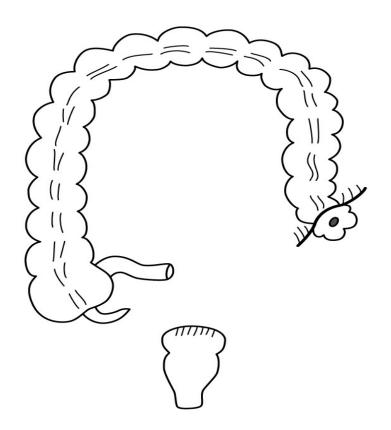
Rectal resections

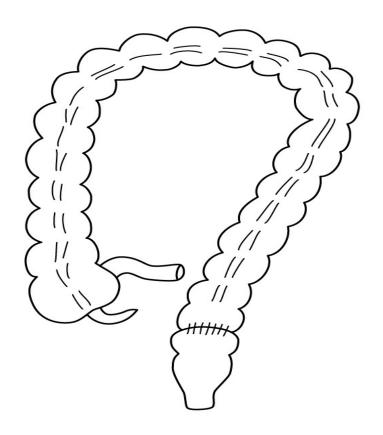


High anterior rectal resection

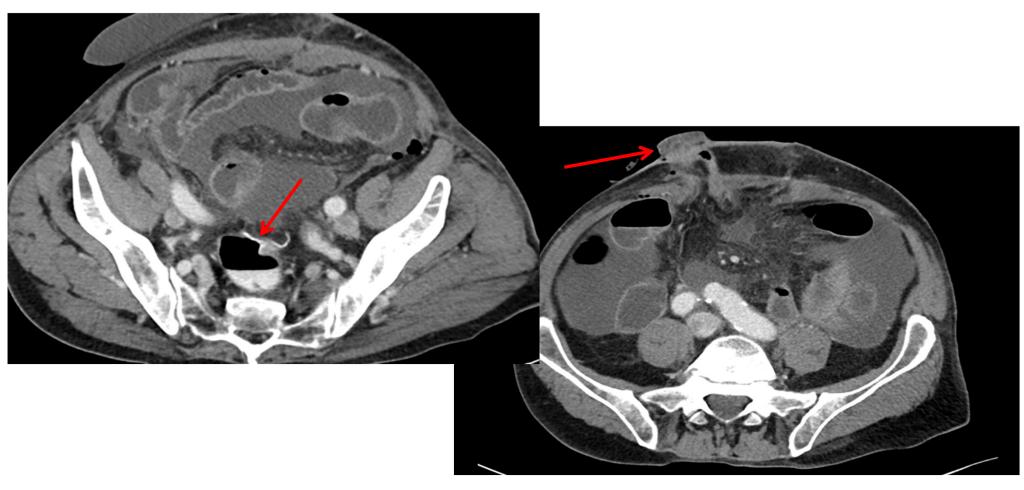
• Low anterior rectal resection

Hartmann's Procedure



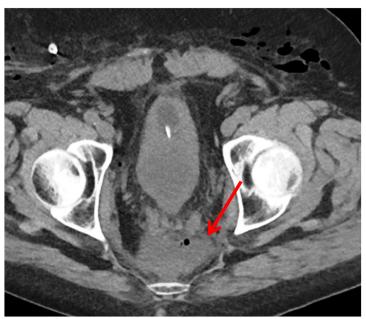


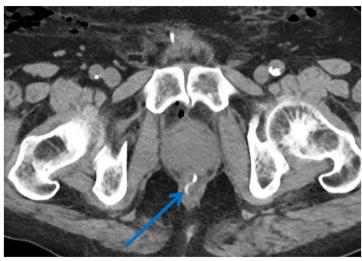
Hartmann's Procedure



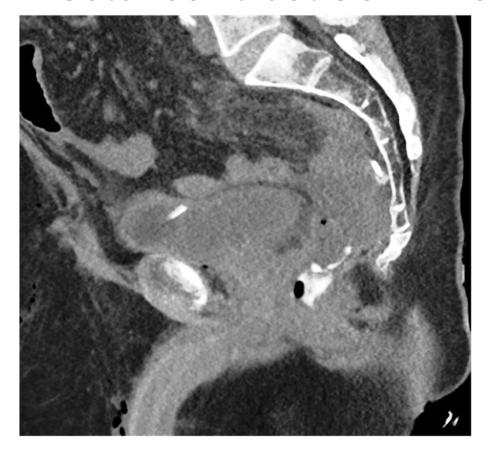
Hartmann's Procedure Rectal stump blowout?

