

Stanford Division of Vascular Surgery Interesting Cases

11/15/2010

Vascular Surgery



- HPI:
 - 57yoM h/o HTN, HLD, tobacco use, anxiety, and family hx of ruptured AAA. Developed sudden onset severe abdominal pain radiating to the back at 11:30 Pm the evening PTA.
 - The next morning he experienced a syncopal episode. At that time he called an ambulance and was taken to the PAVA.



- PmHx:

- 1)Hyperlipidemia
- 2)Hypertension
- 3)Tobacco Use
- 4)Anxiety
- 5) Aortic
Regurgitation

PsHx:

Unknown

Meds:

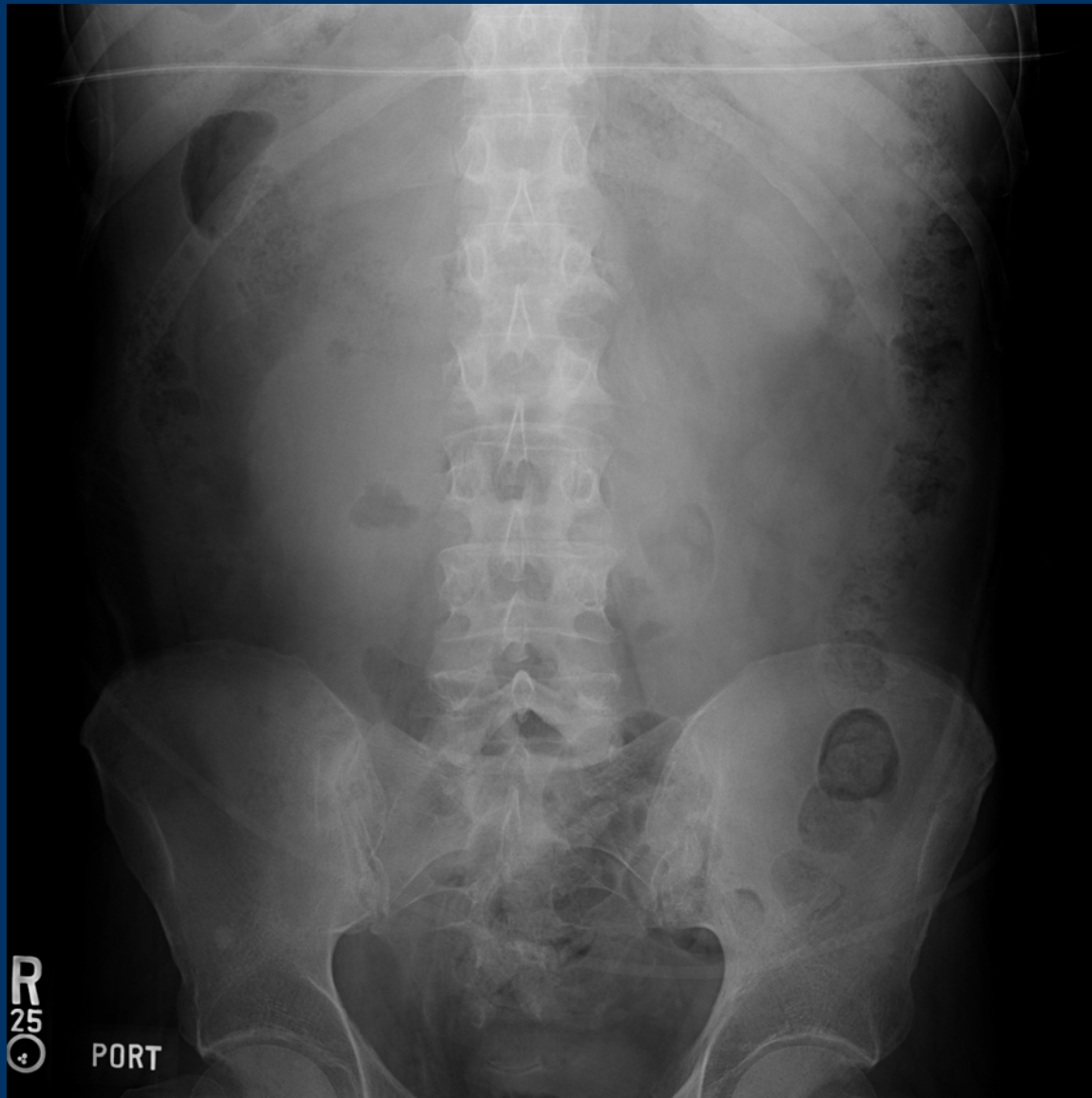
UTO



- PE:
 - On presentation 6:30am
 - Vitals HR 112 BP 110/59 SpO2 98%
 - Pale, in pain, speech clear
 - Tachycardia
 - CTA B
 - Abd: Obese/Slight Distention/Periumbilical pain with rebound and guarding
 - Extremities Cool
 - DP/PT non palpable but present by Doppler
 - No femoral pulses palpated
 - Labs:
 - WBC 18.7, HCT 35.7, PLT 209
 - Cr 1.35
 - Lactate 4.0
 - CXR: Negative
 - AXR: Large right sided mass



- AXR



- ER course

- Over the course of his work up, he becomes hypotensive SBP in the 80's

- Total of 3 L Crystalloid given with improvement in his SBP to 110's

- 7:30 Am

- He now appears pale, diaphoretic, and uncomfortable, However he remains AOX3 and continues to make jokes.

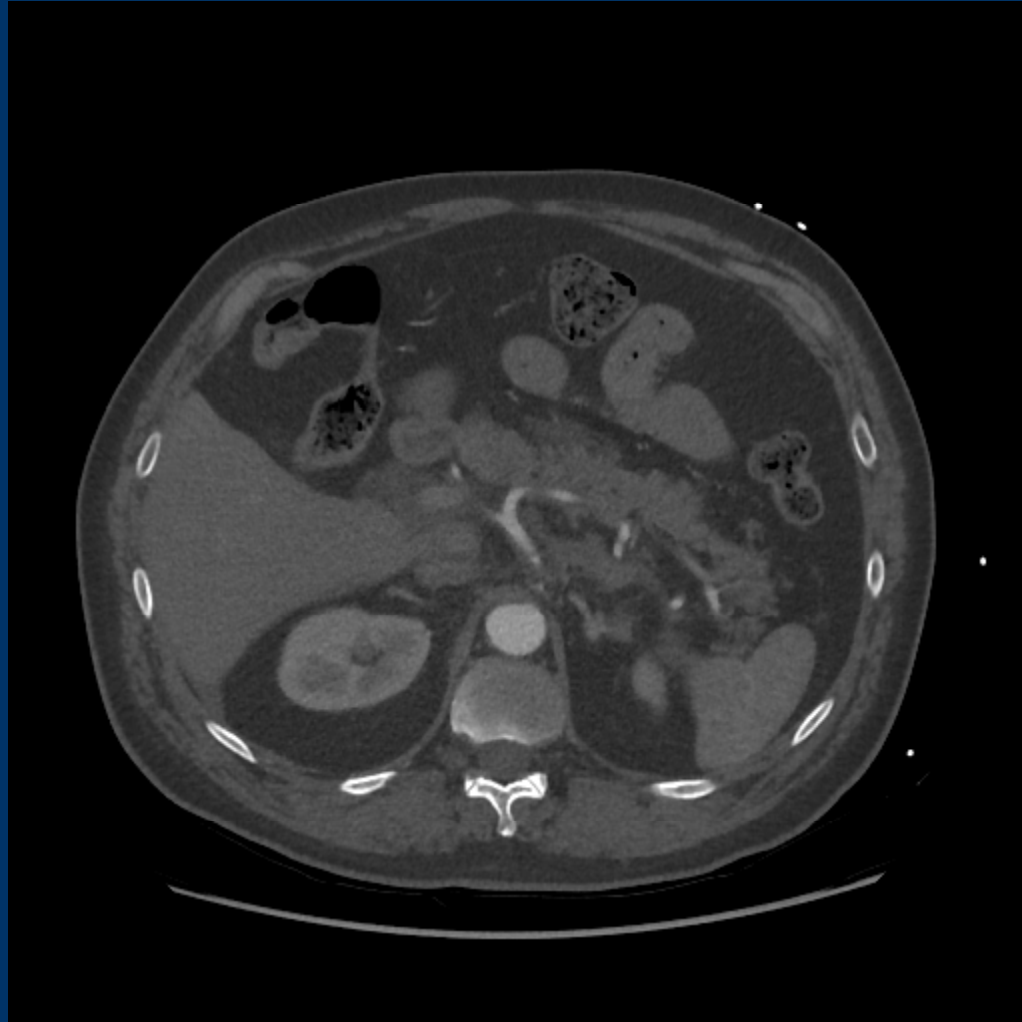
- Abdomen remains tender with guarding.

- Extremities are cool.

