

Aortoiliac Occlusive Disease

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Assistant Professor

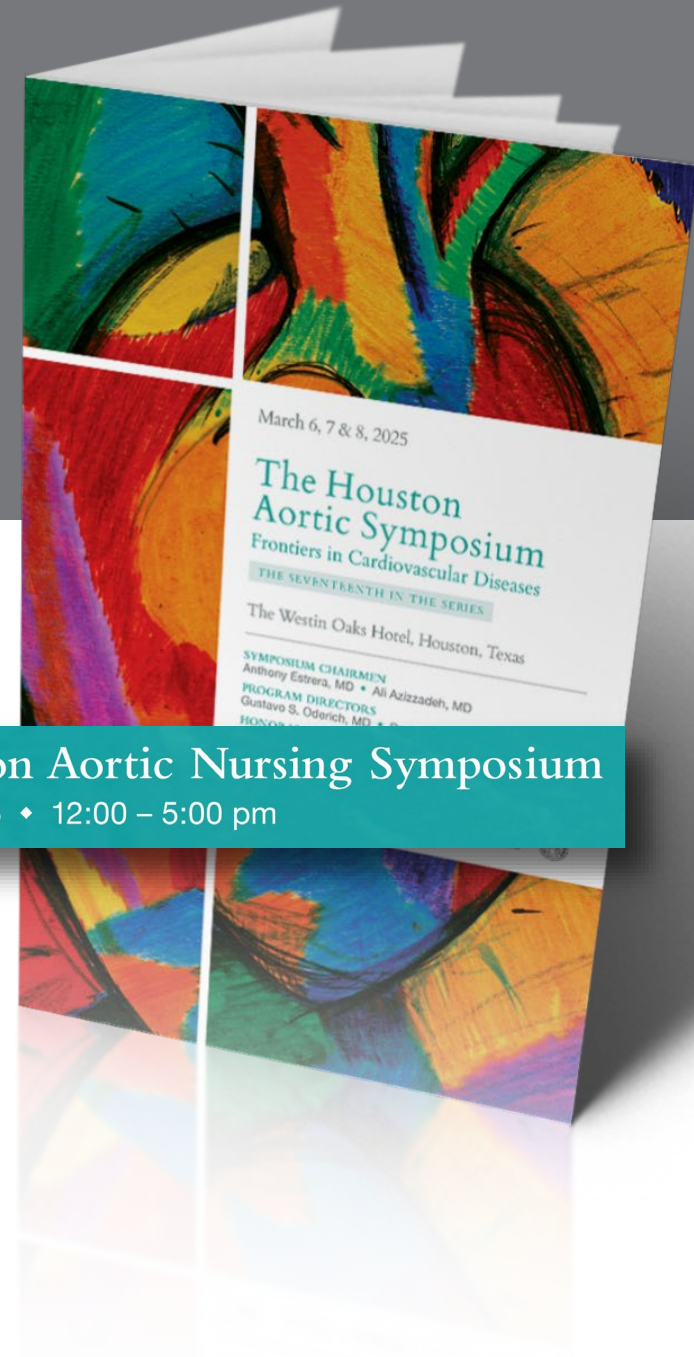
Department of Cardiothoracic and Vascular Surgery
UTHealth Houston / McGovern Medical School
The University of Texas Health Science Center at Houston

Department of
**Cardiothoracic &
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 **UTHealth Houston**
McGovern Medical School

7th Annual Houston Aortic Nursing Symposium

Wednesday, March 5, 2025 ♦ 12:00 – 5:00 pm



Aortoiliac Occlusive Disease

The Less Fun Friend of Aortic Disease

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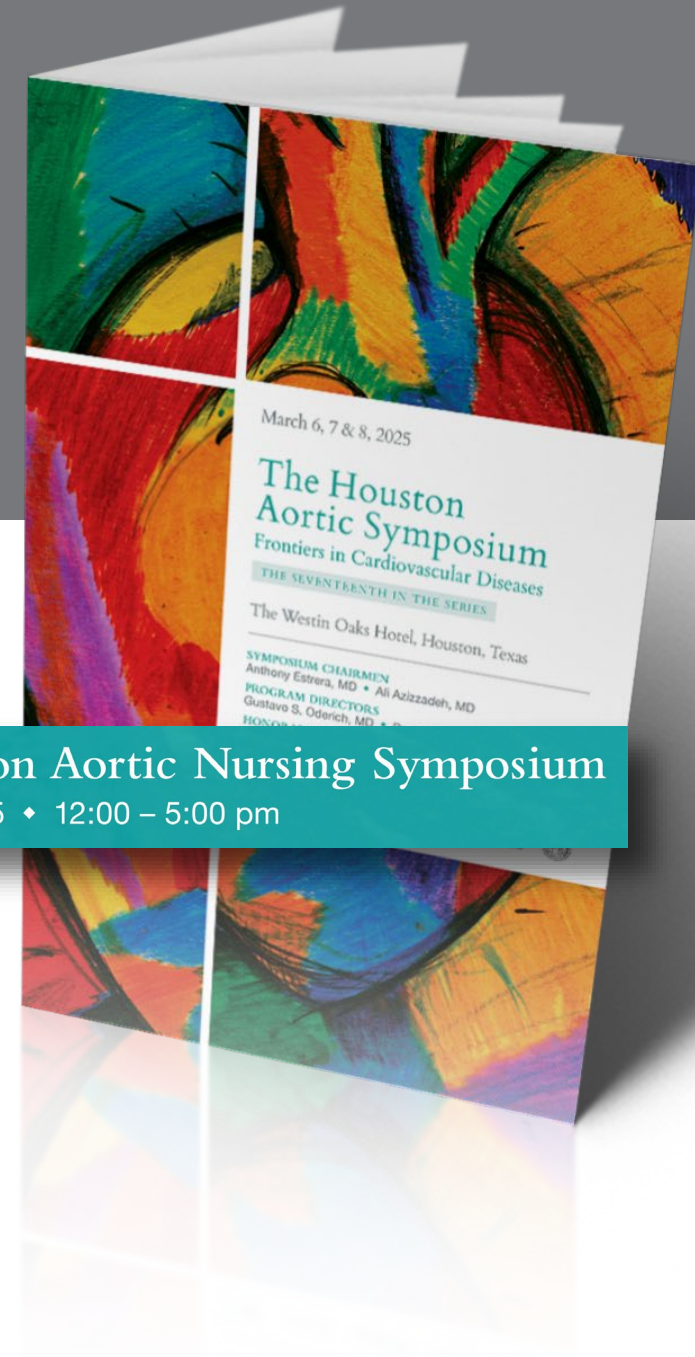
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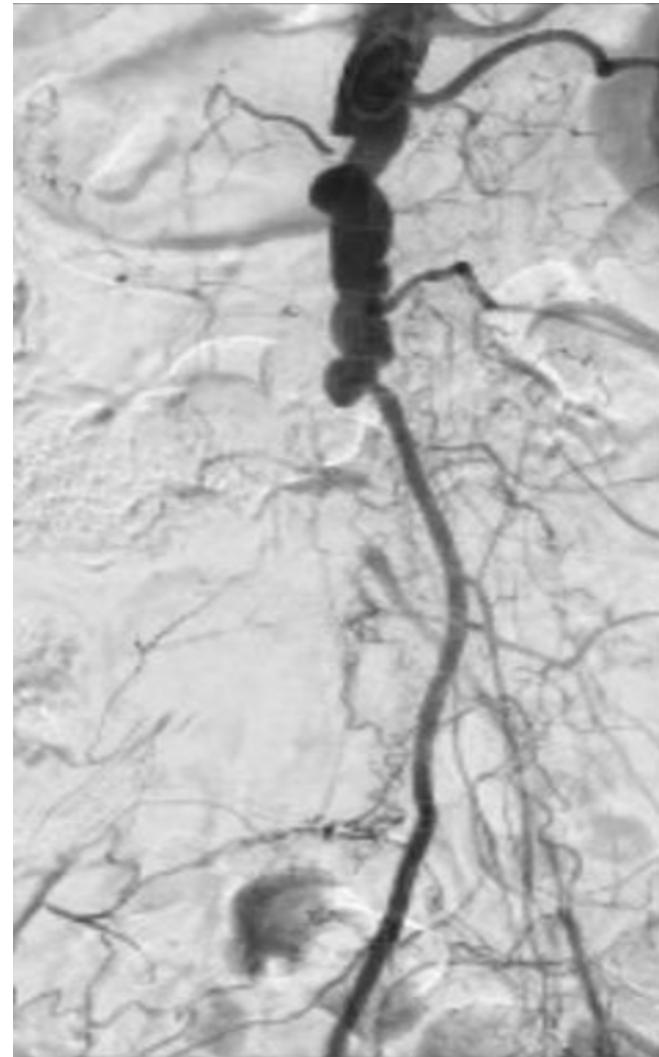
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What the heck is AIOD?

