



# Magu kompuutertomograafias

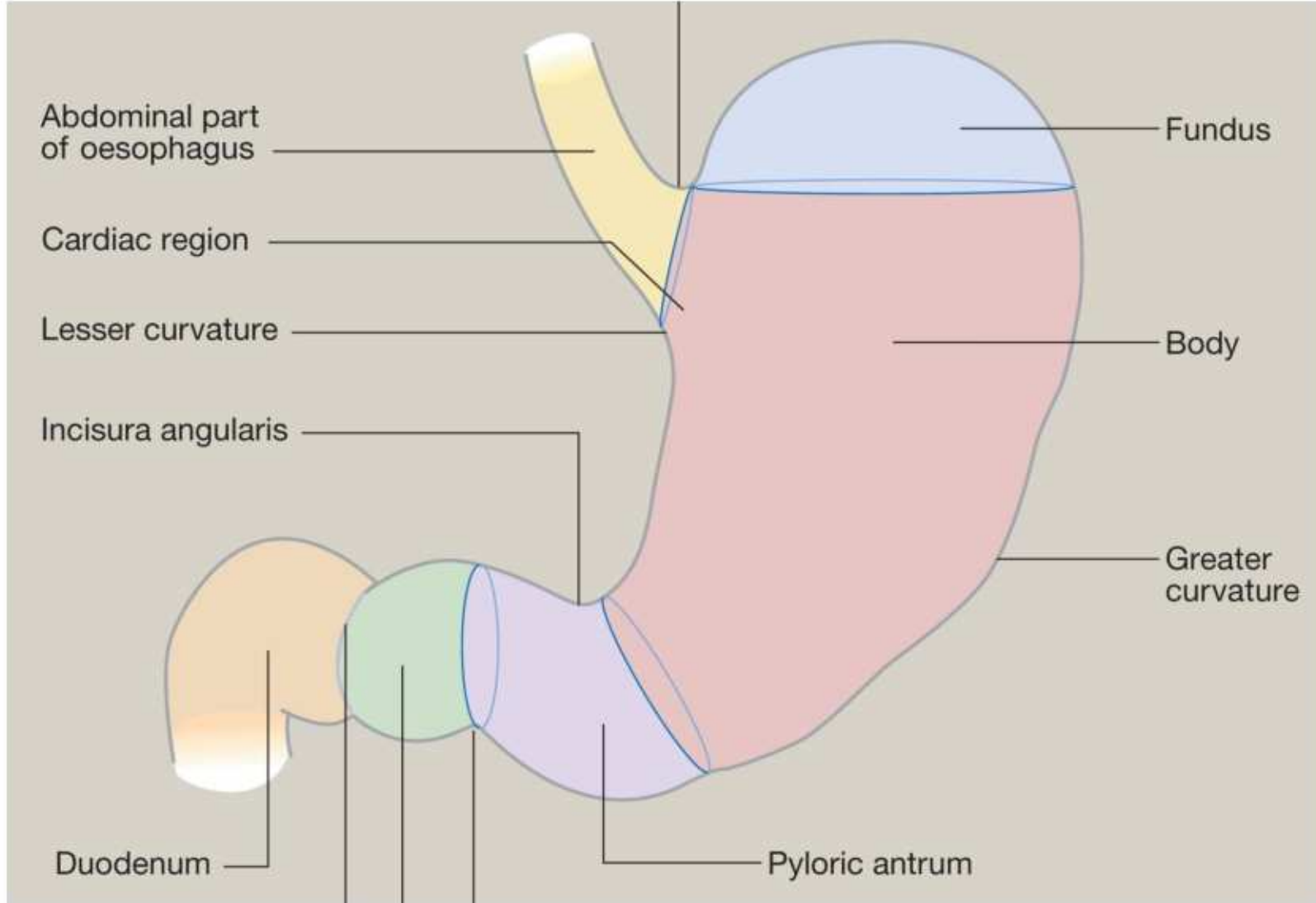
Märt Raud

Tallinn jaanuar 2021

# Sissejuhatus

"Mao limaskestad on veidi paksenenud, soovitaks leiu täpsustamiseks gastroskoopiat."

Radioloog

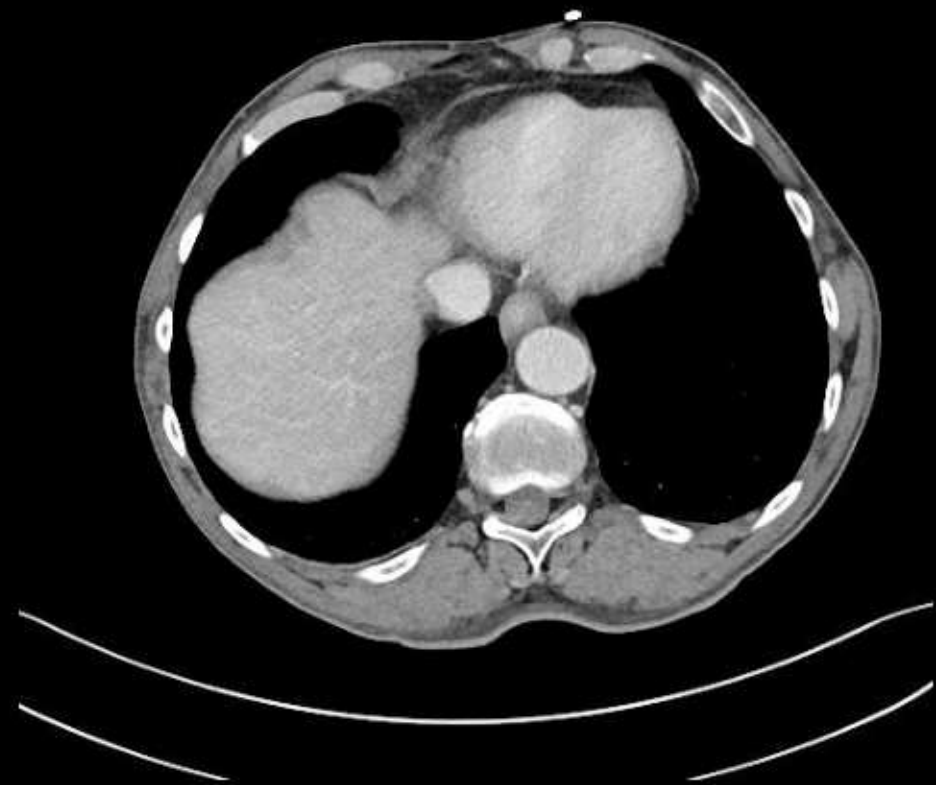


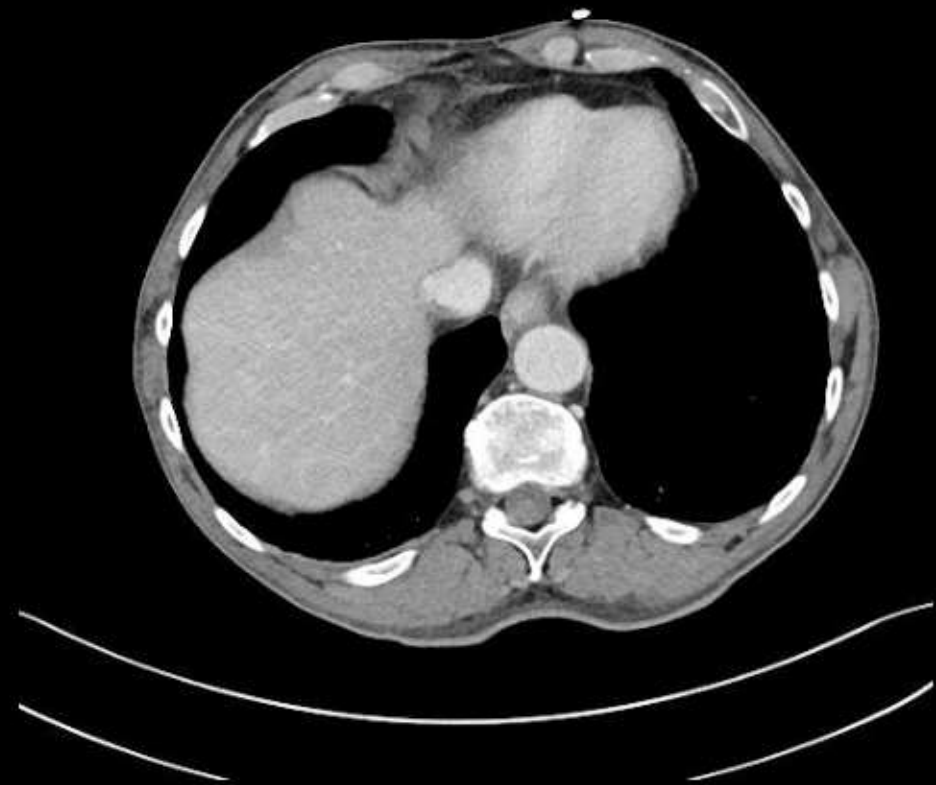
# Anatomia

## Juhtum 1

60 aastane mees.  
Ülakõhuvalu.

Anamneesis krooniline  
pankreatiit.