- Lactate increases to 4.75

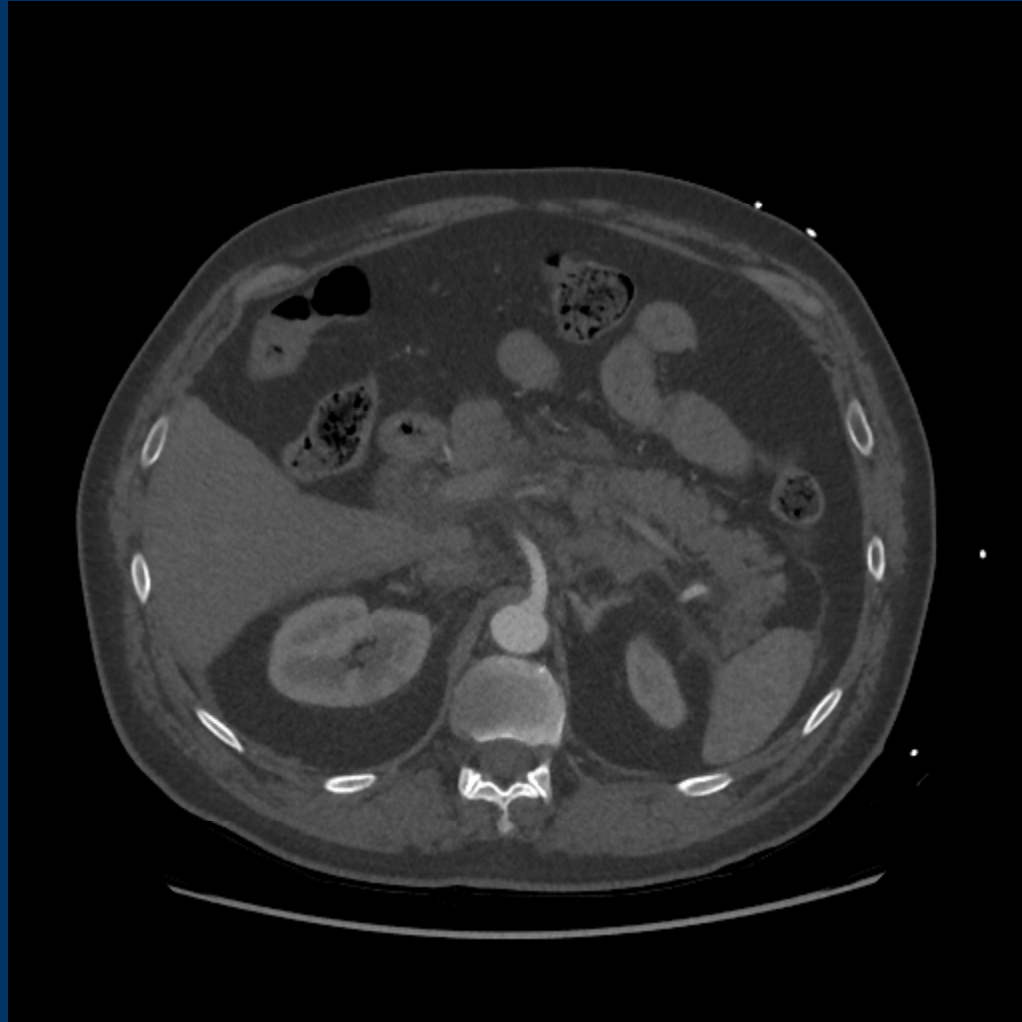
- CTA C/A/P Obtained





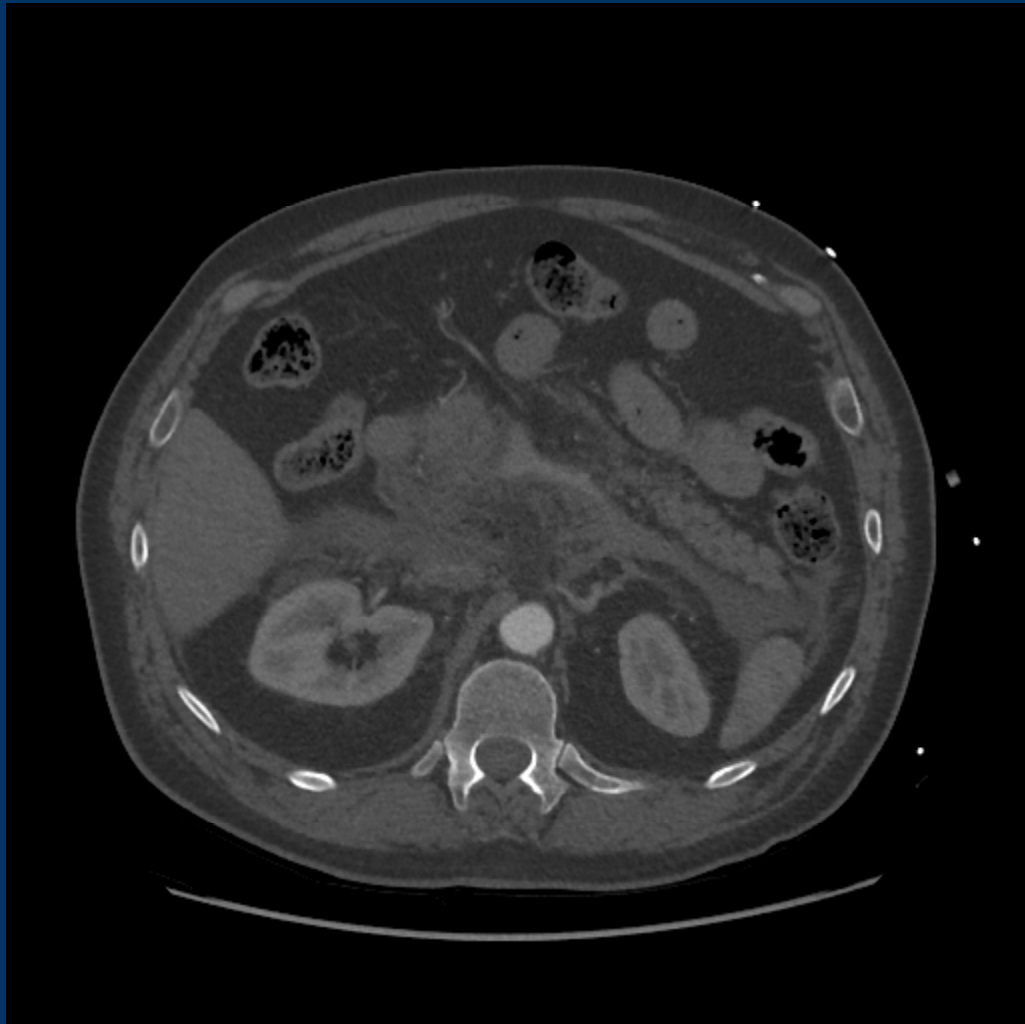
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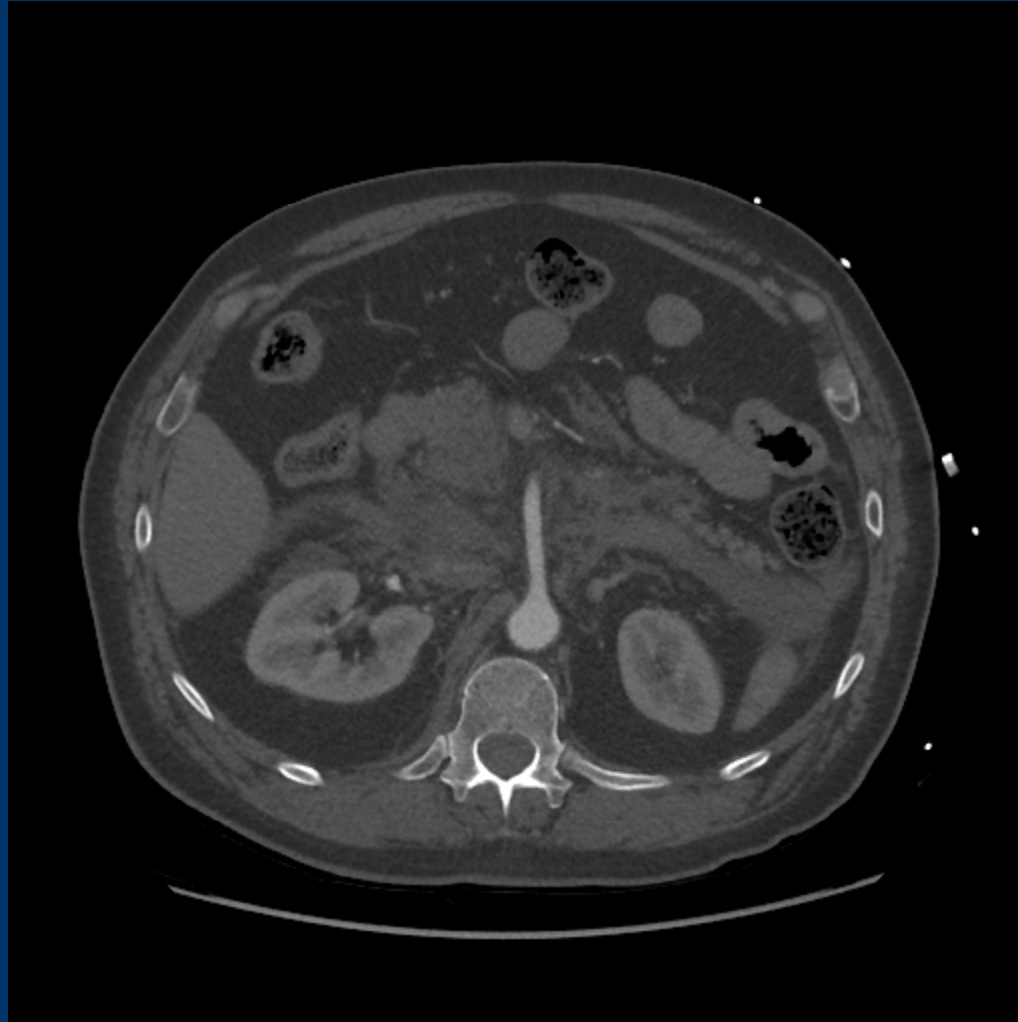
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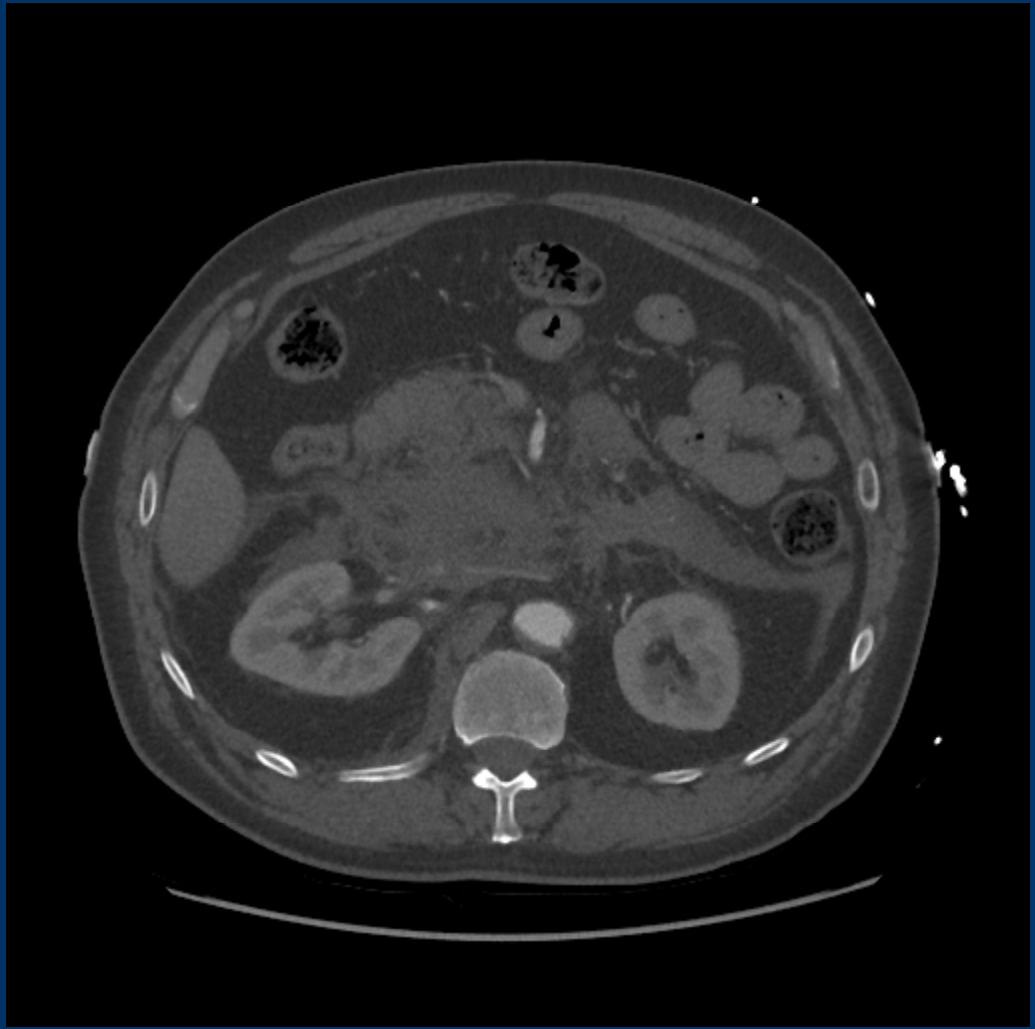
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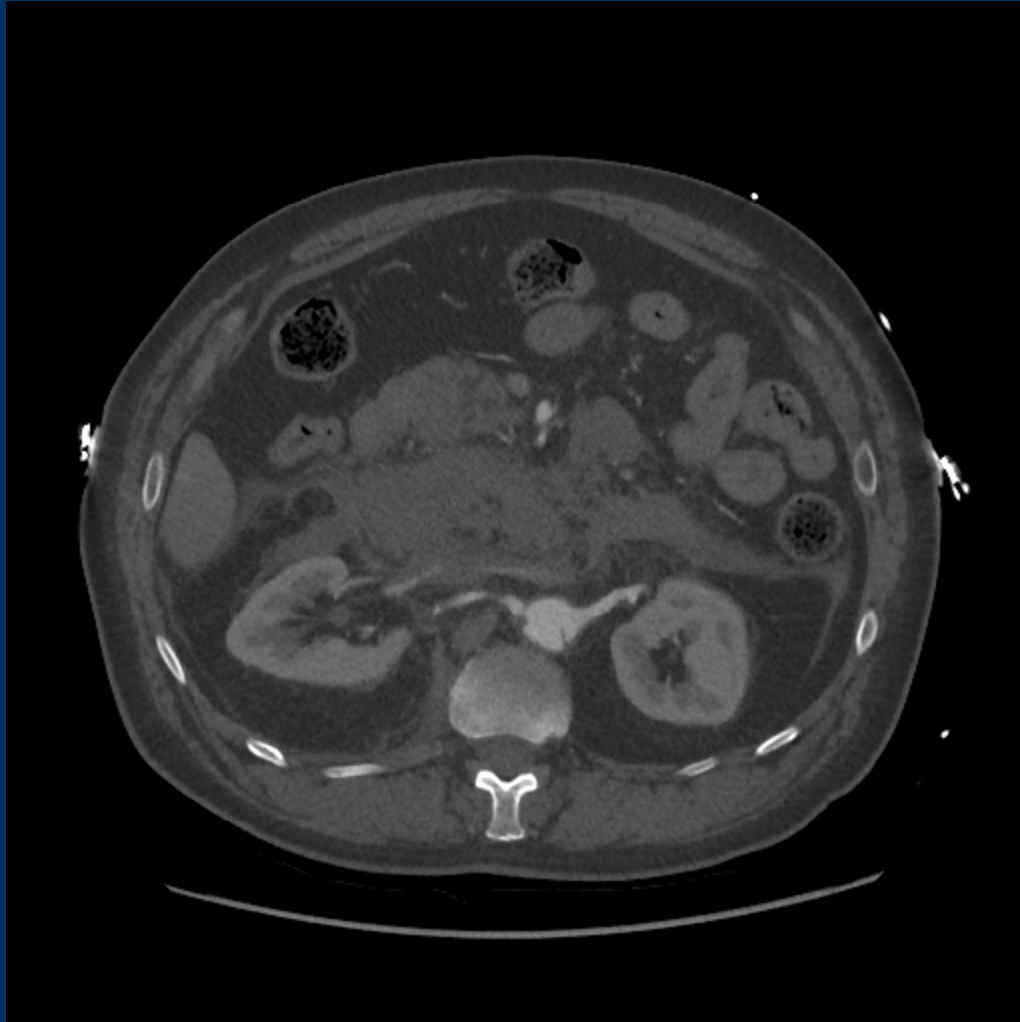
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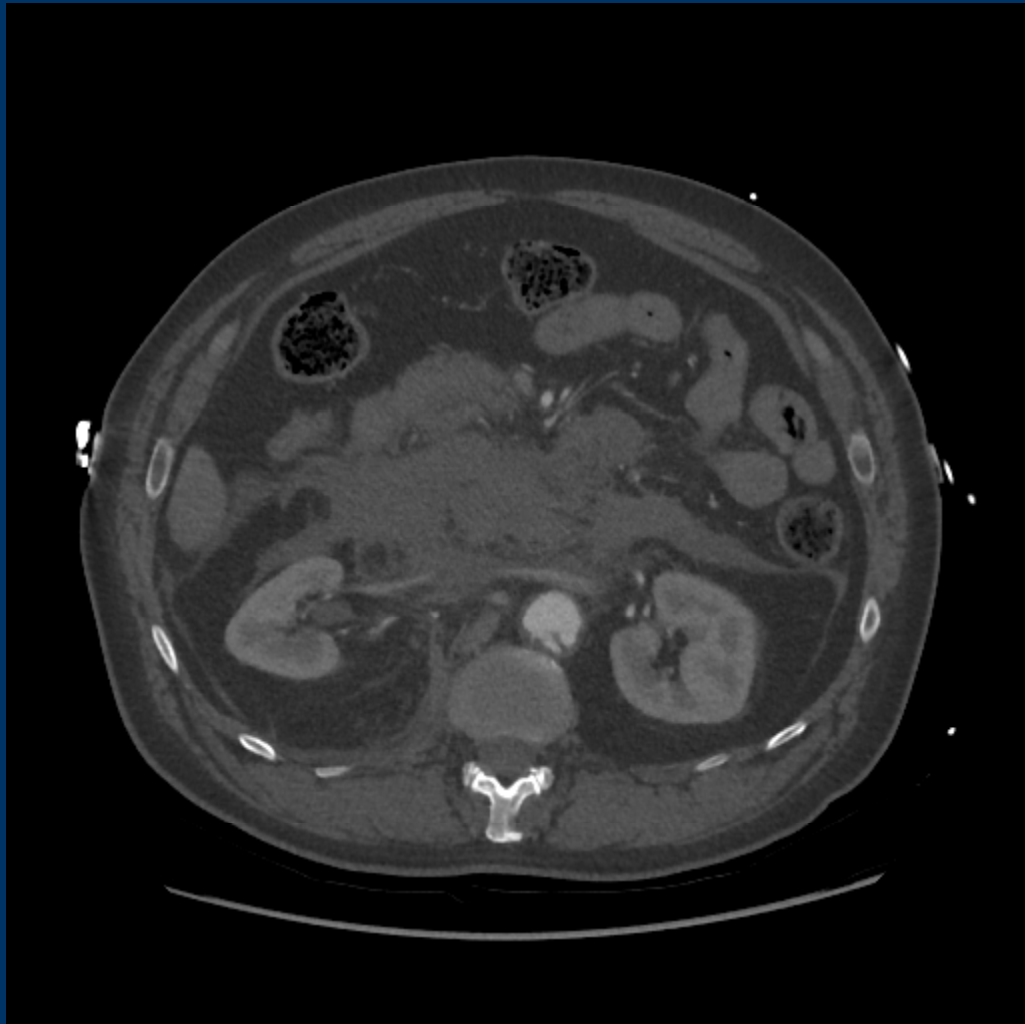
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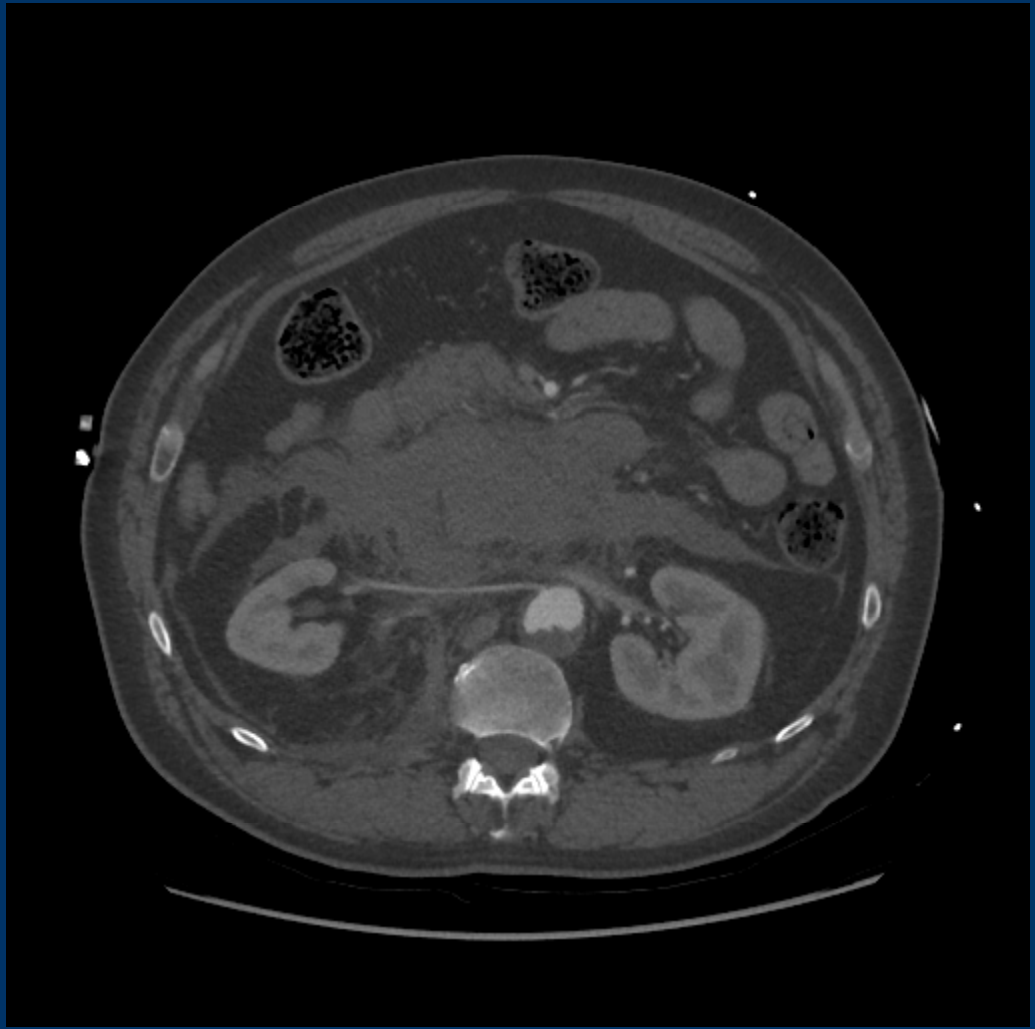
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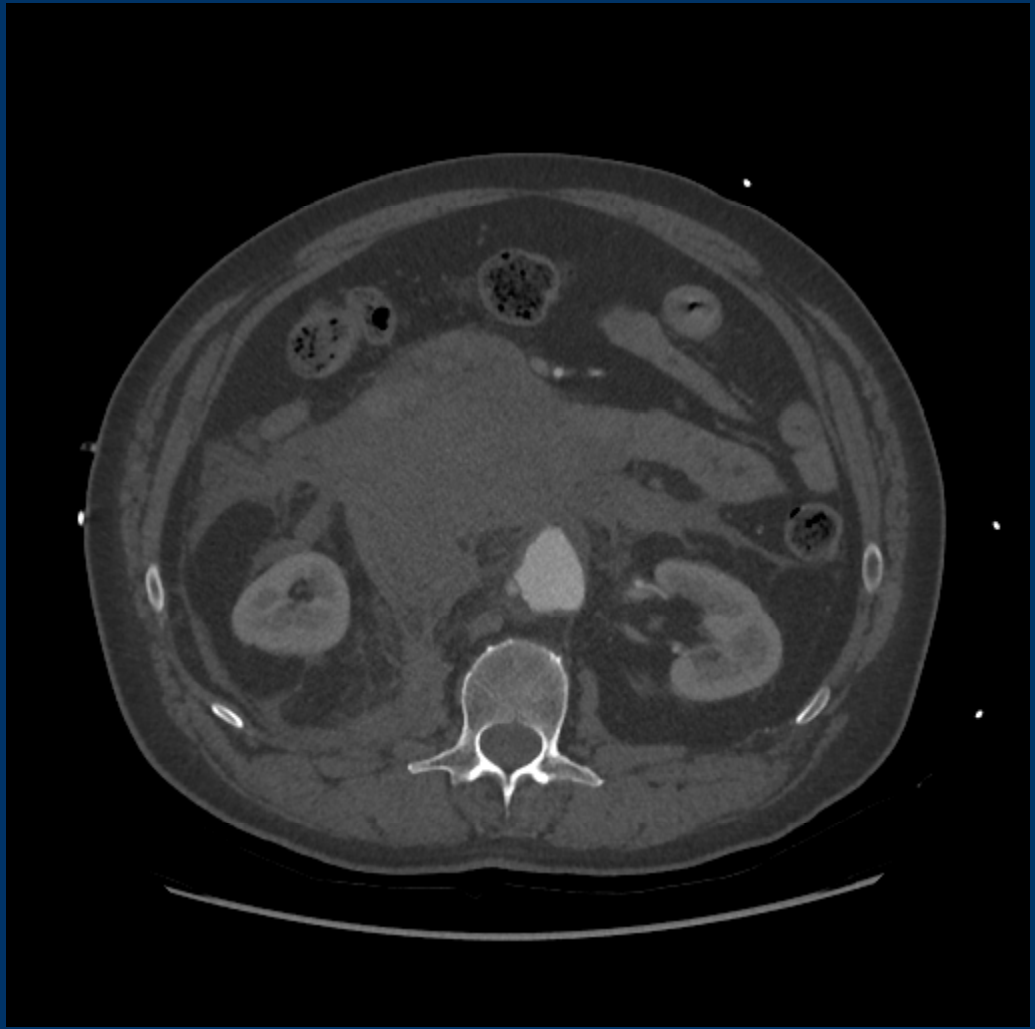
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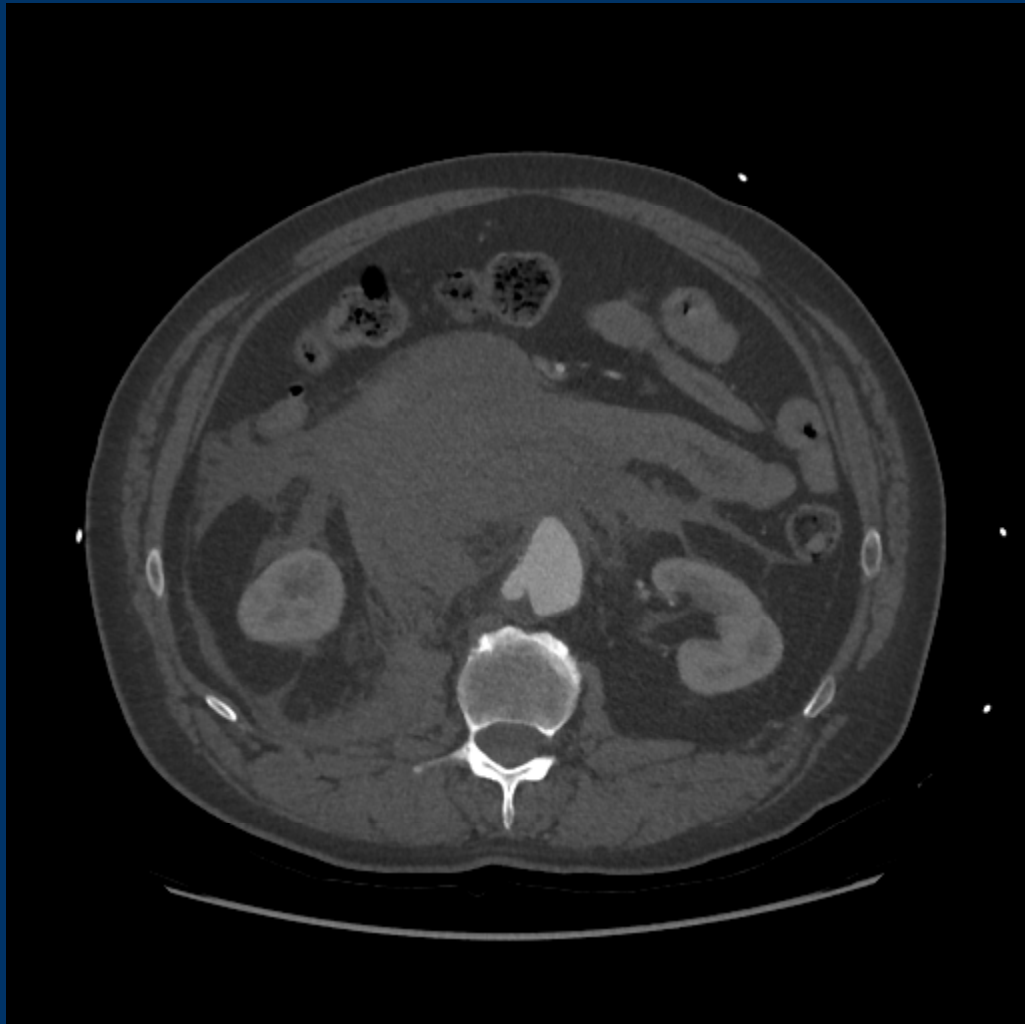