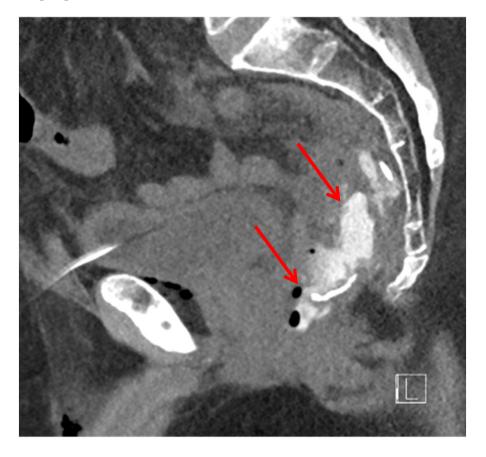






Hartmann's Procedure. Stumps blowout Rectal contrast 50 ml vs 200 ml

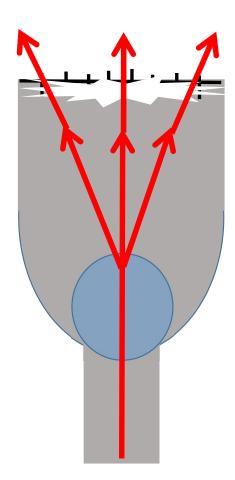


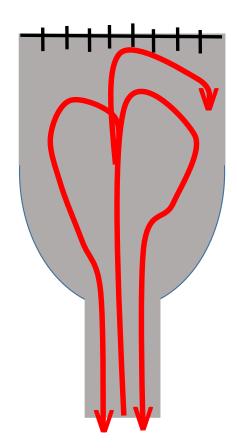


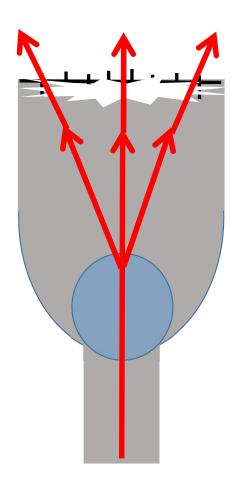
Rectal contrast for rectal stump blowout:

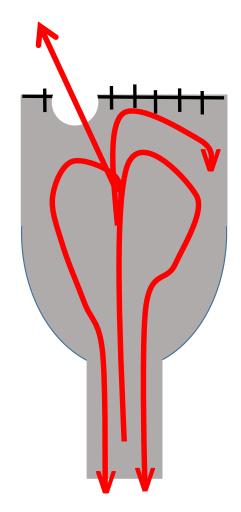
- Do not use hard rectal catheter (suture damage!)
- Use soft, thin <u>Foley catheter</u> or very thin <u>catheter for</u> <u>self-catheterization (female)!</u>
- DO NOT inflate catheter balloon in rectal stump!
 Contrast excess will leak out through anal canal and will not damage the rectal stump suture
- About 100 ml rectal contrast, max. 200 ml (50 ml is too little!)
 - 6% solution of IV contrast (350 mgl/ml) with sterile water
- Important constant contact with patient; stop contrast injection if patient feels pain during procedure!



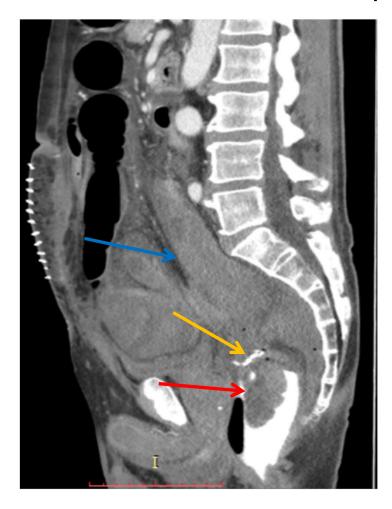








Hartmann's Procedure. Stumps blowout?



Hartmann's Procedure. Active bleeding in hematoma, no leakage





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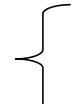
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Rectal resections