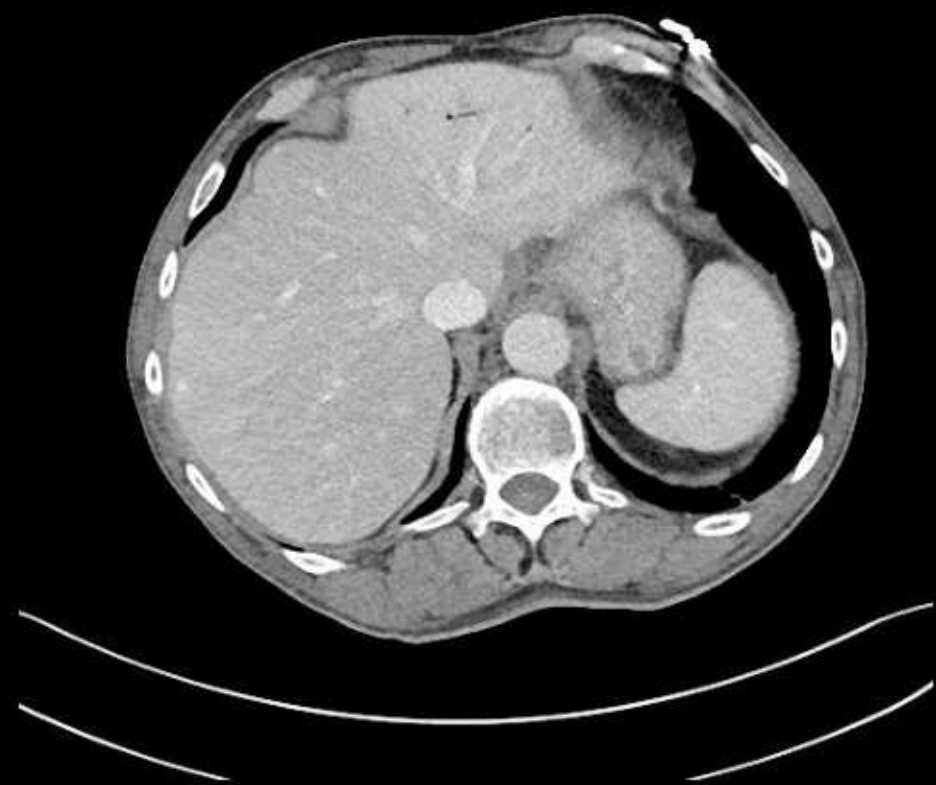


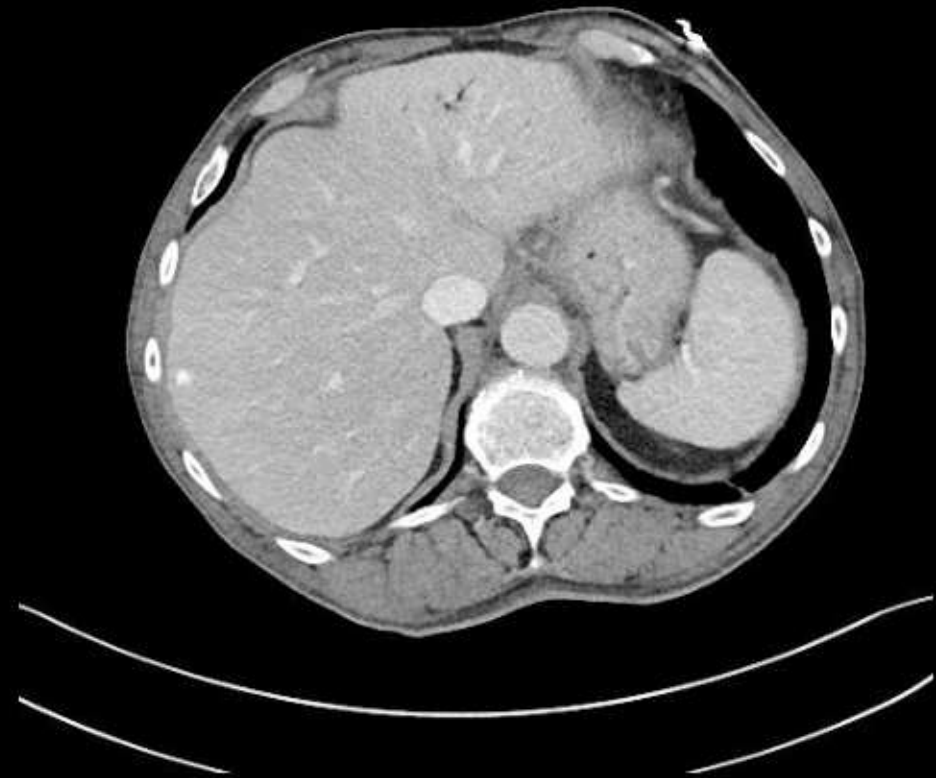


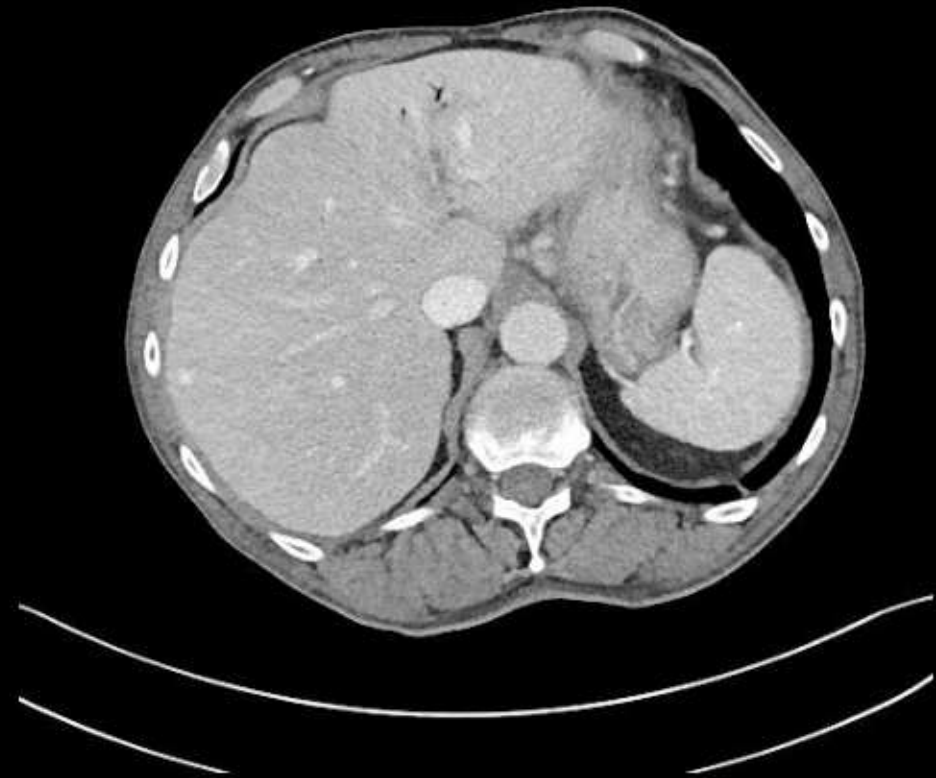




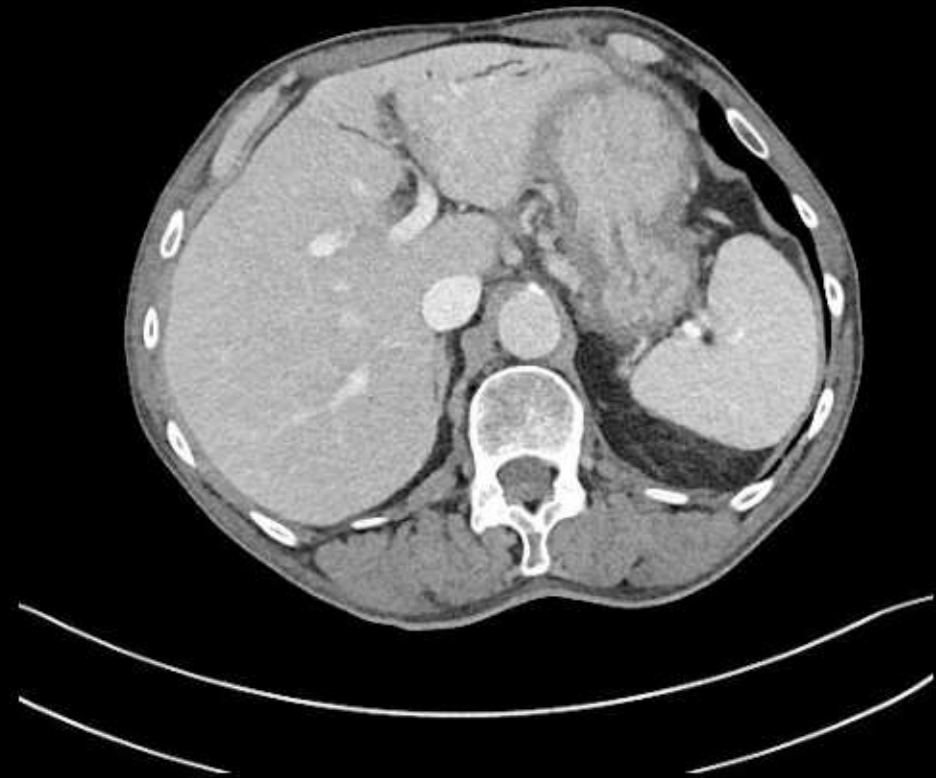








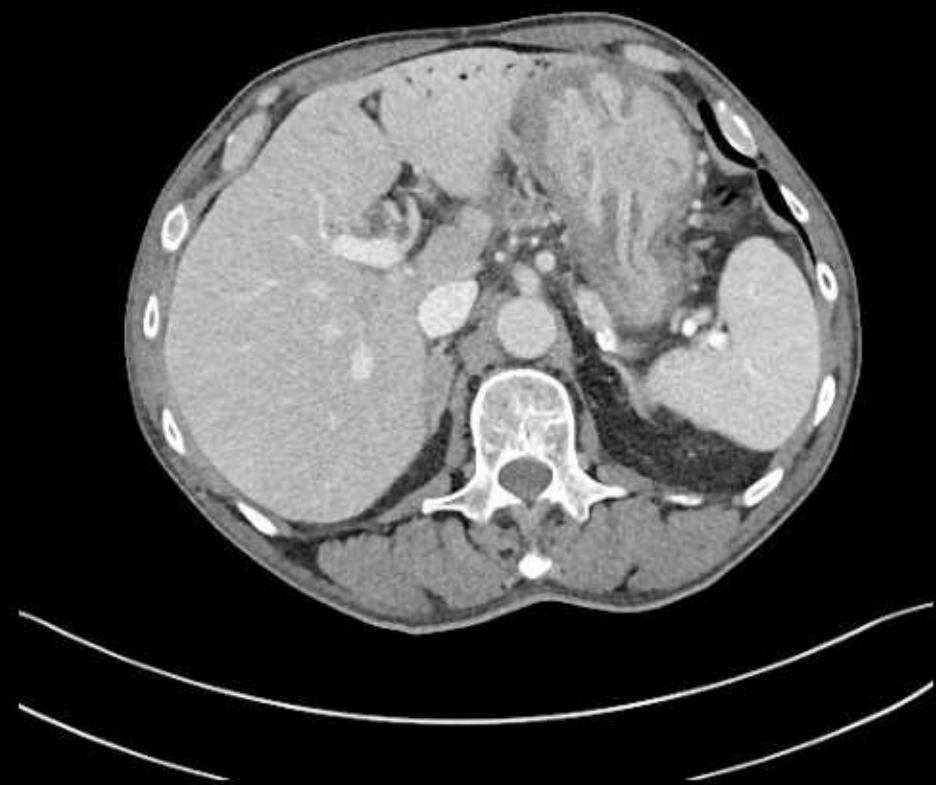




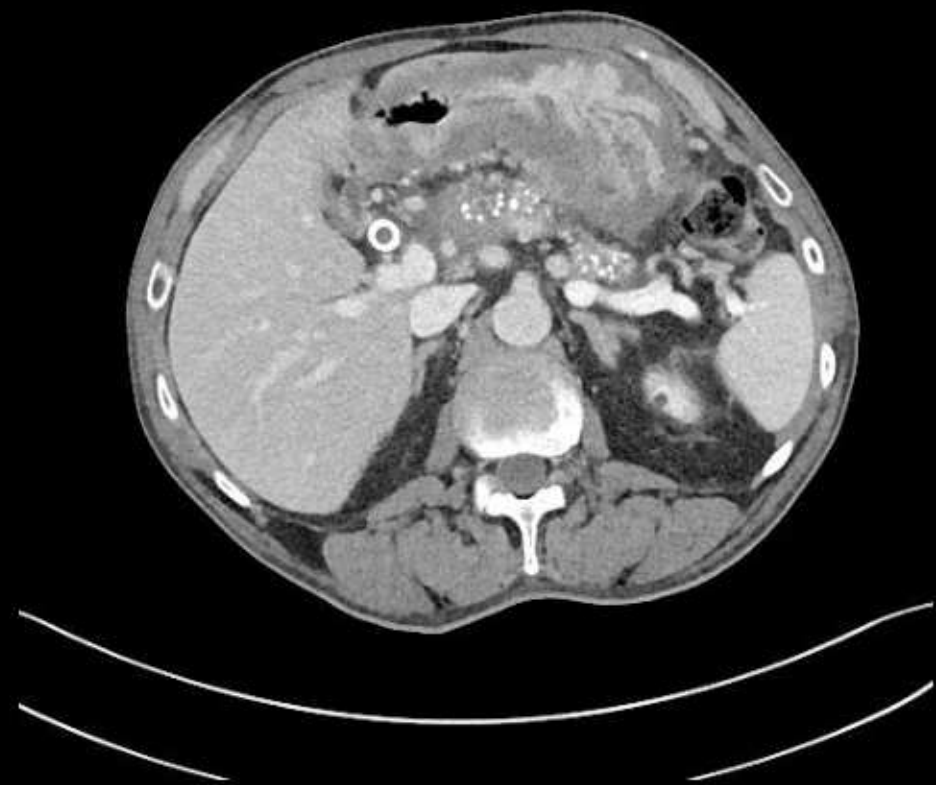


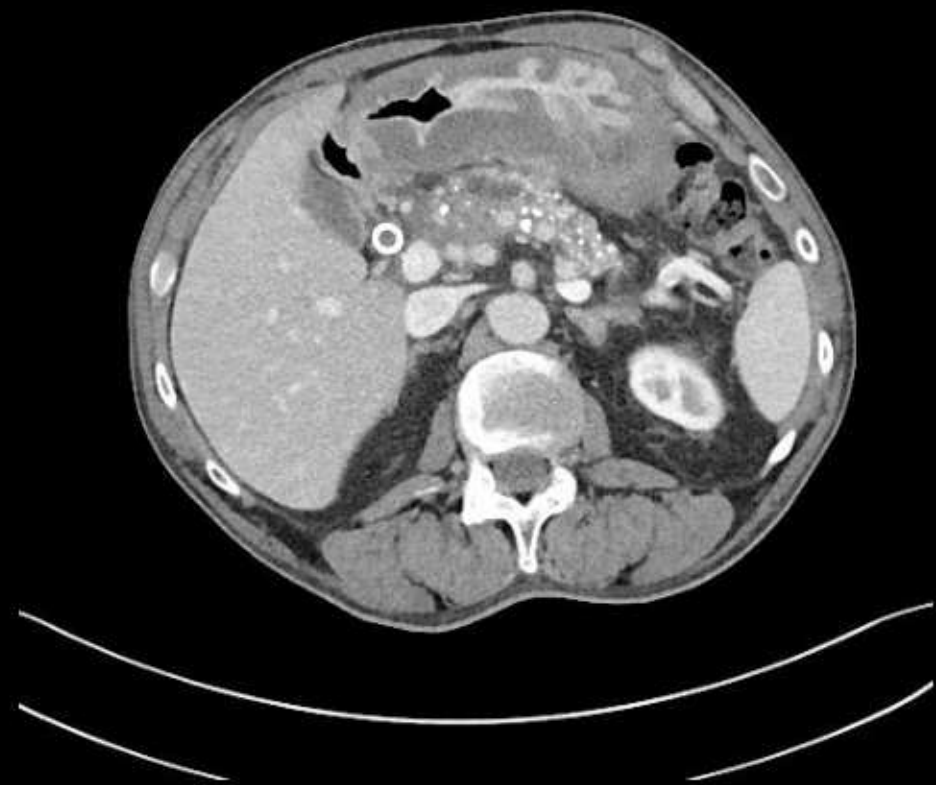


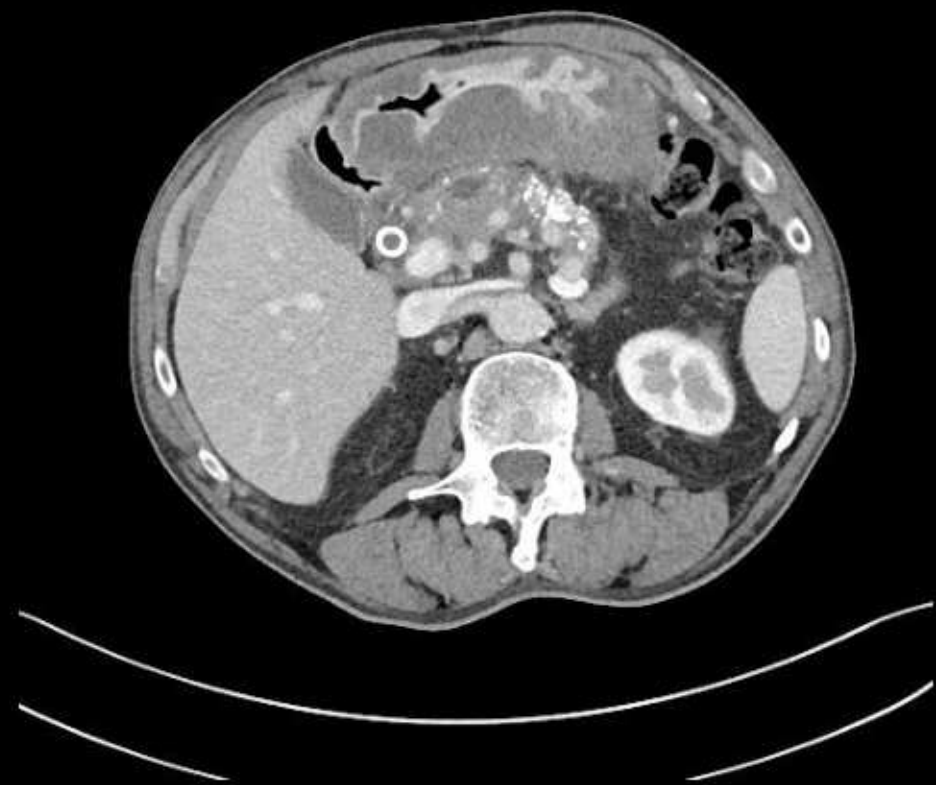


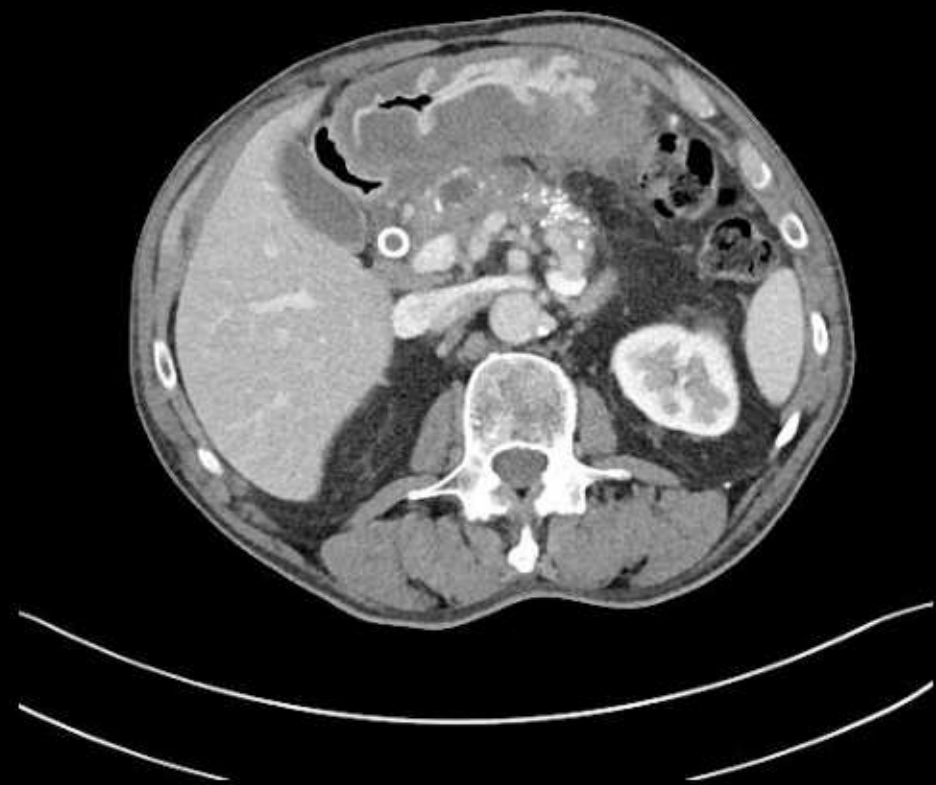








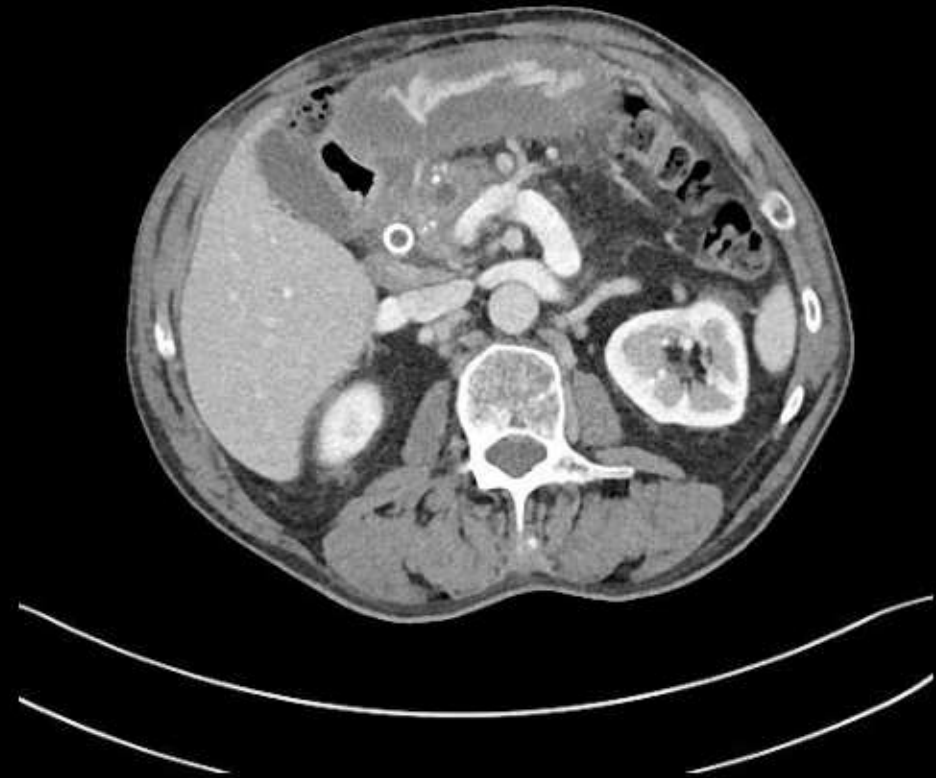


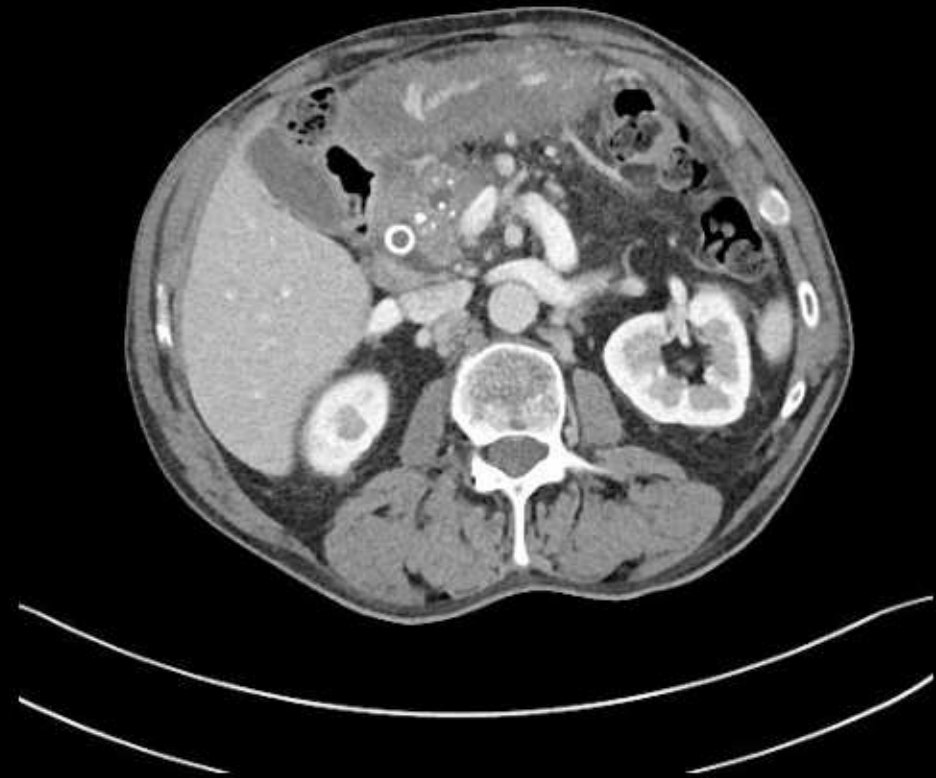


















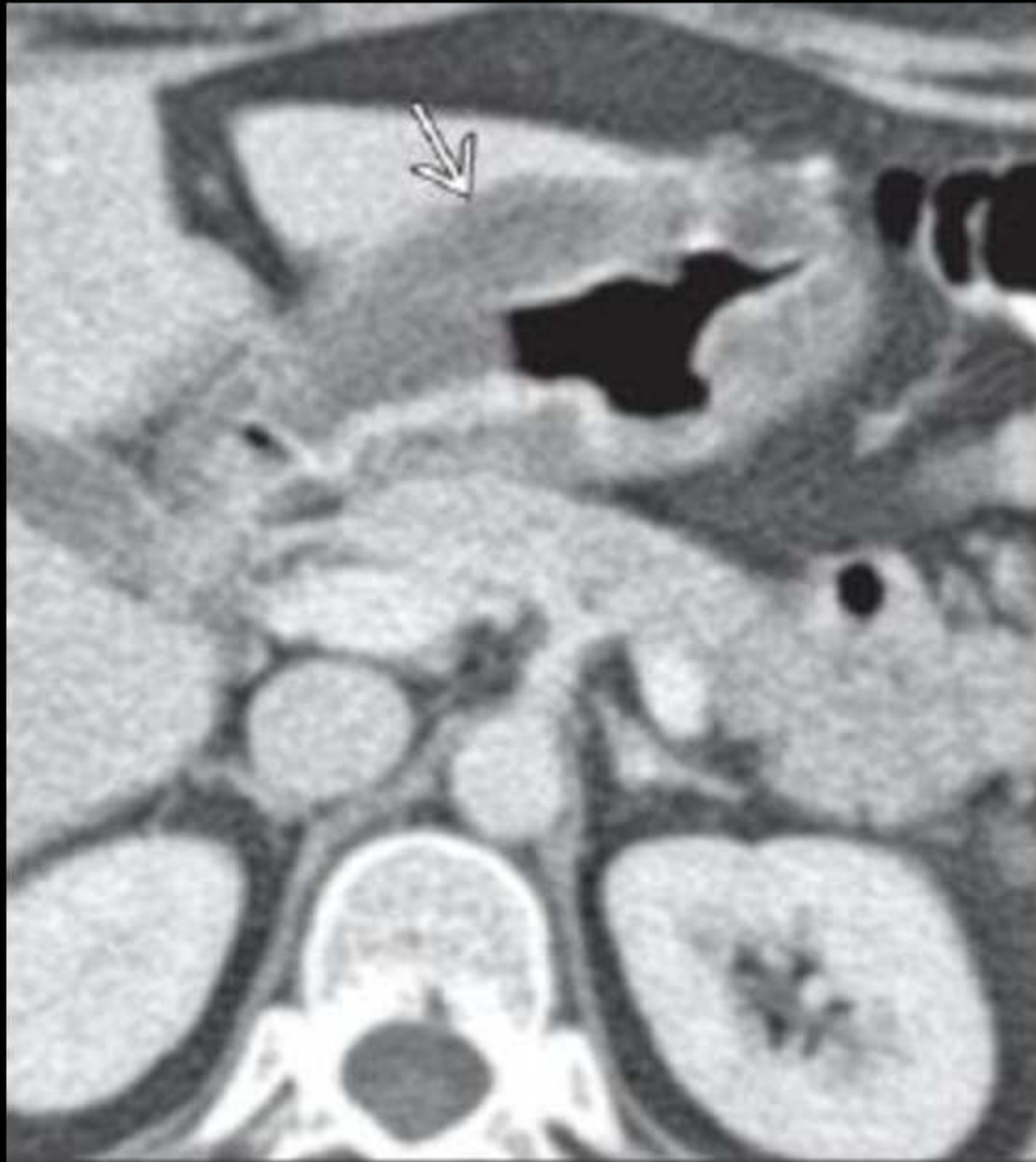






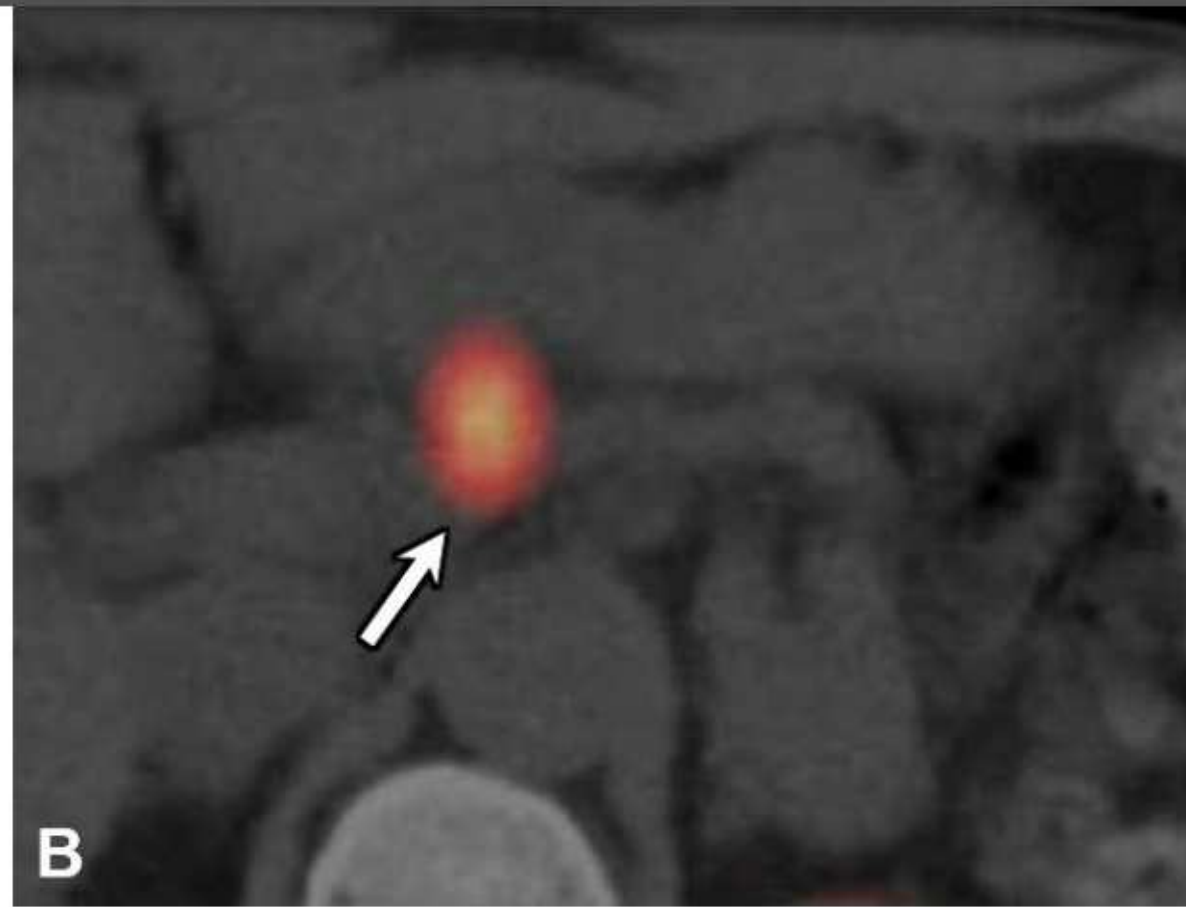






## Äge gastriit

- Etioloogia: *Helicobacter pylori*, NSAID, steroidid, alkohol, kohv, stress.
- KT leid: maosein paksenenud ja madala tihedusega (tursest), mukoosa kontrasteerumine.
- Dif. diagnoos: adenokartsinoom, metastaasid ja lümfoom. Zollinger-Ellison sündroom.

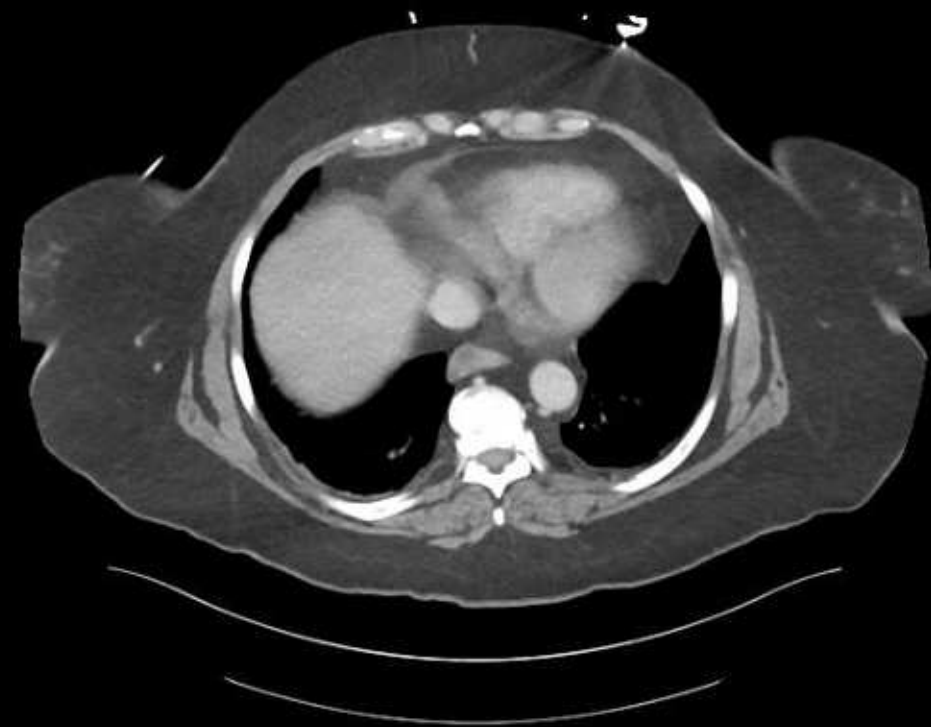


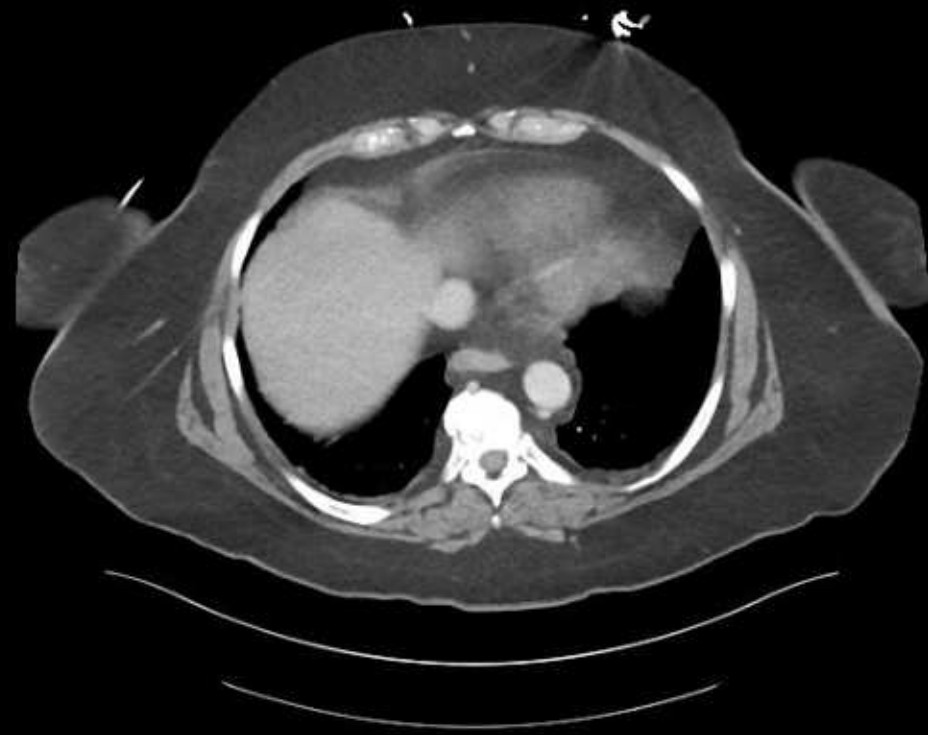
Gastrinoom (NET tuumor), tavaliselt pankreases või duodeenumis) tekitab Zollinger – Ellisoni sündroomi.

Liigne gastriini eritus -> liigne soolhappe erituse -> gastriit, peptilised haavandid.

## Juhtum 2

70-aastane mees.  
Äkiliselt alganud  
ülakõhuvalu. Muid GI  
sümptomeid pole.