Atherosclerotic narrowing or occlusion of the aorta and/or iliac arteries, leading to reduced blood flow to the lower extremities, which can result in claudication, ischemic rest pain, or critical limb ischemia



Two Flavors

Acute vs. Chronic Aortic Occlusion



ACUTE

Story Time

57yM with PMH of AAA s/p EVAR in 2019, COPD, and hypothyroidism presents with bilateral leg pain. Patient states that the pain started four days ago but acutely got worse this morning after he was getting off his flight from Peru. Patient additionally complains of L leg numbness but denies leg weakness. He is able to dorsiflex his bilateral lower extremities.



Acute Aortic Occlusion

Sudden occlusion of the abdominal aorta, usually at the aortic bifurcation leading to acute limb ischemia and potential multi-organ complications.

- Thrombosis
- Embolism
- Aortic Dissection/Trauma

Presentation

- Pain
- Pallor
- Pulselessness
- Numbness
- Inability to dorsiflex
- Bilateral presentation
 - One might be worse than the other



Rutherford's Classification

Grade	Category	Sensory loss	Motor deficit	Prognosis	Doppler signals	
					Arterial	Venous
I	Viable	None	None	No immediate threat	Audible	Audible
IIA	Marginally threatened	None or minimal (toes)	None	Salvageable if promptly treated	Inaudible*	Audible
IIB	Immediately threatened	More than toes	Mild/moderate	Salvageable if promptly revascularised	Inaudible	Audible
III	Irreversible	Profound, anaesthetic	Profound, paralysis (rigor*)	Major tissue loss amputation. Permanent nerve damage inevitable	Inaudible	Inaudible

This is an identical replica of the table in the 1997 publication by Rutherford *et al.*,² with the exception of the asterisks (*).

* In the original 1997 classification it was stated that arterial Doppler sounds are never present in Stage IIA, and that rigor (mortis) is always present in Stage III. However, it is the opinion of the Writing Committee that exceptions to these rules do exist, and a slight modification of the Rutherford classification from 1997 may be appropriate in the future.

Rutherford's Classification

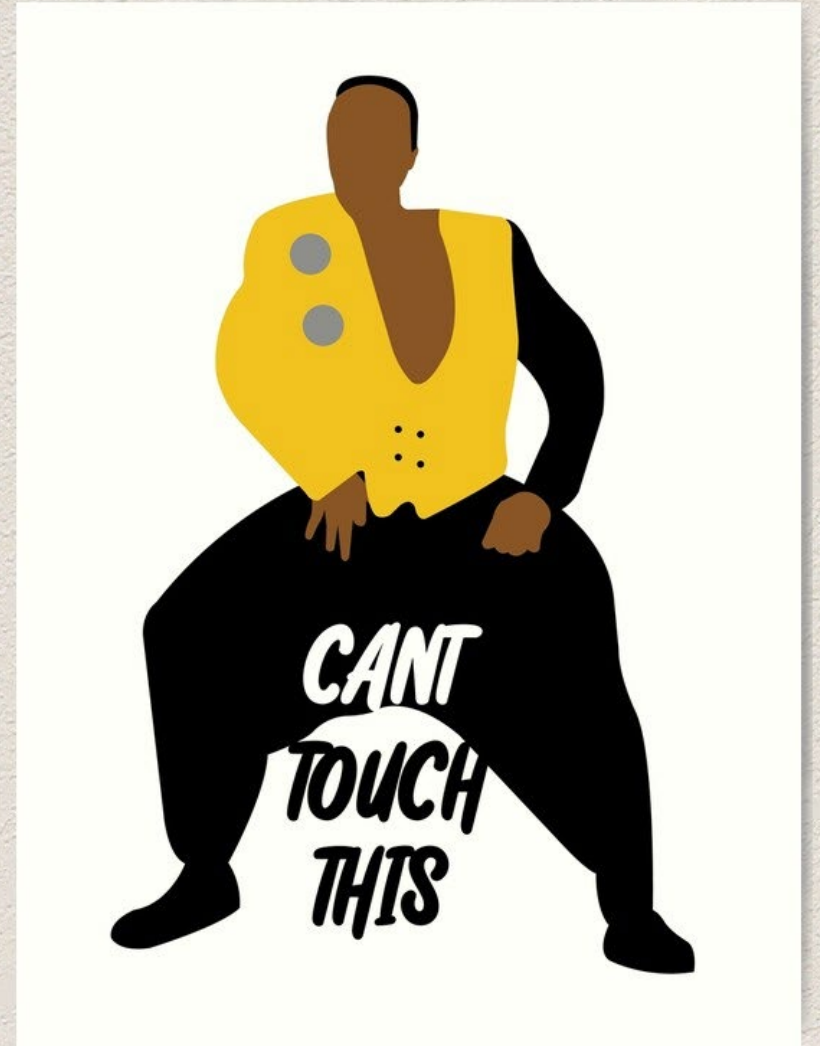
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Diagnosis

- Low index of suspicion
- Physical Exam
 - Check Femoral Pulses
- CT Imaging
- Non-invasive imaging