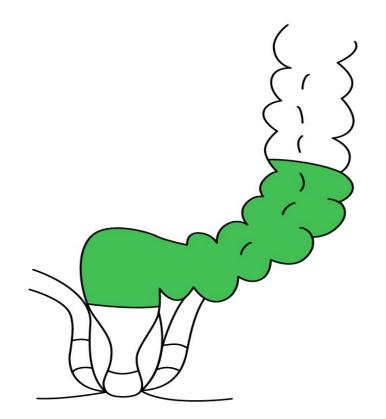
High anterior rectal resection

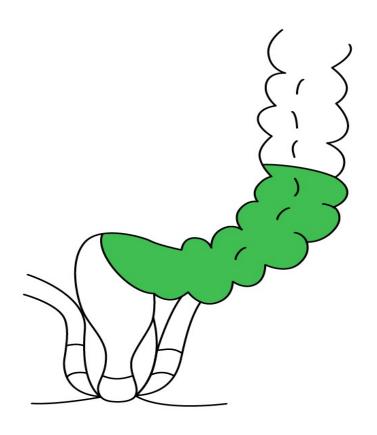
• Low anterior rectal resection

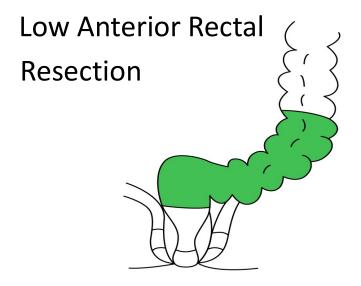
Anterior Rectal Resection

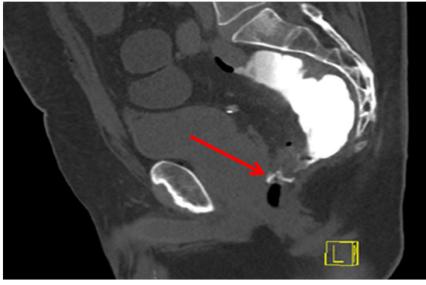
Low resection

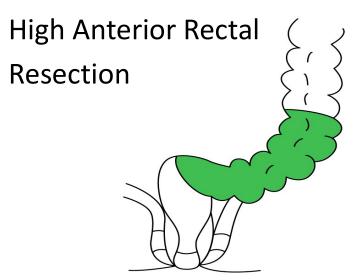
High Resection

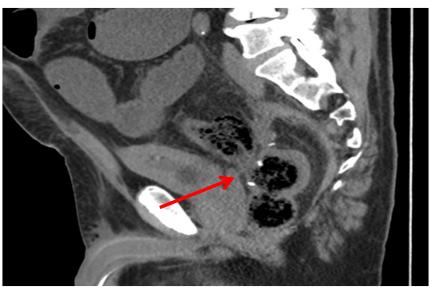








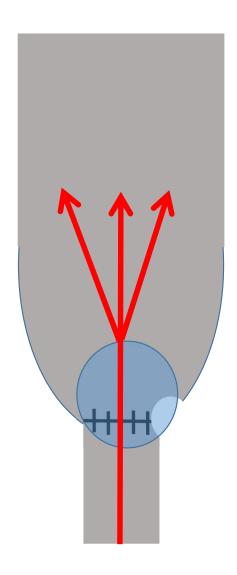


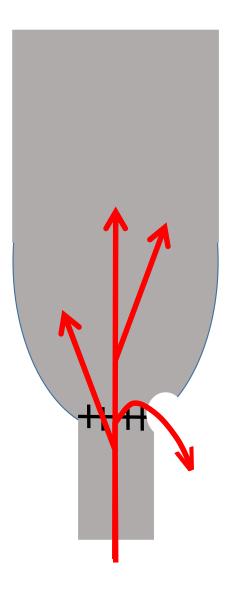


Rectal Contrast After Low Anterior Rectal Resection:

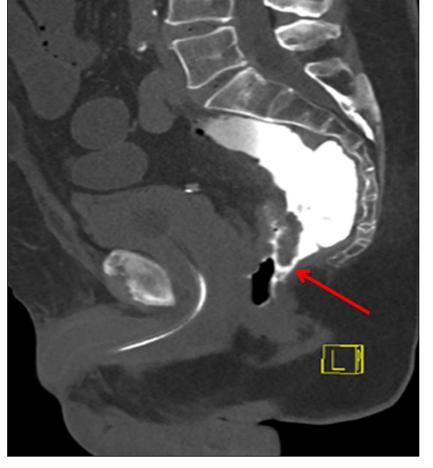
- If you do not know which surgery was performed- first scan pelvis without any contrast
- DO NOT use hard rectal catheter (suture damage!)
- Use soft, thin Foley catheter or <u>very thin catheter for self-catheterization (female)!</u>
- <u>DO NOT inflate catheters balloon in LOW RESECTION cases</u> risk for suture damage and closure of suture defect by balloon
- About 100- 200 ml rectal contrast (50 ml is too little)
 - 6% solution of IV contrast (350 mgl/ml) with sterile water
- Important constant contact with patient; stop contrast injection if patient feels pain during procedure!