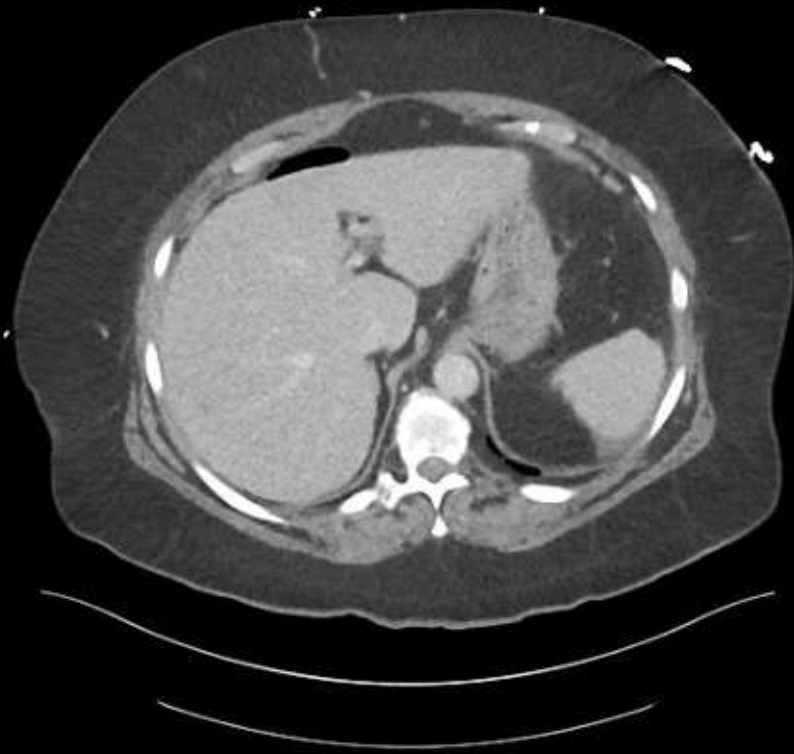


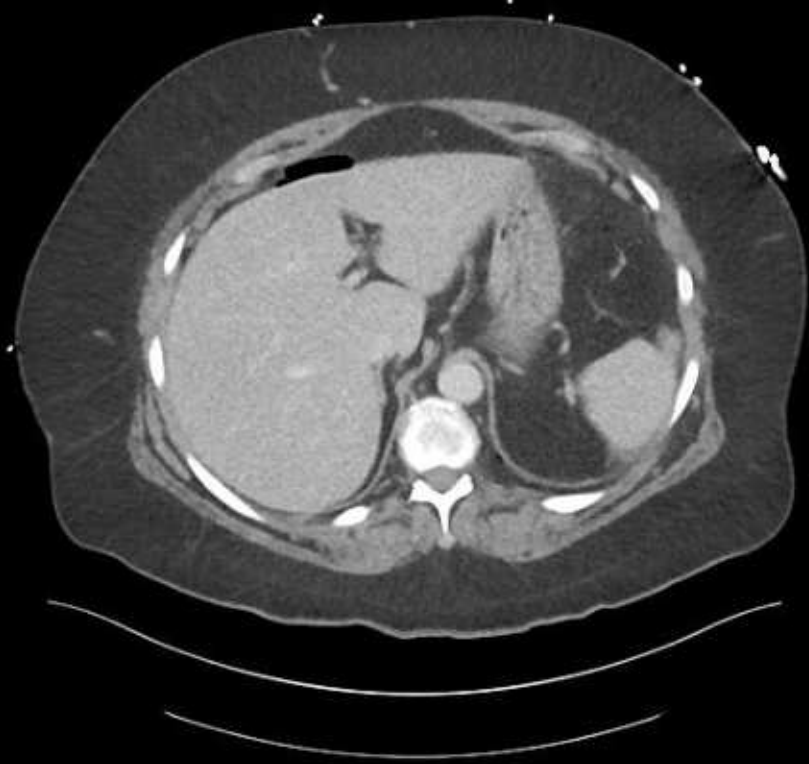




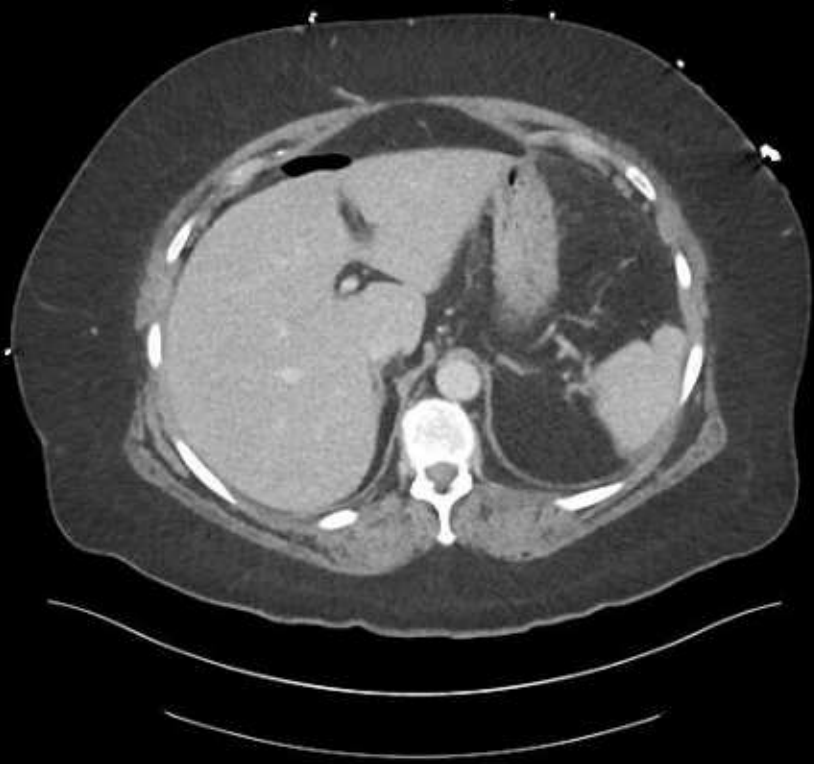














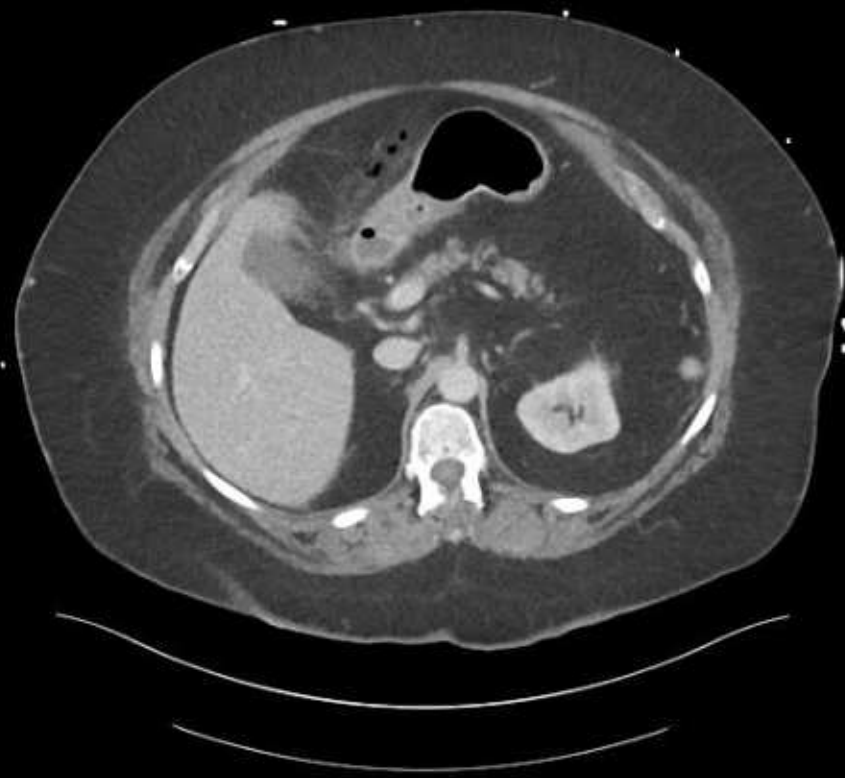


















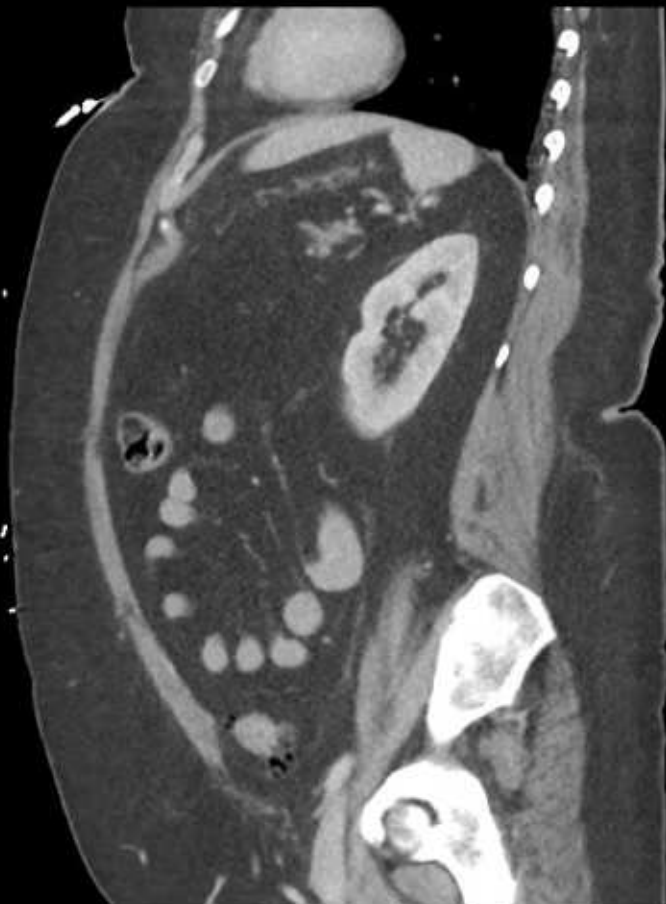






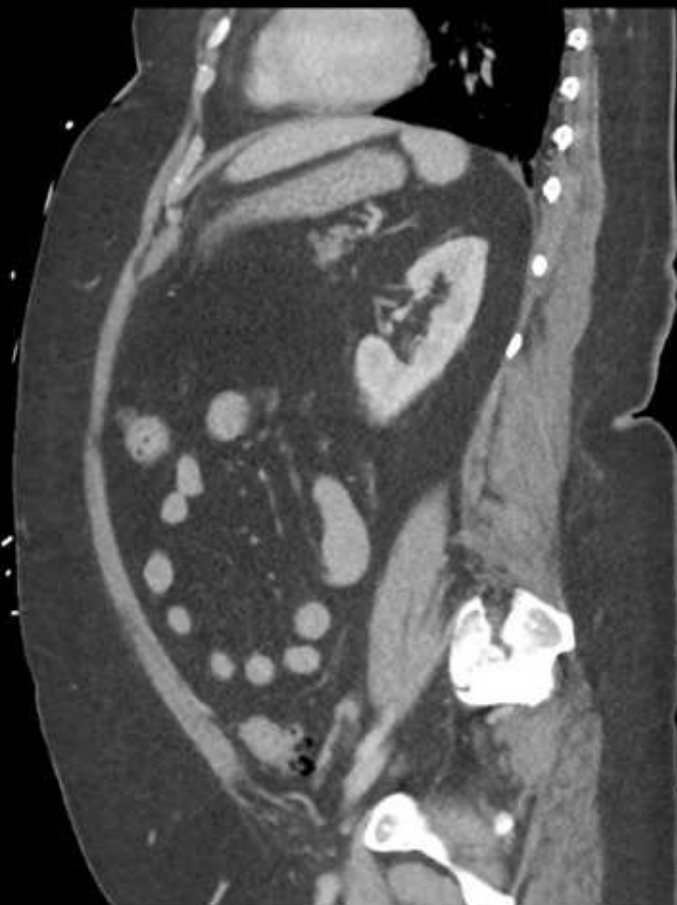


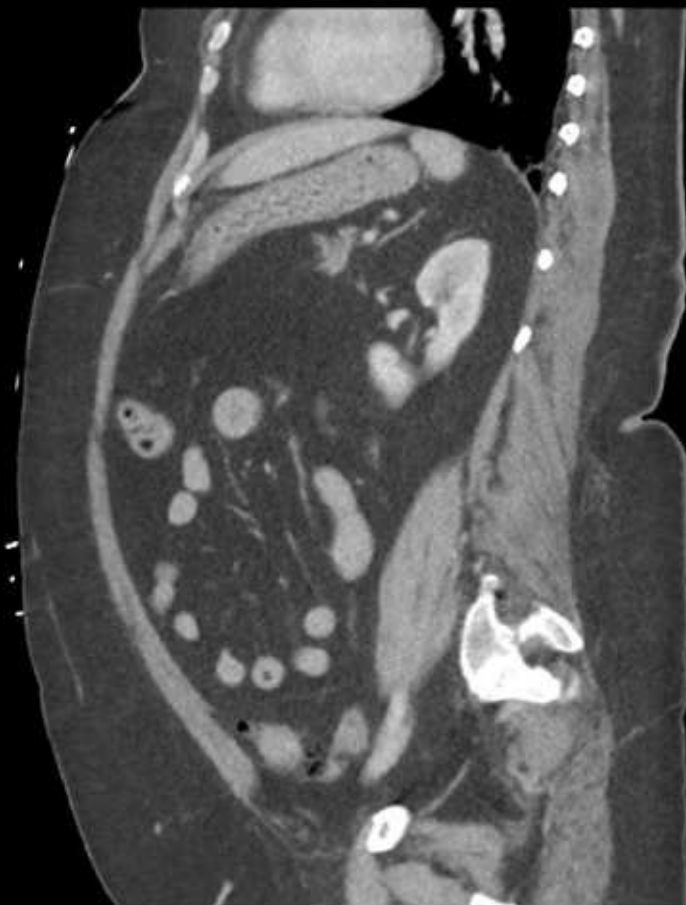


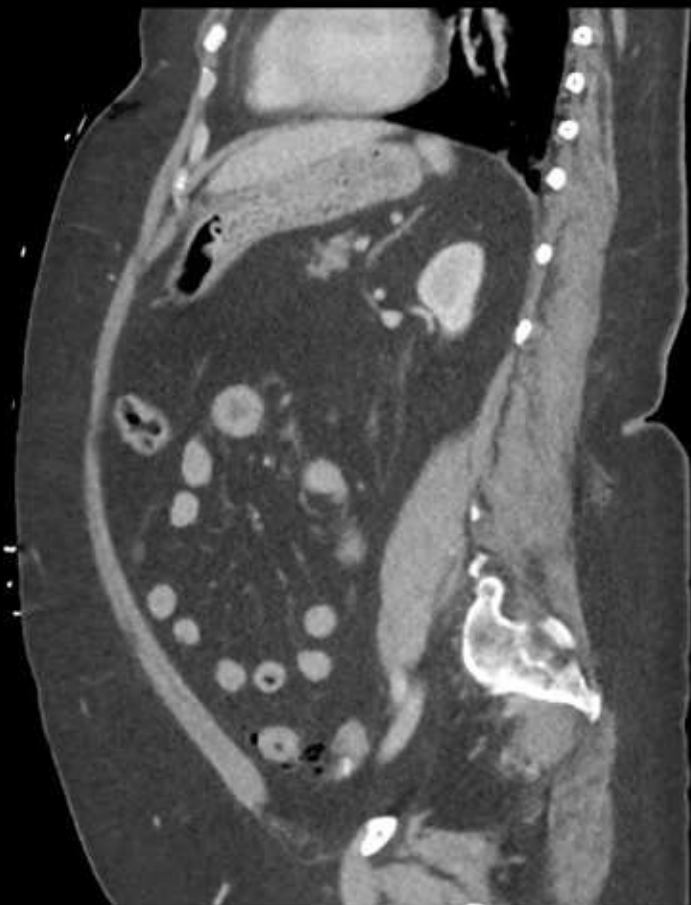


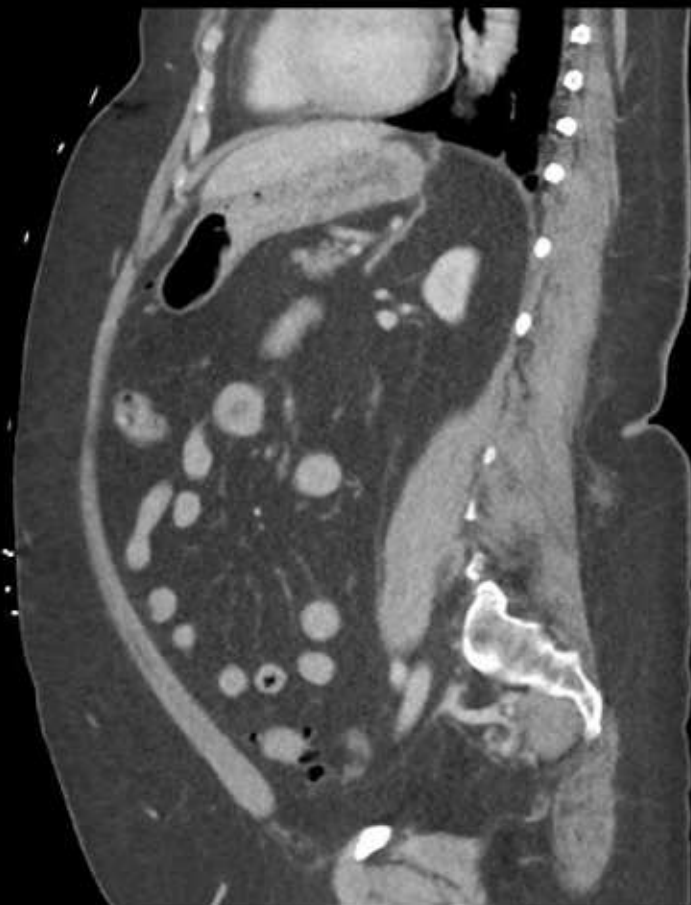


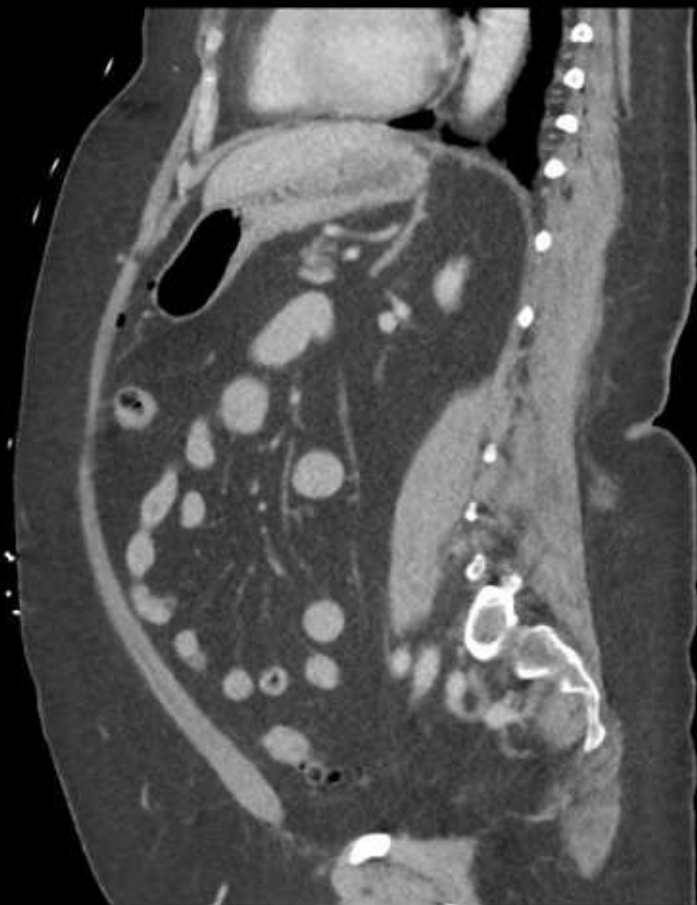


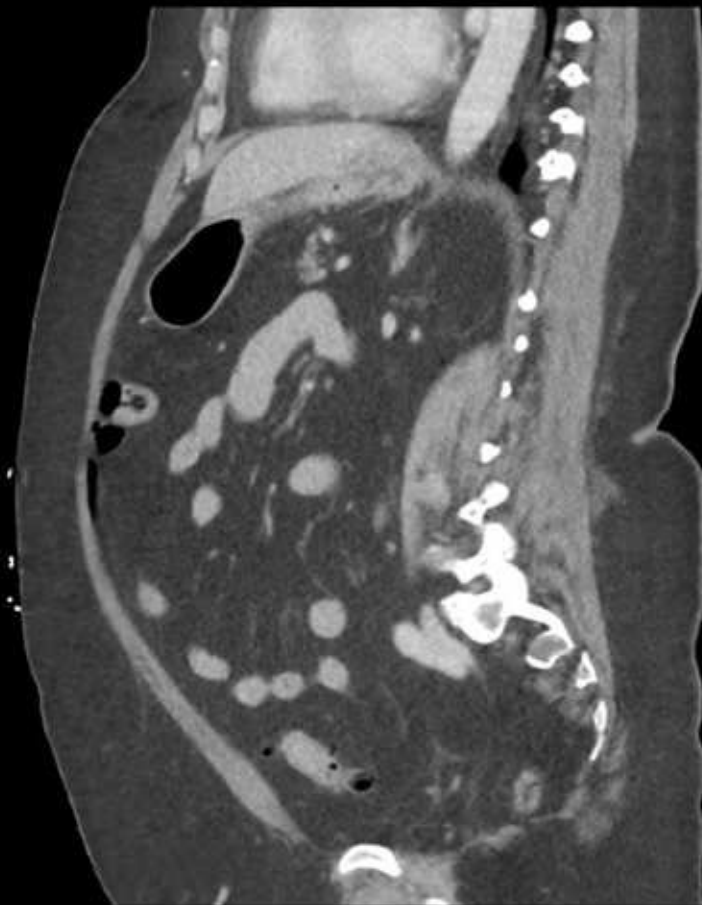


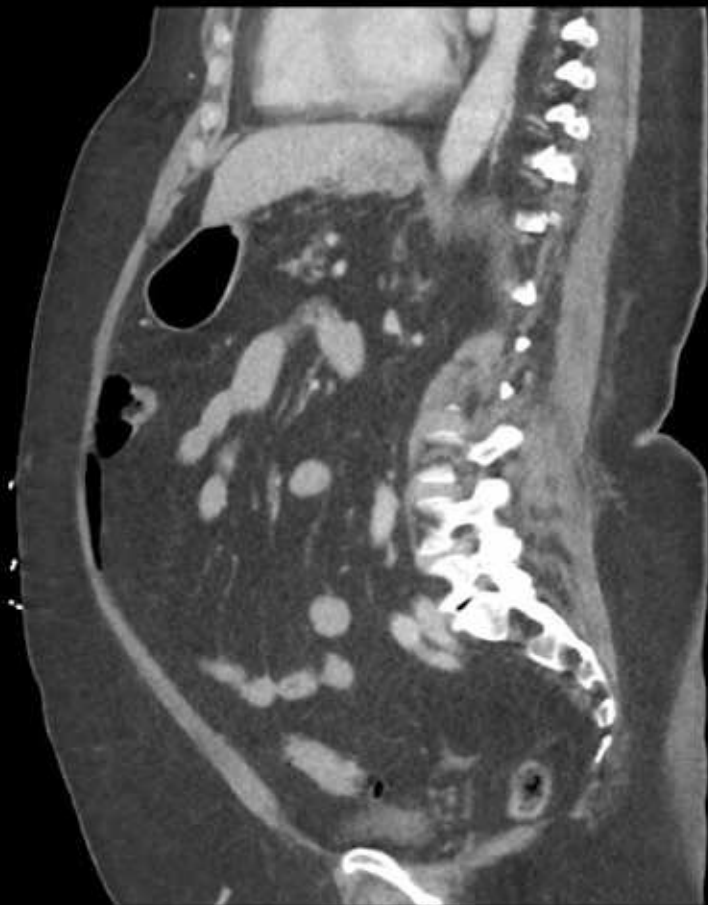




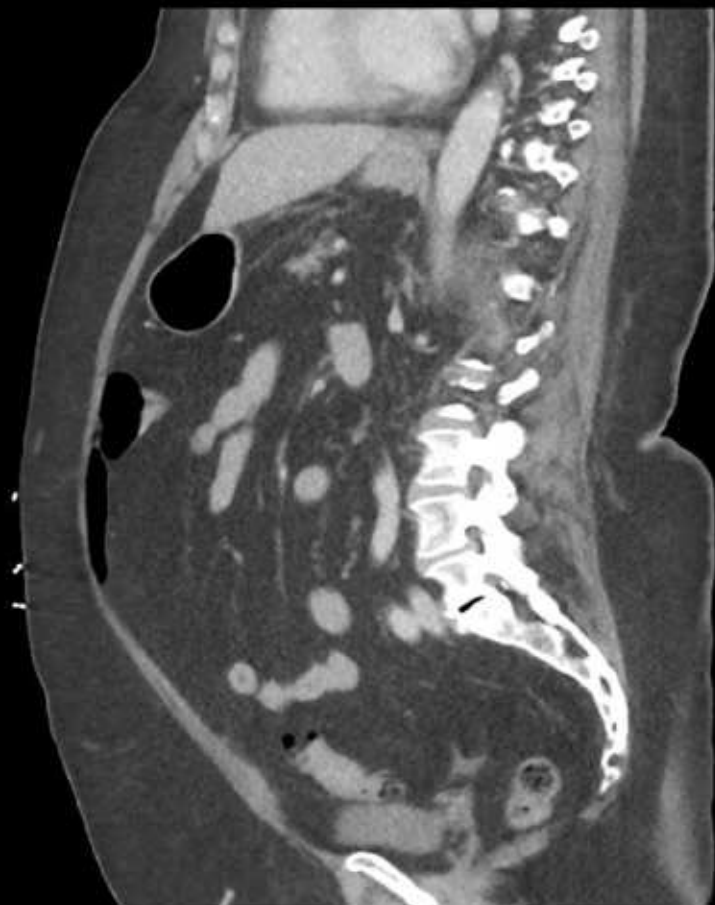








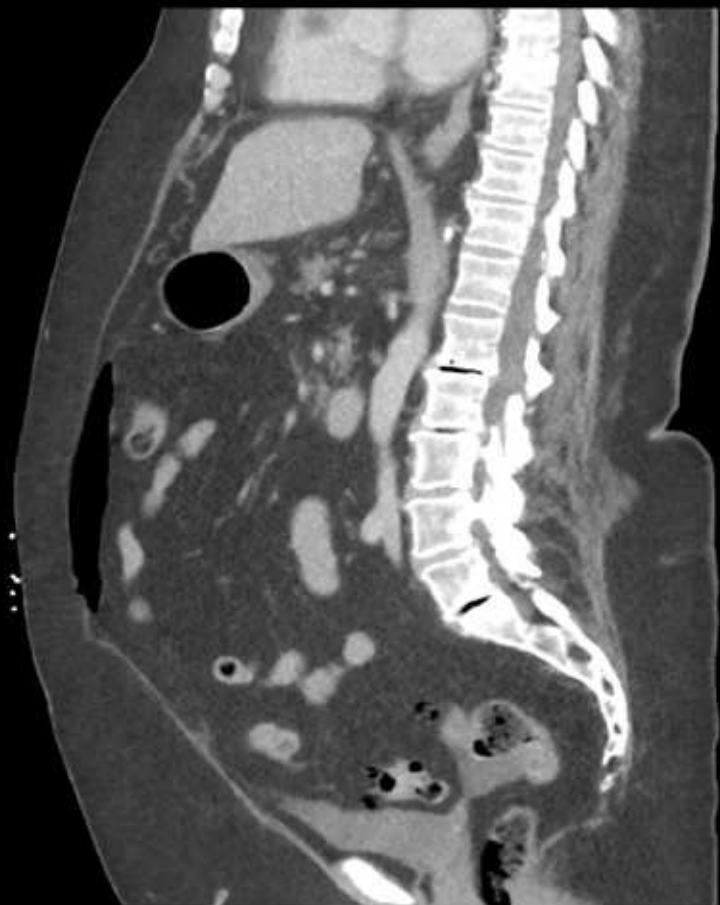






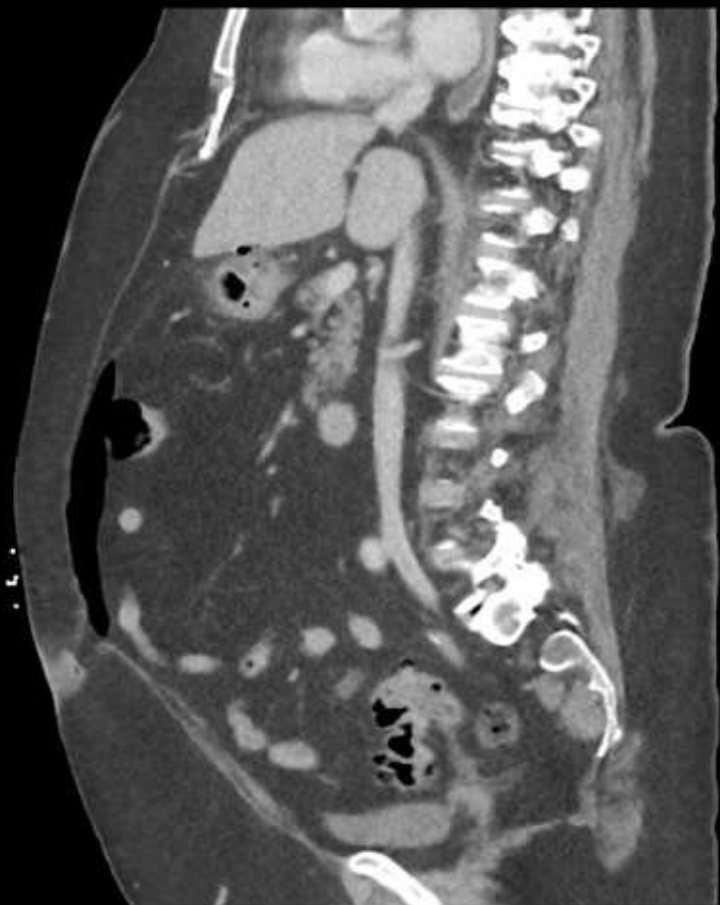












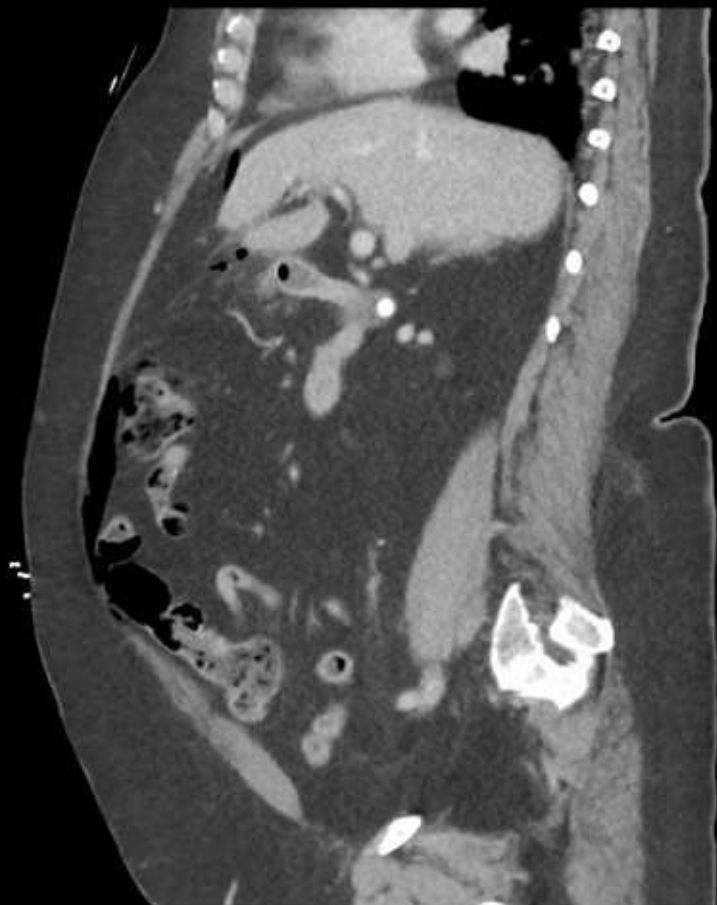








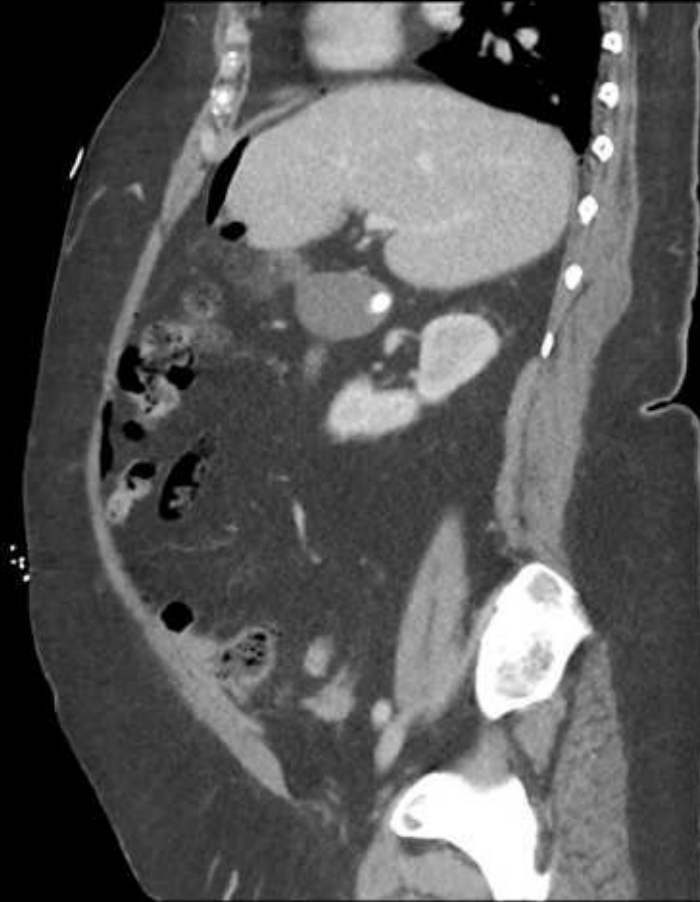








# Perforeerunud maohaavand





Mis on normaalne mao seinä paksus?

# Mis on normaalne mao seinna paksus?



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## CT

When well distended, the normal gastric wall will have a thickness of 5 to 7mm in the antrum and 2 to 3mm in the body <sup>12</sup>.

## Wall thickening of the gastric antrum as a normal finding: multidetector CT with cadaveric comparison

Perry J Pickhardt<sup>1</sup>, Dean B Asher

Affiliations + expand

PMID: 14500212 DOI: 10.2214/ajr.181.4.1810973

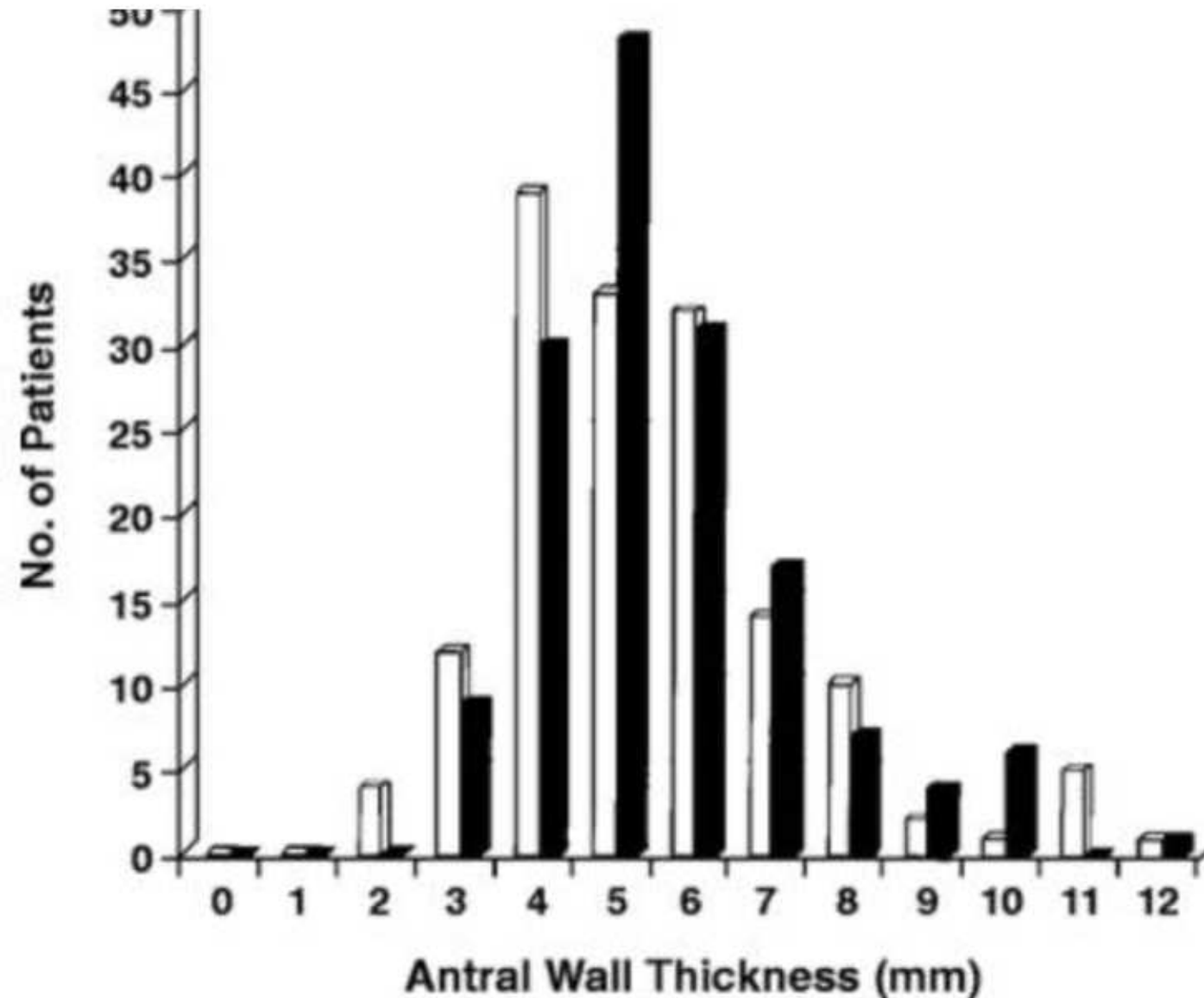
### Abstract

**Objective:** The purpose of this study was to establish the normal range of wall thickness and the normal appearance of the gastric antrum on multidetector CT (MDCT).

**Methods:** AND MATERIALS. Soft-copy measurements of the gastric antrum and gastric body were performed on contrast-enhanced MDCT scans in 153 consecutive patients without gastric disease. For comparison, anatomic dissection of the stomach was performed in three cadavers.

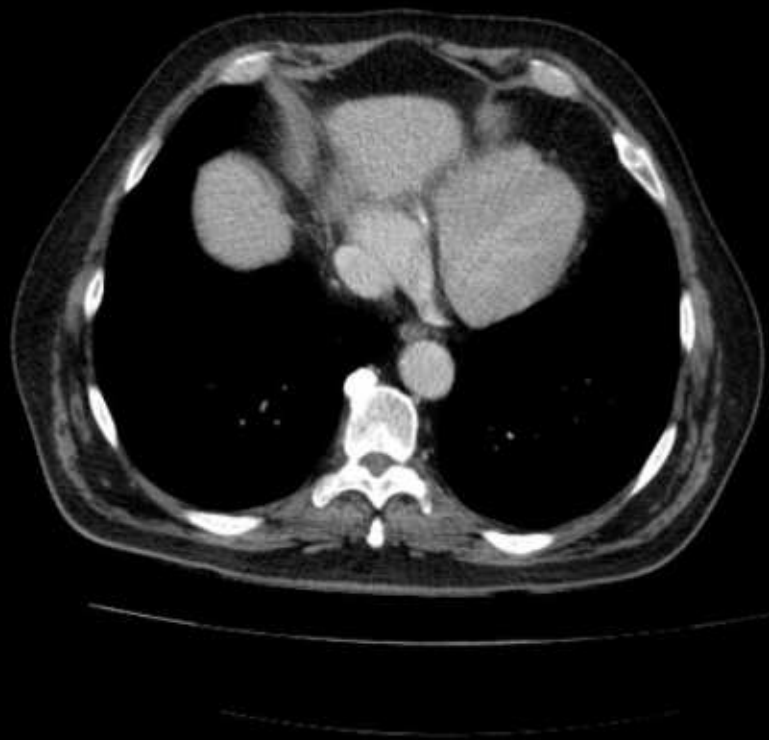
**Results:** Smooth thickening of the distal gastric antrum relative to the proximal stomach on MDCT was seen in 152 (99%) of 153 patients and appeared concentric in 96% and eccentric in 4%. The mean ( $\pm$  SD) antral wall thickness was 5.1  $\pm$  1.6 mm. The longitudinal extent of antral wall thickening averaged 4.6 cm. At least one antral wall measurement (anterior or posterior) exceeded 5 and 10 mm in 85 patients (56%) and seven patients (5%), respectively. The anterior wall of the gastric body was significantly thinner at 2.0  $\pm$  0.4 mm (mean  $\pm$  SD) than the wall of the gastric antrum ( $p < 0.0001$ ). The mean antral wall thickness when distention was characterized as grade 1 (least), 2, 3, and 4 (most) was 6.9, 5.1, 4.9, and 4.0 mm, respectively. Linear submucosal low attenuation (mural striation) of the thickened portion of the gastric antrum was noted in 36 patients (24%); fat attenuation was present in 14 cases. Cadaveric stomachs showed mild segmental thickening of the distal gastric antrum, but this thickening was less pronounced compared with *in vivo* MDCT findings.

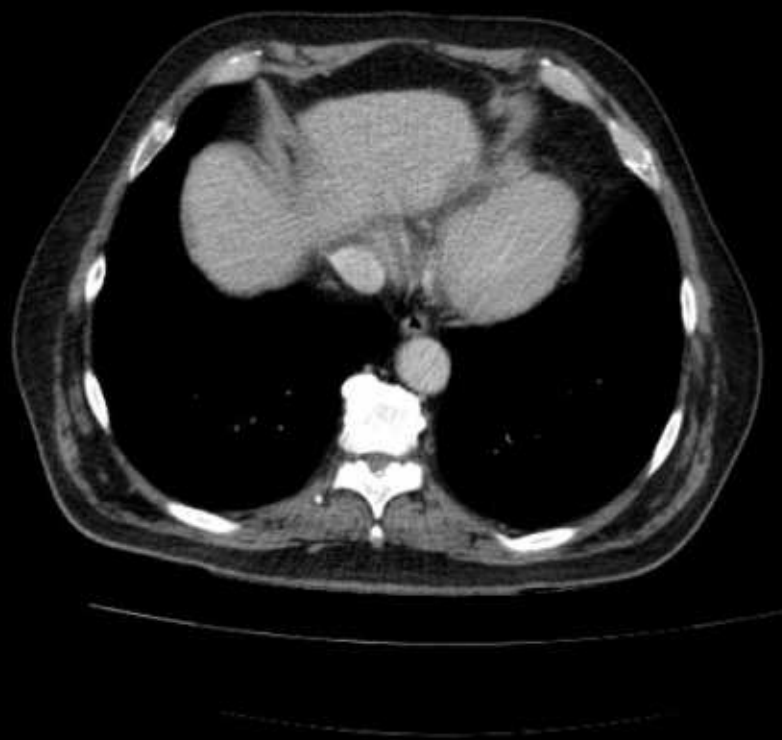
**Conclusion:** Smooth wall thickening of the distal gastric antrum relative to the proximal stomach on MDCT with or without submucosal low attenuation is a normal finding. Antral wall thickness commonly exceeds 5 mm and may measure up to 12 mm. Our MDCT findings, in conjunction with previous anatomic and physiologic observations, suggest that normal antral wall thickening consists of both static and dynamic components.