Name of the Game

Urgent/Emergent Revascularization

Open Surgery

Endovascular Surgery

Hybrid Surgery



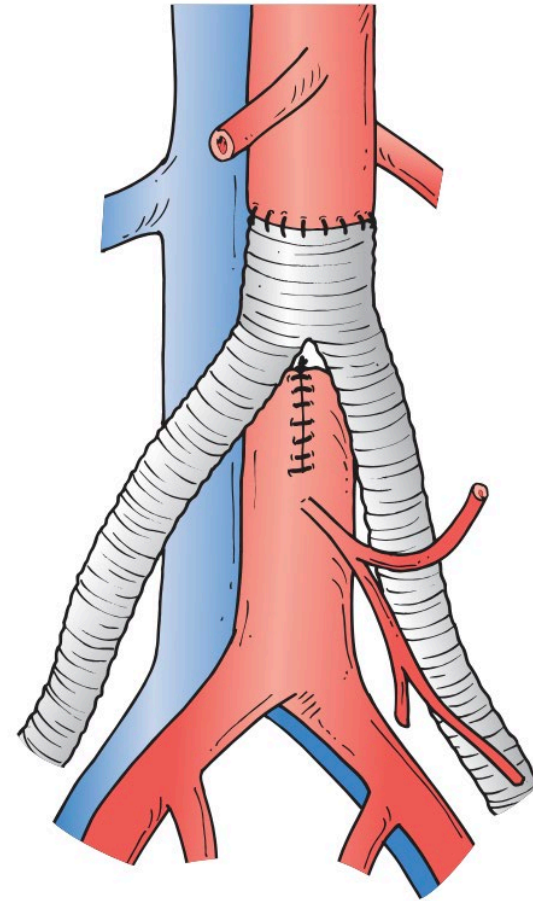
Open Surgical Options

- Direct Thrombectomy



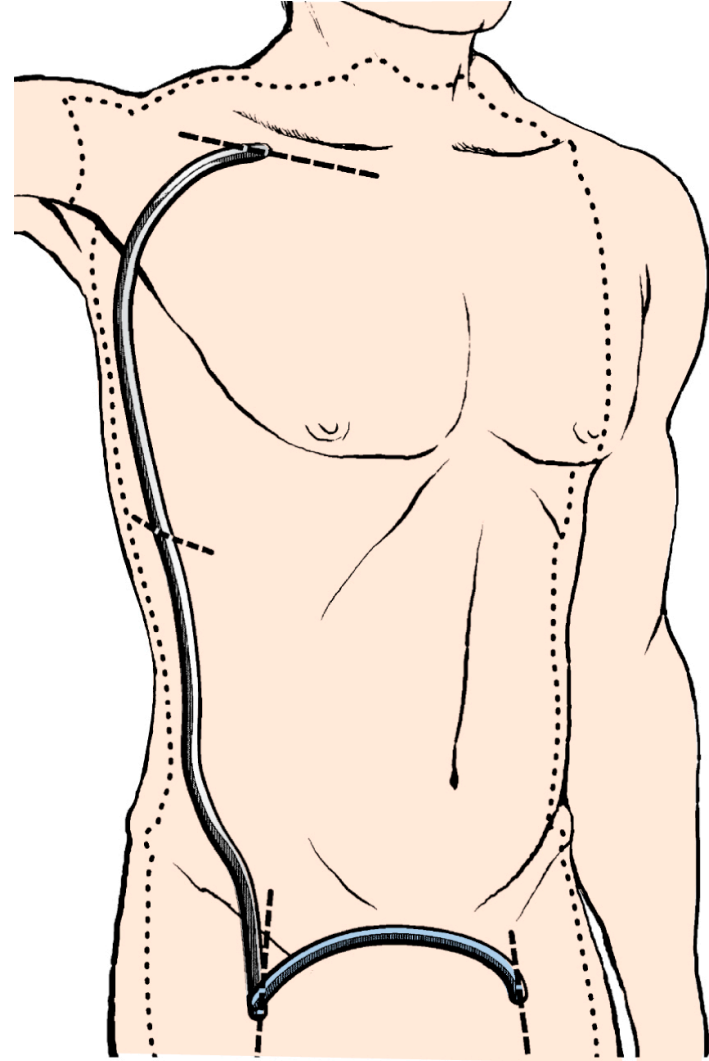
Open Surgical Options

- Direct Thrombectomy
- Aorto-bifemoral Bypass

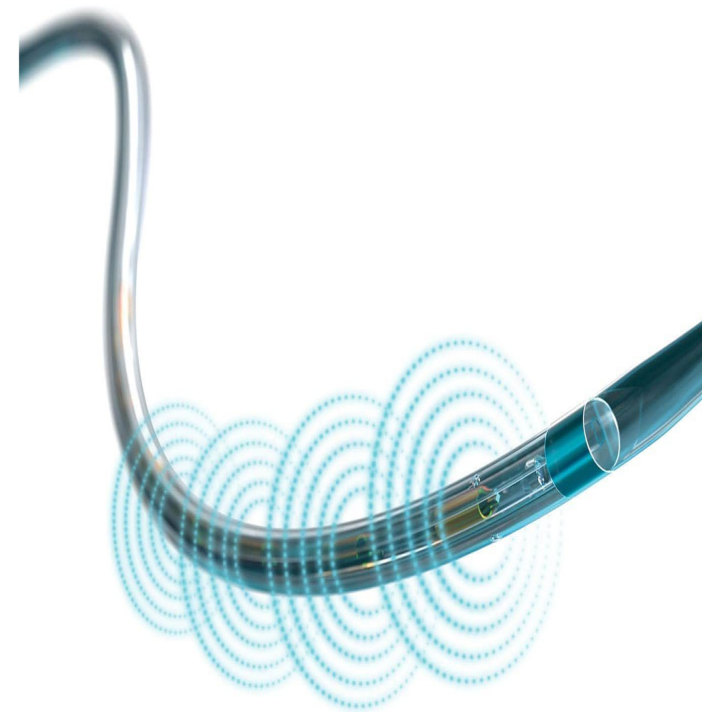


Open Surgical Options

- Direct Thrombectomy
- Aorto-bifemoral Bypass
- Axillo-Bifemoral Bypass



Endovascular Options



Hybrid Approaches



Outcomes

- Dramatic improvements in outcomes
 - 100% 5-day mortality in 1967 to as low as 14% 30-day mortality
- Up to 67% of patients have no major complications after revascularization
- Still lots of complications to look out for
 - Pulmonary, renal, cardiac, lower extremity, bowel, infection



Back to Our Patient

- Rutherford 2A
- Open vs. Endovascular vs. Hybrid

Back to Our Patient

- Rutherford 2A
- Open vs. Endovascular vs. Hybrid
 - Immediate revascularization
 - Definitive Treatment
 - Young Patient
 - This is already a complication of an endovascular surgery

Back to Our Patient

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- Open vs. Endovascular vs. Hybrid
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Morbidly obese

Extra-anatomic bypass given body habitus

Back to Our Patient

- Rutherford 2A
- Open vs. Endovascular vs. Hybrid
 - Could reline the stents
 - Better option given body habitus
 - Possibly technically easier

Back to Our Patient

- Rutherford 2A
- Open vs. Endovascular vs. Hybrid
 - Could reline the stents
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This was already a failed endovascular surgery
Lots of thrombus that could toothpaste
Could happen again
Dealing with crushed stents

Back to Our Patient

- Rutherford 2A
- Open vs. Endovascular vs. Hybrid
 - Could perform thrombectomy and reline stents
 - Bilateral groin cutdowns not terrible

Back to Our Patient

- Rutherford 2A
- Open vs. Endovascular vs. Hybrid
 - Could perform thrombectomy and reline stents
 - Bilateral groin cutdowns not terrible

Dealing with crushed stents

Could dislodge stents

Toothpaste thrombus

So what happened?

Axillo-bifemoral bypass

Symptoms resolved

Discharged back to Colorado

Plan for bariatric surgery and
revisional aorto-bifemoral bypass



In Summary

- Low index of suspicion
- Physical Exam
- 2B or not 2B
- Timeliness to operation
- Get blood flow back
- You can always fight another day

In Summary (For Acute)

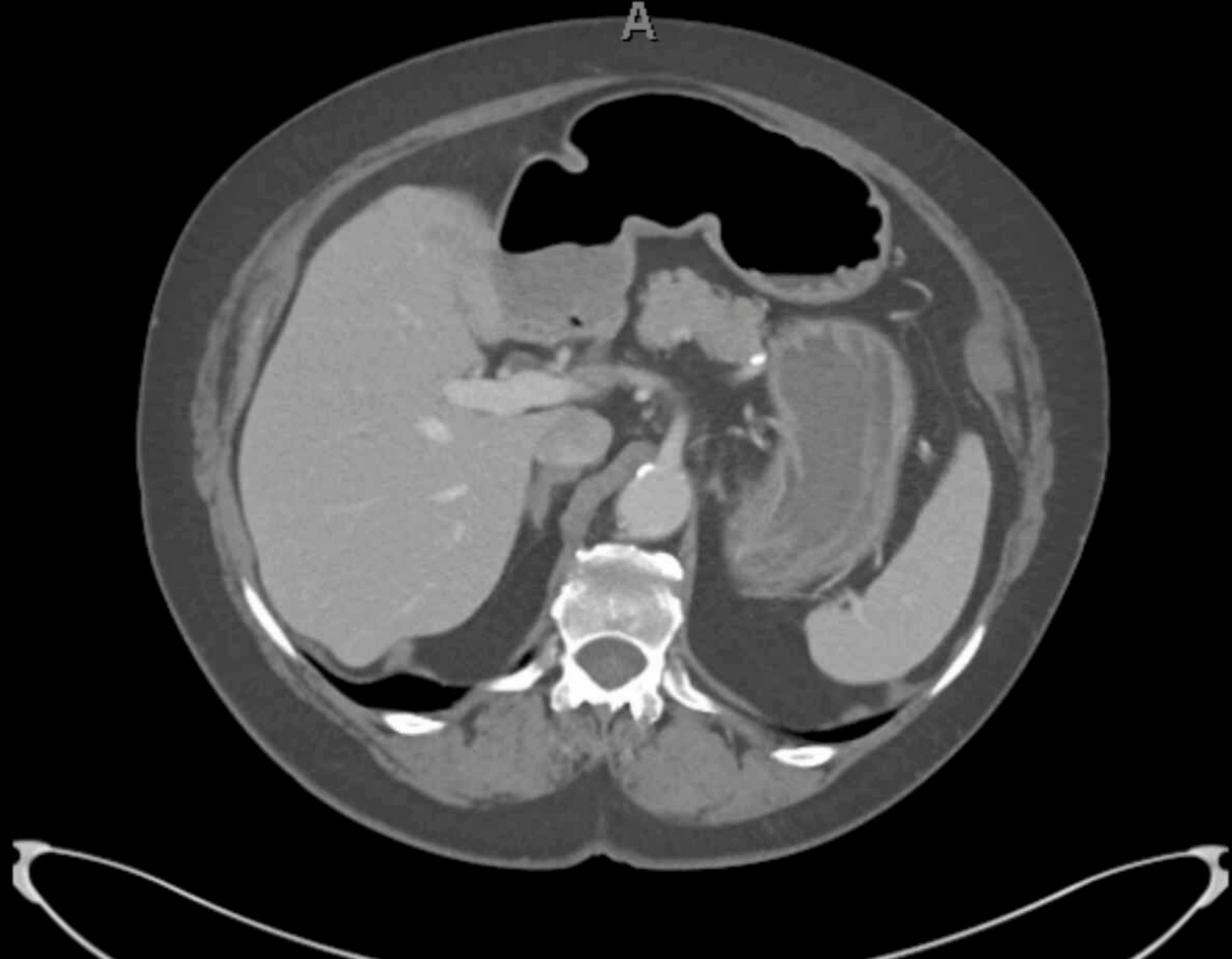
- Low index of suspicion
- Physical Exam
- 2B or not 2B
- Timeliness to operation
- Get back blood flow
- You can always fight another day