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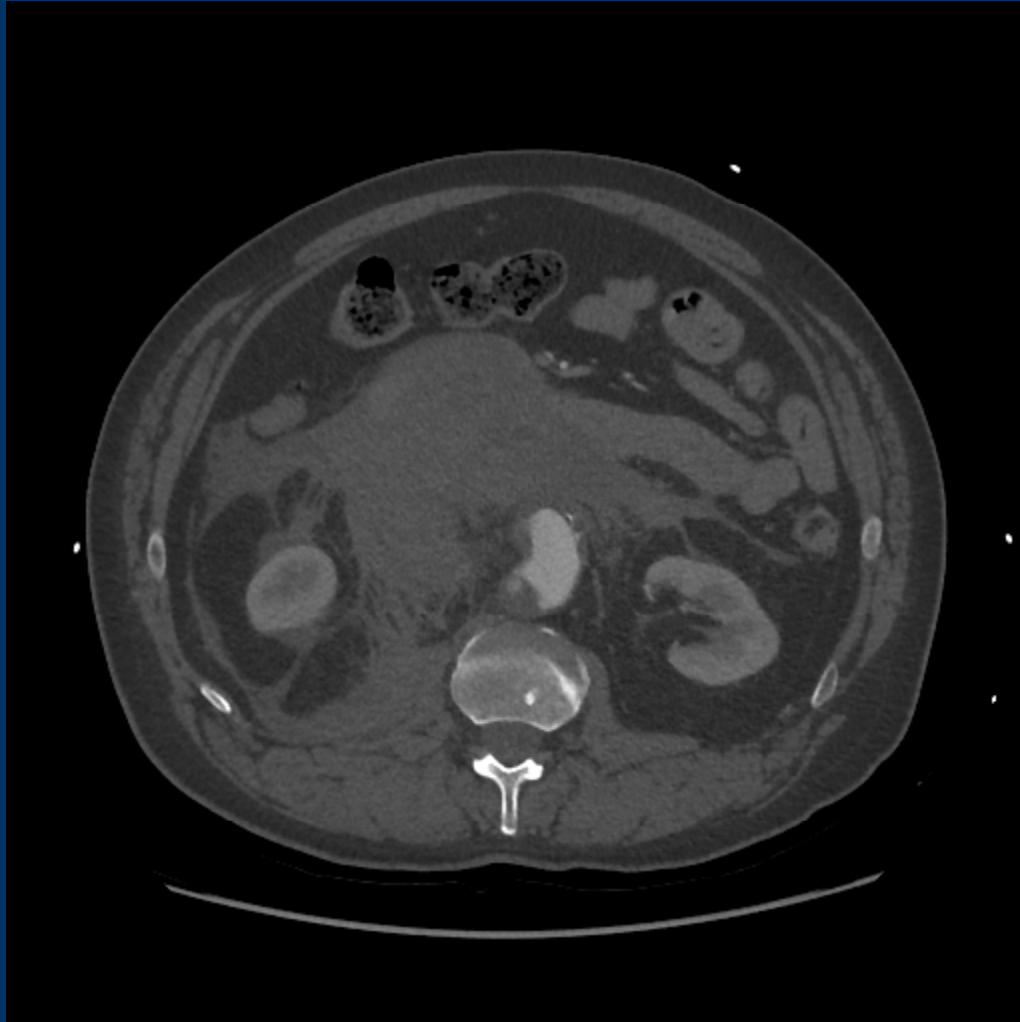
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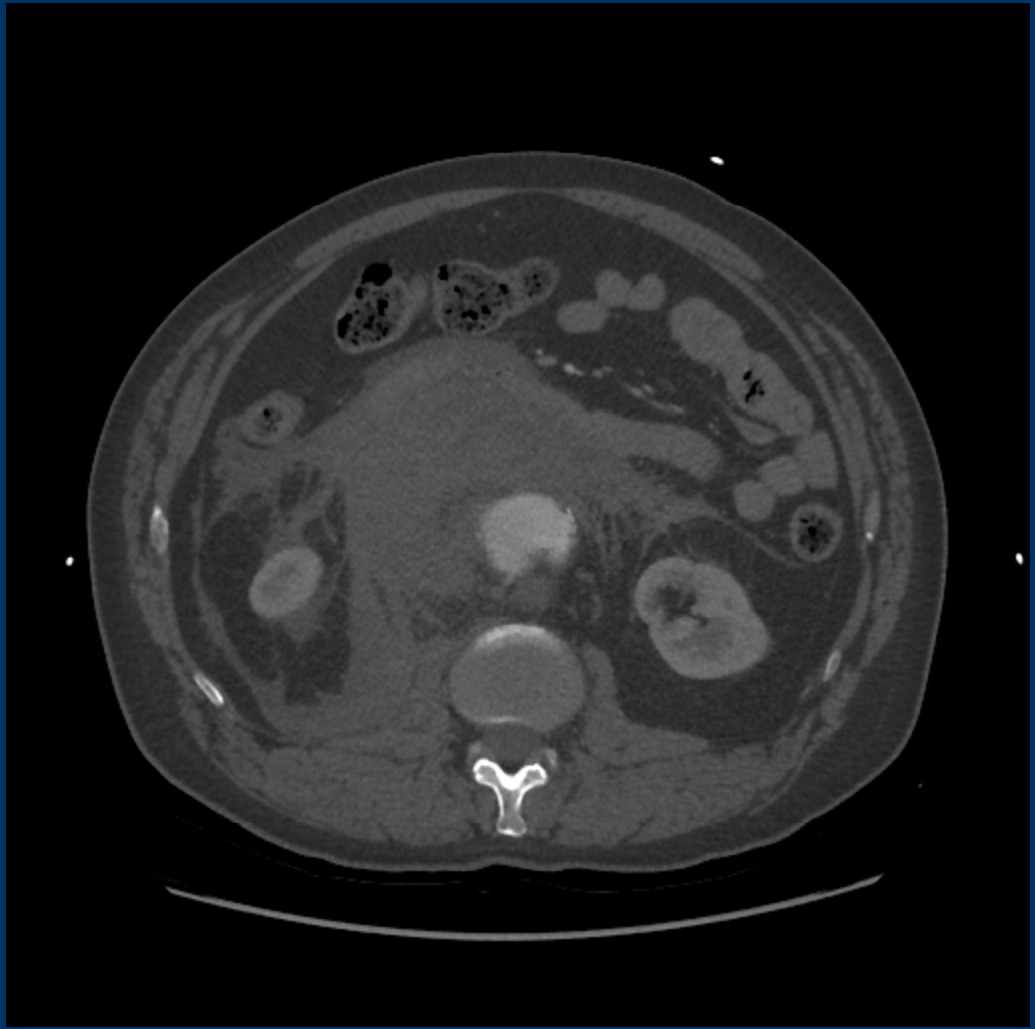
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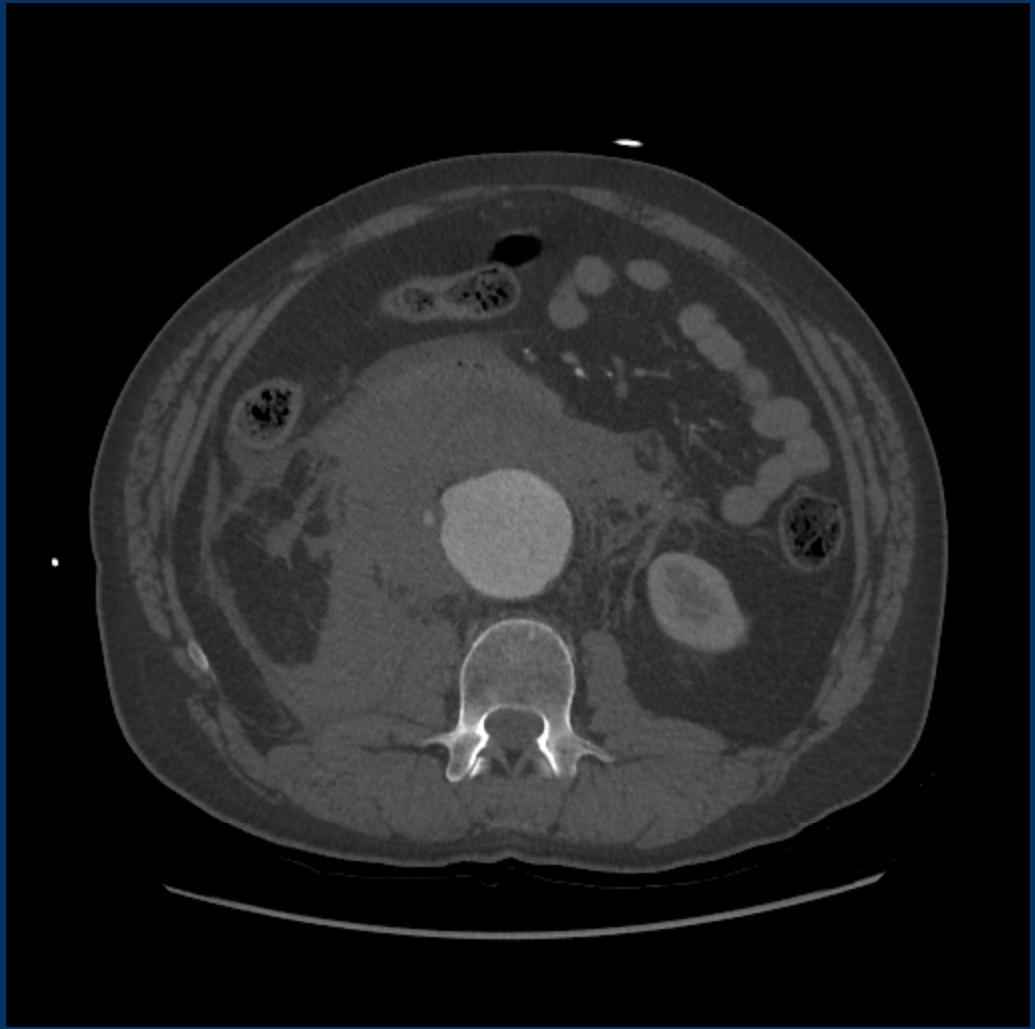
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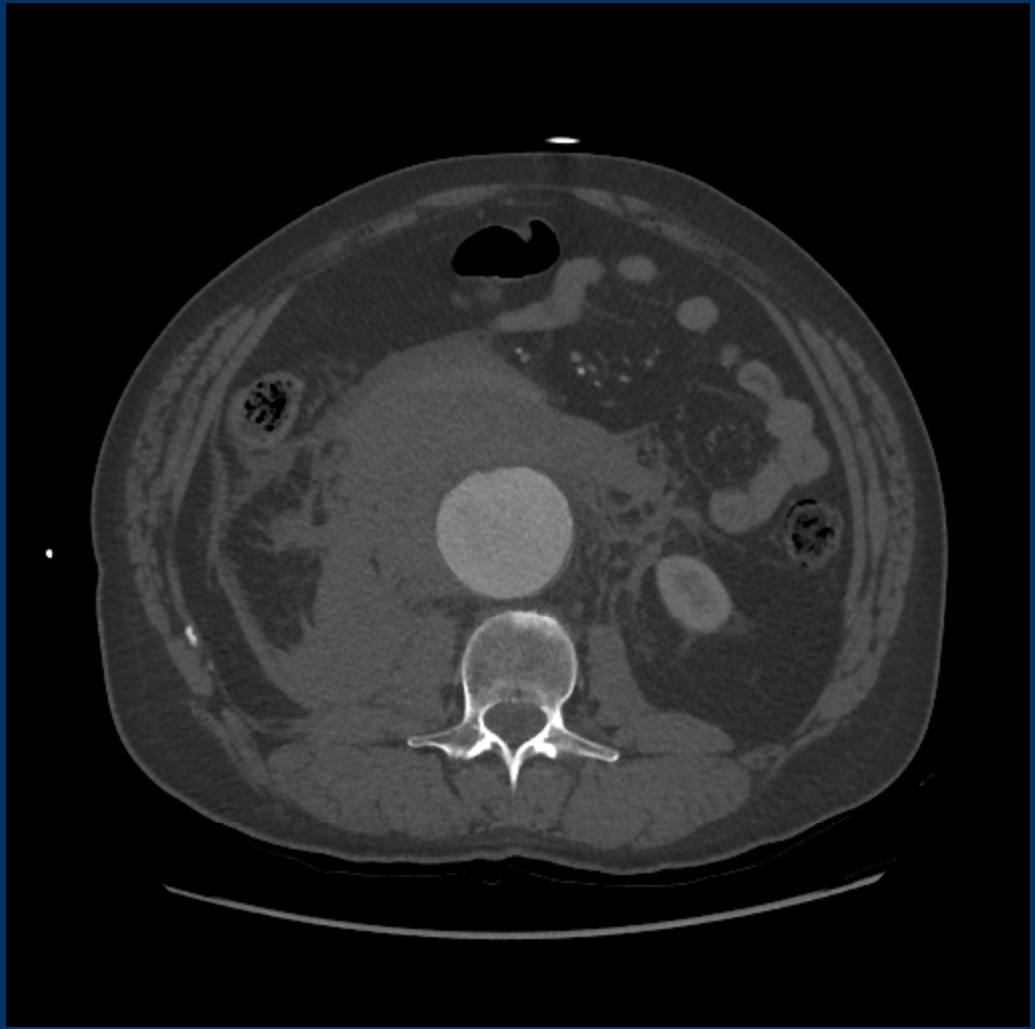
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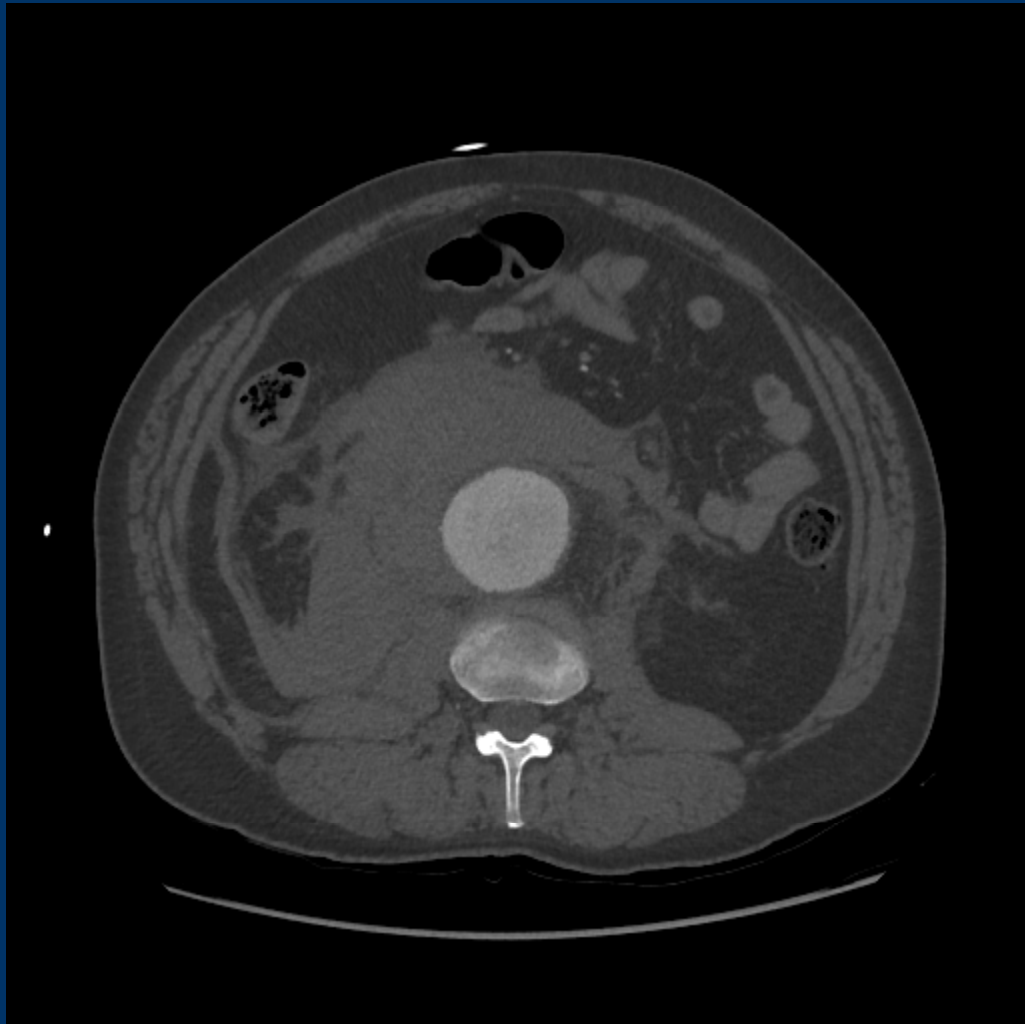
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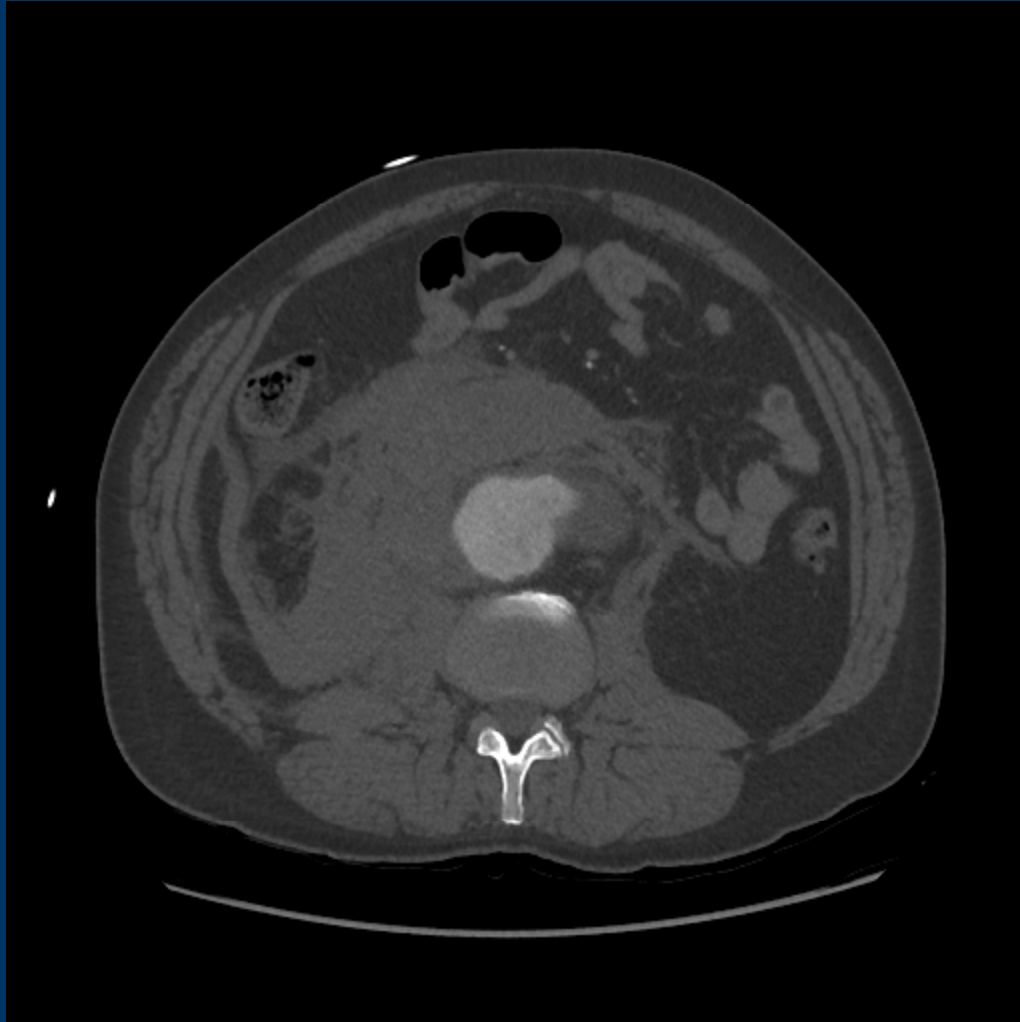
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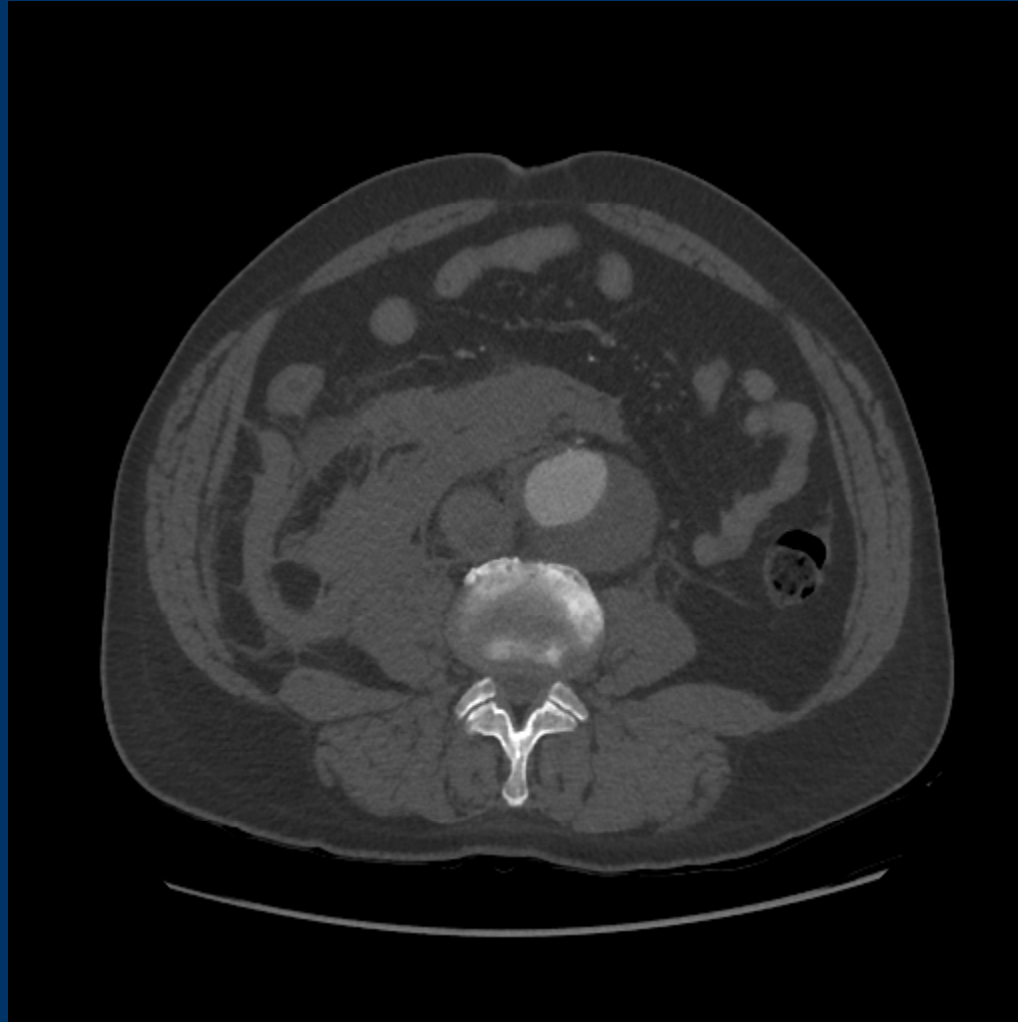
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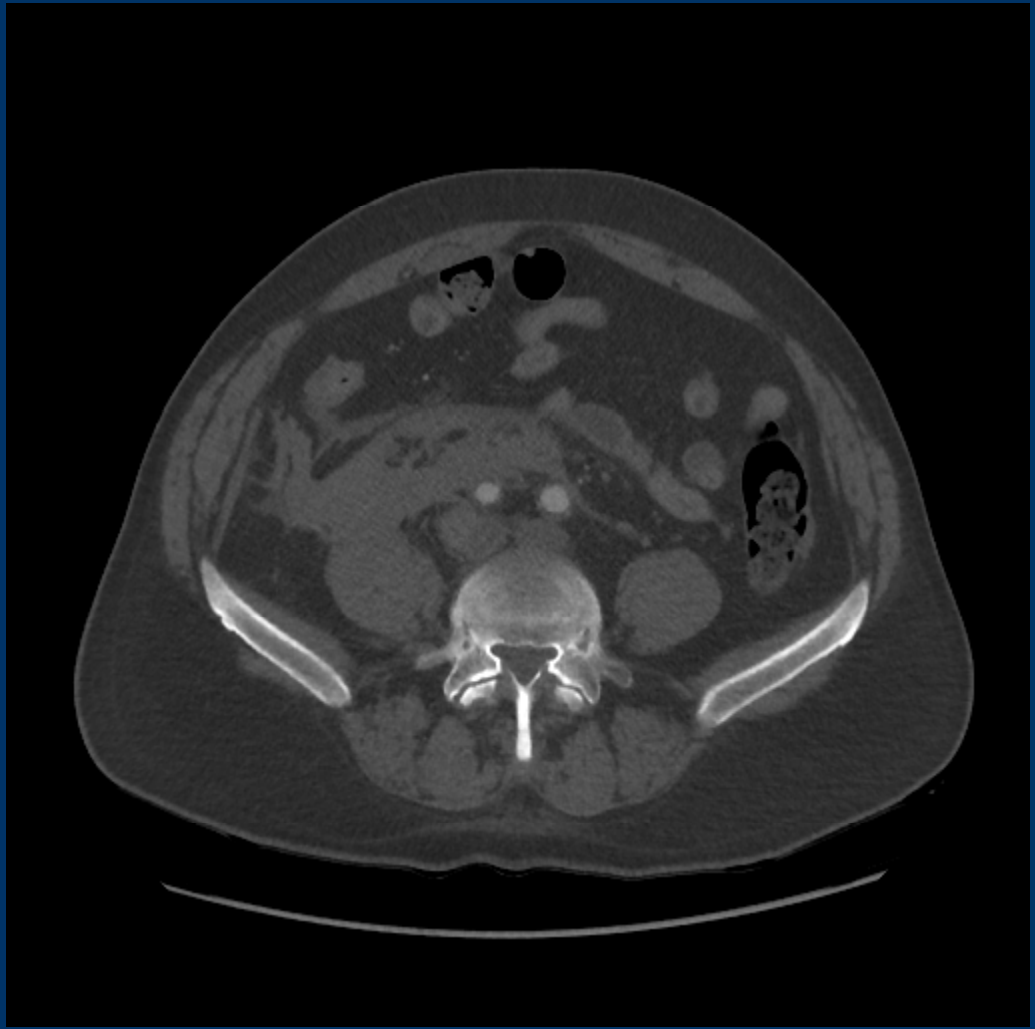