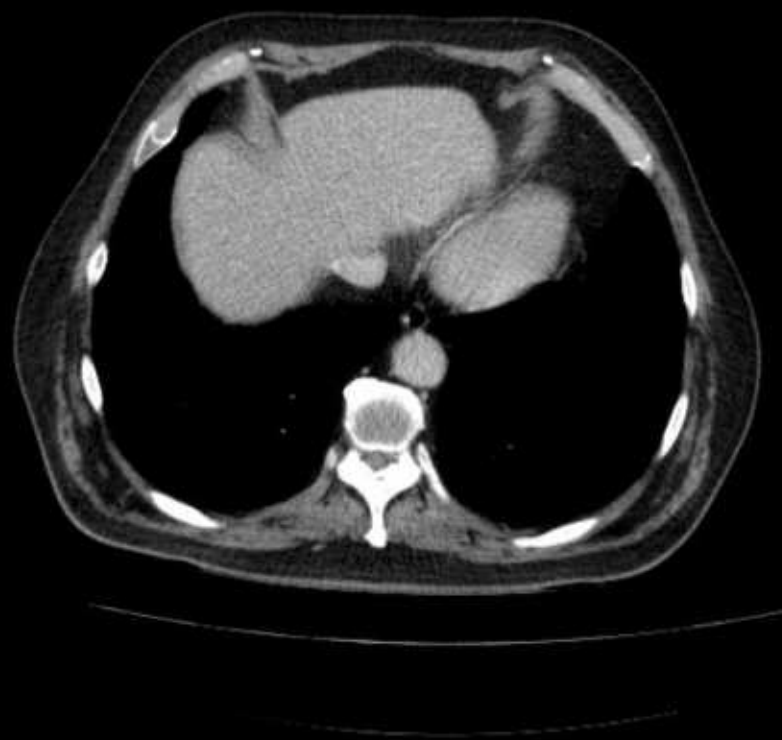


Juhtum 3

55-aastane mees.  
Kaalukaotus.











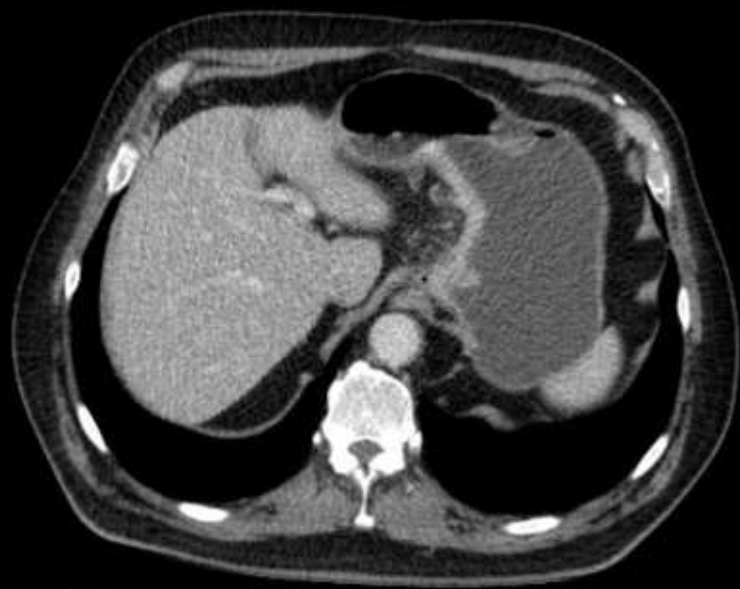
































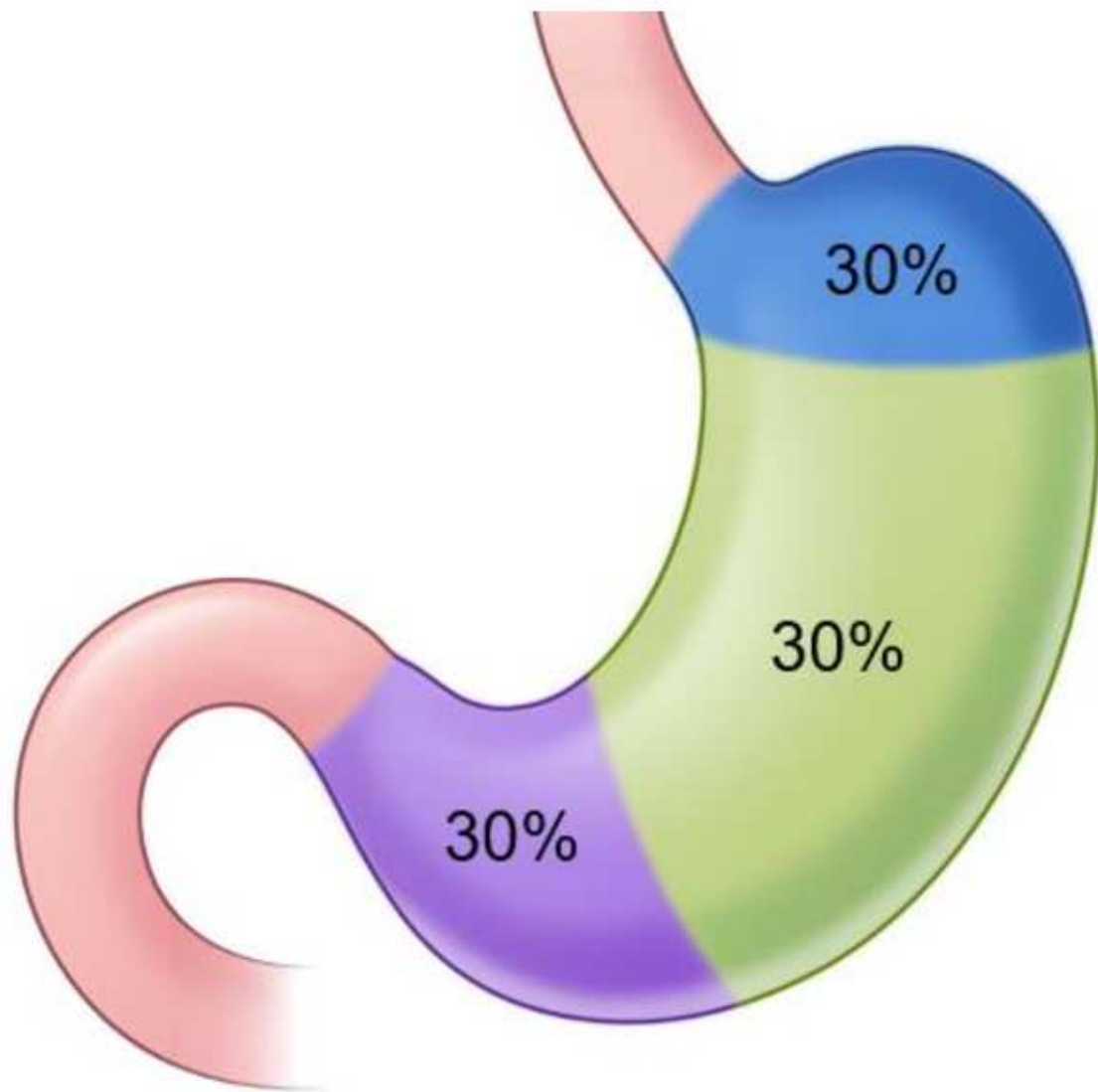








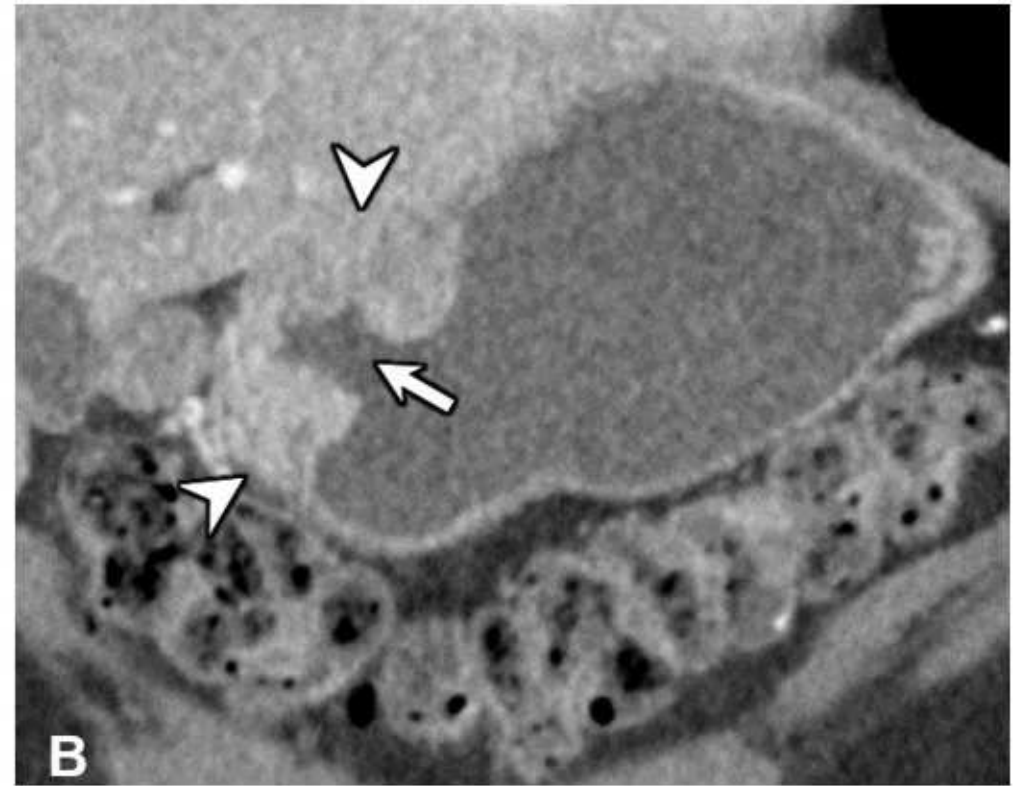
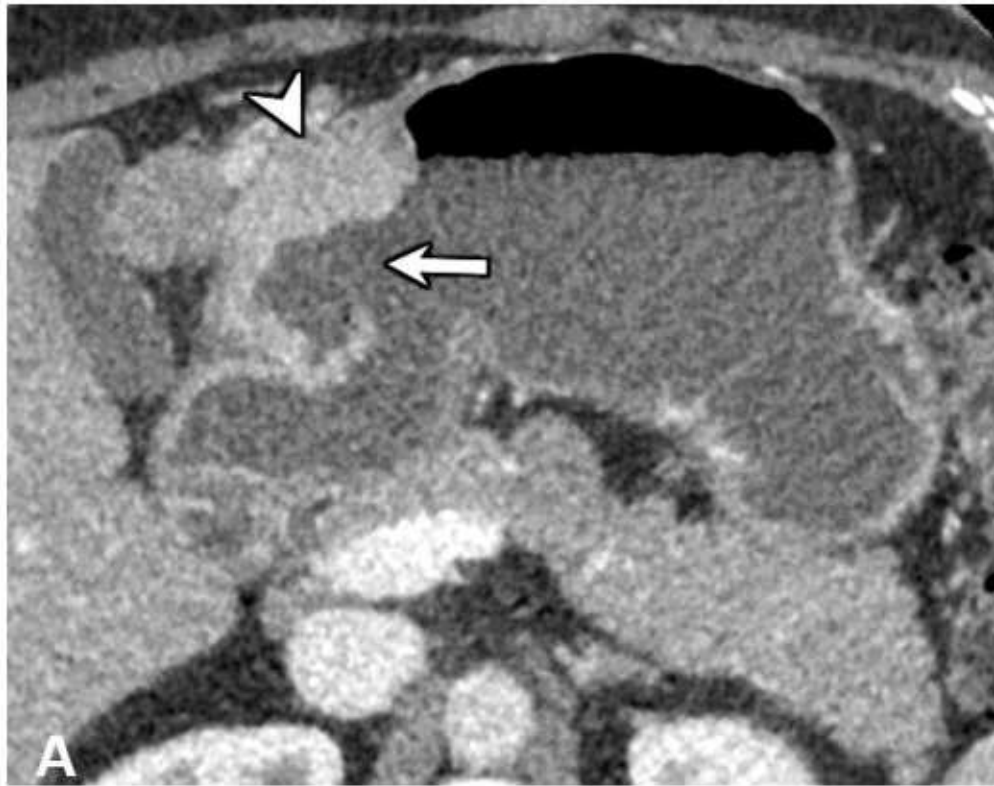




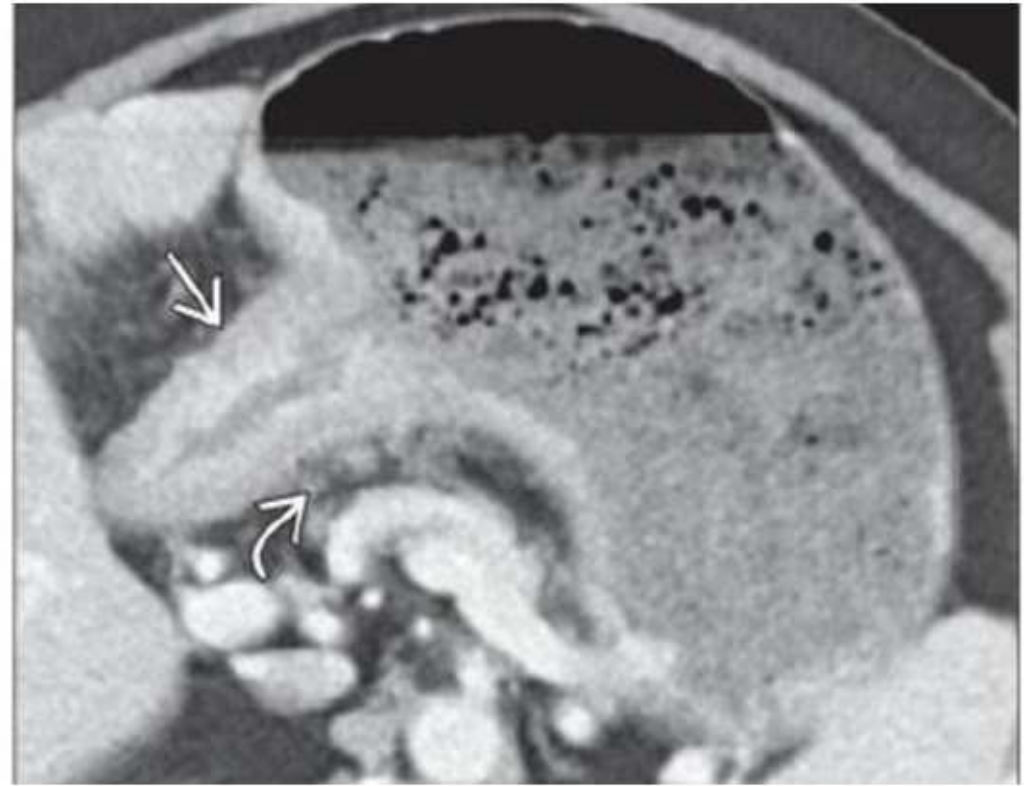
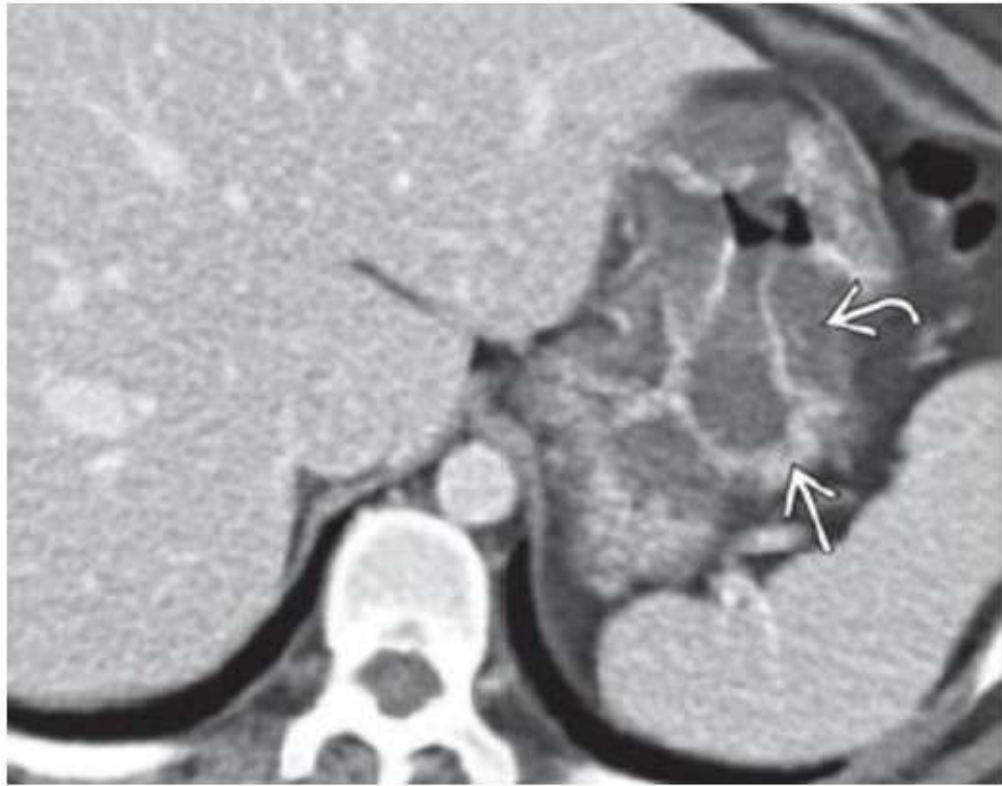
# Mao adenokartsinoom

- 95% mao vähkidest.
- Kõige sagedamini 50-75-aastased.
- Riskitegurid: *Helicobacter pylori*, krooniline gastriit, adenomatoossed polüübid, pärilikkus, varasem mao lõikus.
- Subklassifikatsioon:
  - Mutsinoosne (kõige sagedasem)
  - Papillaarne
  - Tubulaarne
  - Signet ring cell (sõrmusrakuline)

Haavandiline mao adenokartsinoom.



# Gastriit vs kartsinoom



# Mao adenokartsinoom

---

## KT-s 3 peamist mustrit:

- Fokaalne seinapaksenemine, mõnikord koos haavandiga.
- Väga laialdane difuusne seinapaksenemine, nn. skirroosne tüüp.
- Polüploidne mass (nagu pildil)

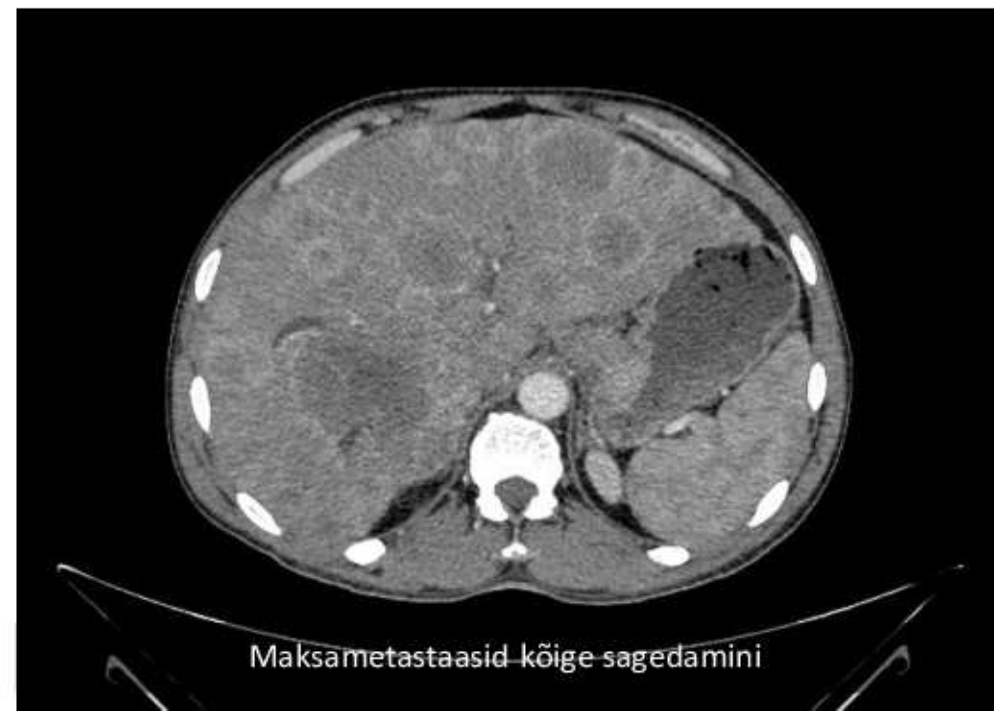




Krukenbergi metastaas



Virchow'i sõlmed vasakul supraklavikulaarsel



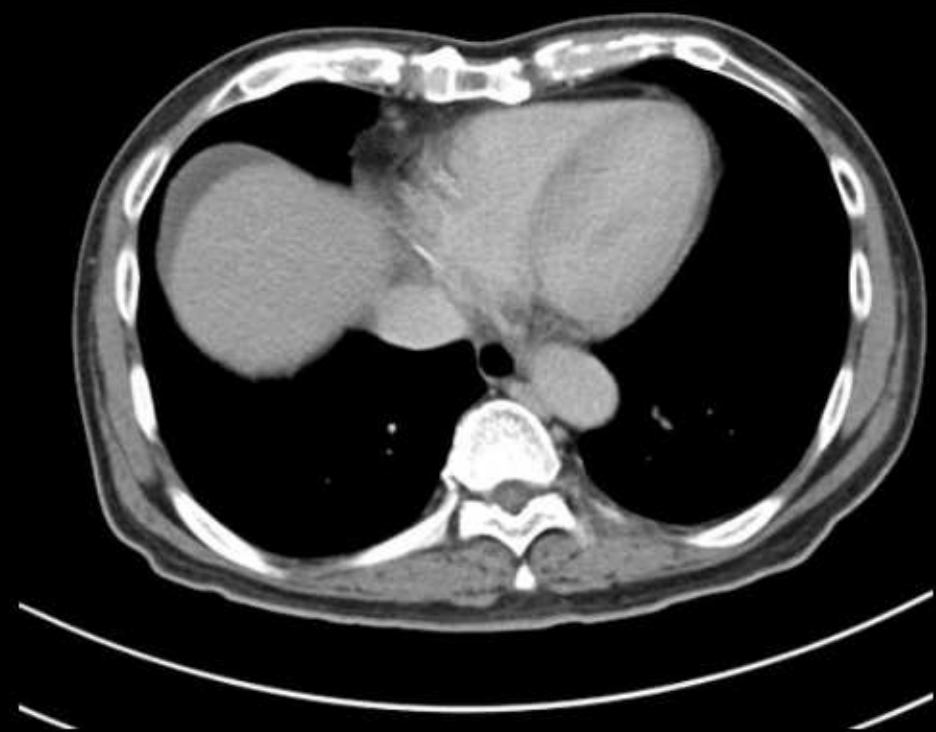
Maksametastaasid kõige sagedamini

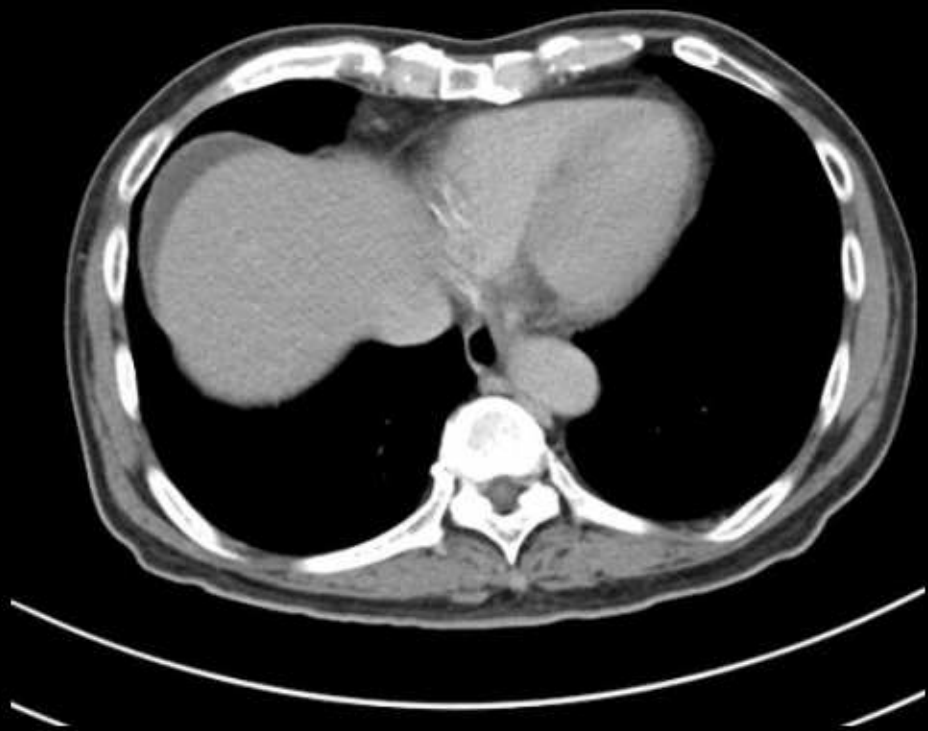


## Case 4

72-aastane mees. Kaalukaotus ja kõhukinnisus.  
Aneemia. Kliiniliselt tugev kahtlus GI-trakti  
maliigsusele.

[Case courtesy of Dr Ian Bickle, Radiopaedia.org, rID: 43620](#)





















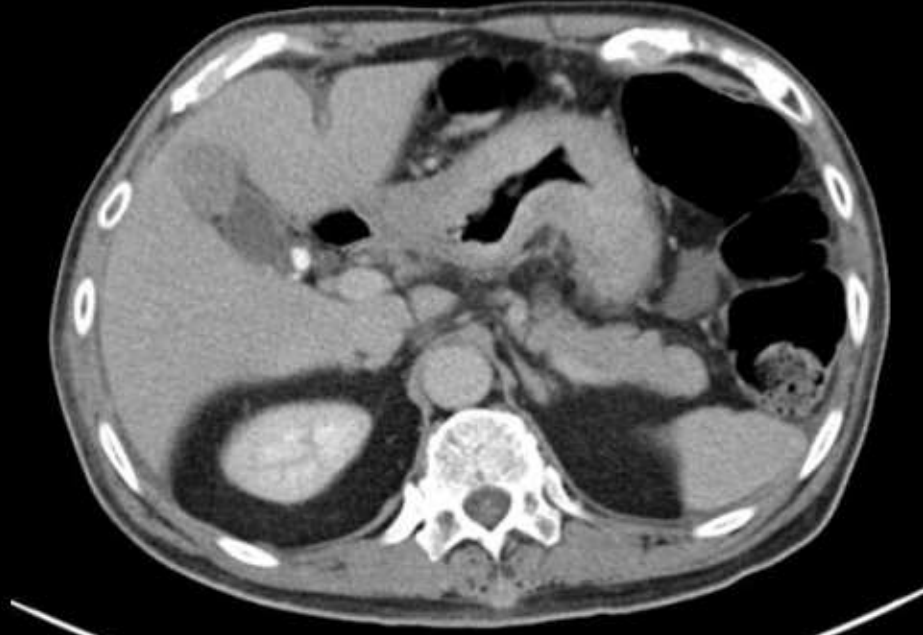






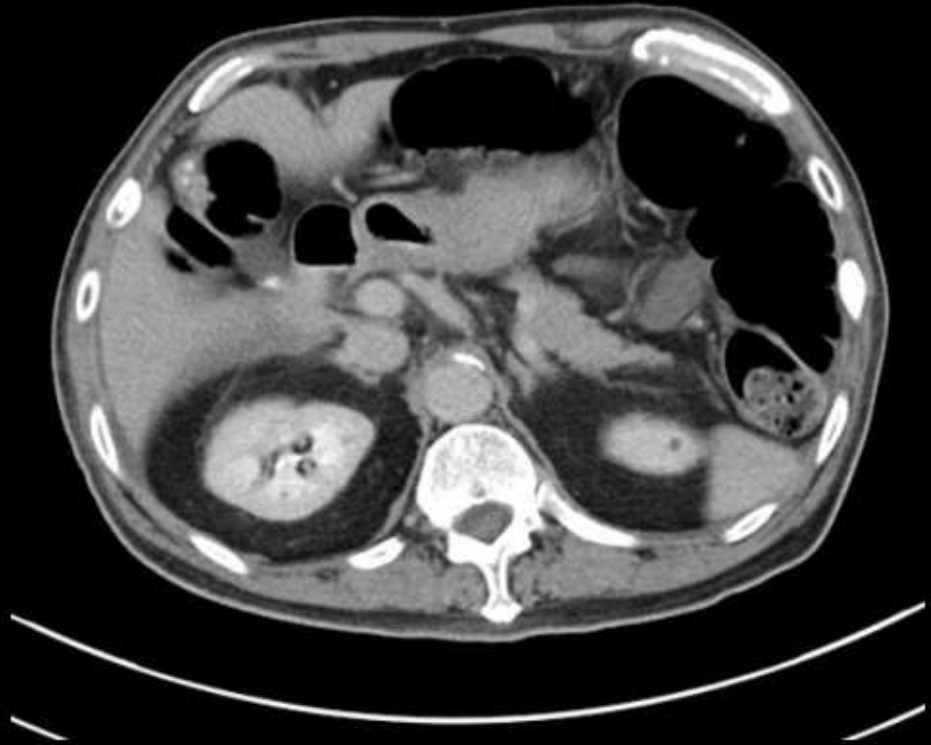






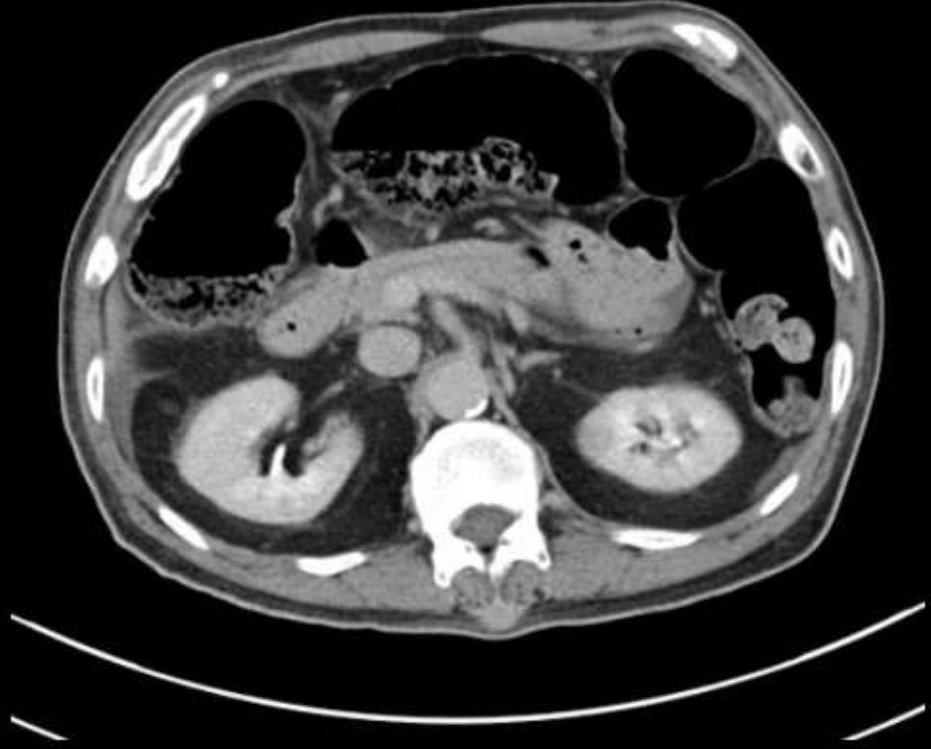
















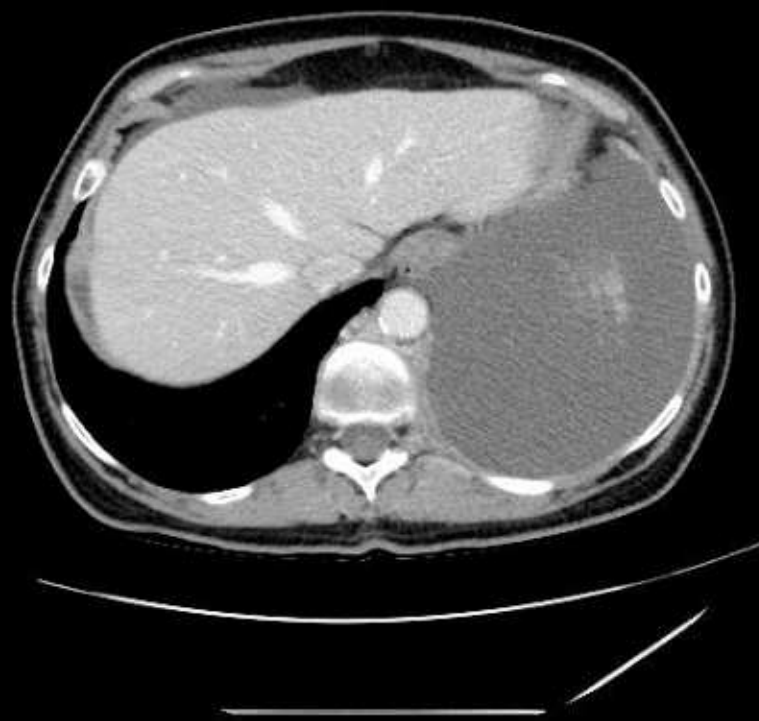
# Linitis Plastica

- Difuusne/infiltratiivne **submukoosne** mao maligne protsess. Sageli on endoskoopia ning biopsia leid korras. Mao sein muutub rigiidseks, mahtuvus väheneb.
- Adenokartsinoomi puhul kasutatakse ka terminit skirroosne ca.
- Ka mõne teise paikmega ca metastaasid mao seinas võivad anda samasuguse radioloogilise leiu.