CHRONIC

Who doesn't love another good story?

- 66 year old female, chronic smoker, COPD, breast cancer and HTN presents with >1 year complaint of bilateral lower extremity pain, redness and weakness – Left worse than right.
- Numerous clinic visits complaining of symptoms.
- Smoking cessation



Chronic Aortic Occlusion

A long-standing, complete blockage of the abdominal aorta or its major branches due to progressive atherosclerosis, thrombosis, or other vascular diseases impairing blood flow to the lower extremities and pelvic organs.

Presentation

Rutherford Stage	Signs and Symptoms
0	Asymptomatic
1	Mild claudication
2	Moderate claudication
3	Severe claudication
4	Rest pain
5	Ischemic ulcers of digits
6	Severe ischemic ulcers or gangrene

- Claudication
 - Thigh and buttock
- Rest Pain
- Ischemic ulcers

Diagnosis

- History and Physical
- CT scan is the imaging modality of choice
- Non-invasives



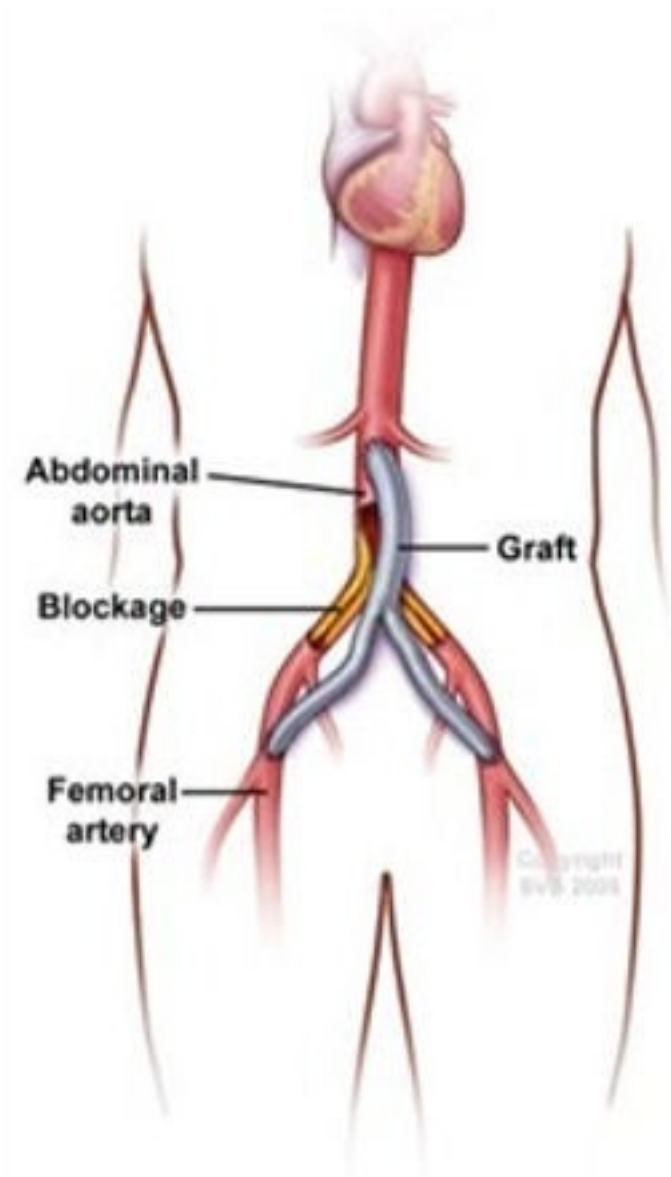
Medical Management

- Smoking Cessation
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- Smoking Cessation
- Other lifestyle modification
 - HTN, DM, HPL, Diet, Exercise
- Medications
 - Aspirin, Statin, Cilostazol, Neurontin, Lyrica, Cymbalta
- Adjuncts
 - Pain management – nerve stimulators