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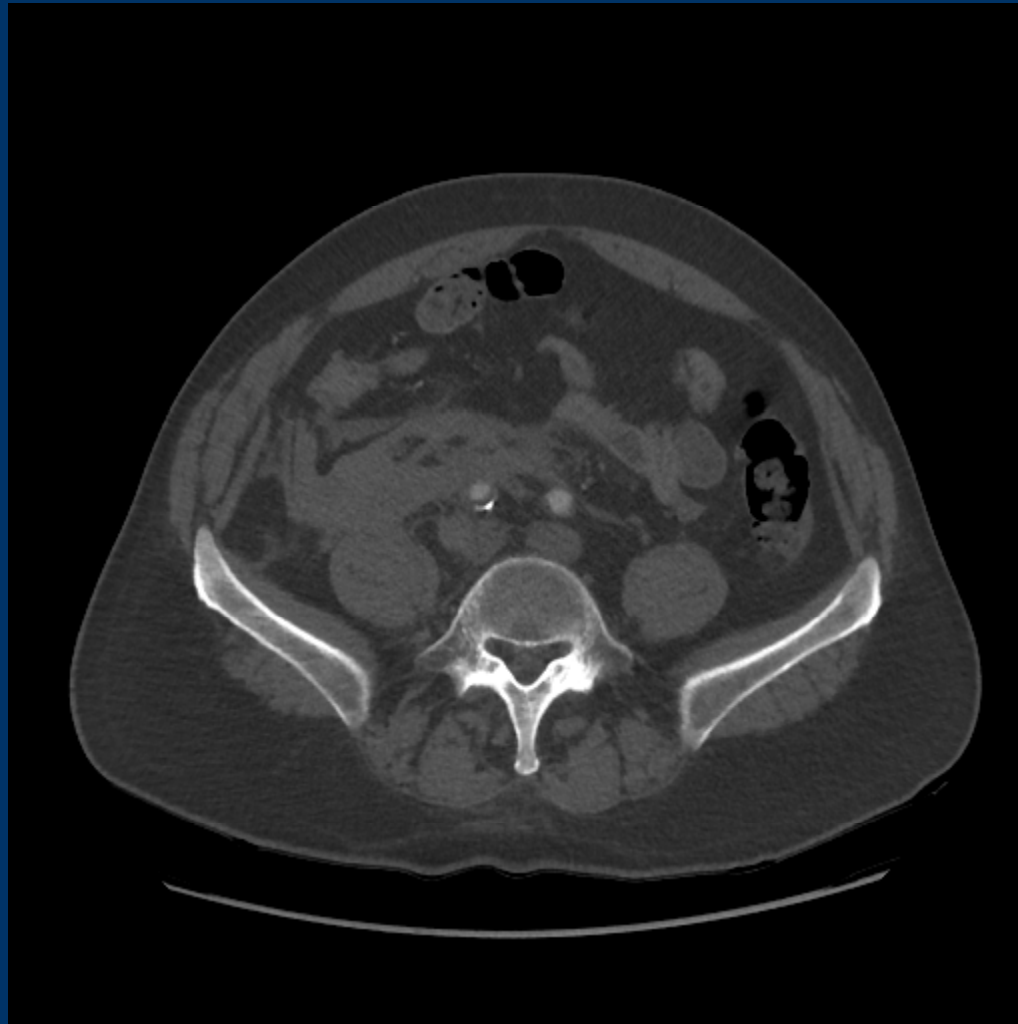