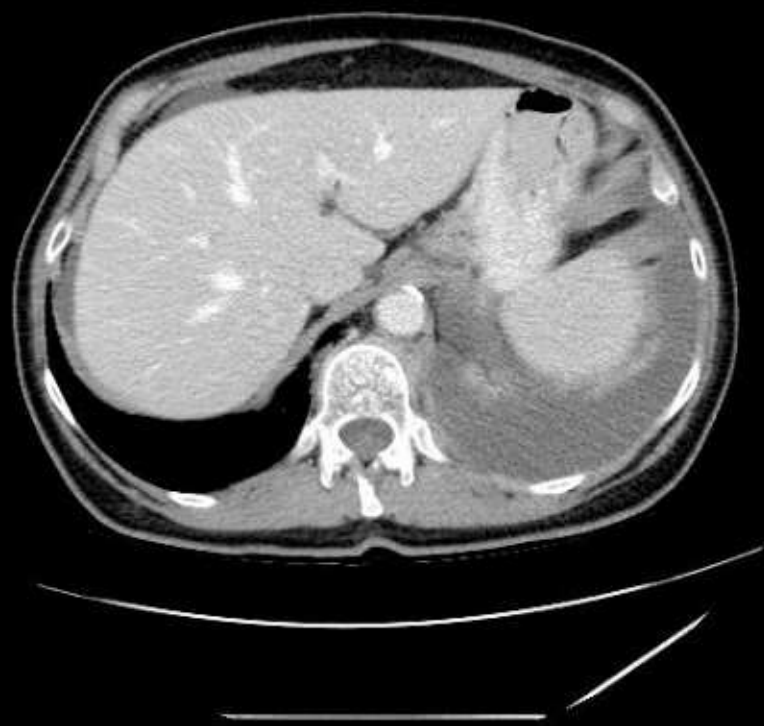






























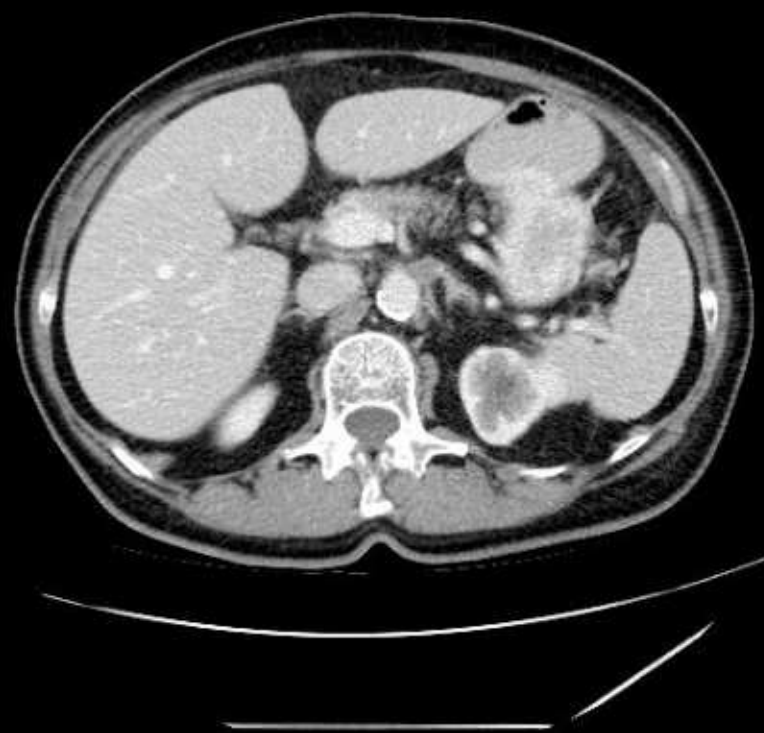




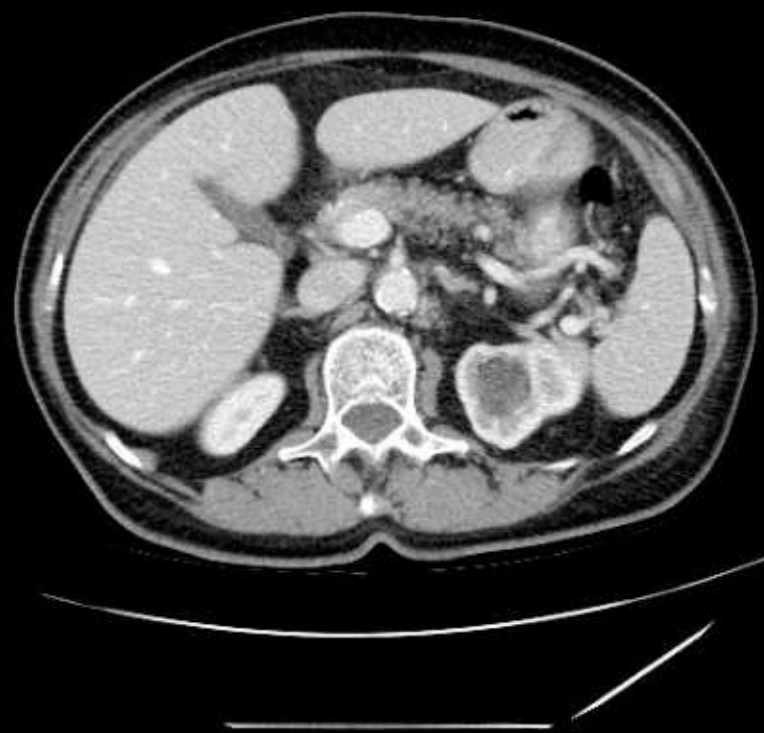








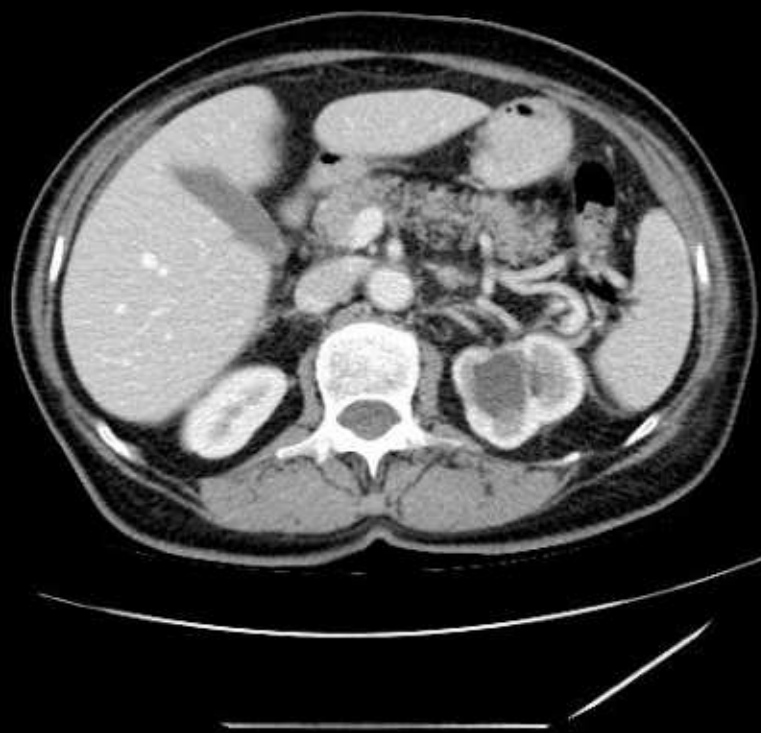




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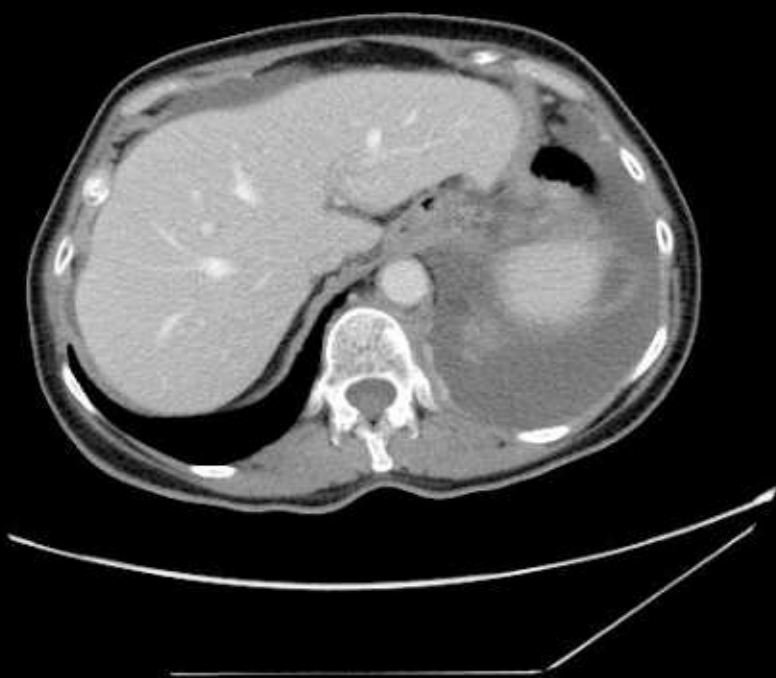
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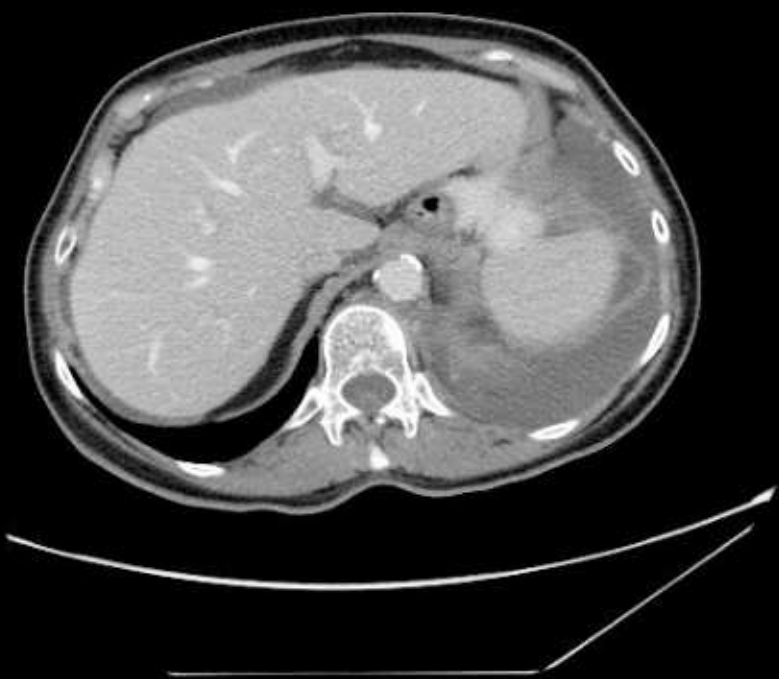


3 kuud hiljem sama patsient.

Tegemist on rinnavähi metastaasidega mao seinas  
(linitis plastica).



















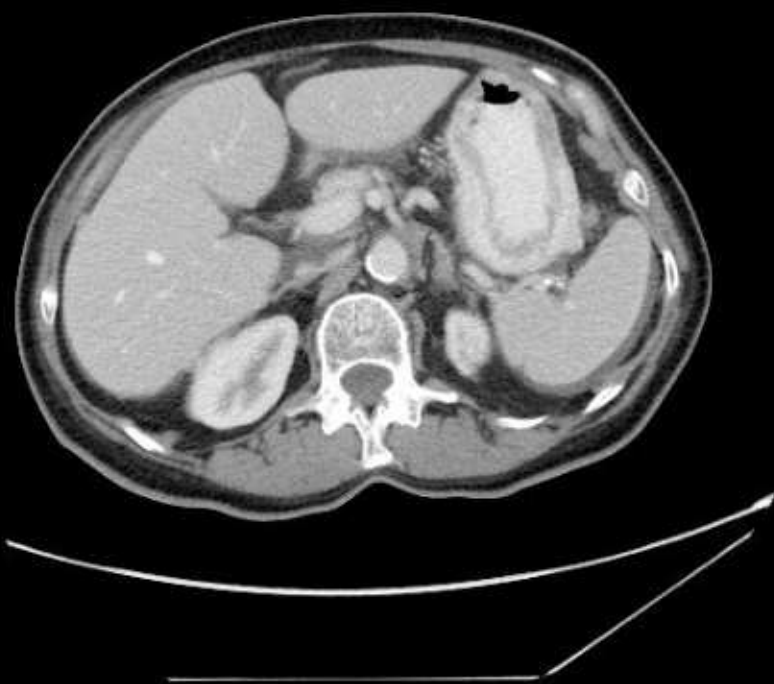










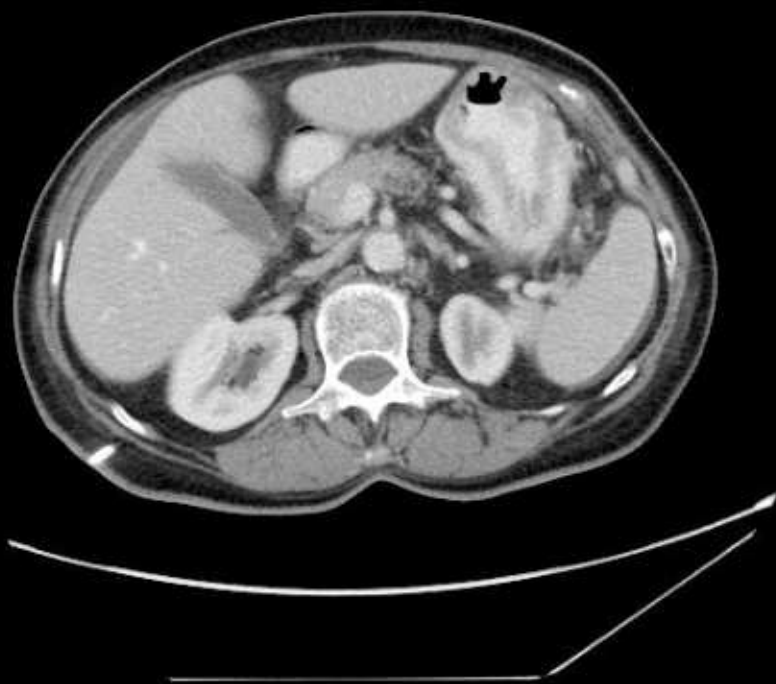


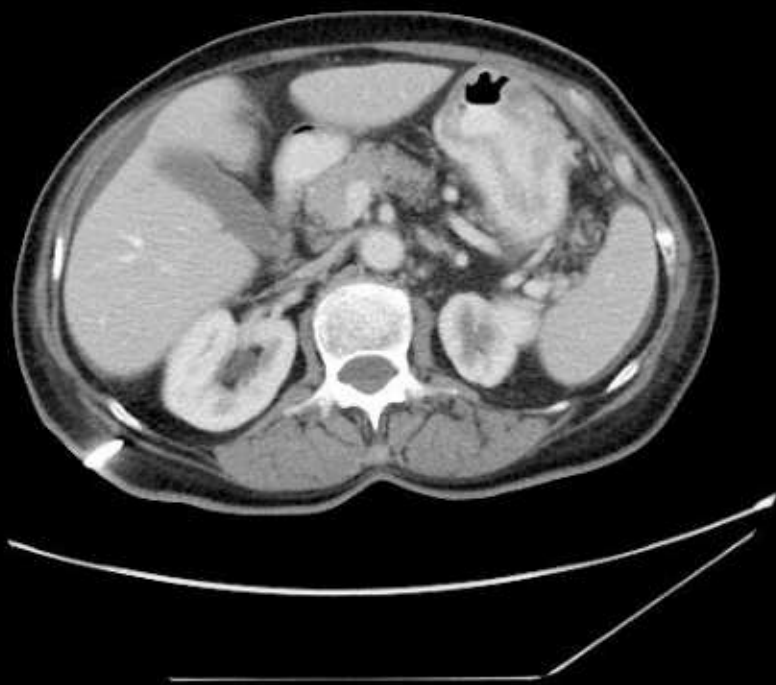


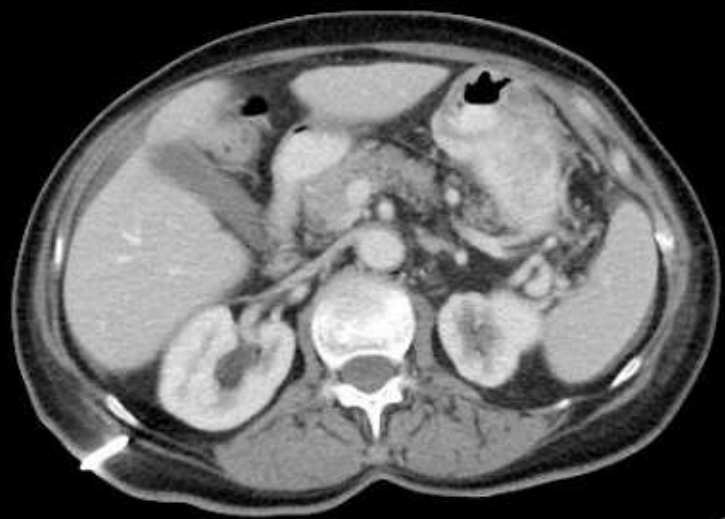






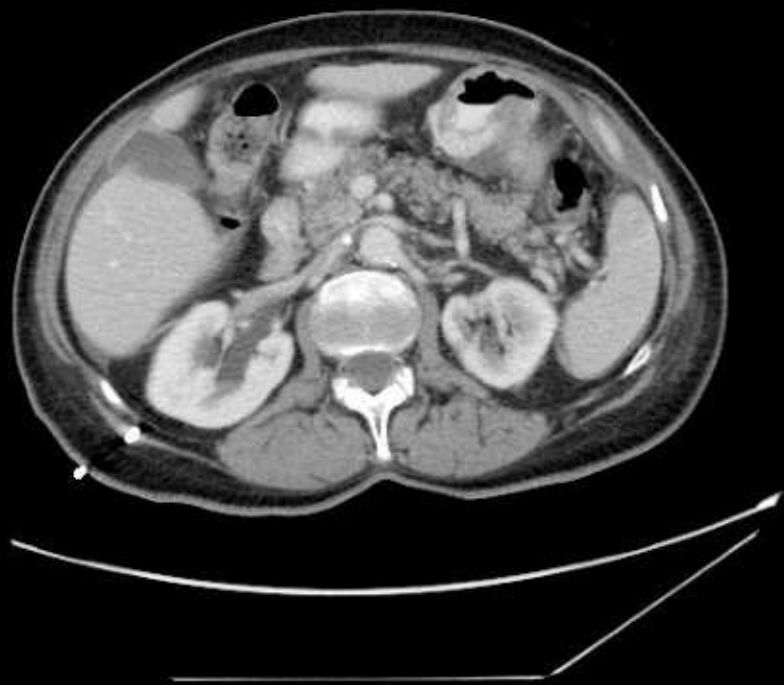


















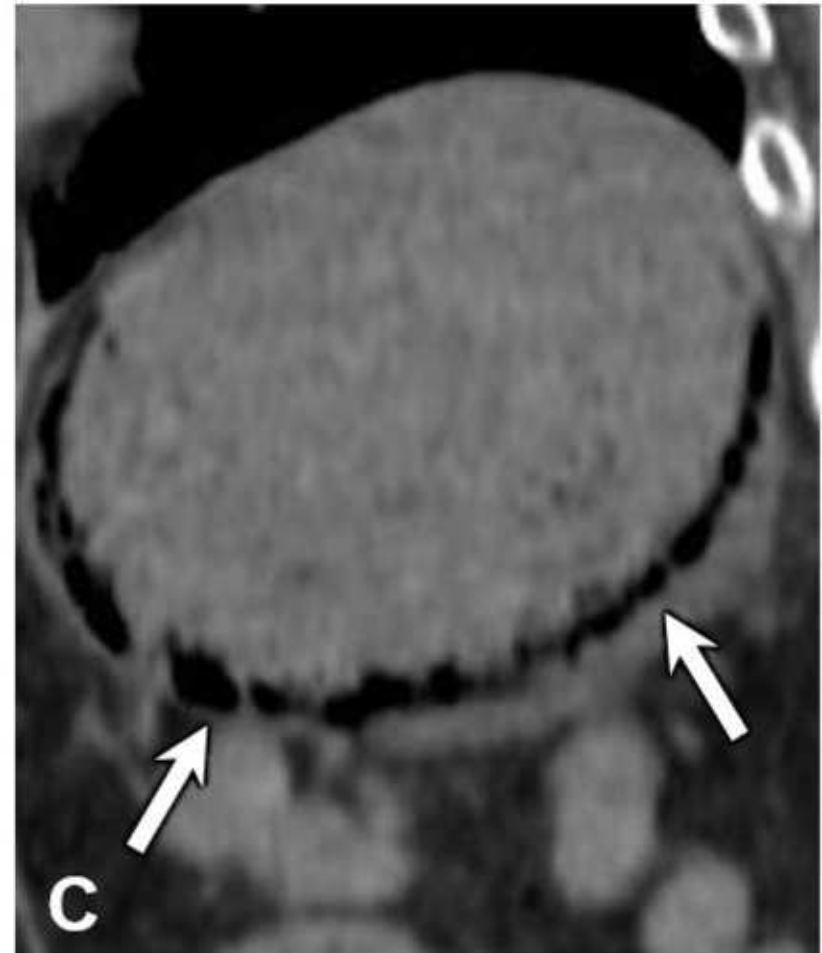
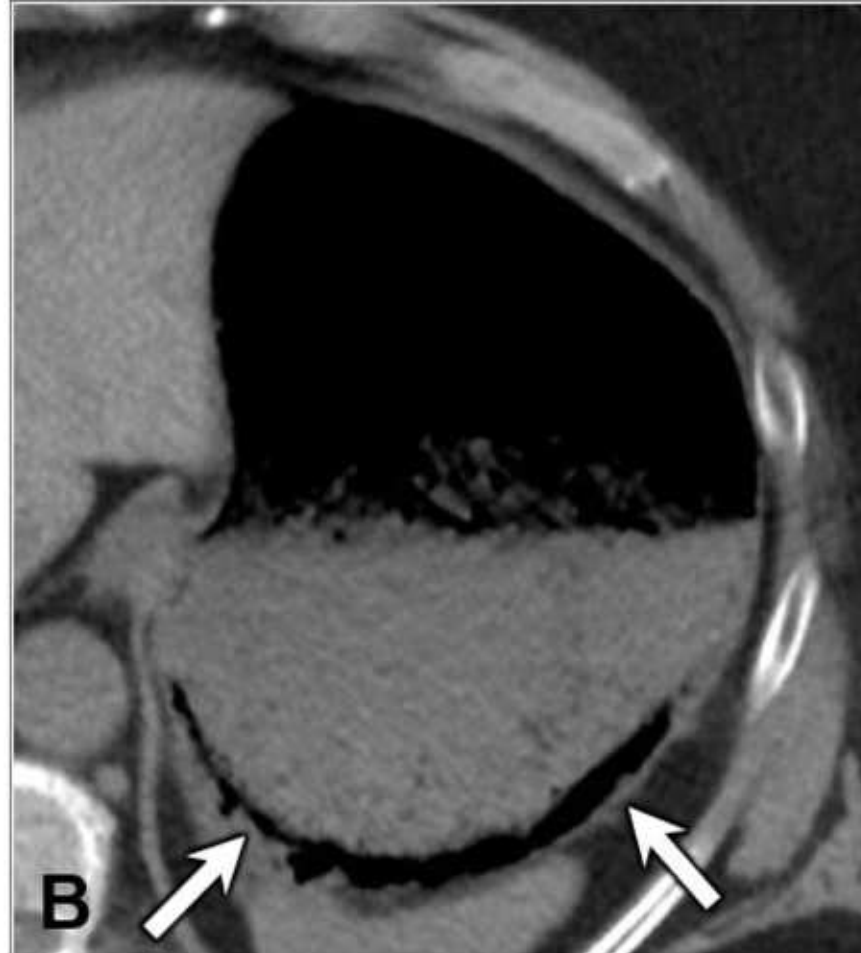
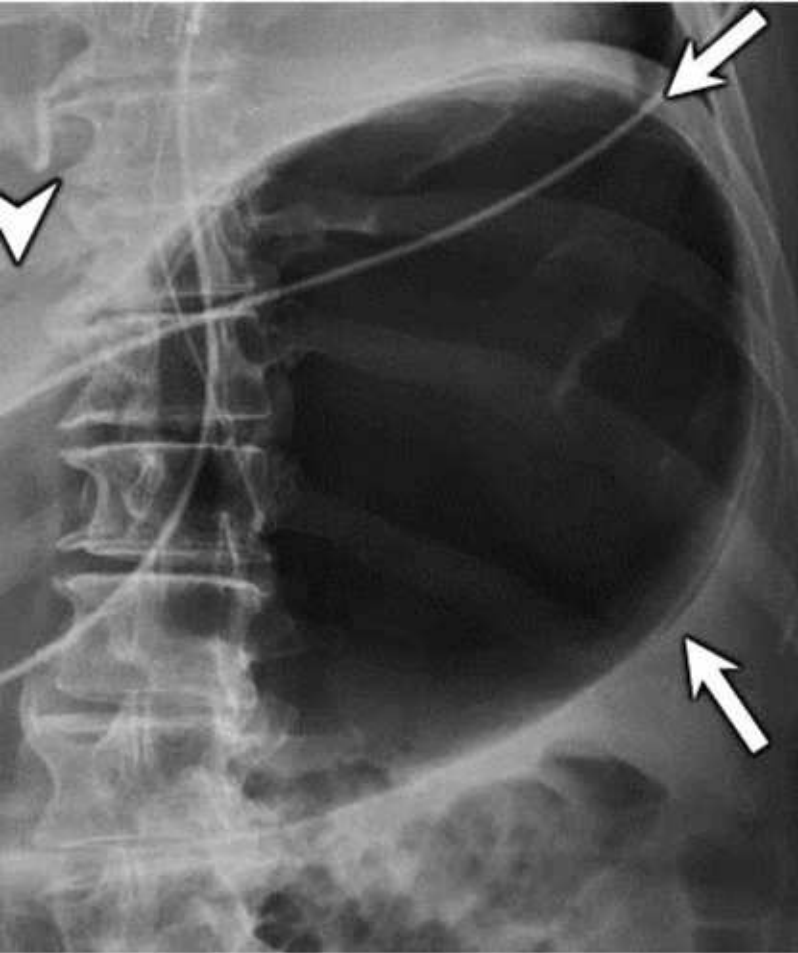








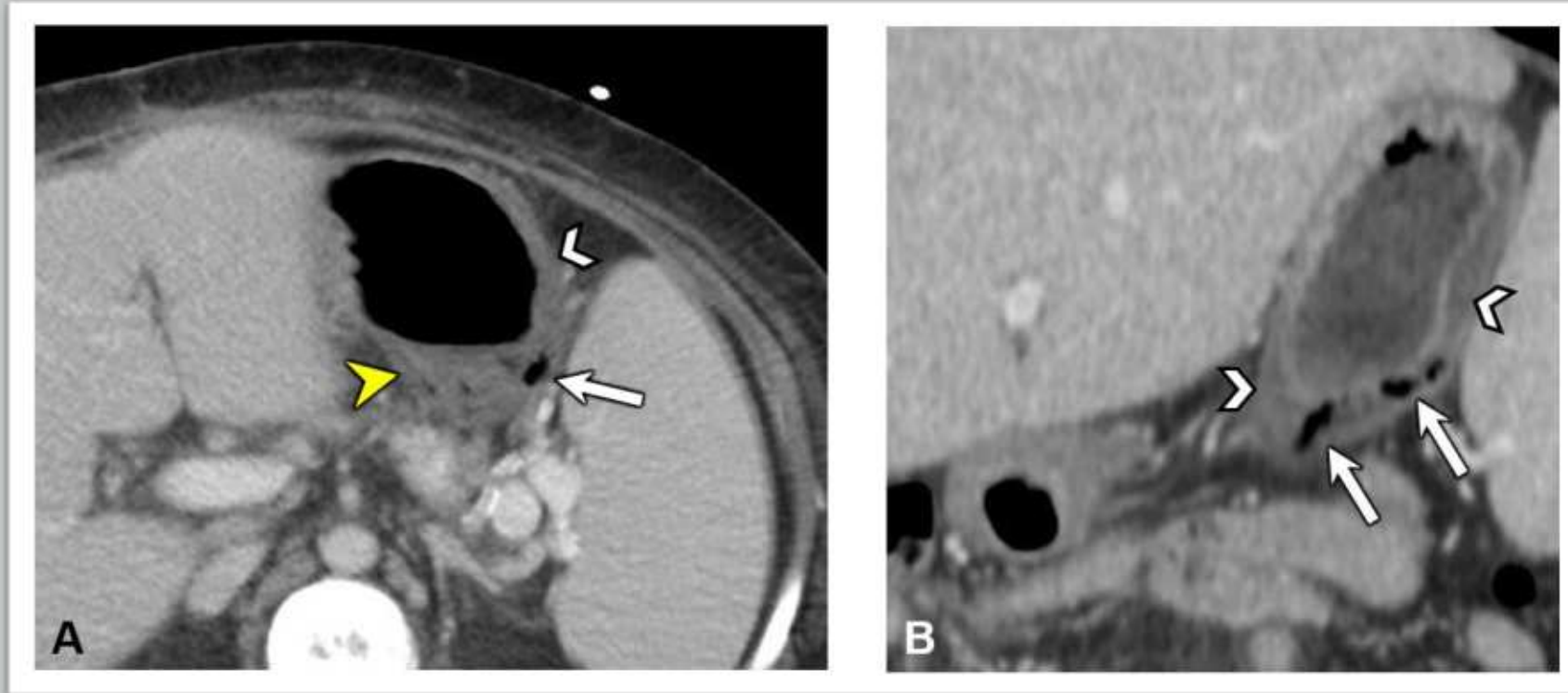




# Pneumatosis gastrica

Mao seinas gaas. Antud juhul resorbeerus iseenesest ning ravi ei vajanud. Mõnikord gastroskopia järgne beniigne leid.