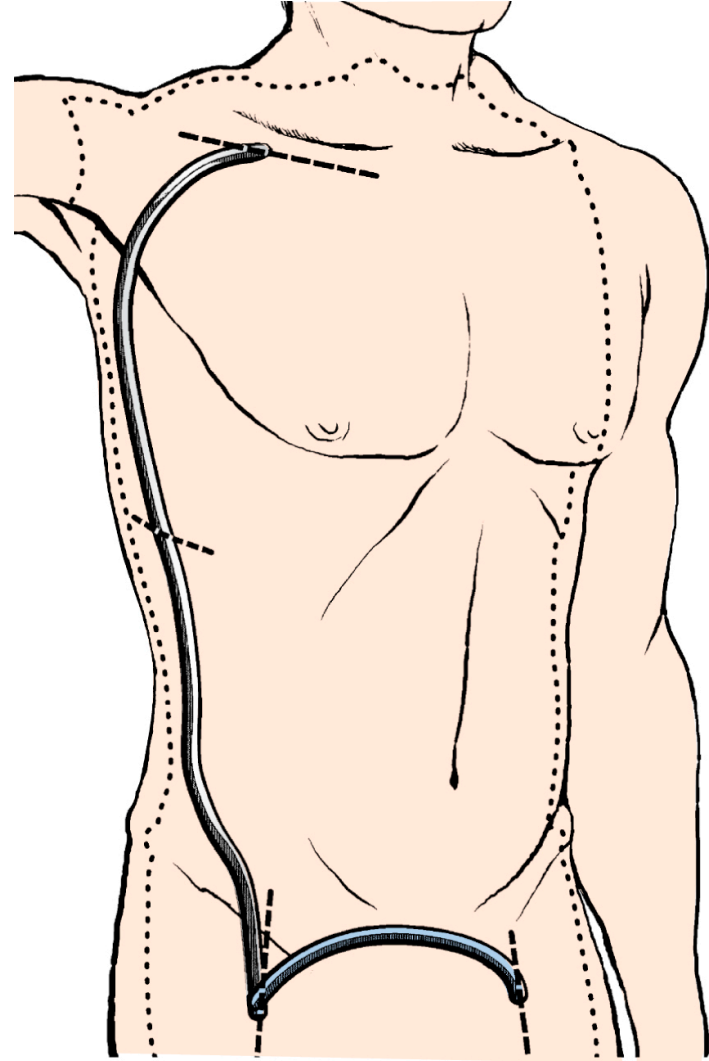
Open Surgical Options

- Aorto-bifemoral Bypass



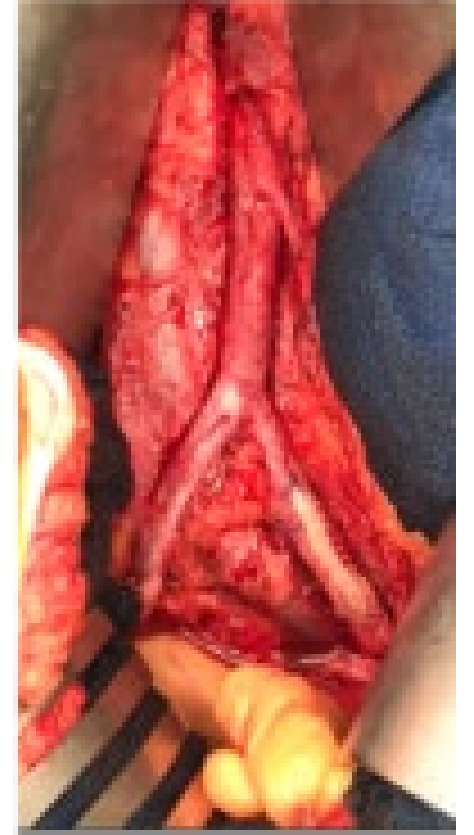
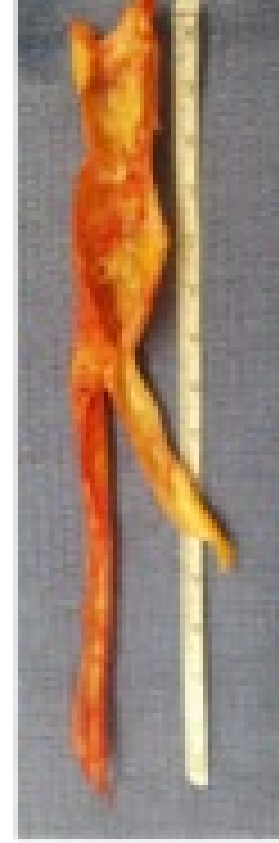
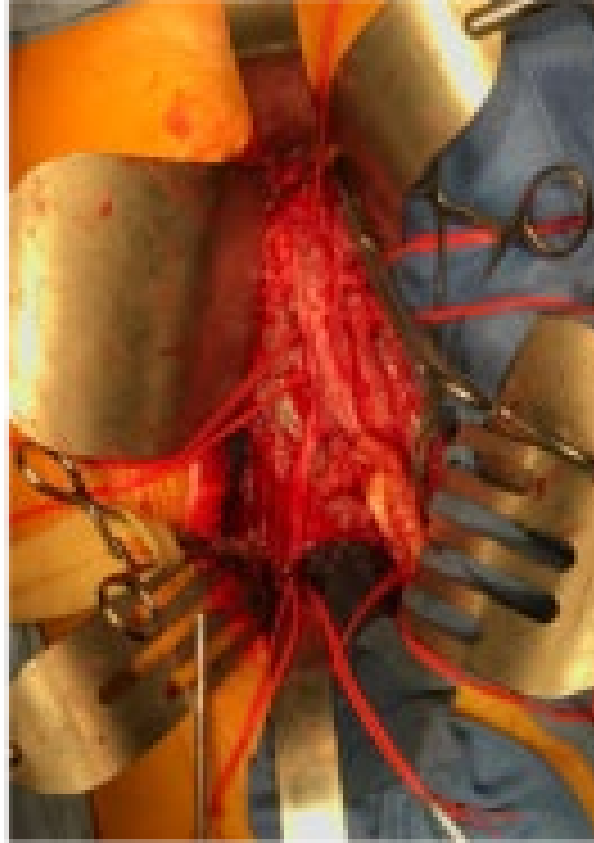
Open Surgical Options

- Aorto-bifemoral Bypass
- Axillo-Bifemoral Bypass



Open Surgical Options

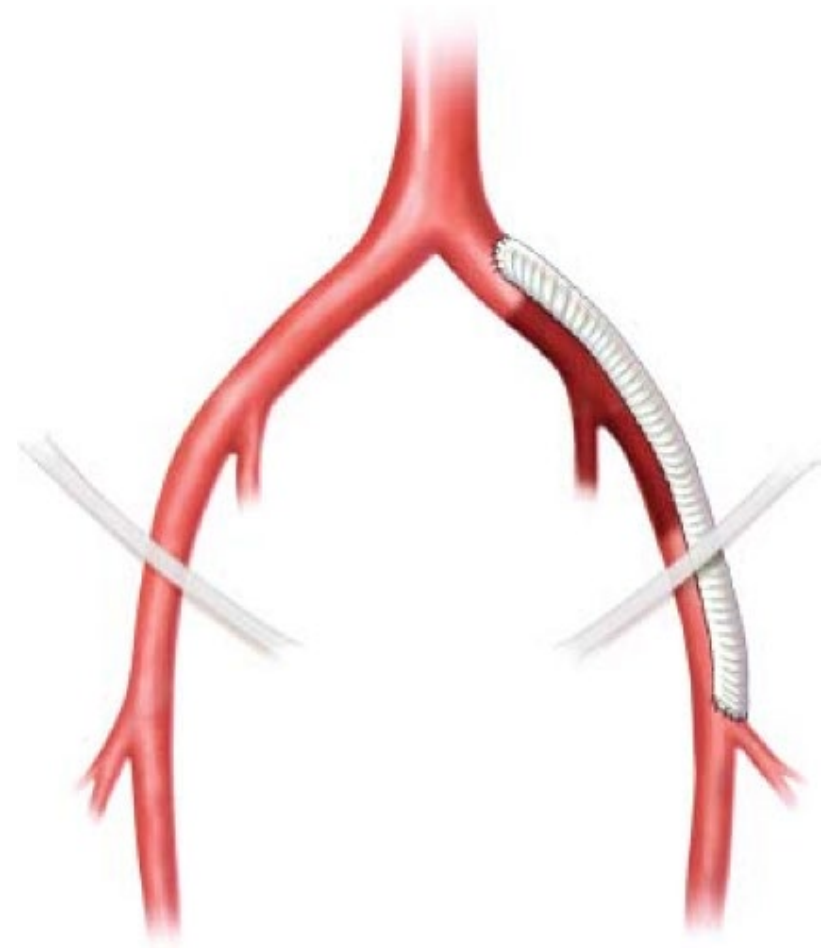
- Aorto-bifemoral Bypass
- Axillo-Bifemoral Bypass
- Aortoiliac Endarterectomy