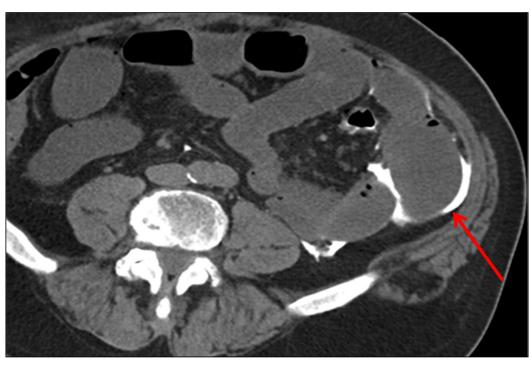






Anastomotic Leak (Low Anterior Rectal Resection)

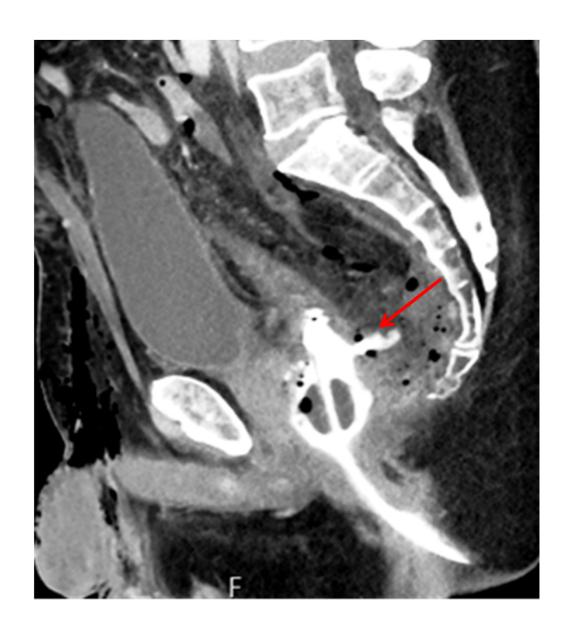


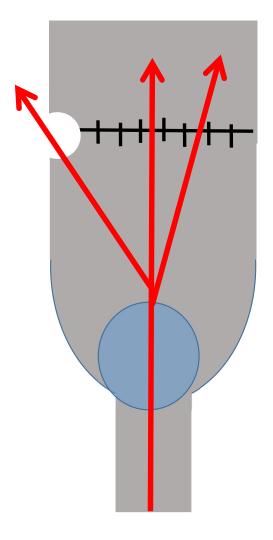


Rectal Contrast After High Anterior Rectal Resection:

- If you do not know which surgery was performed- first scan pelvis without any contrast
- DO NOT use hard rectal catheter (suture damage!)
- Use soft Foley catheter
- Foley catheter <u>balloon can be inflated</u> in high rectal resection
- About 200 ml rectal contrast
 - 6% solution of IV contrast (350 mgl/ml) with sterile water
- Important constant contact with patient!



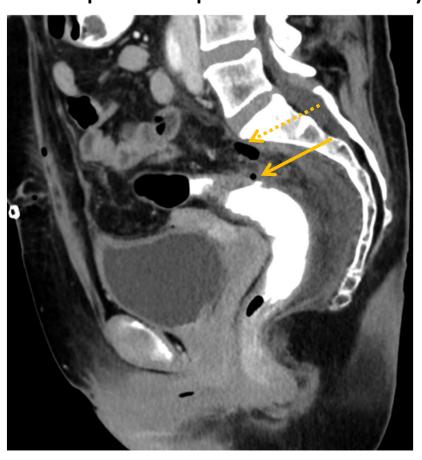




Luminal contrast is very important for leakage diagnosis, but absence of luminal contrast leak CAN NOT exclude leakage



Sigmoid resection: 4th postoperative day



5th day



1st case- Leakage4th postoperative day



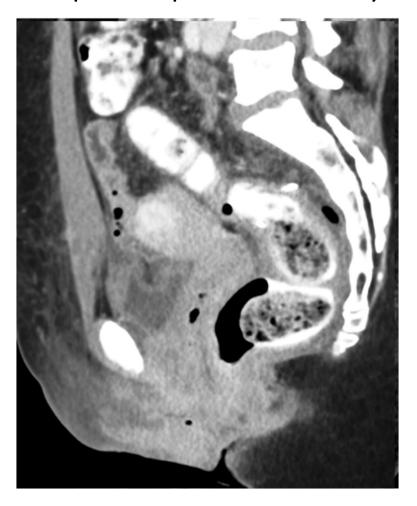
2nd case- No leakage 1st postoperative day



1st case- Leakage4th postoperative day



2nd case- No leakage 5th postoperative day



Bowel Resection 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
- 4. Oral contrast can be used after small bowel, right or transverse colon resections, but after left side colon resections or rectal surgery rectal contrast is used to detect leakages
- Luminal contrast is very important to diagnose leakage, but absence of luminal contrast leak CAN NOT exclude leakage, be aware of falls negative results
- 6. Also remember other (indirect) signs of leakage, but be aware of falls positive results



Thank You!