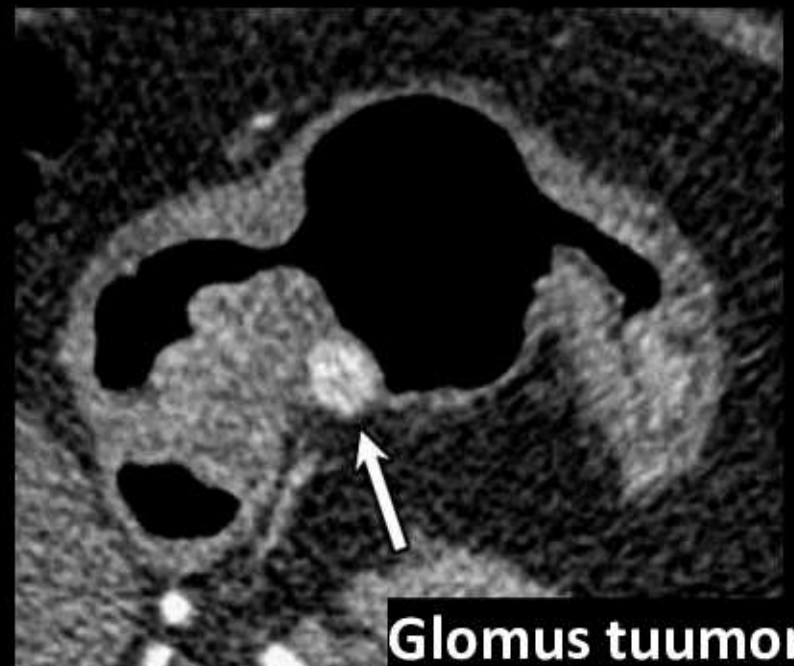
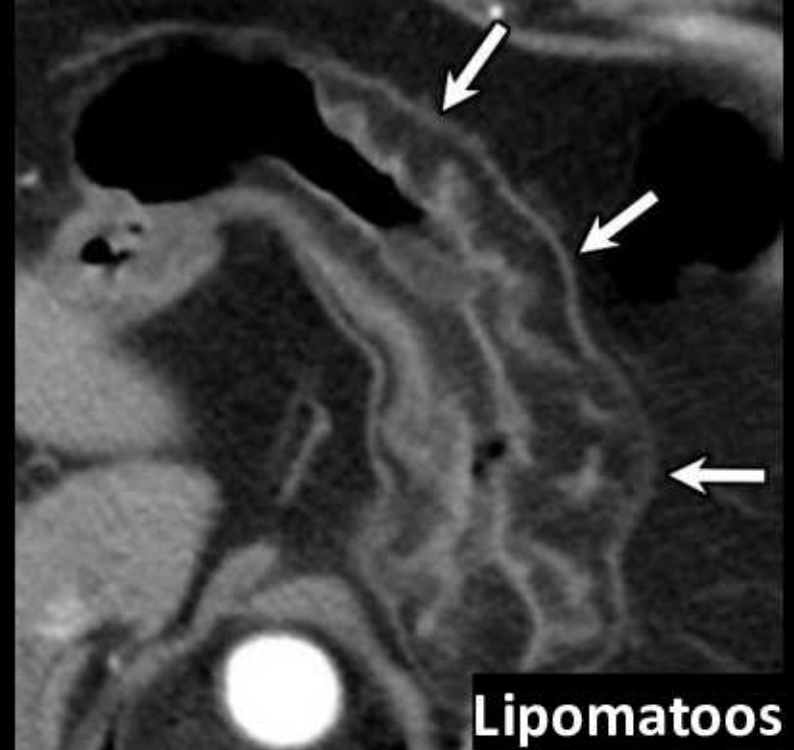
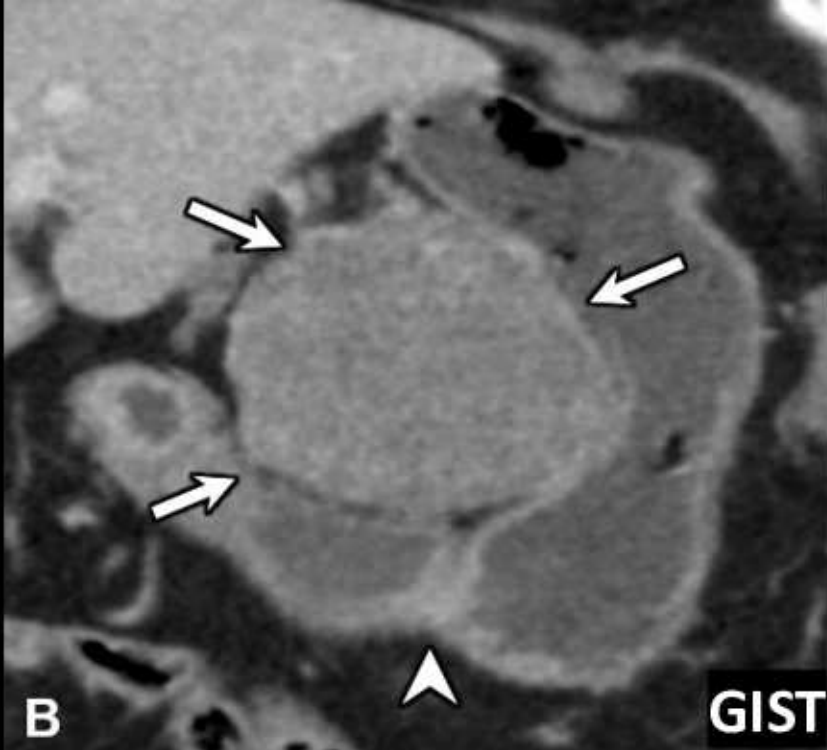


## Emfüsematoosne gastriit

Harvaesinev. Mao sein on paksenenud, turses (langenud tihedusega), ümbritsev infiltratsioon. **Raske üldseisund**, baktereemia ning hüpotensioon.

Tekitajad E.Coli, Streptococcus, Clostridium welchii, Staphylococcus aureus.

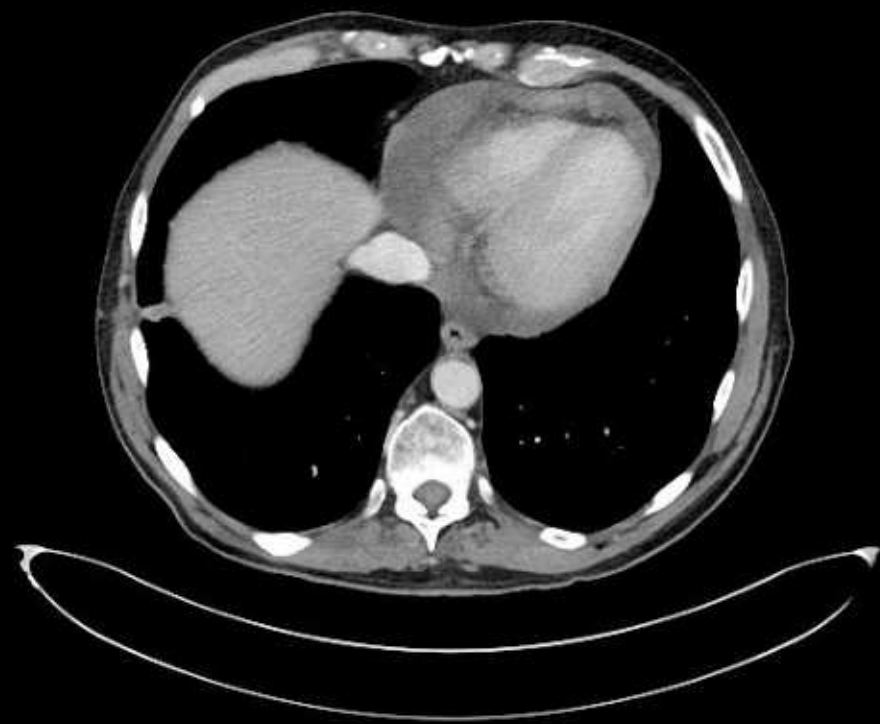
Mao seinä mesnehümaalsed tuumorid

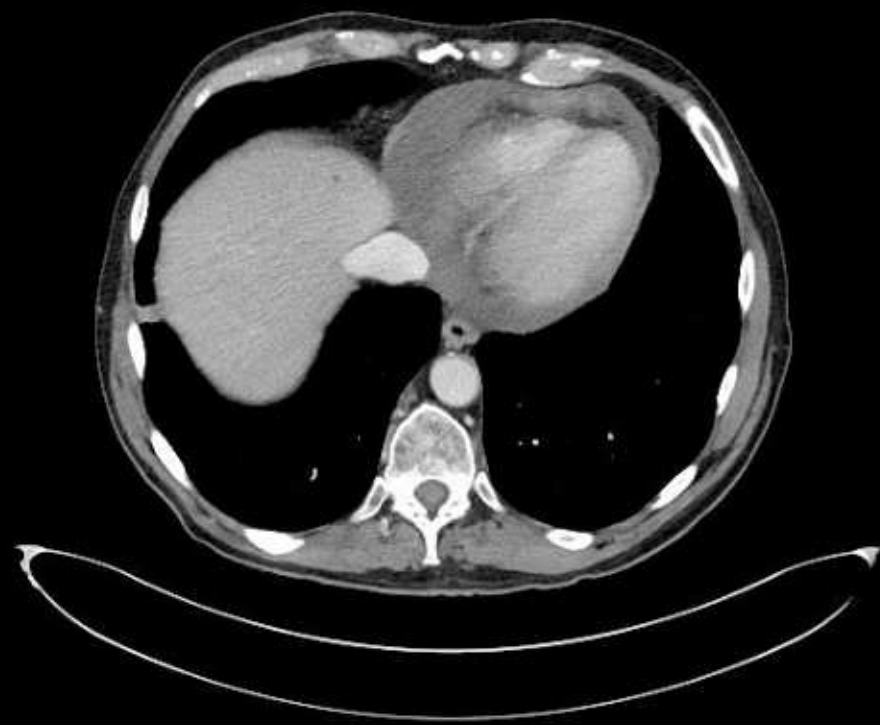


Juhtum 5

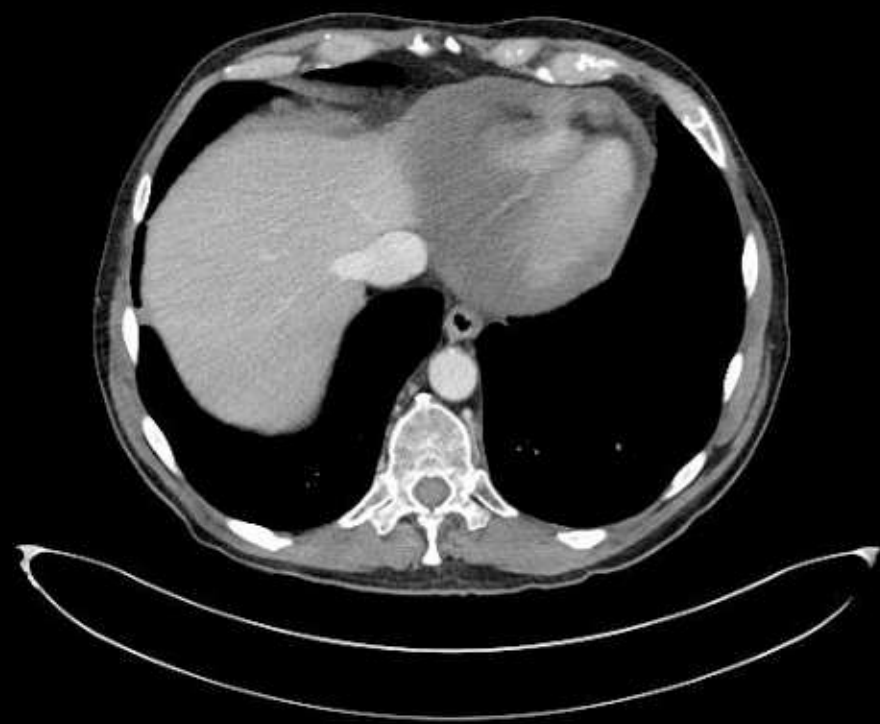
70-aastane mees.

[Case courtesy of Dr Michael P Hartung, Radiopaedia.org, rID: 67371](#)