LSU Case Series

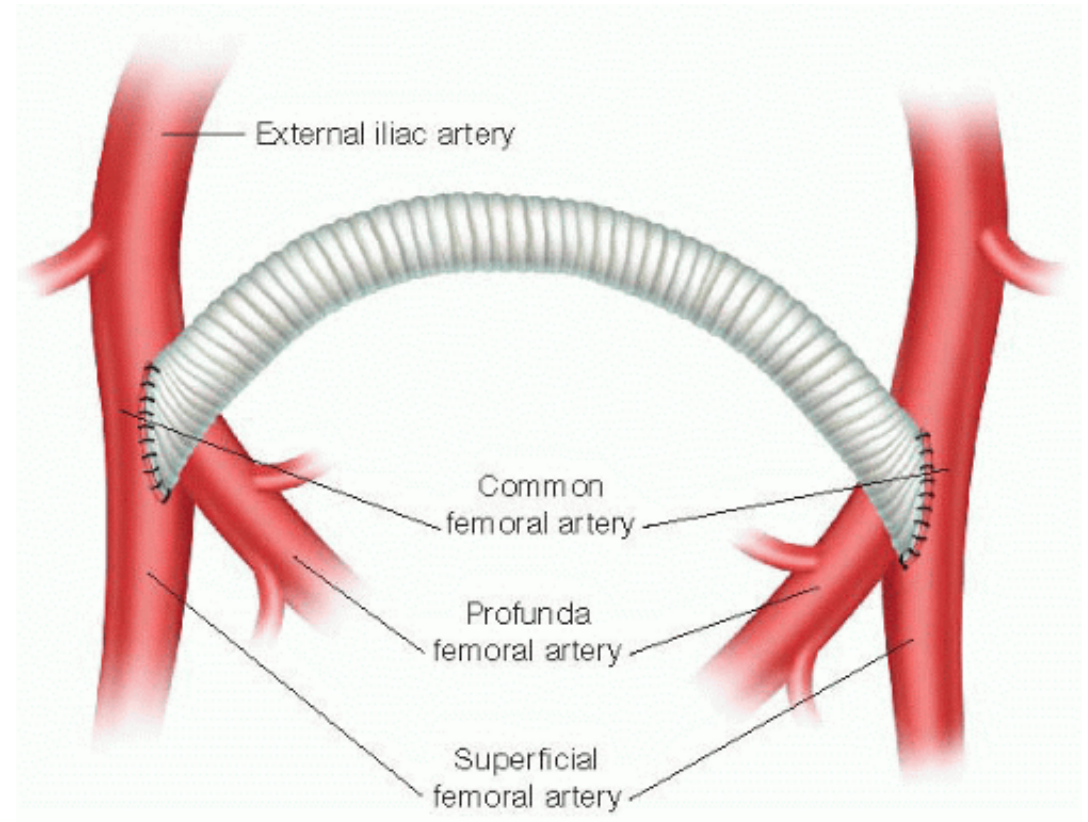
Open Surgical Options

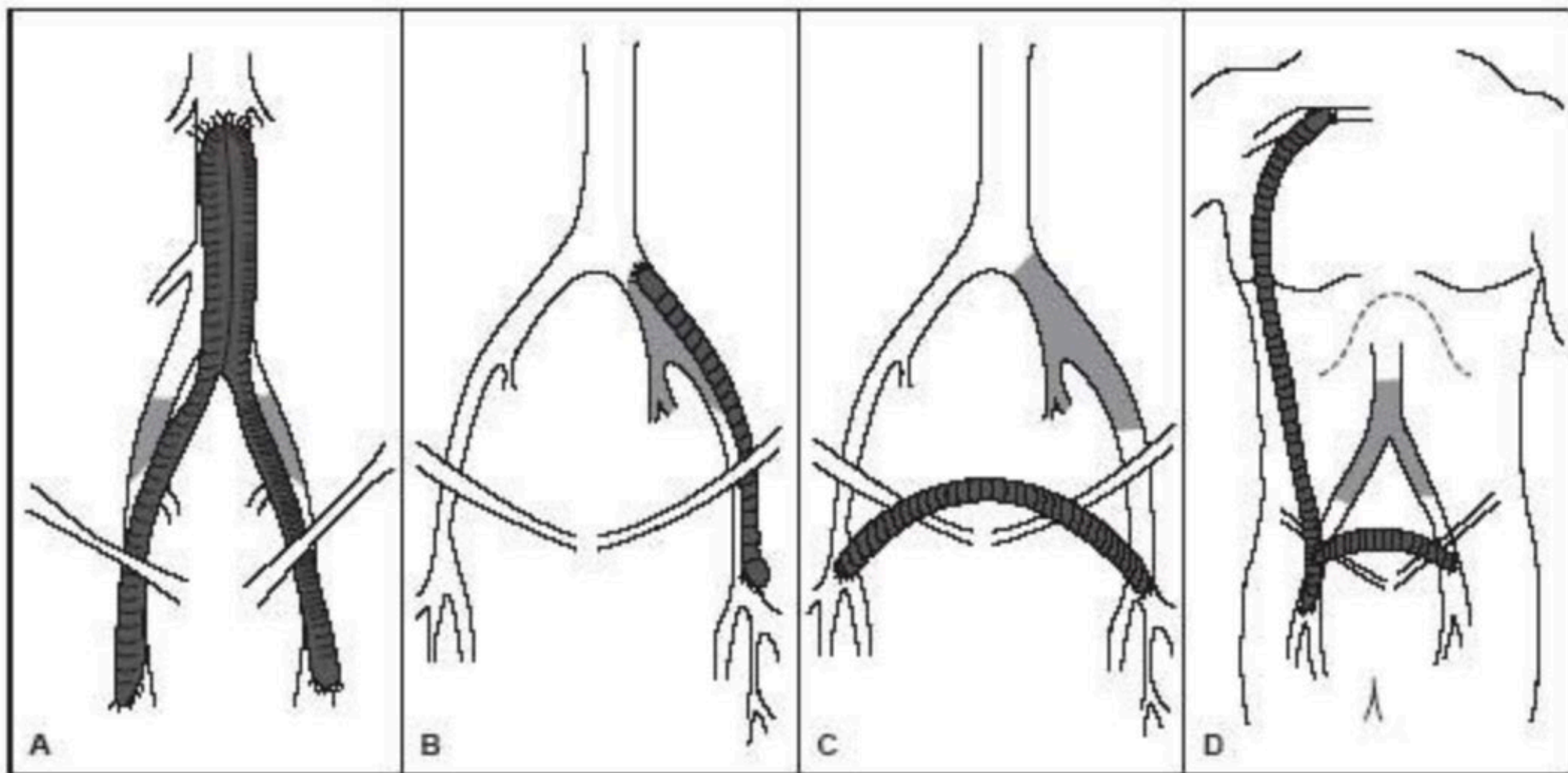
- Aorto-bifemoral Bypass
- Axillo-Bifemoral Bypass
- Aortoiliac Endarterectomy
- *Unilateral Disease
 - Iliofemoral Bypass



Open Surgical Options

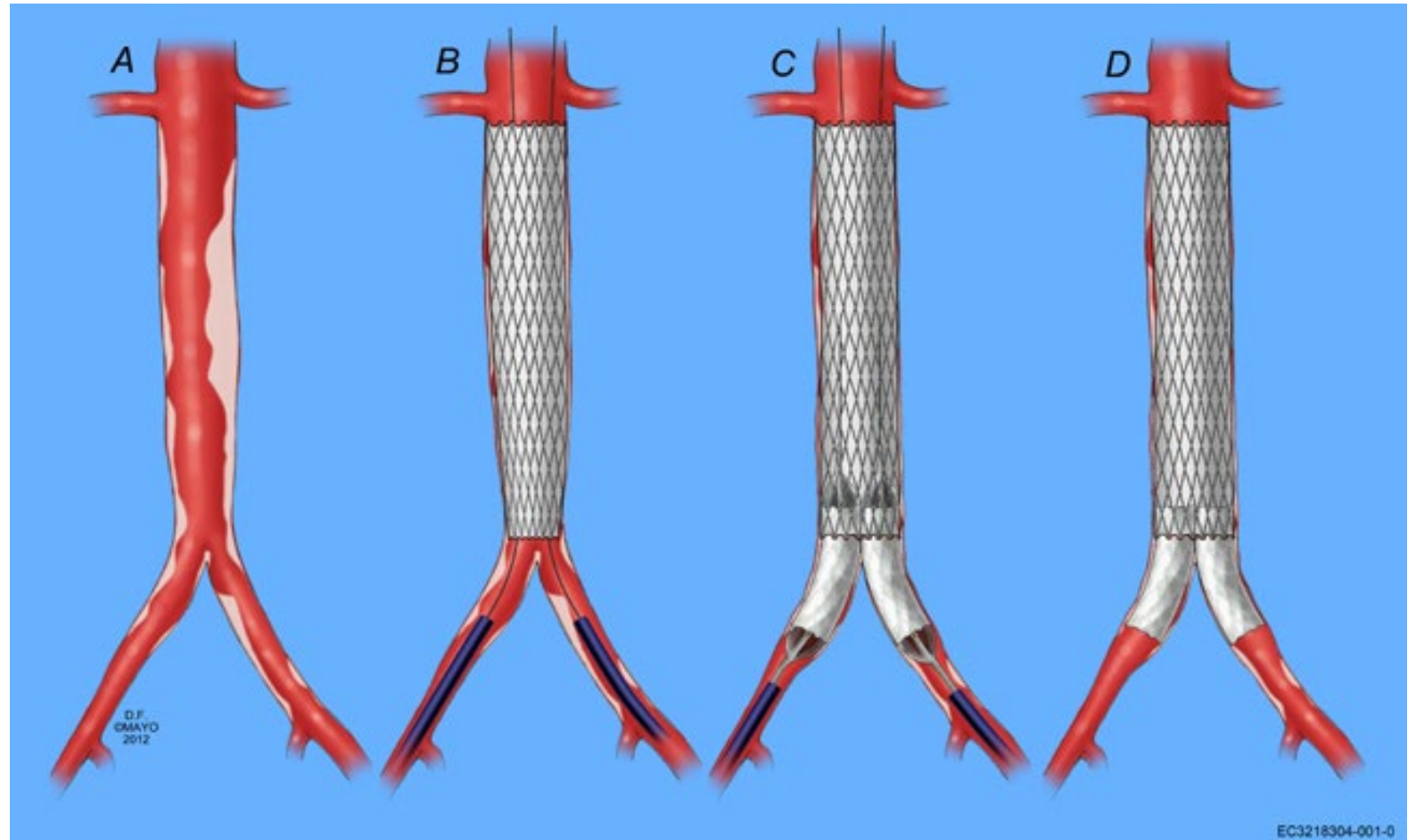
- Aorto-bifemoral Bypass
- Axillo-Bifemoral Bypass
- Aortoiliac Endarterectomy
- *Unilateral Disease
 - Iliofemoral Bypass
 - Femoral-Femoral Bypass