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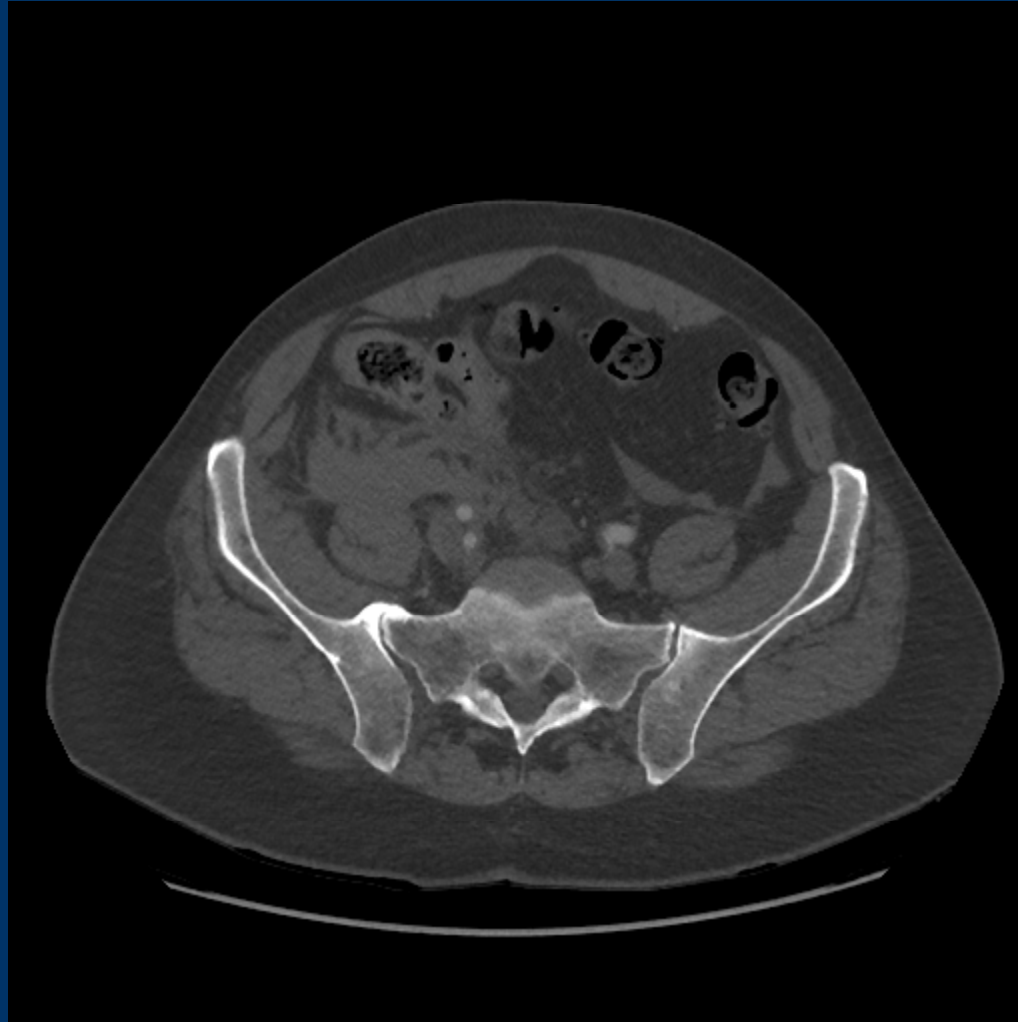
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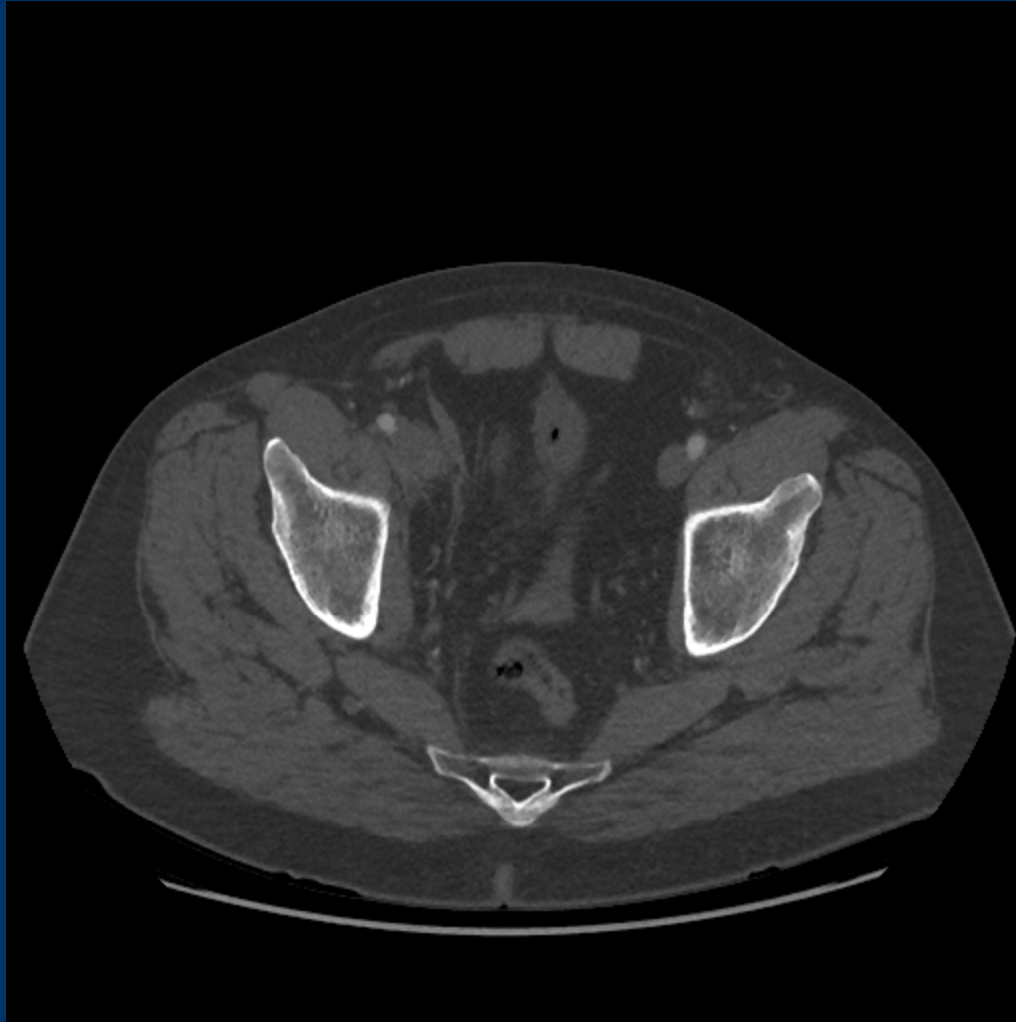
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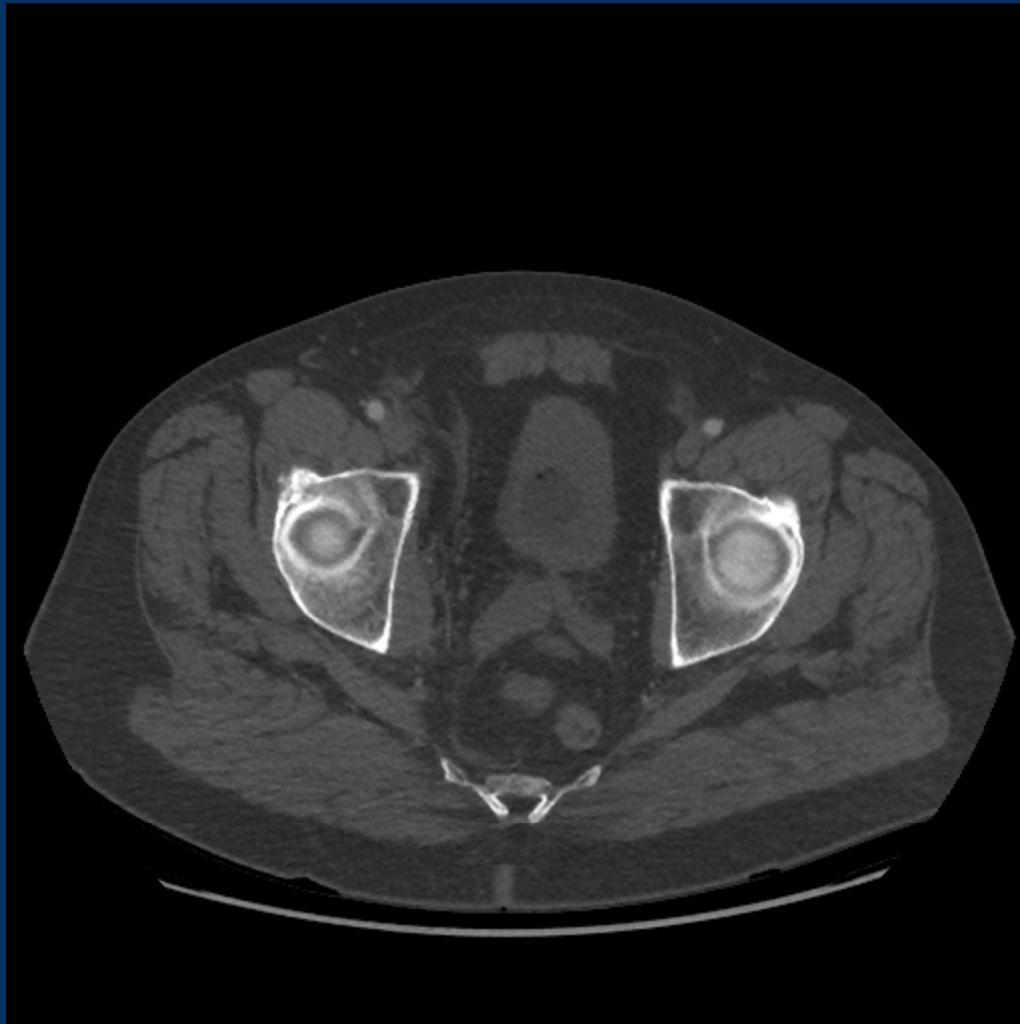
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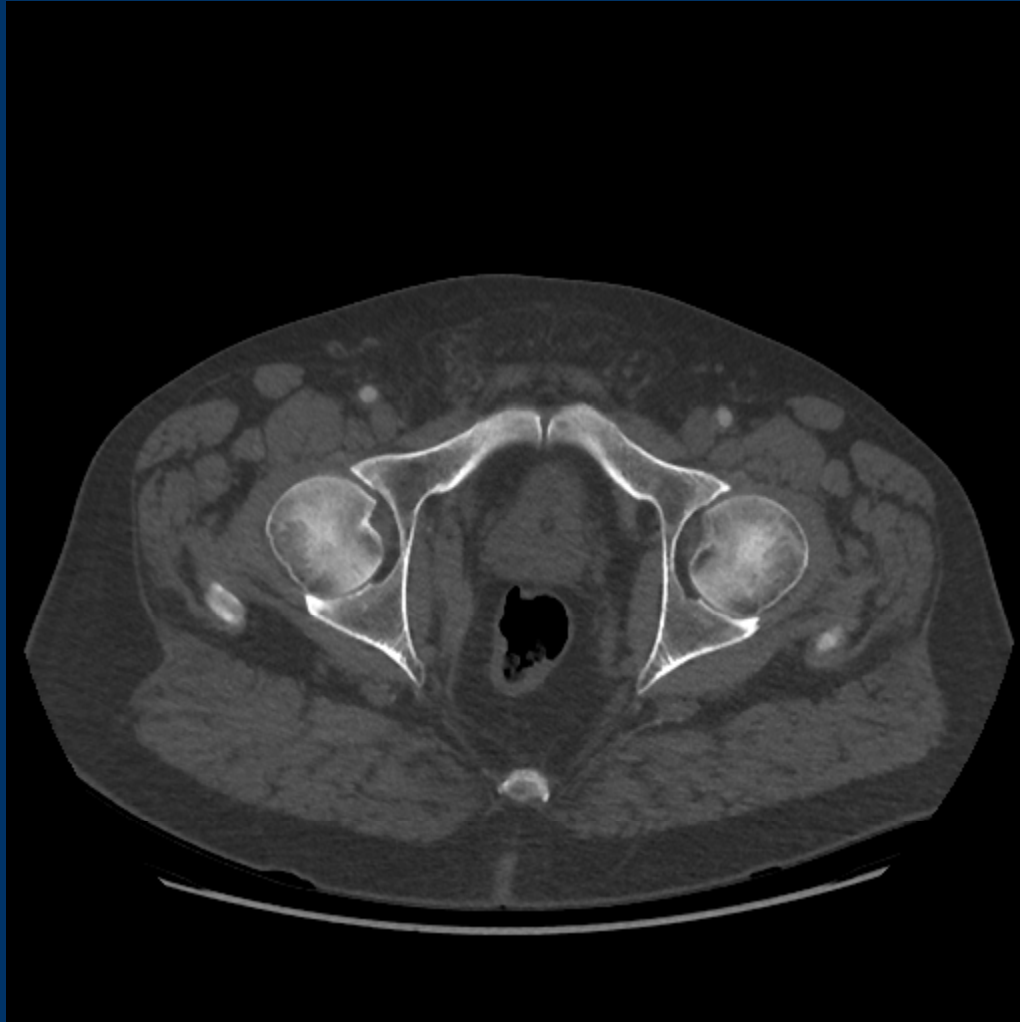
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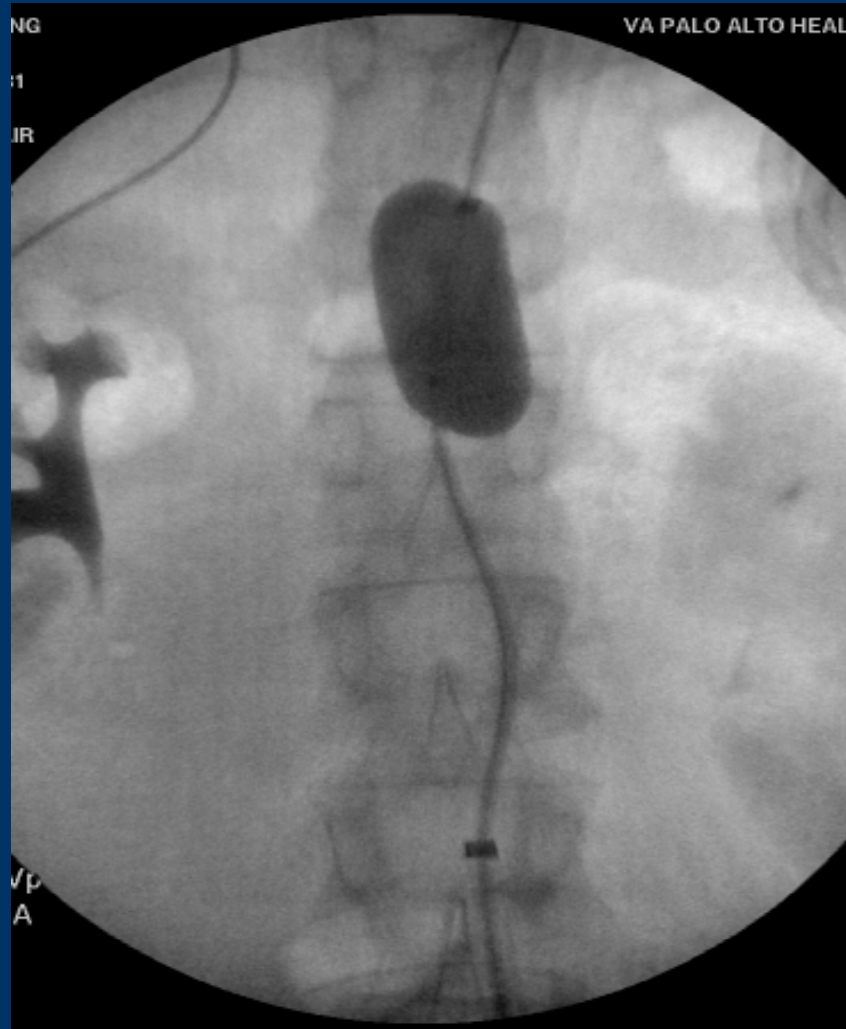
Vascular Surgery