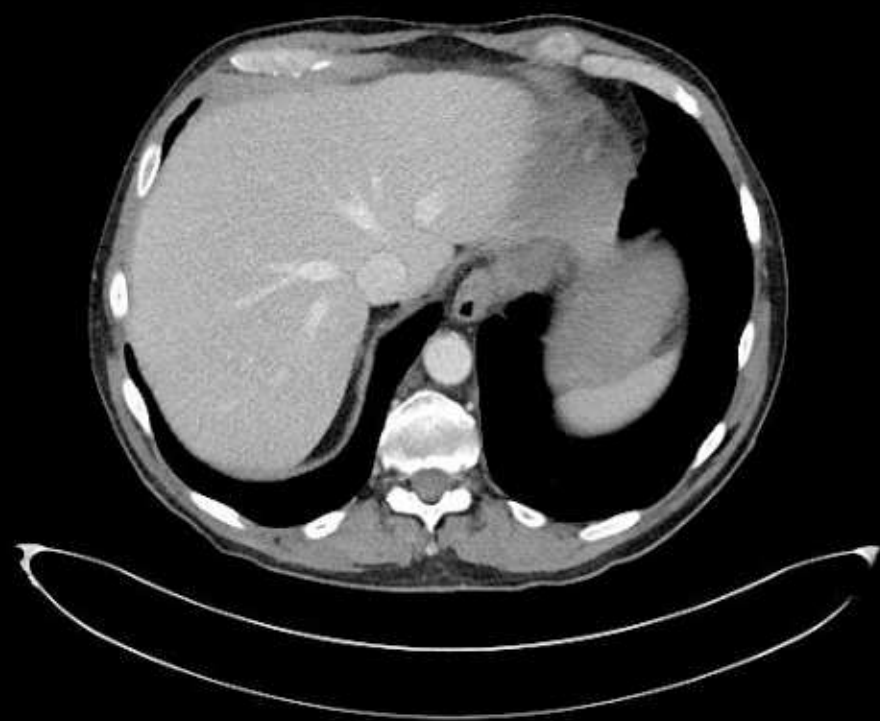


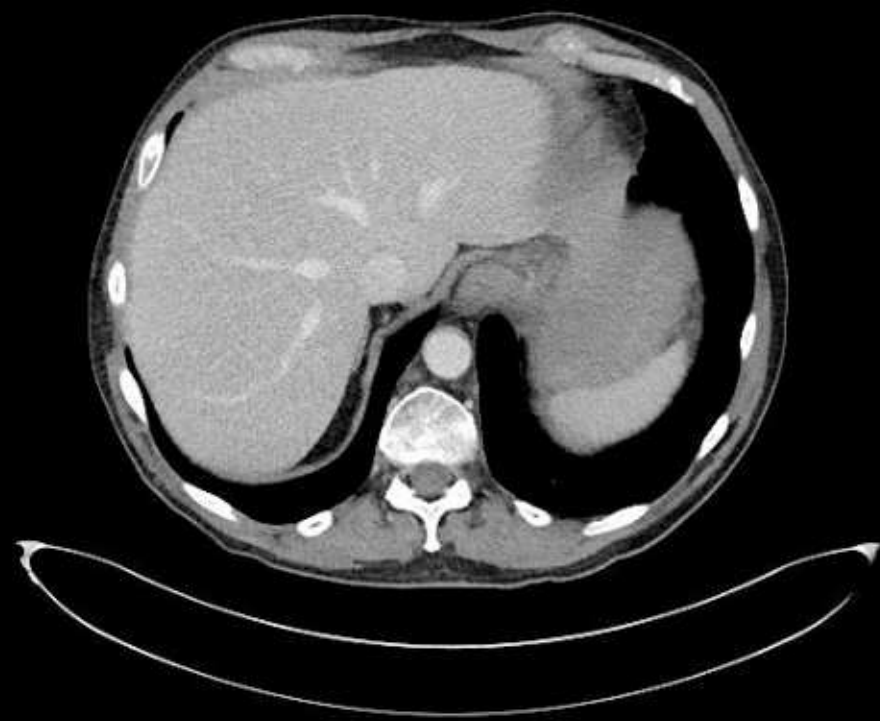


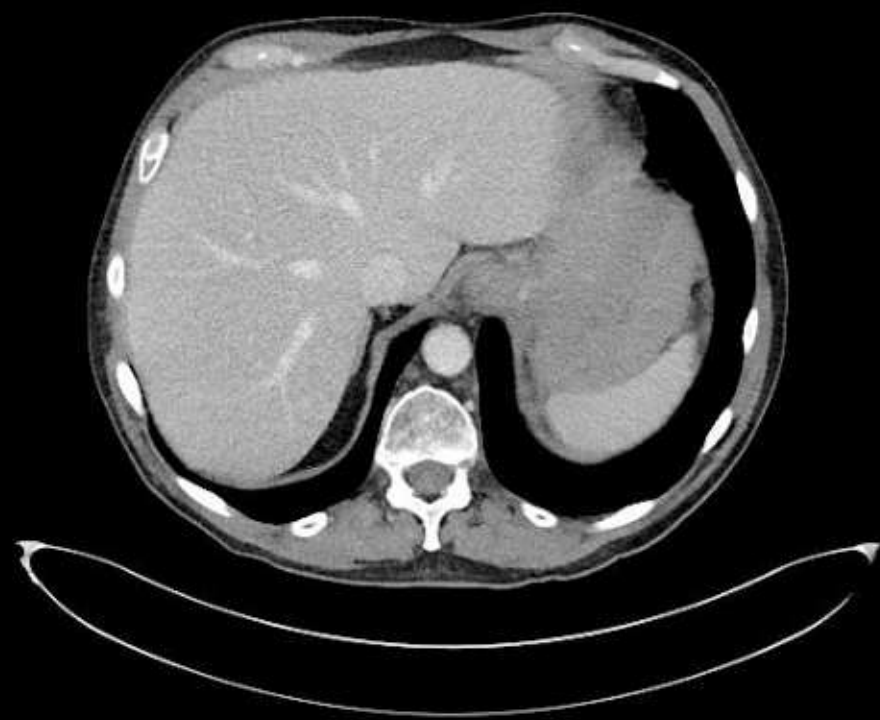


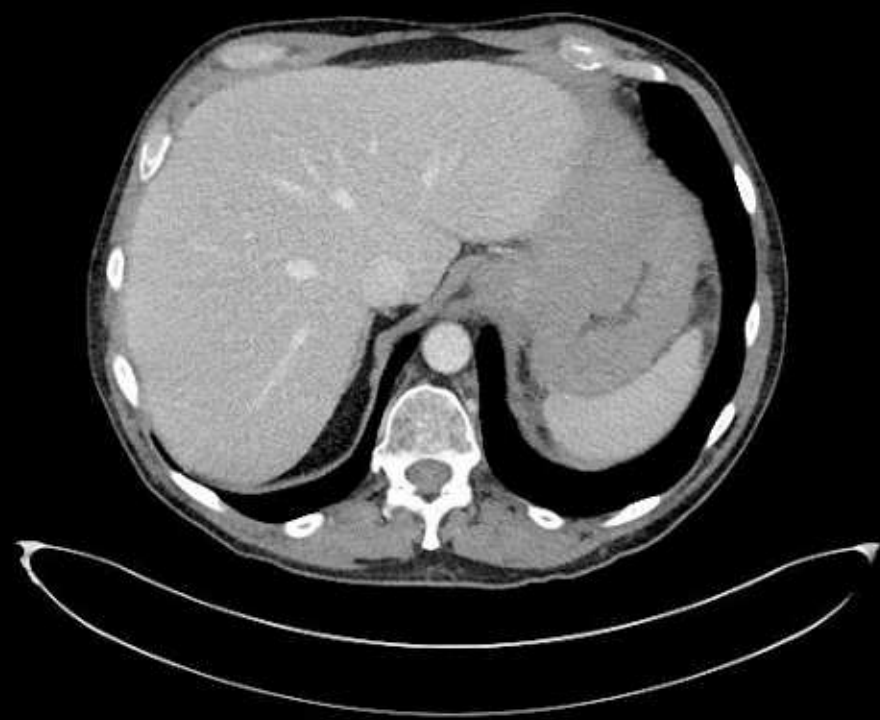




























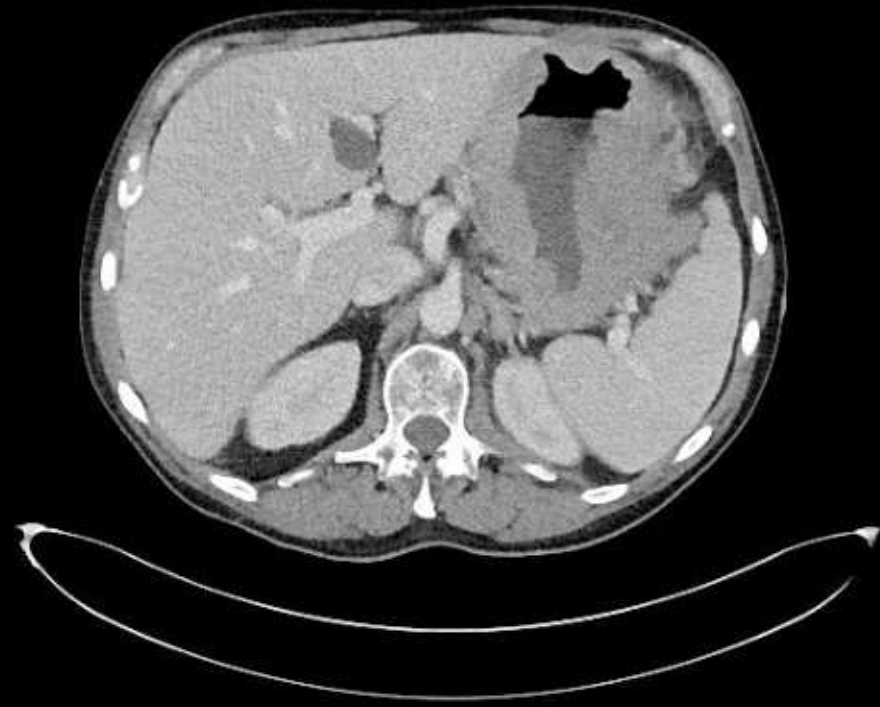


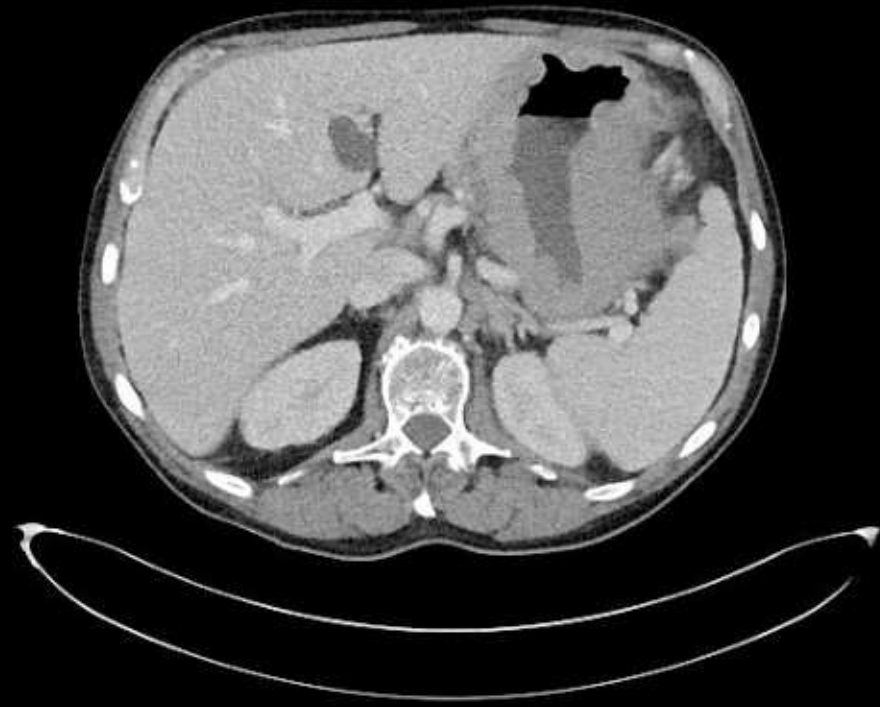


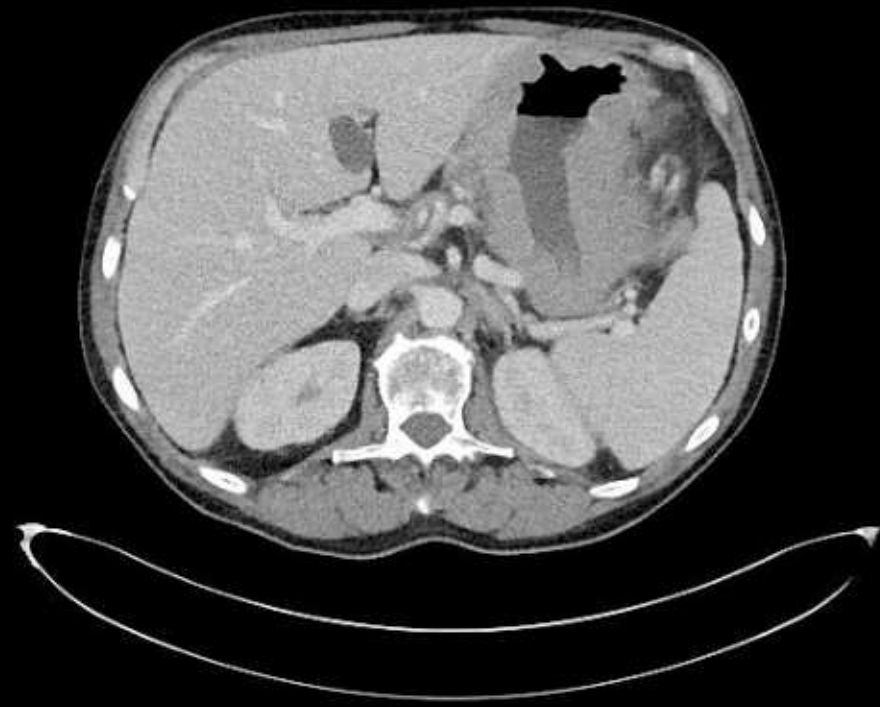


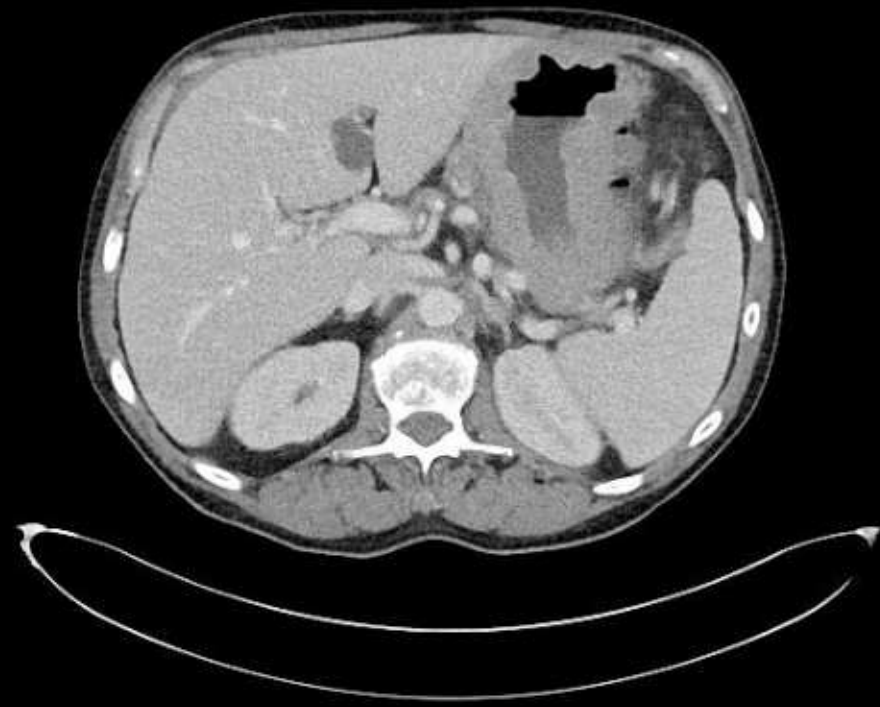


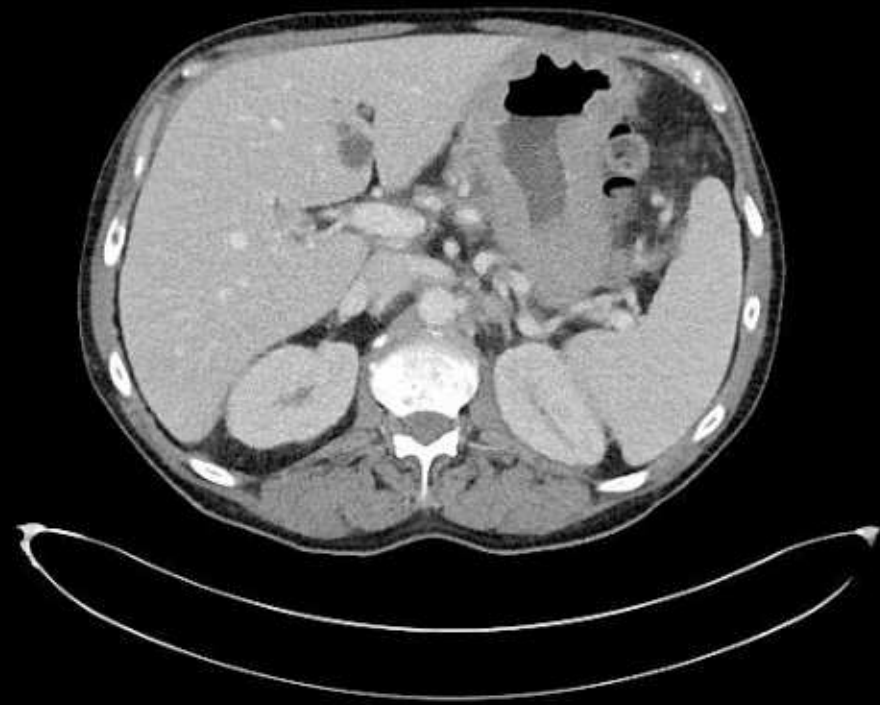






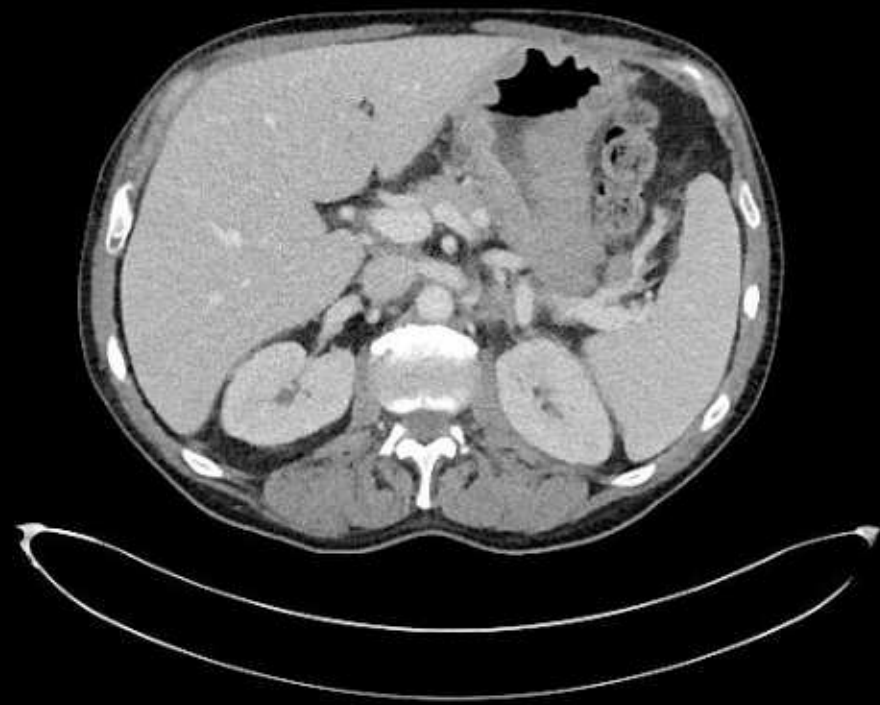












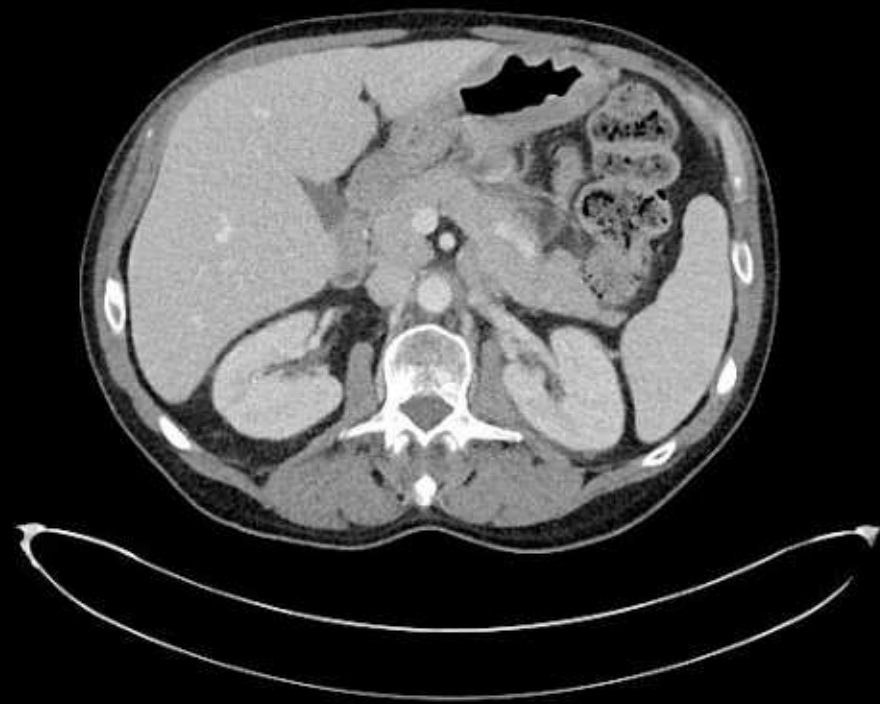




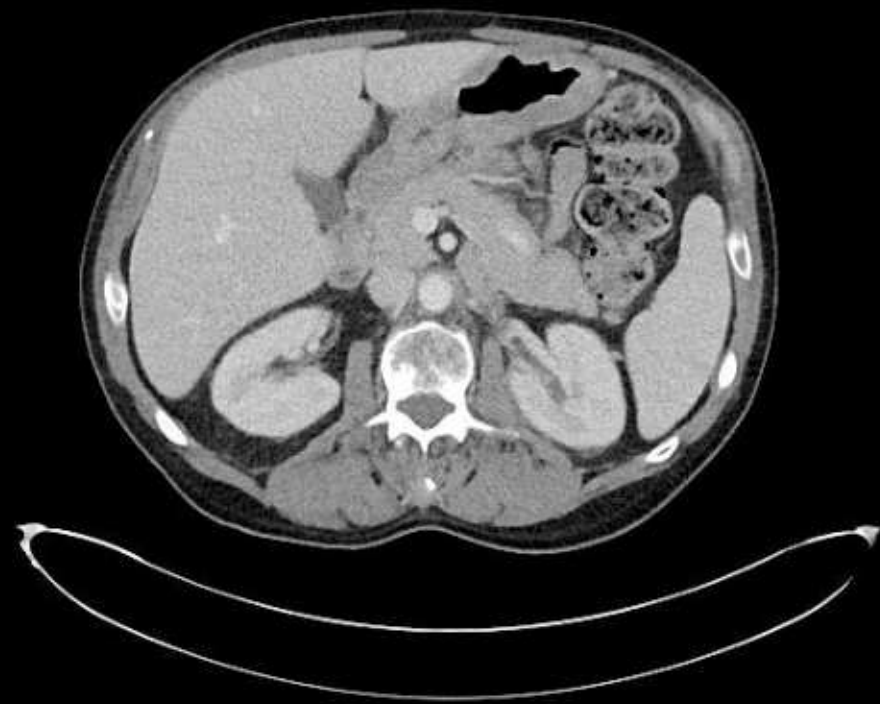


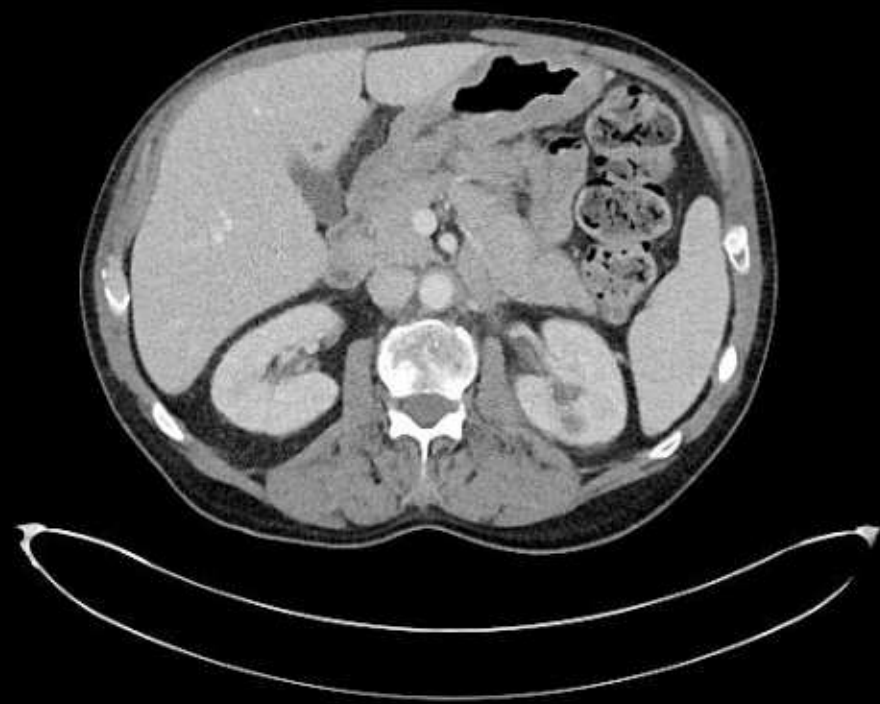


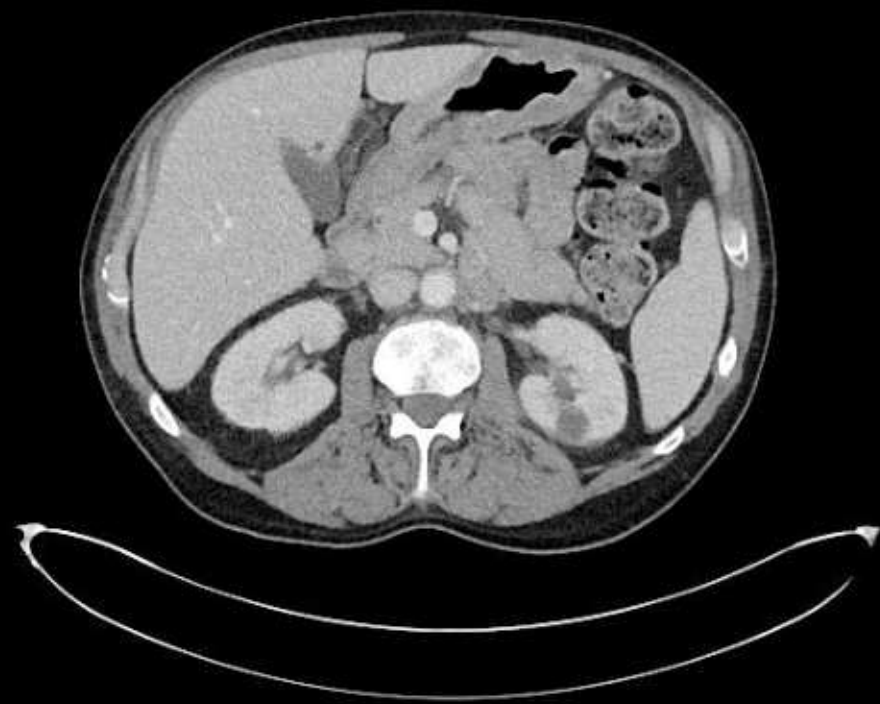


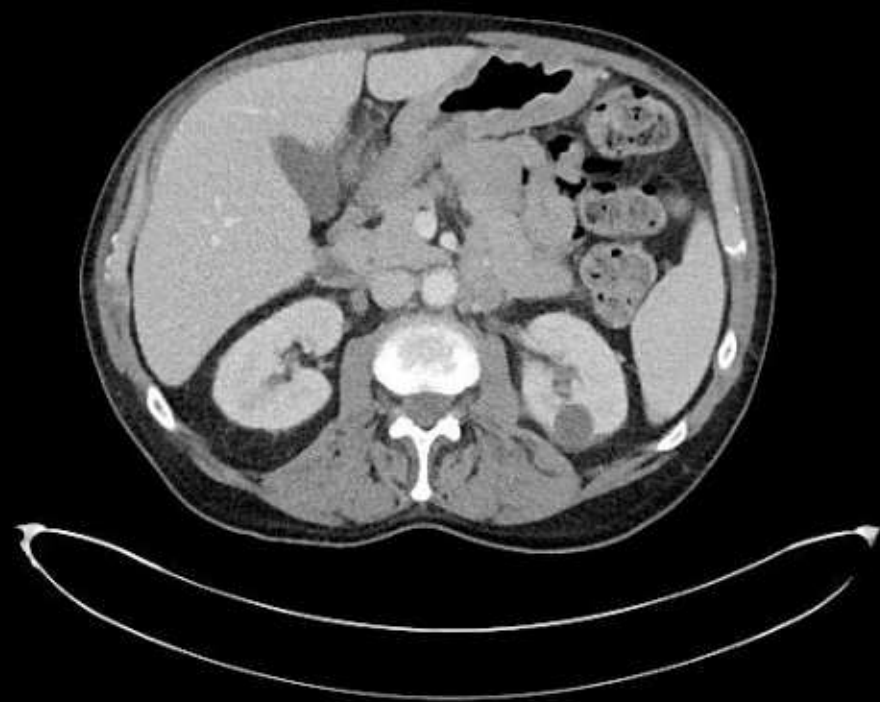




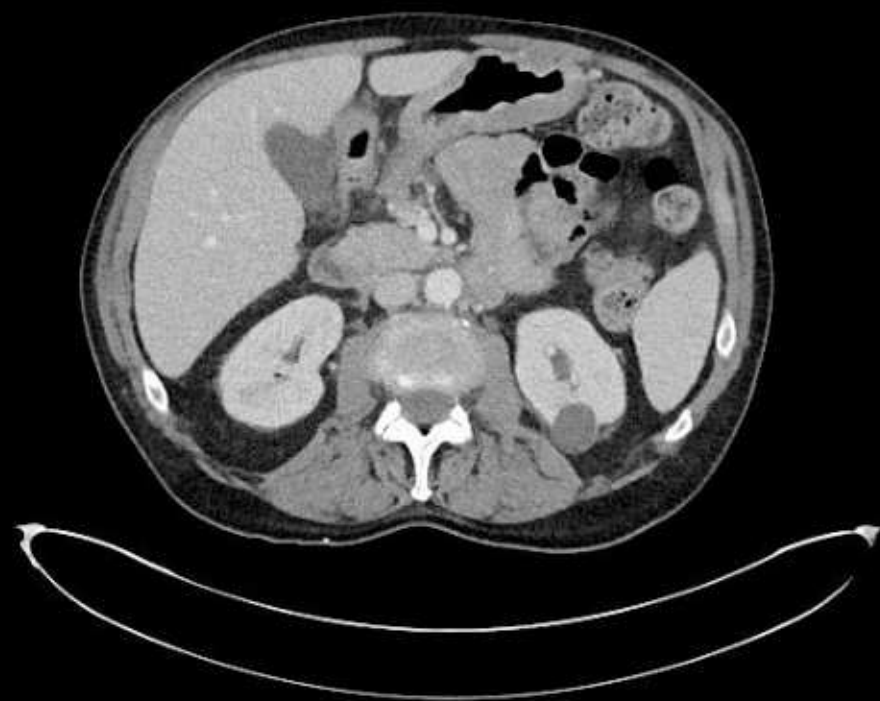


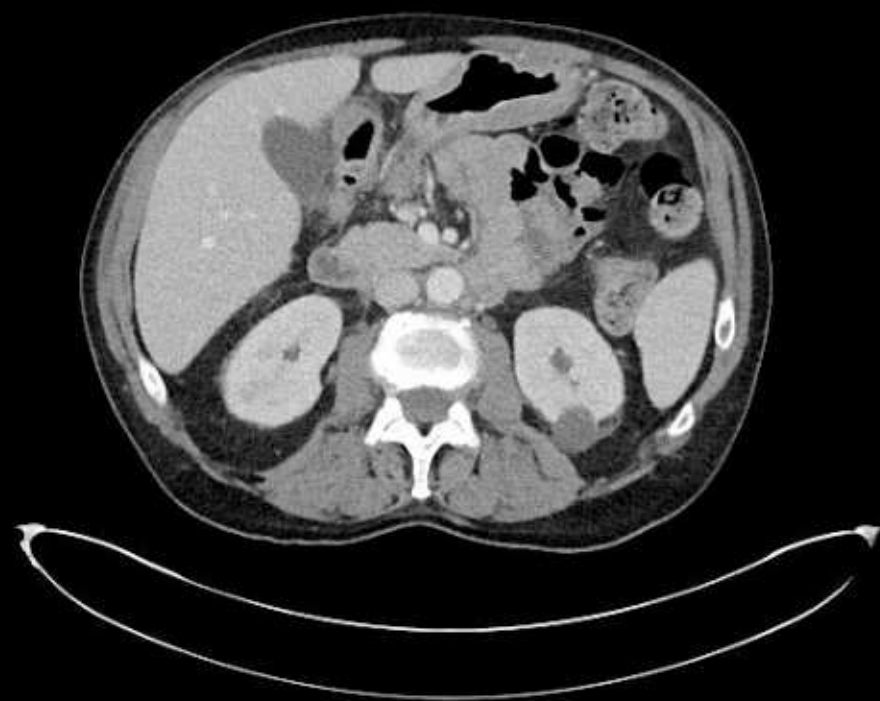


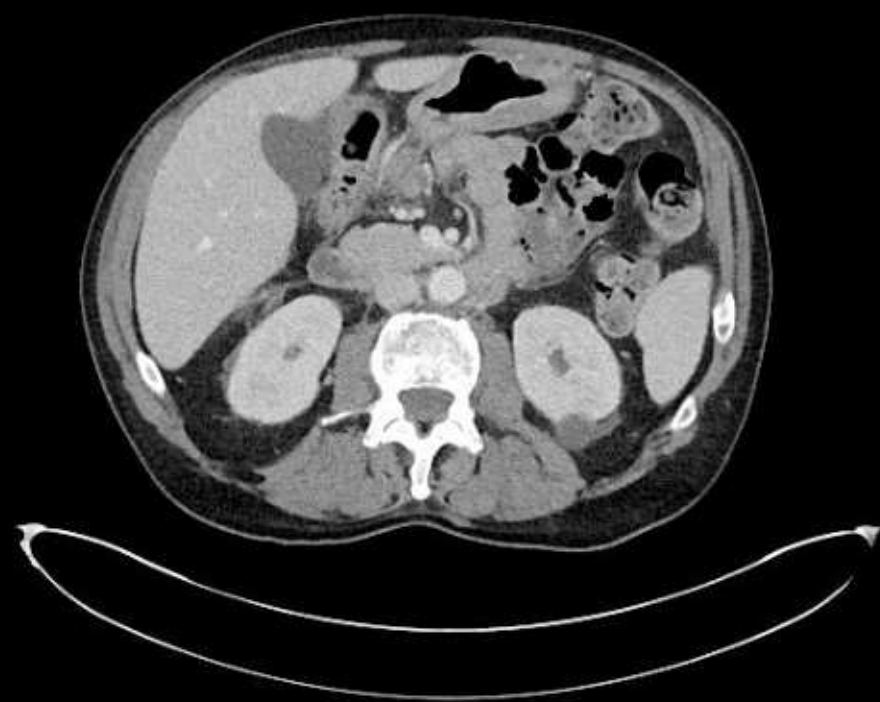


















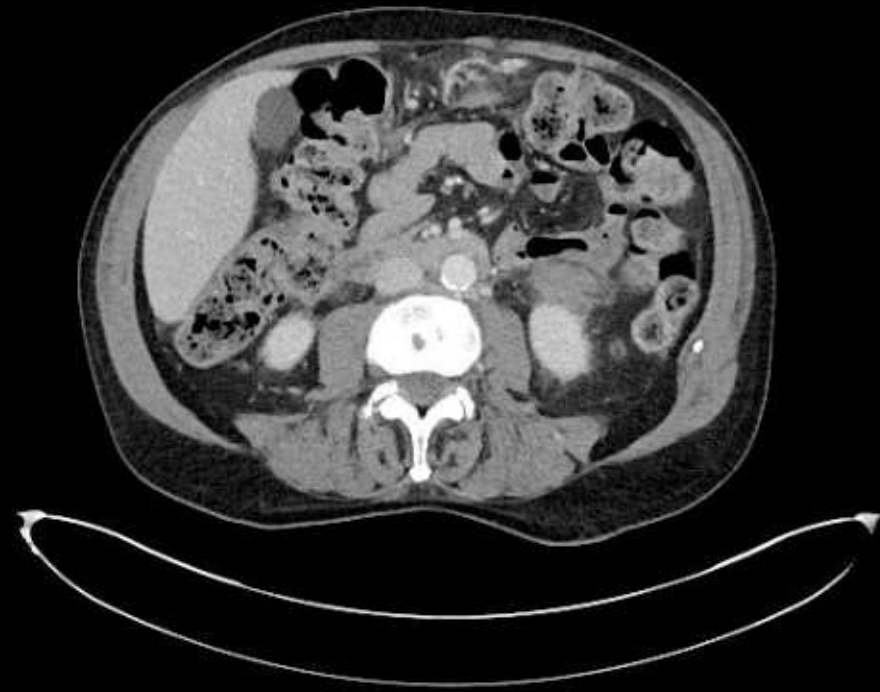




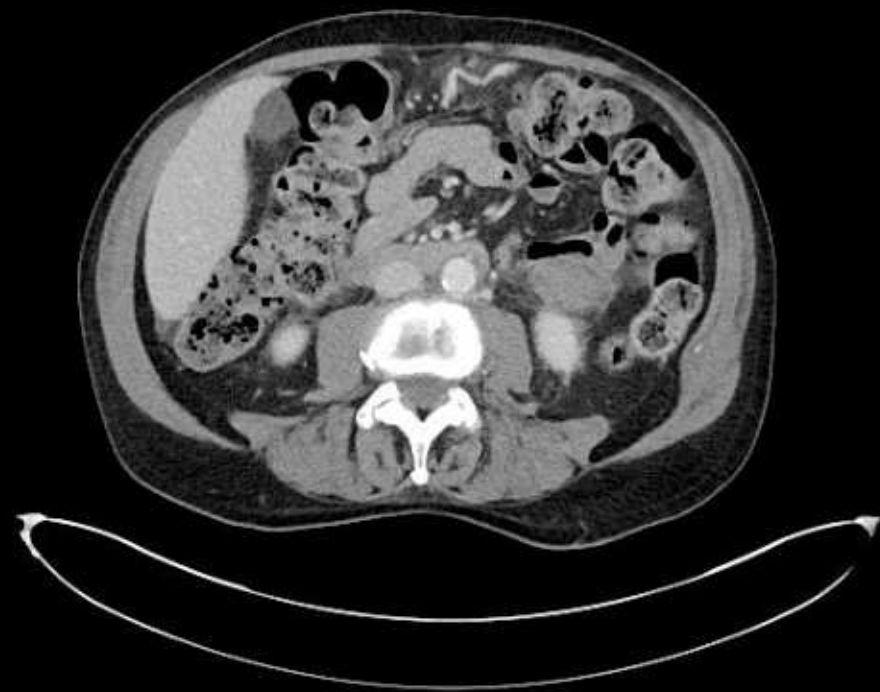












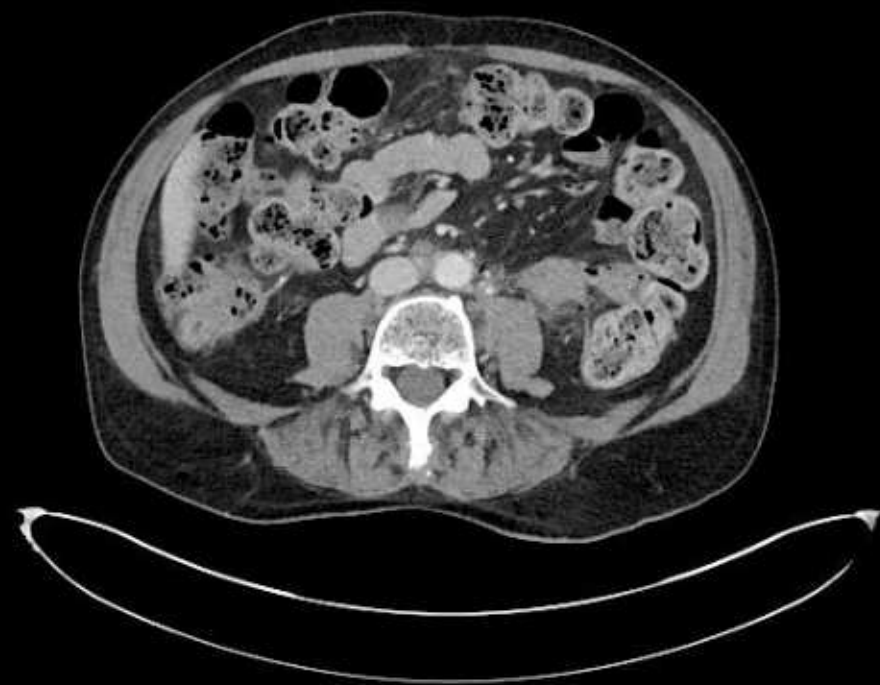
















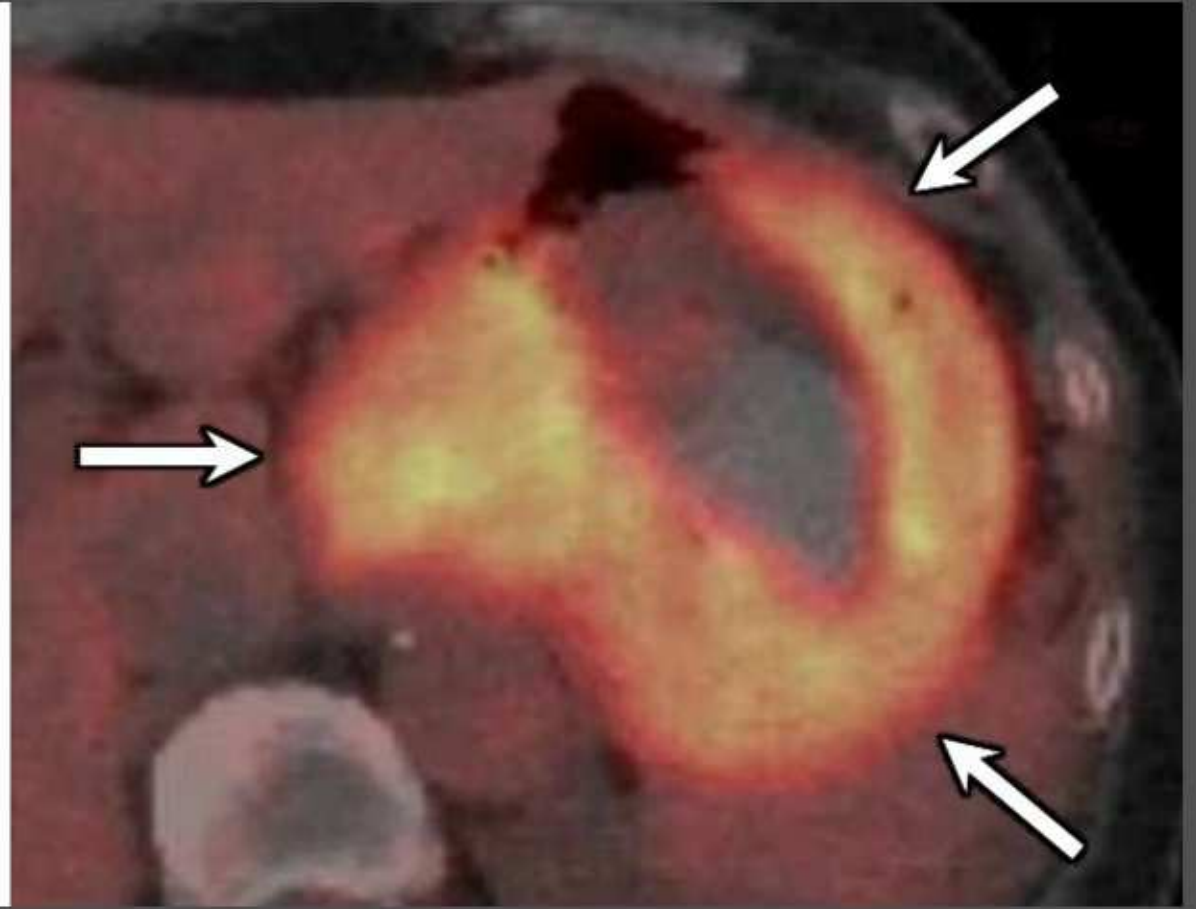












## Lümfoom

- Primaarne: low grade MALT (60% primaarsetest, seostatav H. pylori infektsiooniga). B-rakuline non Non-Hodgkins.
- Sekundaarne – süsteemne haigus, mis levinud makku. Lümfaadenopaatia on väljendunud.