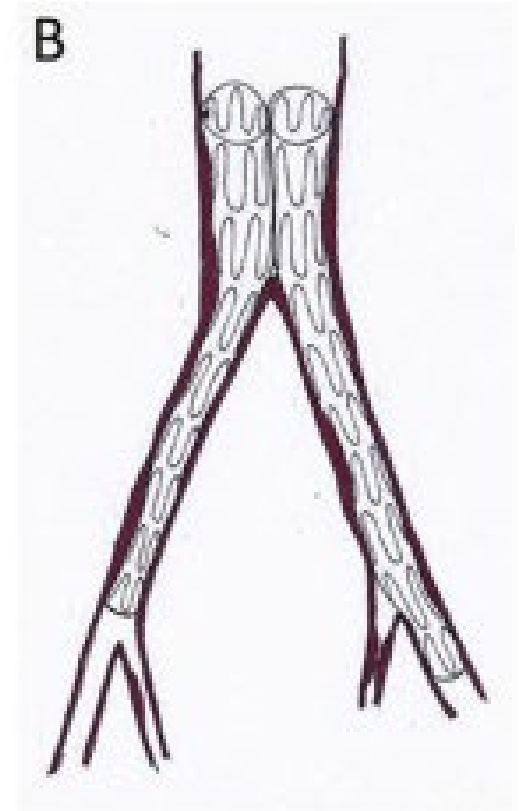
Endovascular Options

- CERAB

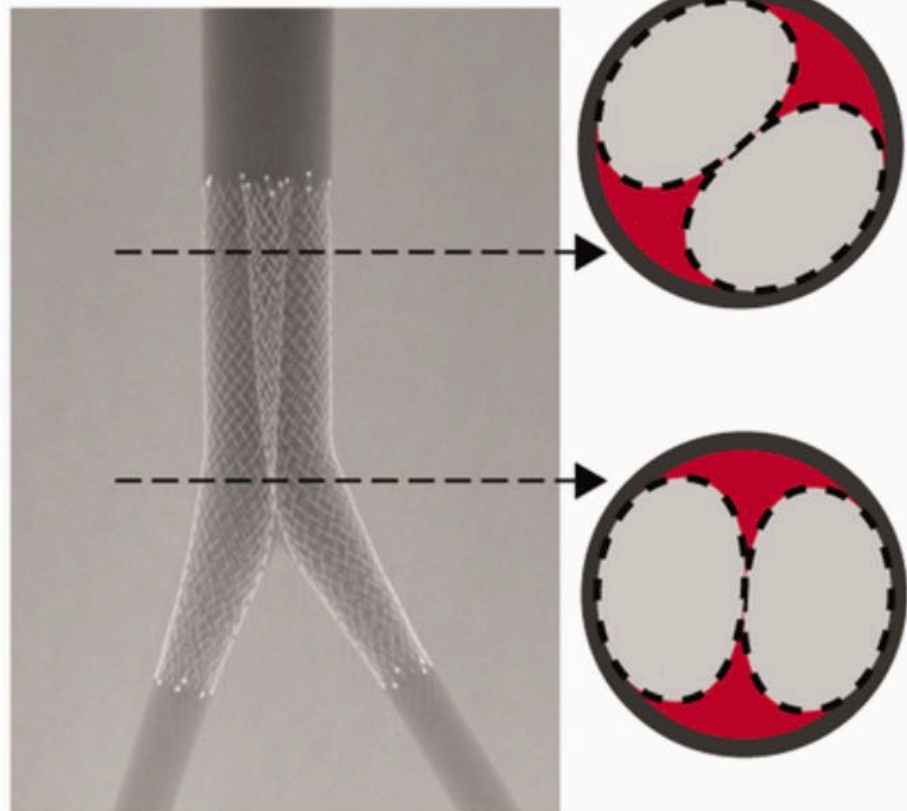


Endovascular Options

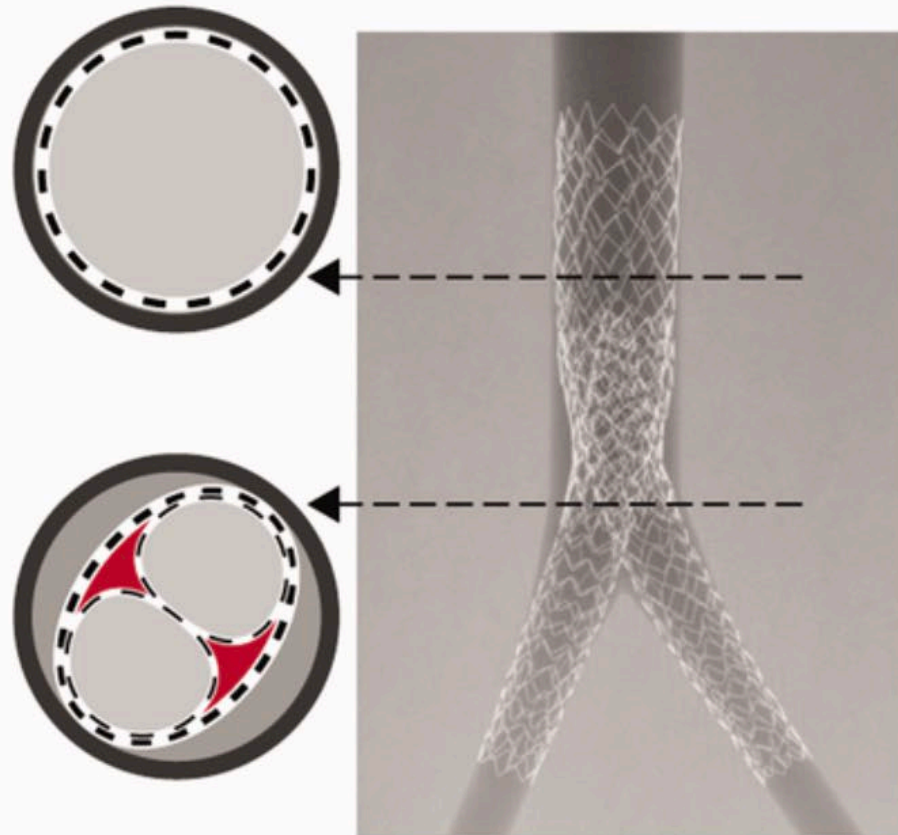
- CERAB
- Kissing Iliac Stents



Kissing stent

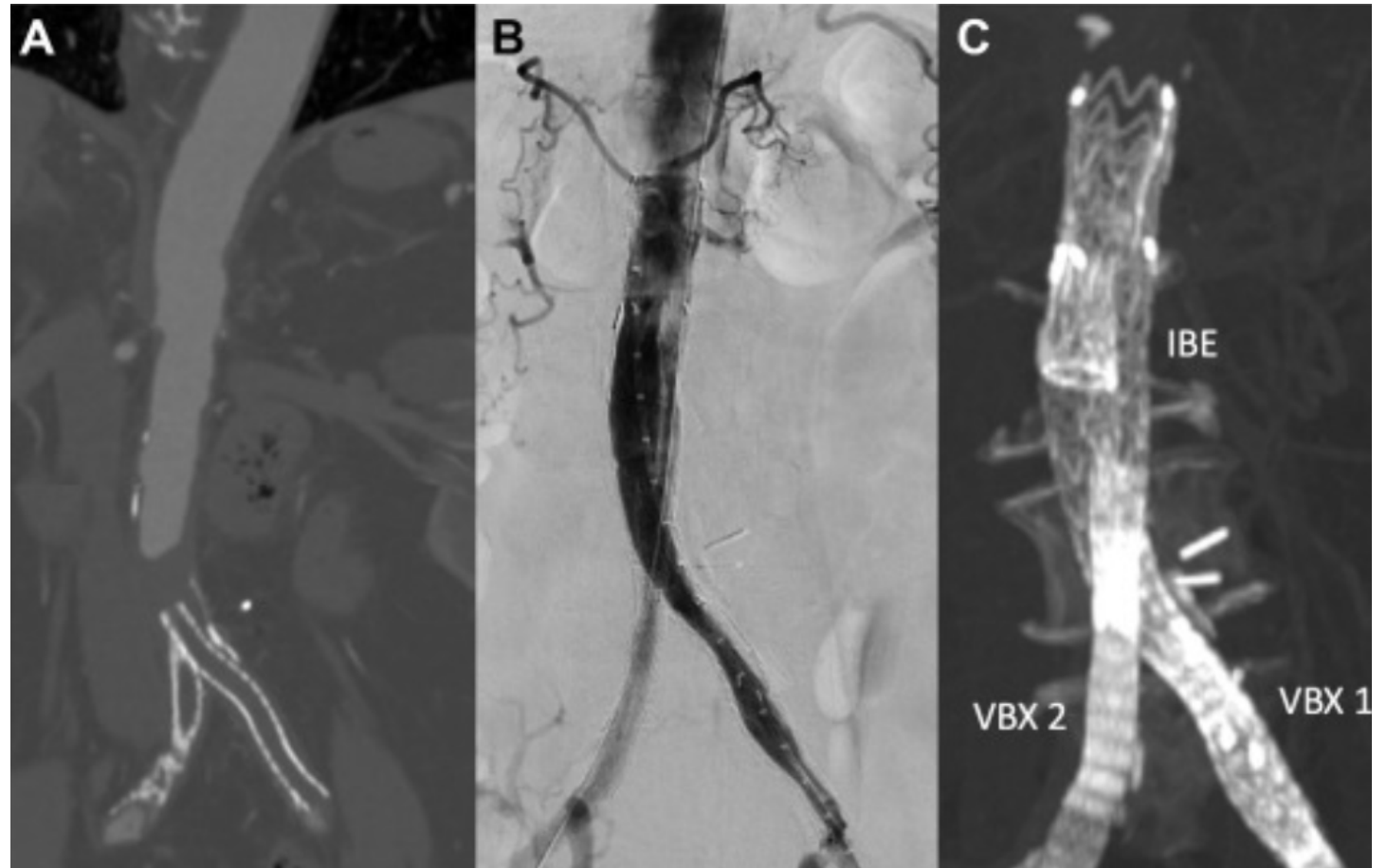


CERAB



Endovascular Options

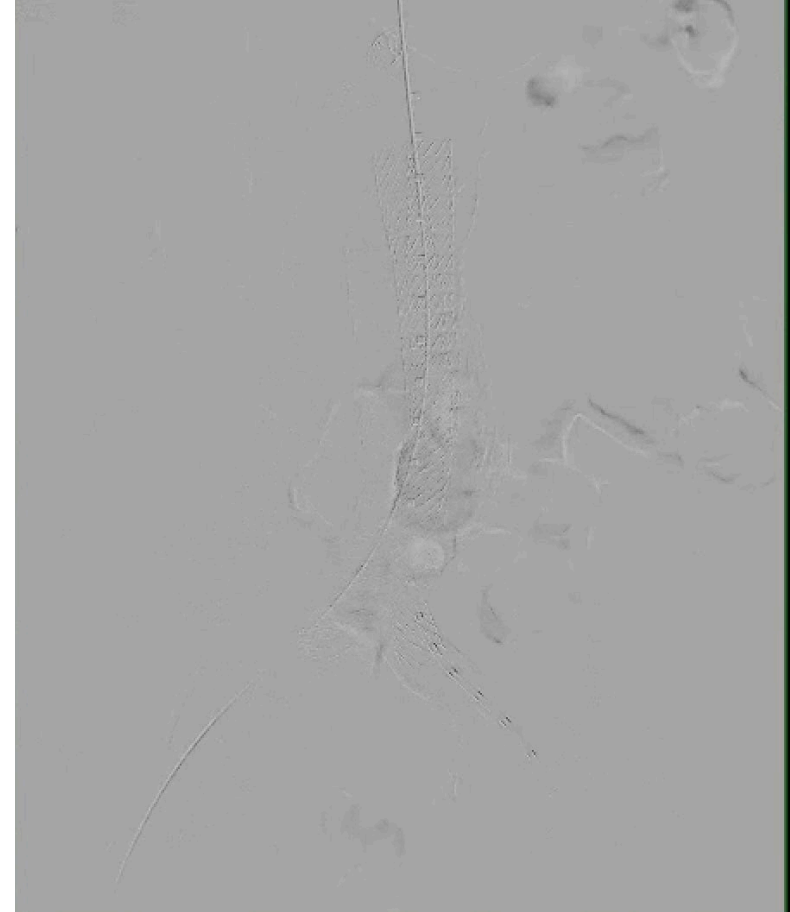
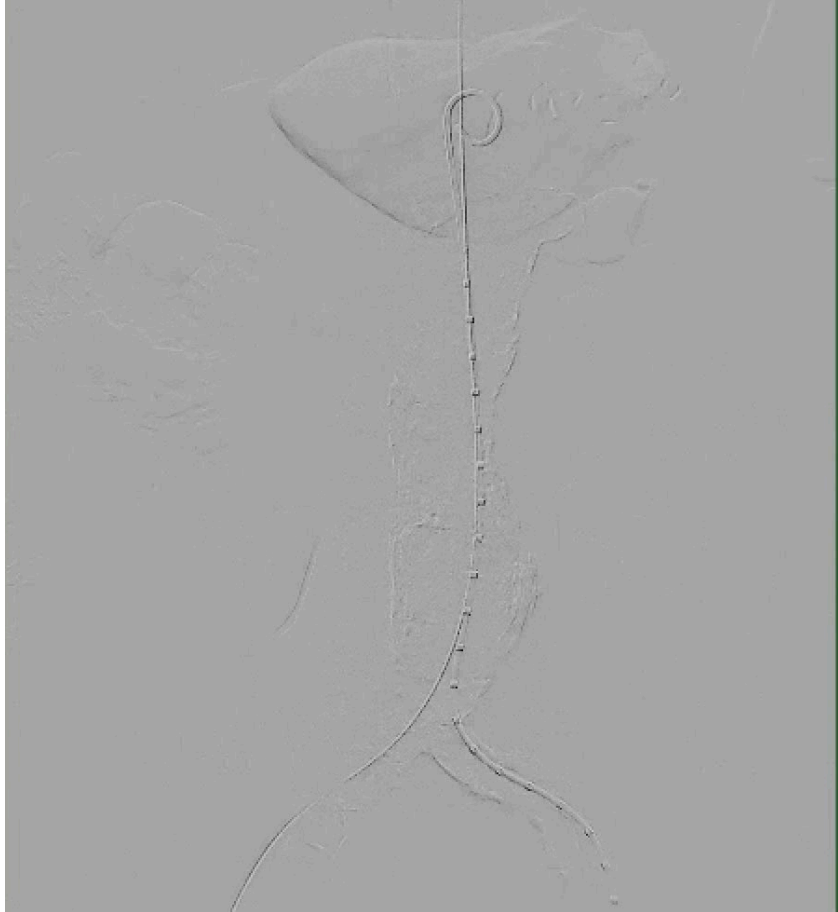
- CERAB
- Kissing Iliac Stents
- EVAR



Outcomes

- Long term survival rates for patients with chronic aortic occlusions are poor, but improved with surgical intervention
 - Operative mortality is around 5%
 - Improved patency with aortic inflow as opposed to extra-anatomic bypasses
 - Some studies show that endovascular is equal to open surgical revascularization
- *Patient selection is key

Back to our Patient



In Summary (For Real)

- AOID – while not the most fun friend in aortic surgery – is both challenging and rewarding
- Understanding the key differences in acute vs. chronic can help with patient care planning
- Being flexible in treatment modalities and using all that's in your armamentarium is critical for good outcomes
- In the end, it's all just plumbing



Thank You!



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