- Vascular Surgery consulted 8:12A
 - Resuscitation started with pRBC
 - Permissive Hypotension SBP 80-90's.
 - Emergently to OR
 - OR front desk contacted
 - OR Room contacted directly. Specific instructions given to Scrub
 - Anesthesia contacted directly
 - CT Tech contacted directly. Given specific list of materials needed for AOB
 - Device rep called
 - Physically transport patient from ED to OR by vascular and anesthesia team
- OR Course
 - In OR 8:45 Am
 - Time out 9:05 Am
 - AOB up 9:12 Am under local anesthesia
 - SBP improve to 110's
 - Intubated 9:16 Am
 - AAA Repaired with Gore Endograft



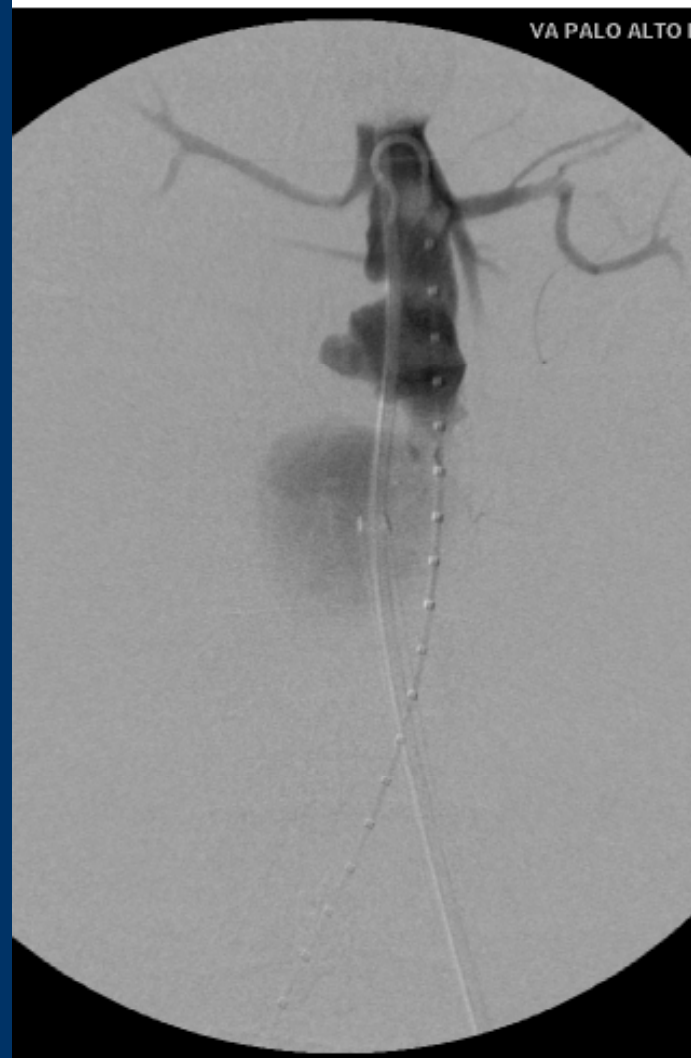
Endoluminal Control



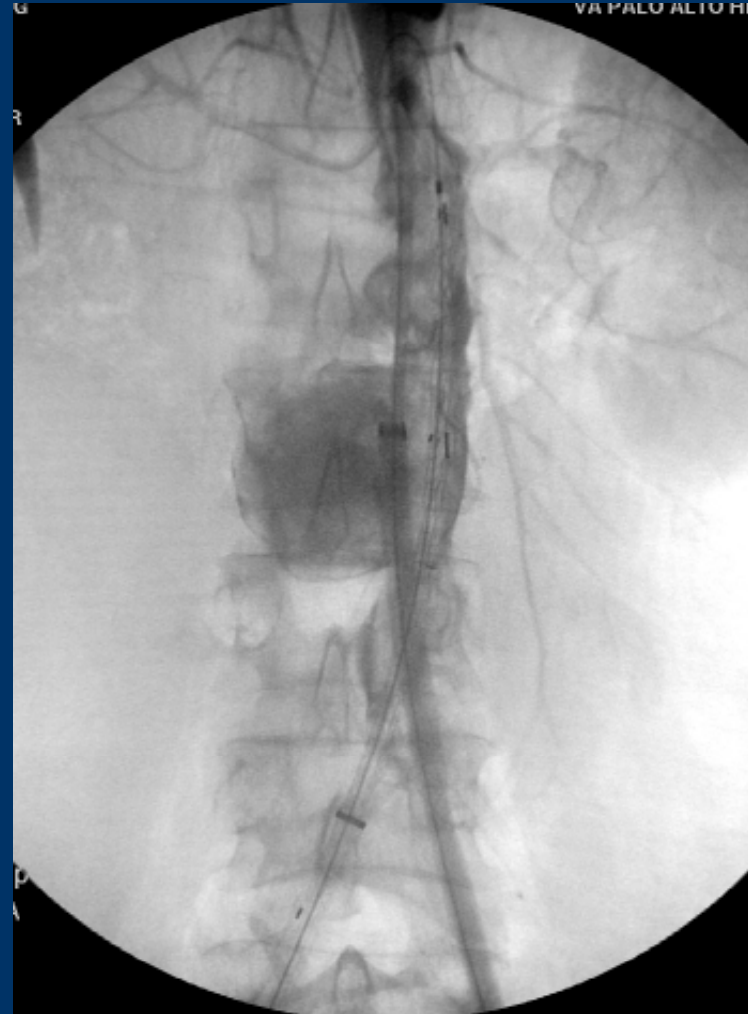
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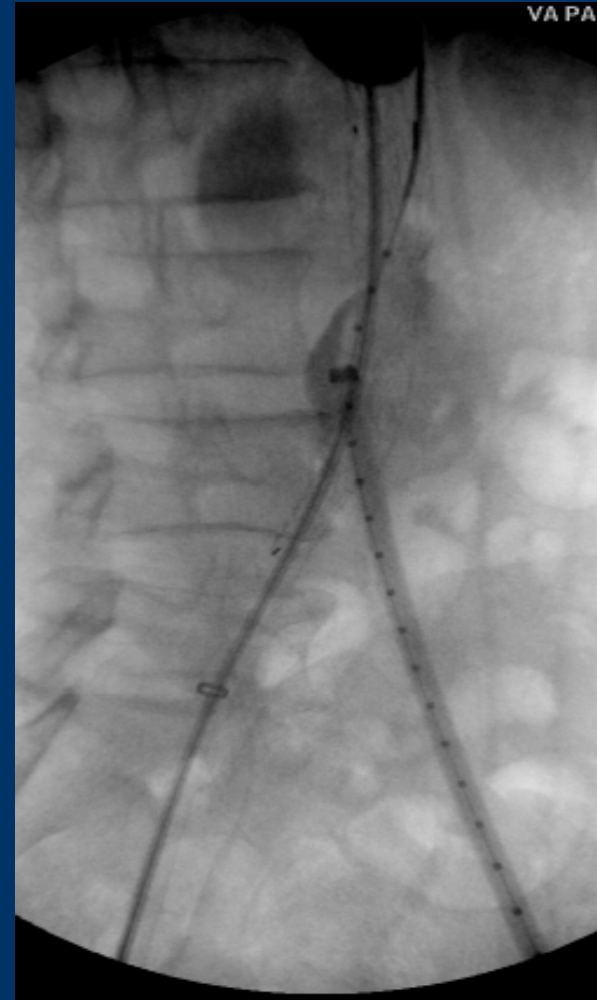
Aortogram with balloon occlusion



Positioning of Main Body



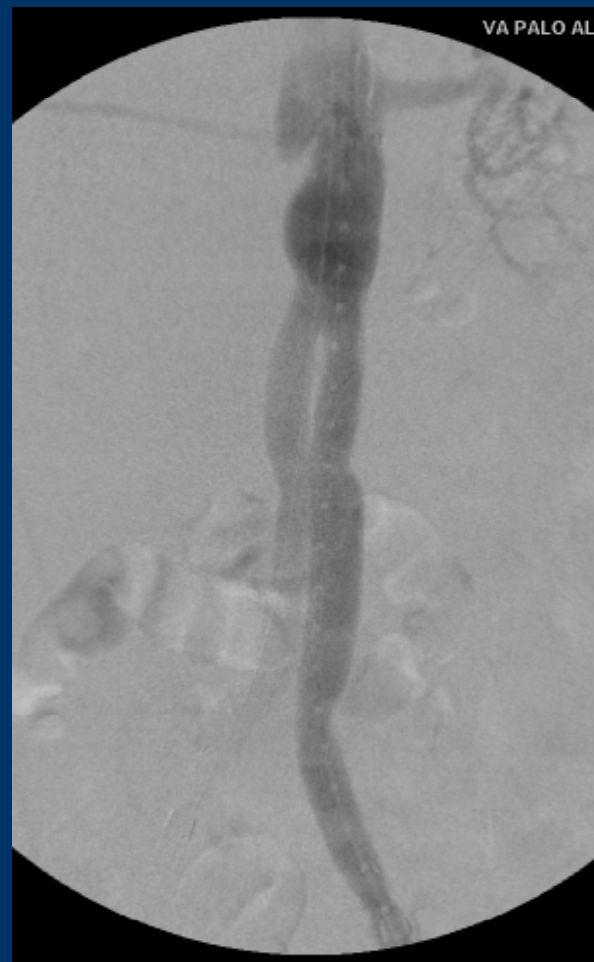
Balloon occlusion within main body



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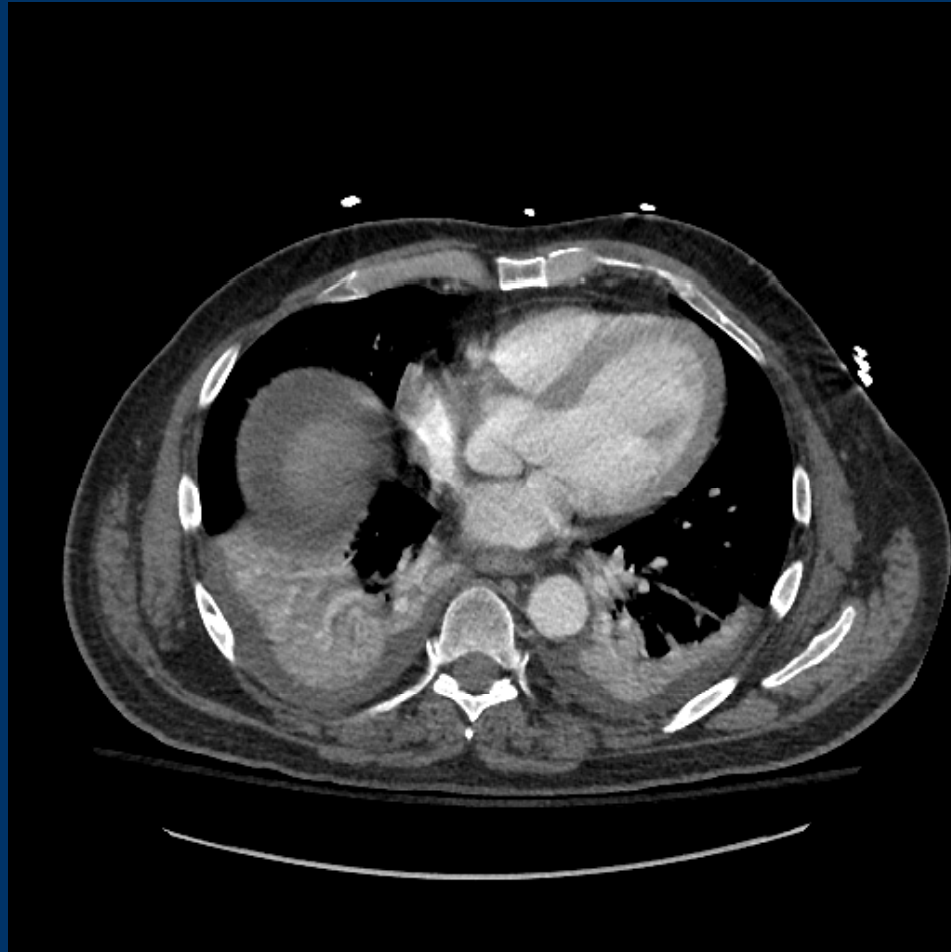
Completion Angiogram