Mao seina difuusne paksenemine. Reeglina ei põhjusta mao valendiku ahenemist ega obstruktsiooni. Kogub hästi FDG-PET uuringul märkainet.

Juhtum 6

60-aastane naine.  
Juhuleid.

[Case courtesy of Dr Bruno Di Muzio, Radiopaedia.org, rID: 28609](#)













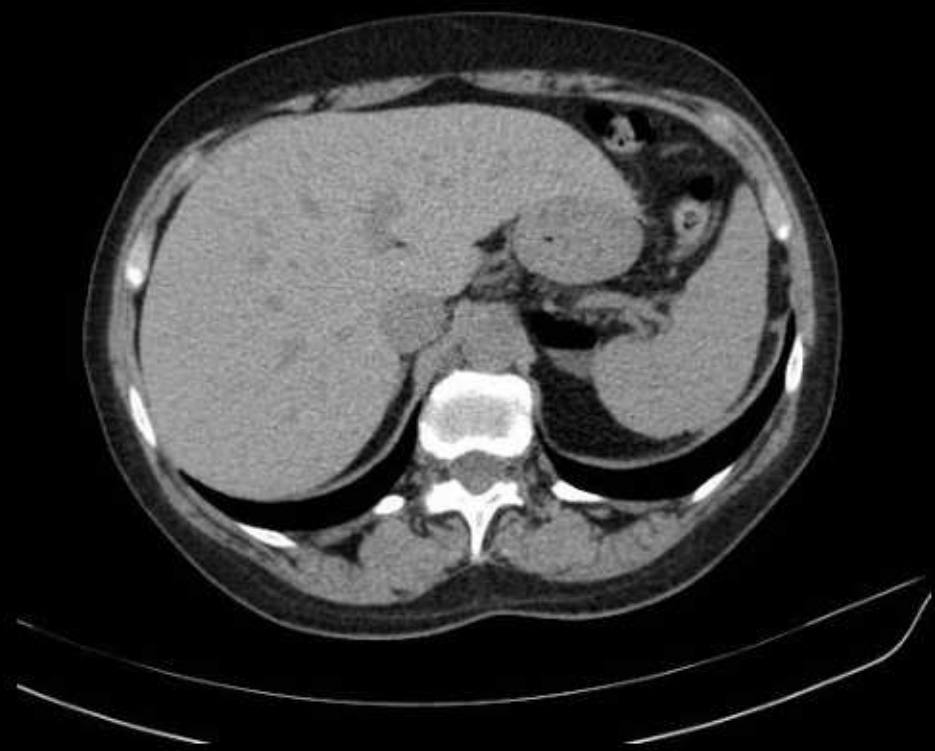


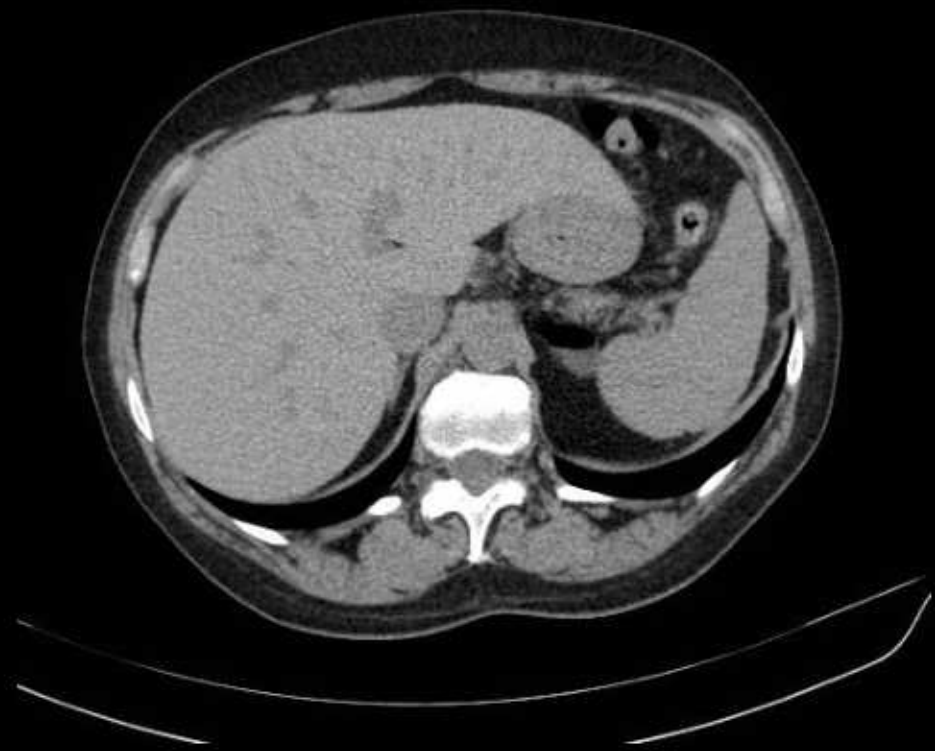












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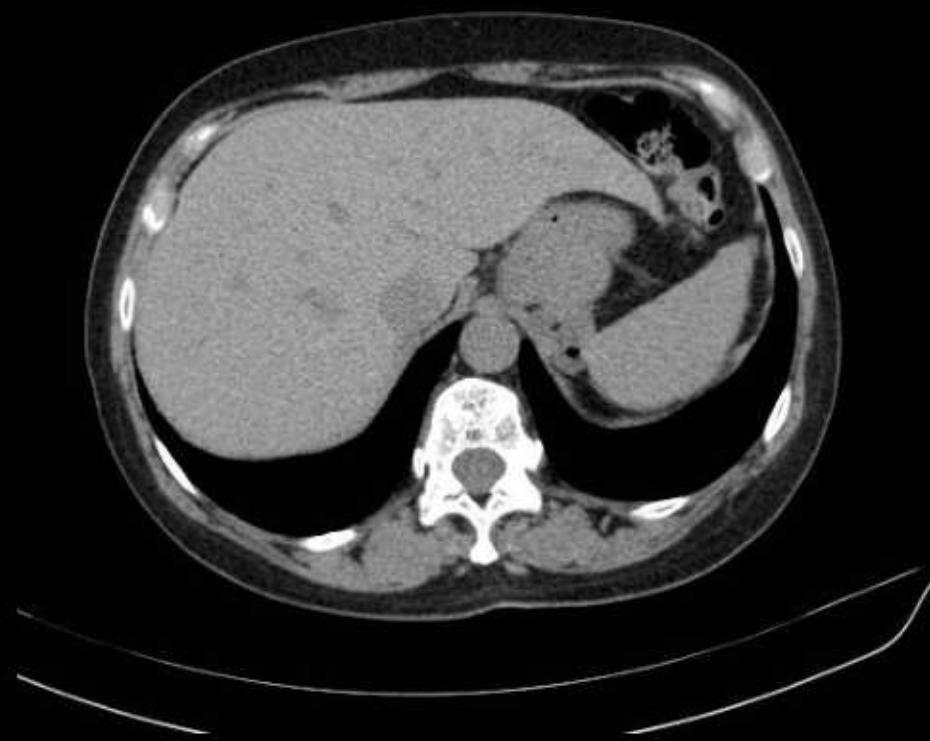
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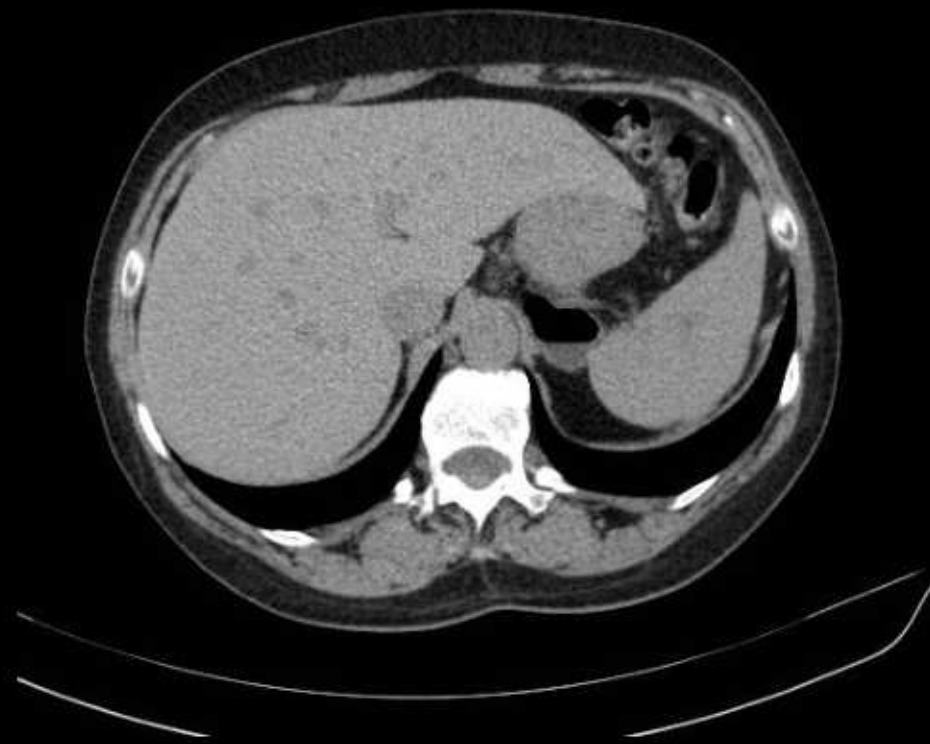


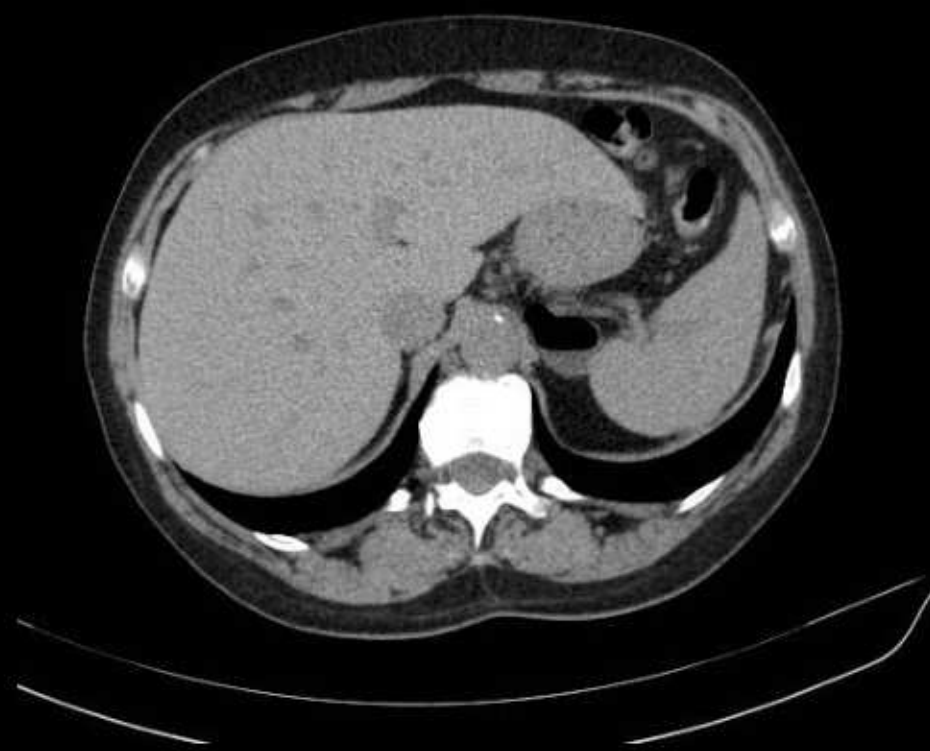


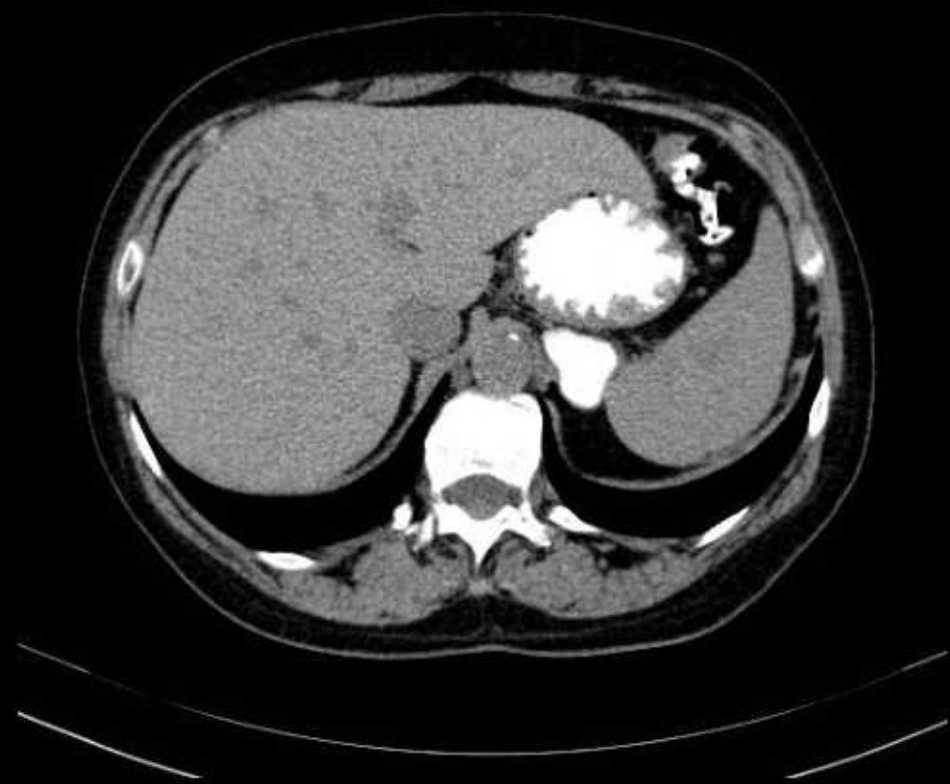
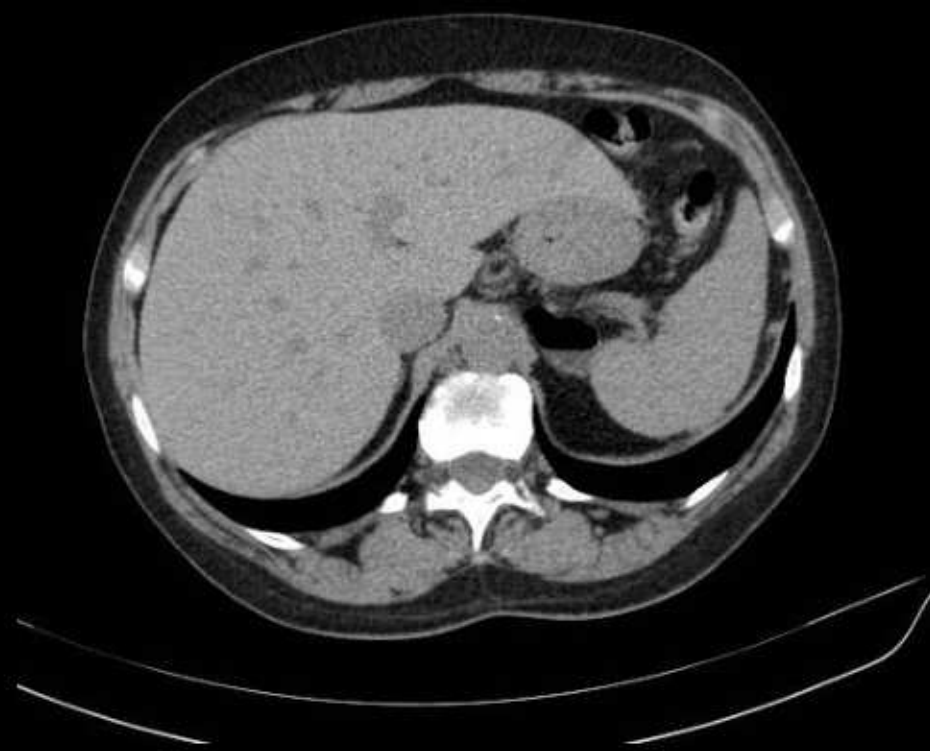


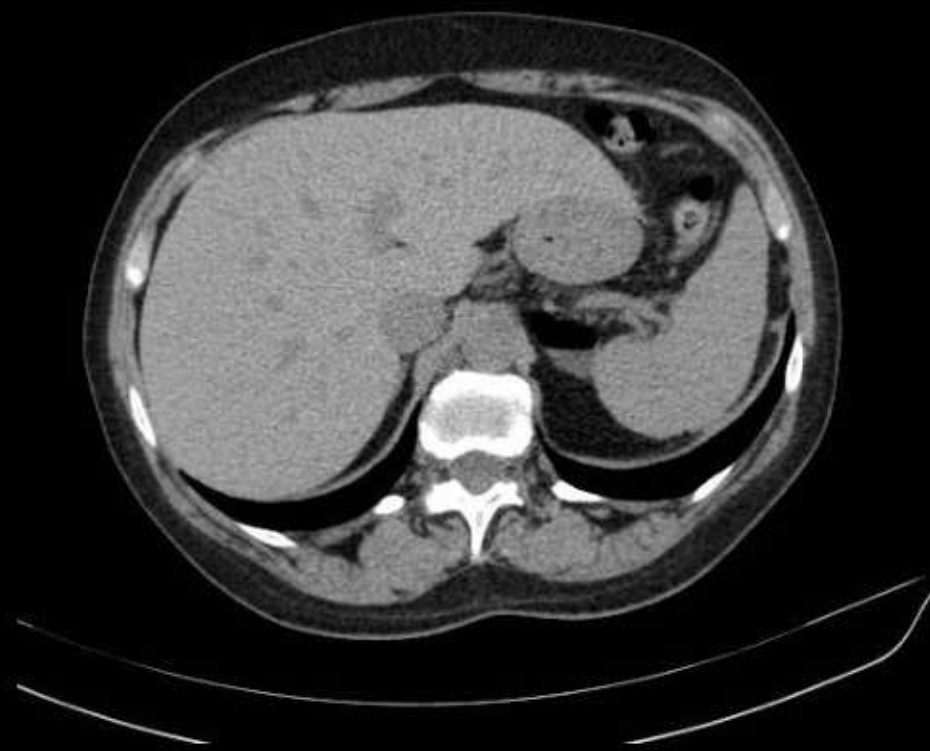


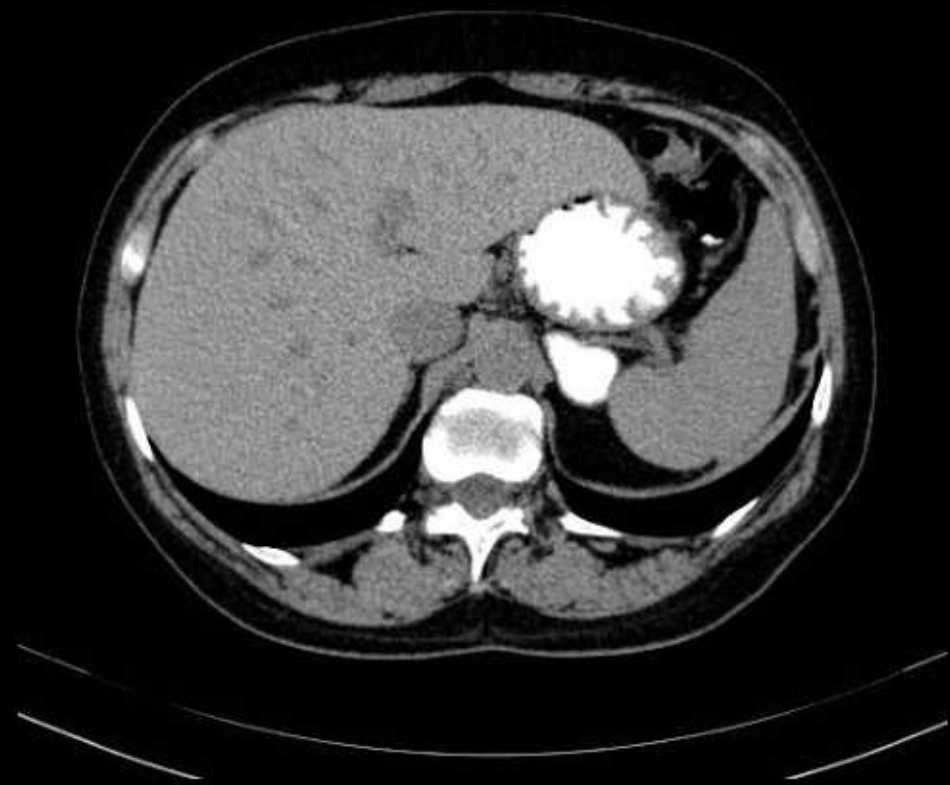
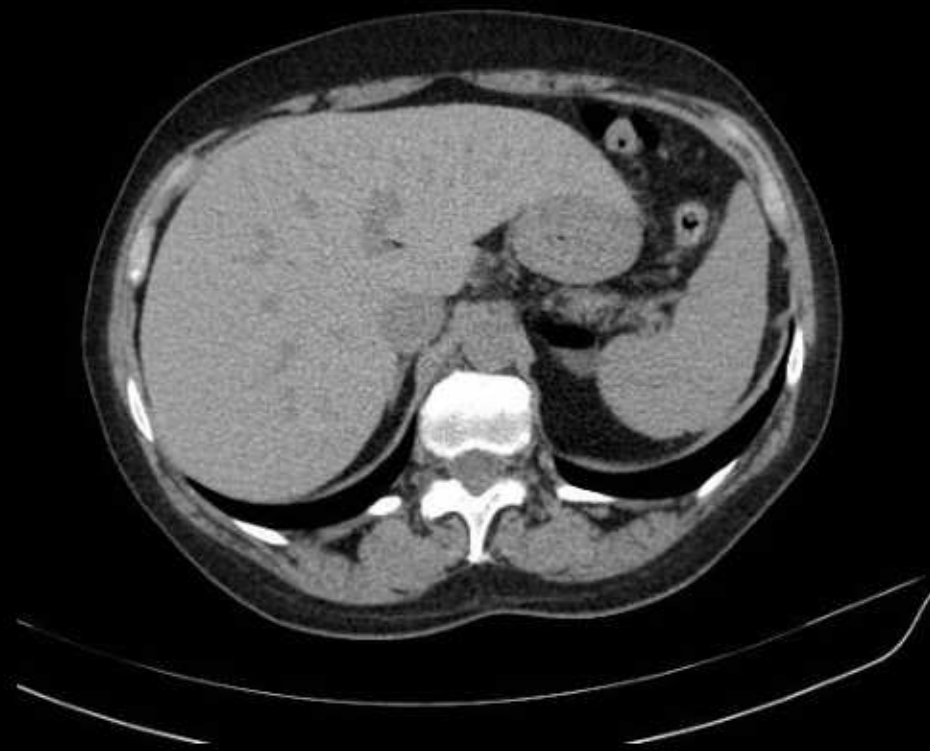












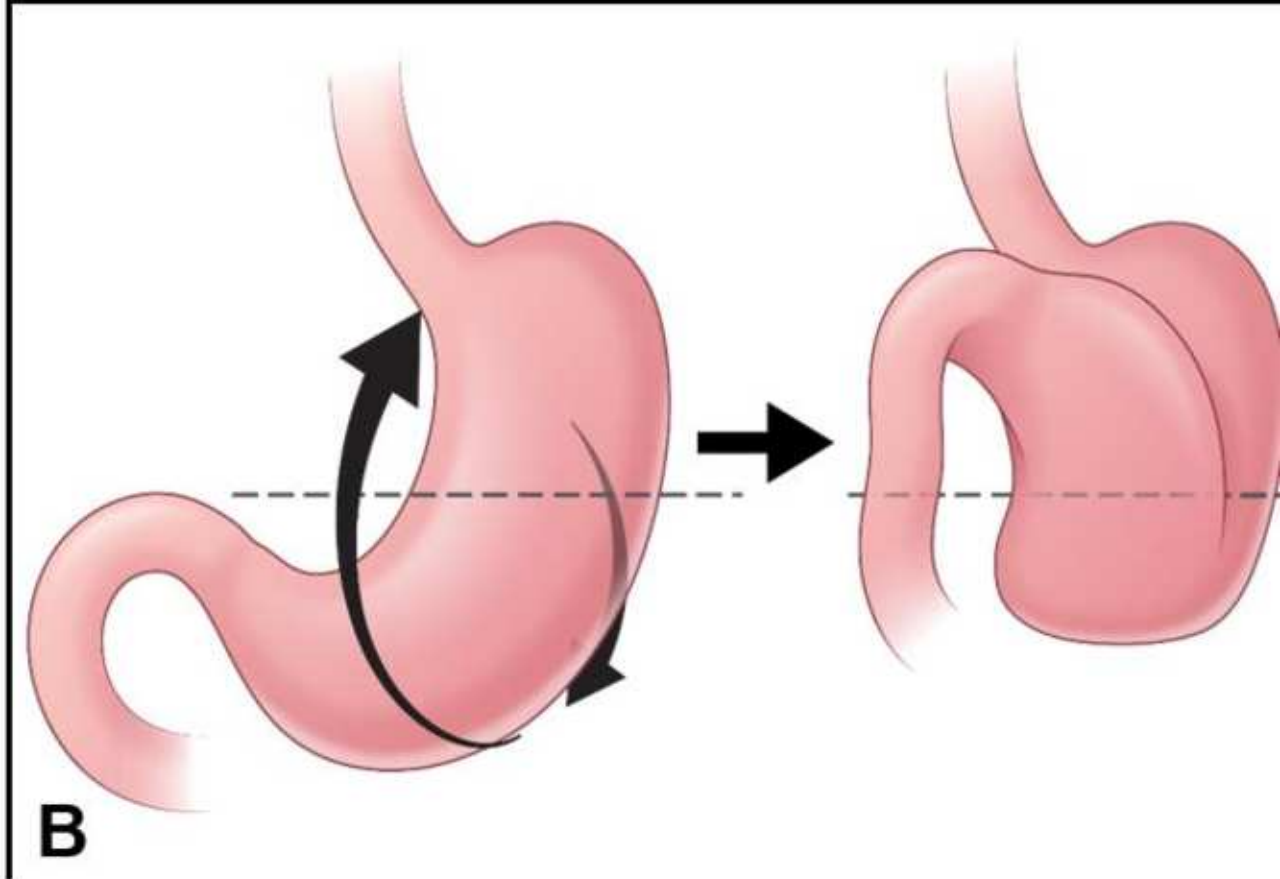
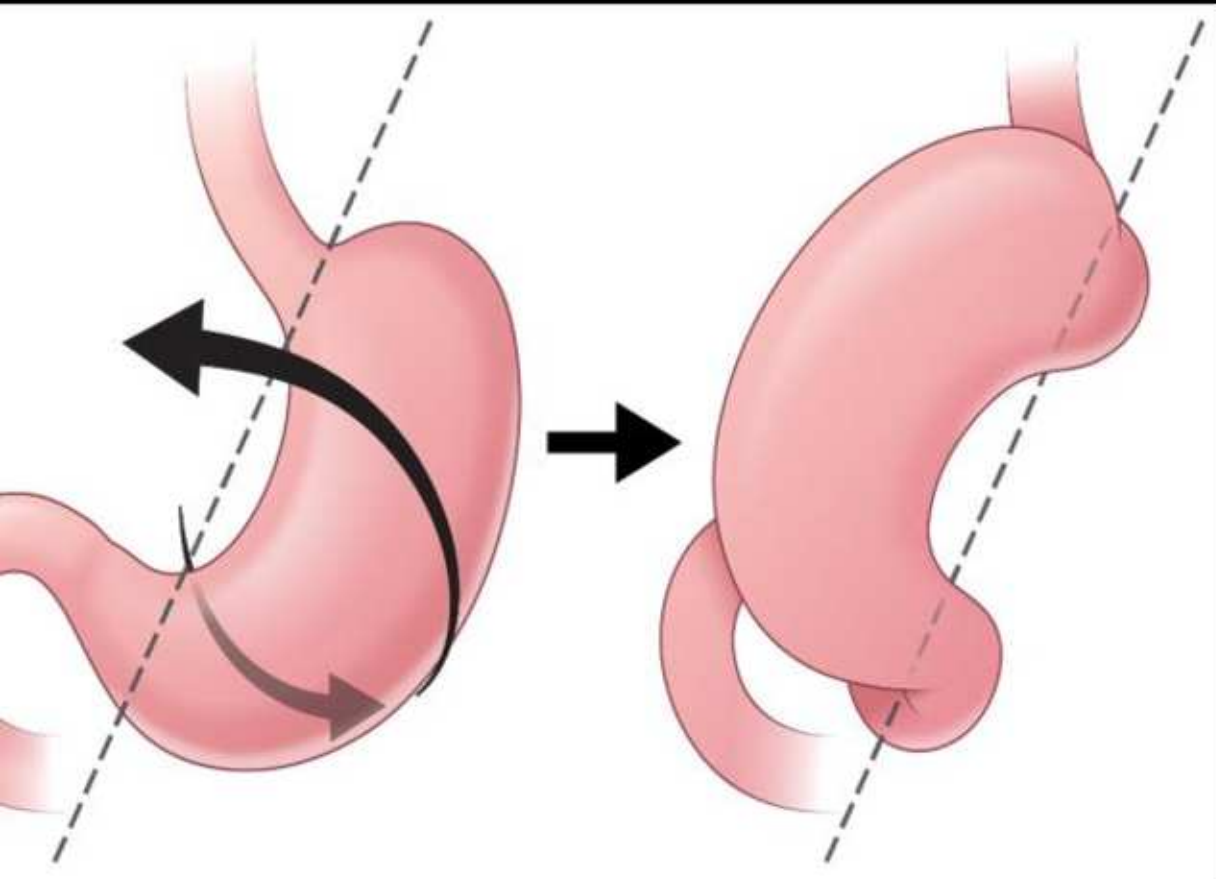
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# Divertiikel





Mao volvulus

# Kokkuvõte

## NEOPLAASIA

- Adenokartsinoom
- Lümfoom
- Neuroendokriintuumor
- Mesenhümaalsed tuumorid
  - GIST
  - Non-GIST sarkoom
  - Lipoom
  - Lipomatoos
  - Leiomiroom
  - Schwannoom
  - Glomus tuumor
- Metastaasid

# Kokkuvõte

## PÕLETIKULINE

- Gastriit
- Pneumatosis gastrica

## Erakorralised seisundid

- Emfüsematoosne gastriit
- Hemorraagia
- Mao volvulus

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