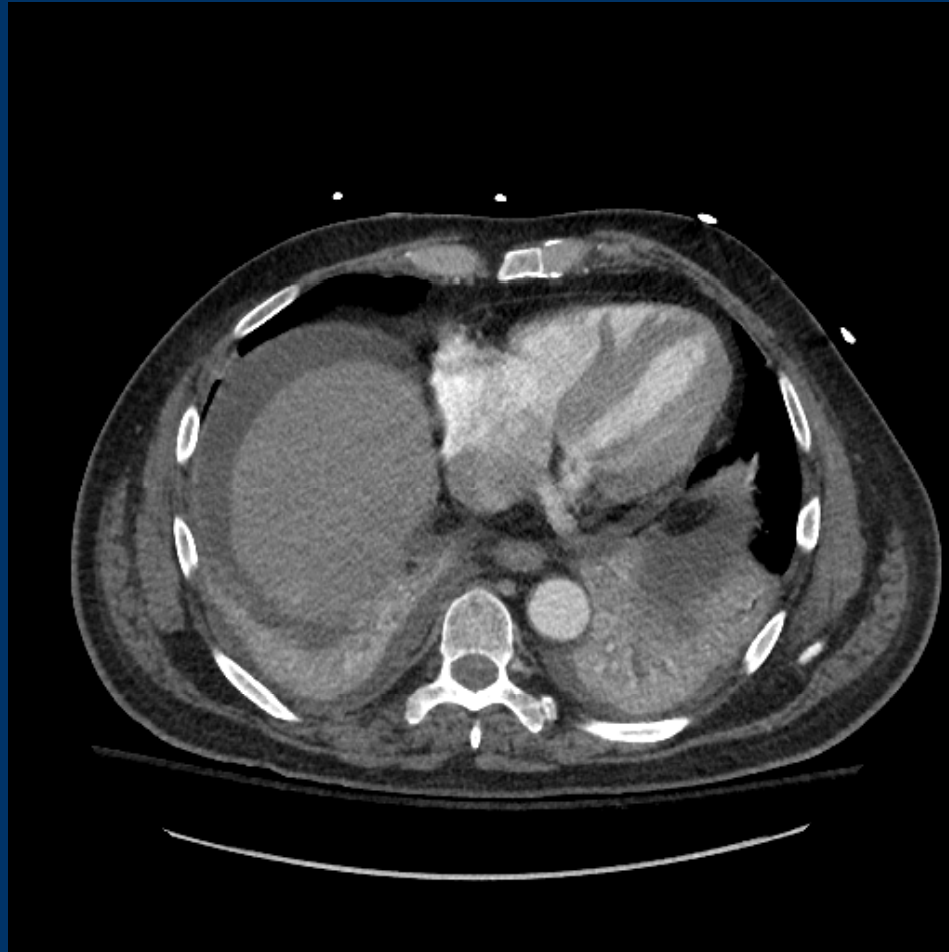
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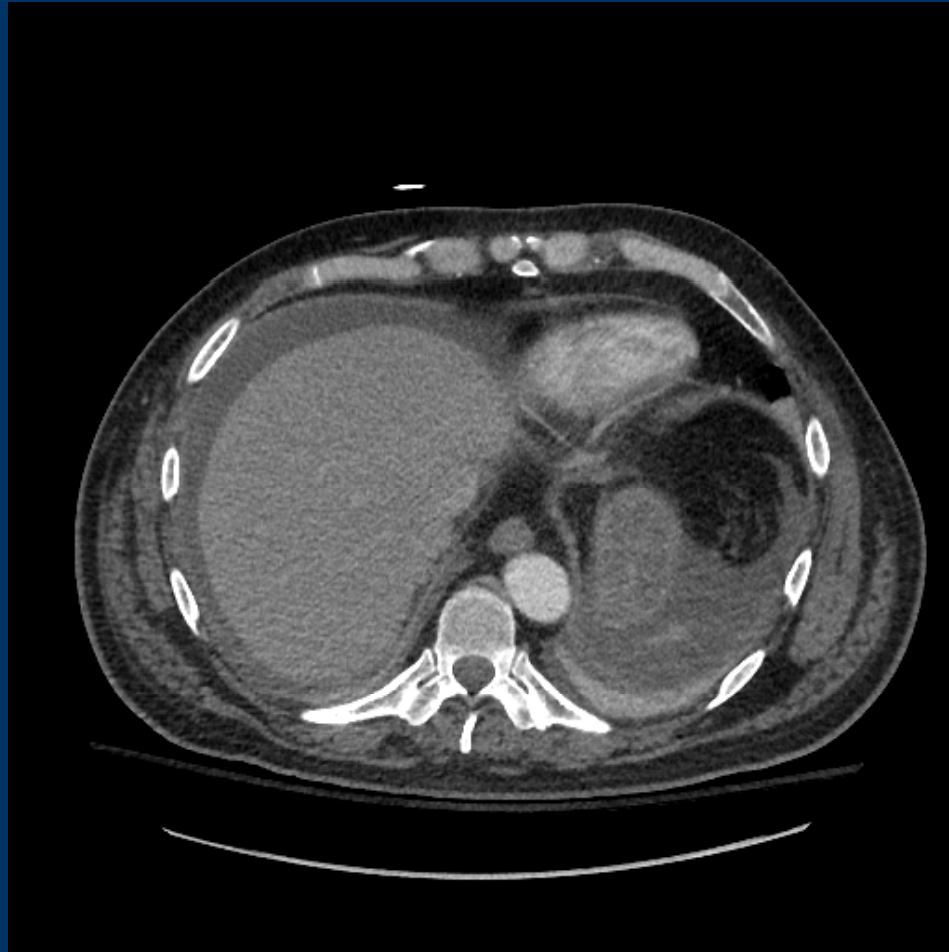
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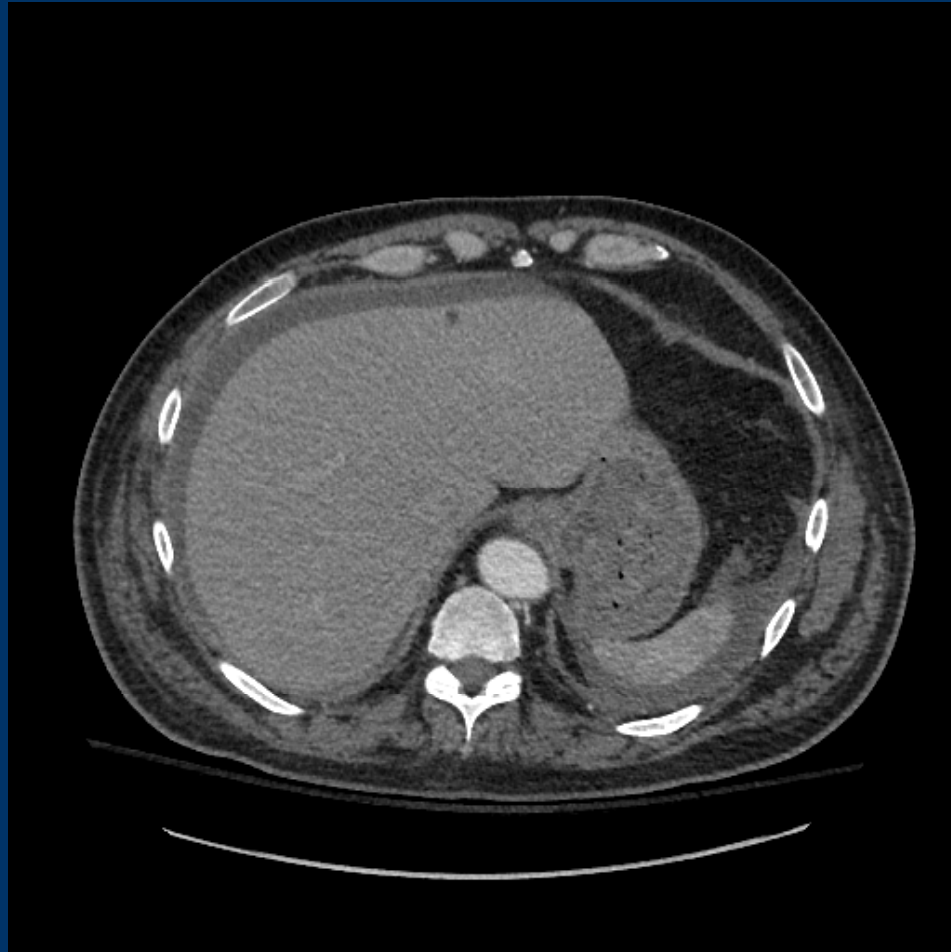
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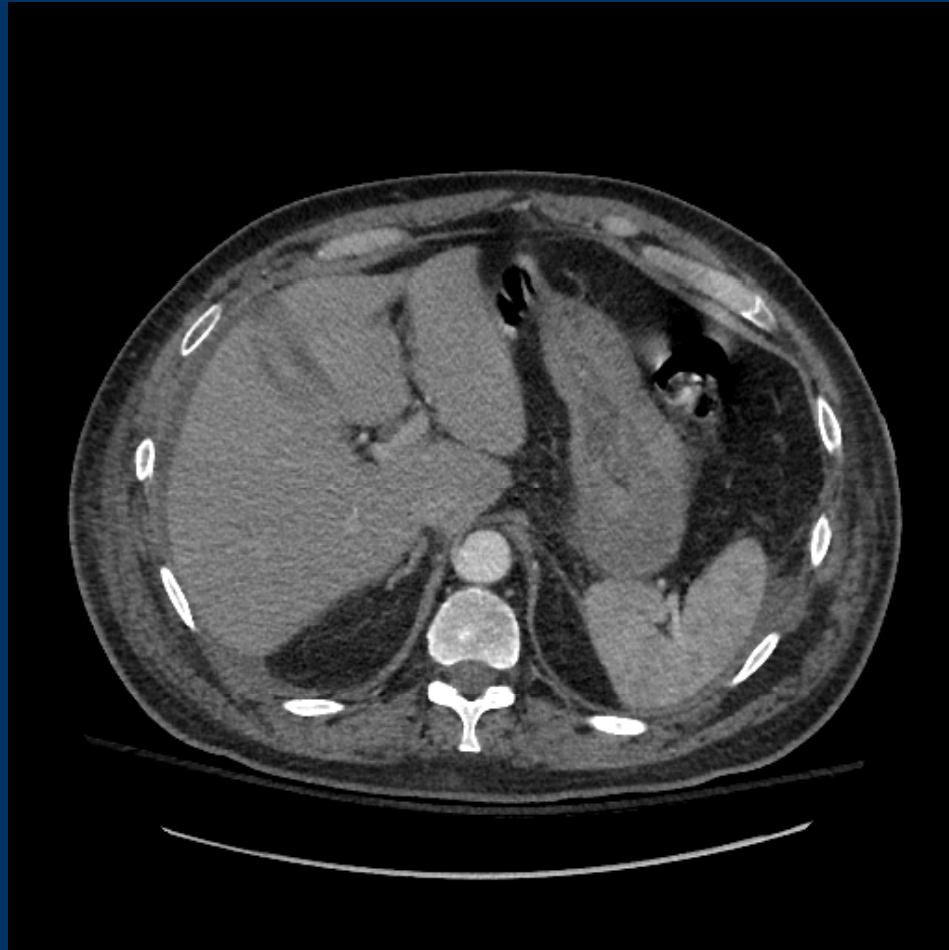
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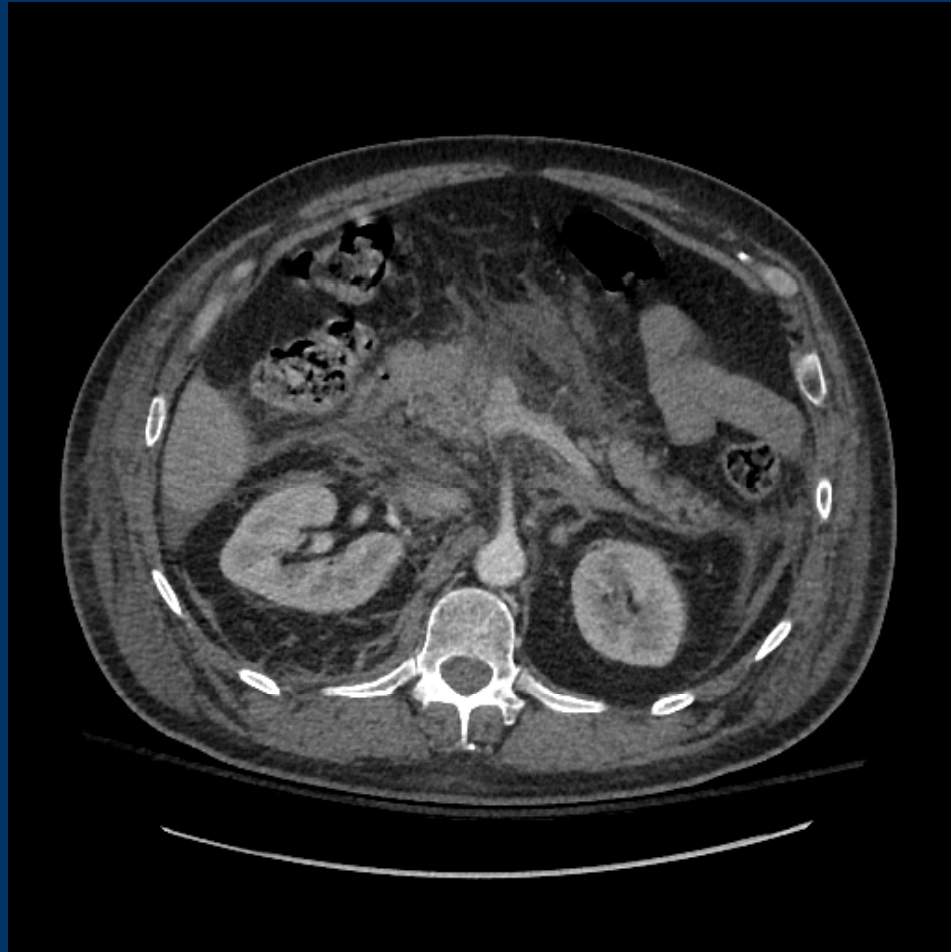
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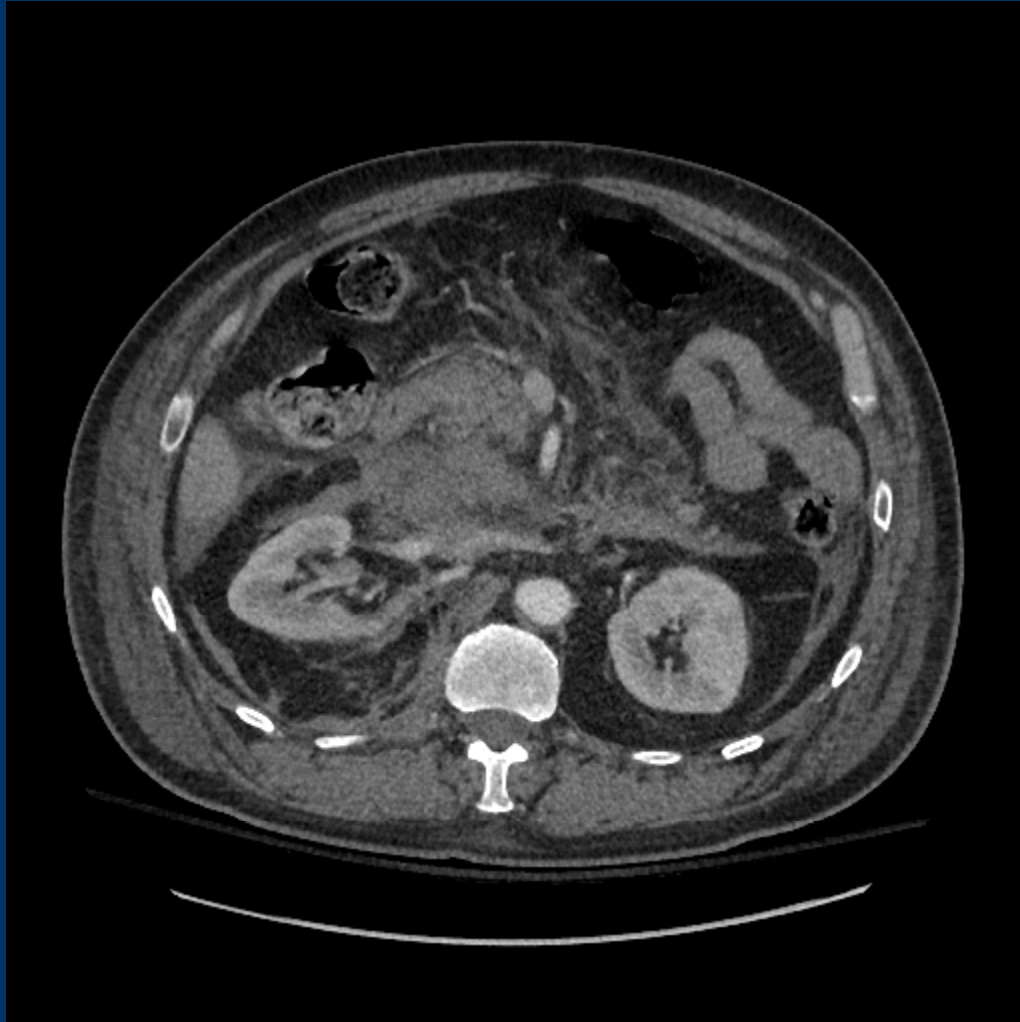
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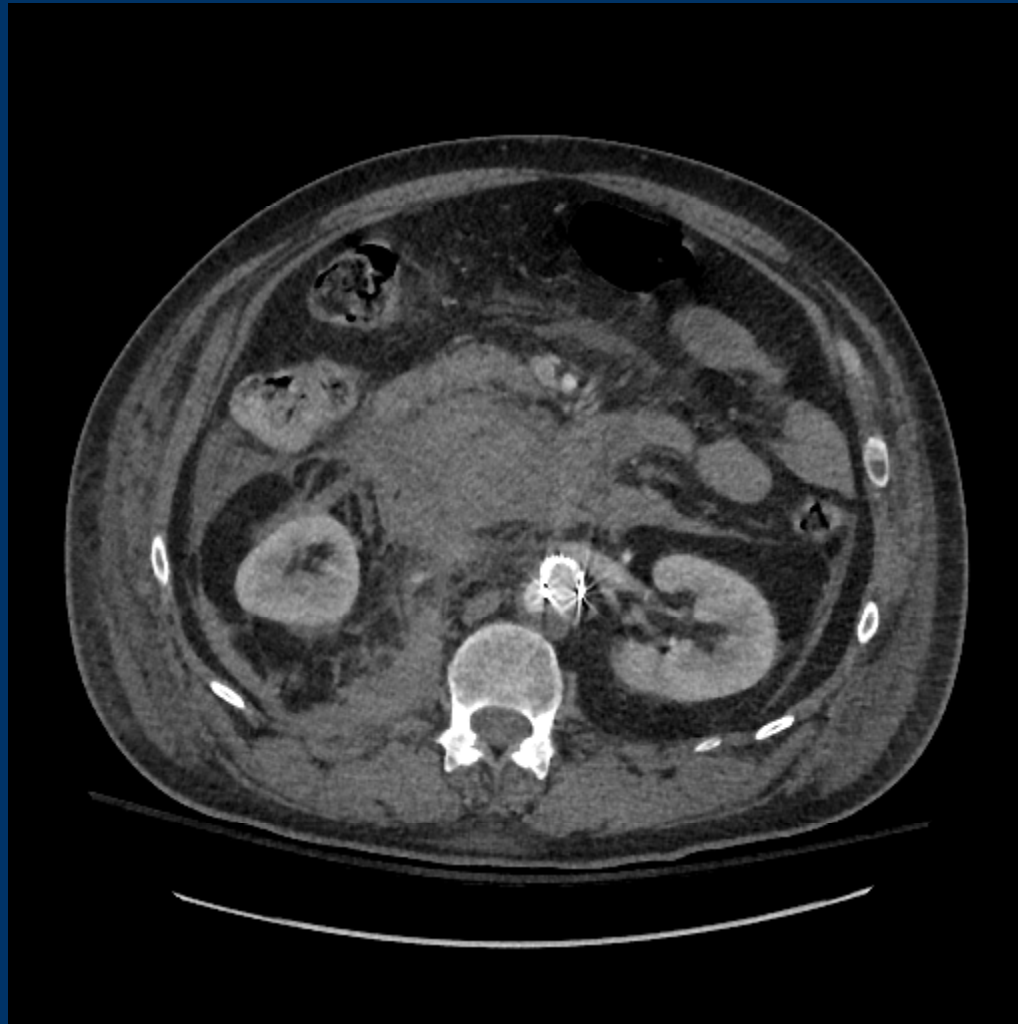
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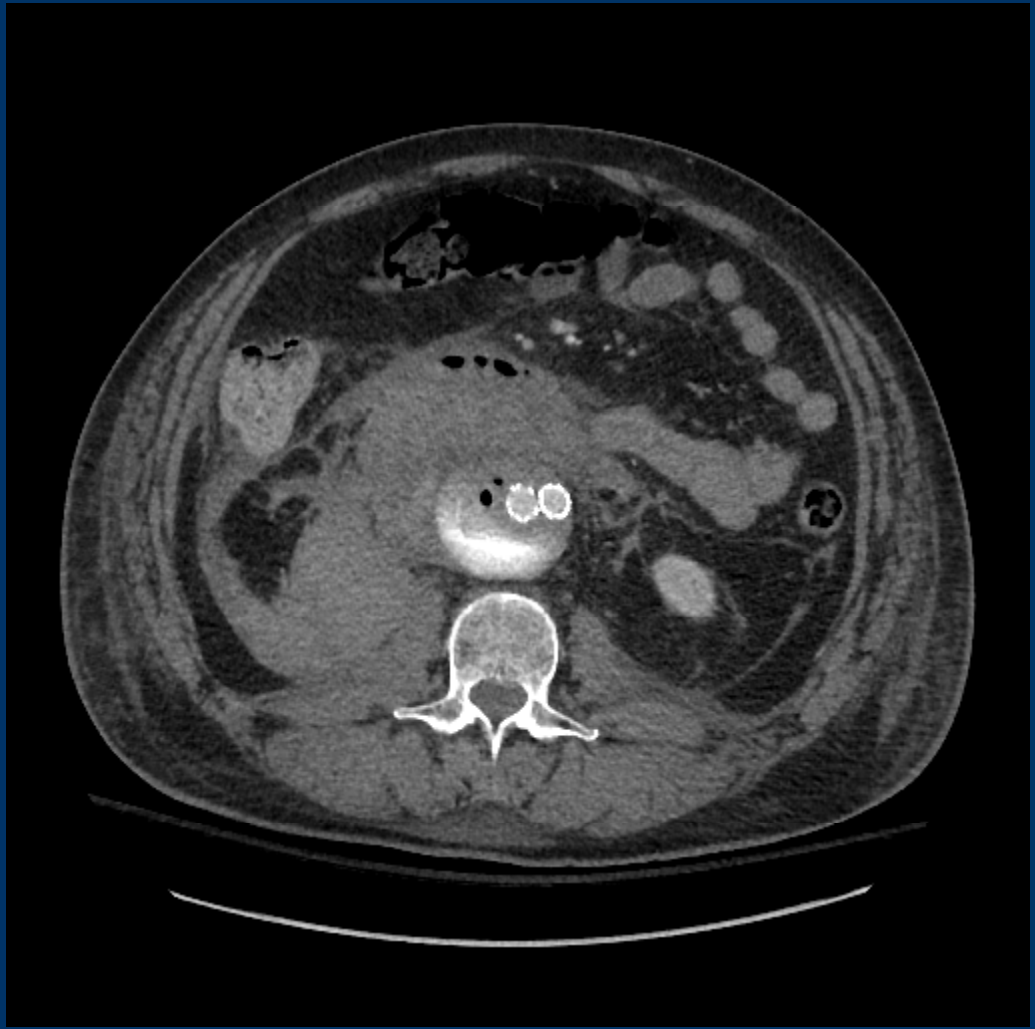
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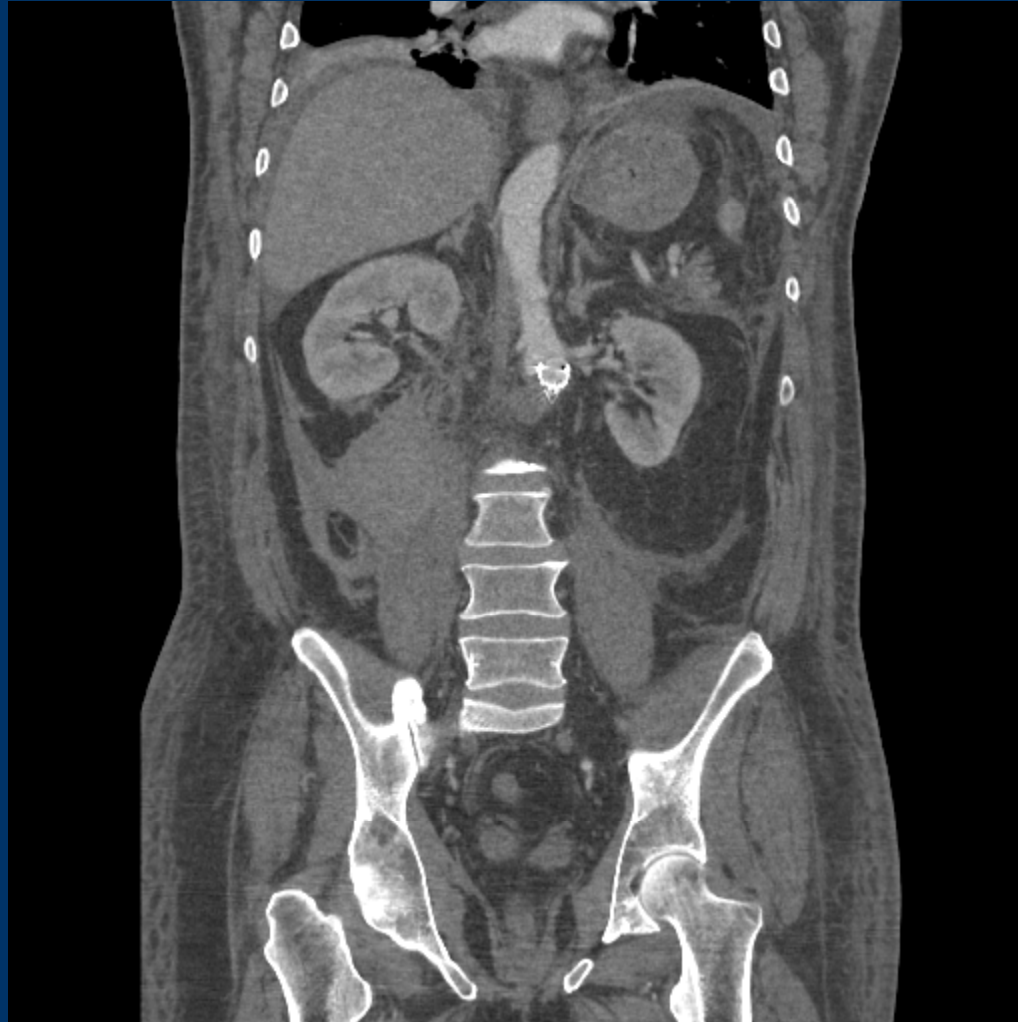
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Vascular Surgery



- Post Op Course:
 - Transported to MSICU in stable condition.
 - No pressors.
 - Pulses palpable distally
 - Volume resuscitated overnight
 - Extubated POD 1
 - Diuresis started POD 3
 - Transferred out of ICU POD 6
 - Low grade WBC elevation, treated with empiric Abx for presumed PNA
 - Low grade elevation of amylase and lipase in the 200-300's
 - Treated conservatively with clear liquid diet
 - Lipase trended down
 - By POD 15 tolerating regular diet, Abdominal pain resolved, WBC normal
 - Discharged home POD 16



Management of ruptured abdominal aortic aneurysm in the endovascular era

Benjamin W. Starnes, MD, Elina Quiroga, MD, Carolyn Hutter, MS, PhD, Nam T. Tran, MD, Thomas Hatsukami, MD, Mark Meissner, MD, Gale Tang, MD, and Ted Kohler, MD, *Seattle, Wash*

- Over all mortality of rAAA 85%
 - 2/3 will die before reaching the hospital
 - Of those that survive to reach the hospital the peri-operative mortality rate for open repair has been 41-48%.
 - Unchanged for the past 2 decades
 - Since the advent of EVAR, repair of ruptured AAA via EVAR (rEVAR) has decreased the mortality rate to between 24-46%
 - Large population based studies analyzing 28,123 admissions for rAAA in 2001-2004 utilization of rEVAR has increased from 6% to >11% with a decline in mortality from 43% to 29%
 - Mortality from open repair has not changed and remains between 40-43%



- Starnes et al. Showed that Implementation of a rupture algorithm 2007-2009
 - Decreased overall 30 day mortality from 57.8% to 35.3% (absolute RR 22.5%)
 - EVAR 30 day mortality 18%
 - Open 30 day mortality 54.2%
 - No difference in survival once patients were outside the perioperative period
 - Over the study period, increased utilization of rEVAR from 46.3% in the 1st year, to 63.2% in the 2nd year
 - Mortality from rEVAR vs. Open was lower for all age groups
 - Never having a SBP <80% was associated with 100% survival in the post-protocol era
 - Factors associated with >90% likelihood of death
 - Age >80
 - Female gender
 - HCT <25
 - Transfusion requirement >15 units
 - No patient undergoing CPR survived >24 hrs



Ruptured AAA

Hemodynamically Stable
Mentating
SBP > 80 mmHg

Hemodynamically Unstable
Not Mentating
SBP < 80 mmHg

CTA

Operating Room
Prepped Awake
Permissive Hypotension

12Fr Sheath and AOB +/- Preclose

Unsuitable Anatomy
AOB
GETA and Open Repair

Suitable Anatomy
Awake
REVAR

Vascular Surgery



- Important Specific Considerations
 - Pre-hospital/ED
 - Early Notification is Paramount
 - Permissive Hypotension $>$ SBP 80mmHg
 - Warming
 - Avoidance of Intubation
 - In Hospital
 - Experienced staff
 - Communication
 - Availability of appropriately sized components
 - Streamlining of instrument sets



- Reflections
 - What was done well
 - Communication/Coordination
 - Permissive hypotension
 - pRBC available quickly and Resuscitation with Blood and FFP in 2:1 ratio
 - OR available, set up and Rapid transport to OR
 - Once in OR Established goals/Priorities with OR team.
 - Awake groin access
 - » Anesthesia placing central venous and arterial access simultaneously
 - Groin access and aortic occlusion balloon
 - » Lidocaine
 - » Micropuncture set
 - » Benson wire
 - » Dilators
 - » 12 or 16Fr Sheath preferably 45 cm
 - » Heparinized saline
 - » Coda balloon
 - » 180 Amplatz
 - » Contrast
 - » 60cc syringe
 - » Perclose x 2
 - Once AOB up
 - » Resuscitation
 - » Intubation
 - » Set up for remainder of the case
 - Availability of supplies



- Reflections
 - Considerations/Improvements
 - No Rupture kit at the VA, required device rep
 - Place AOB higher than you think
 - Place AOB opposite side of your planned main body
 - If using Gore consider a 16Fr sheath if possible. Eliminates the need for additional sheath exchange
 - May also allow placing AOB and Pigtail simultaneously up the same side
 - 35cm sheath in this case was not long enough to reach above the renal arteries
 - 180 Amplatz wires were not long enough for the 32mm and 40mm (120cm shaft) Coda balloon
 - Repositioning of the AOB resulted in losing balloon position above the renals due to the balloon being on the floppy portion of the wire and buckling.
 - » Consider using a 260 length stiff wire preferably
 - Consider Percutaneous Closure
 - Despite open femoral access, extra time/blood loss spent with poor Vascular exposure/control
 - If possible obtain contra-lateral wire access before inflation of AOB
 - After AOB inflation, Femoral pulses disappear and percutaneous access may be difficult.
 - Wire access past AOB on the main body side will allow simultaneous positioning of the main body and pigtail (via the contralateral side) for rapid deployment, avoiding an additional exchange of the wire for the pigtail and main body.
 - Communication with anesthesia before manipulation of AOB
 - Allow the pressure to catch up before each manipulation
 - Consider having 2 occlusion balloons open- allows rapid exchange of occlusion balloon from contralateral to ipsilateral side.
 - 2 marking catheters open- allows simultaneous measurements

