

Endovascular Repair of Type-B Aortic Dissection Complicated by Complete Tear of The External Iliac Artery

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Introduction

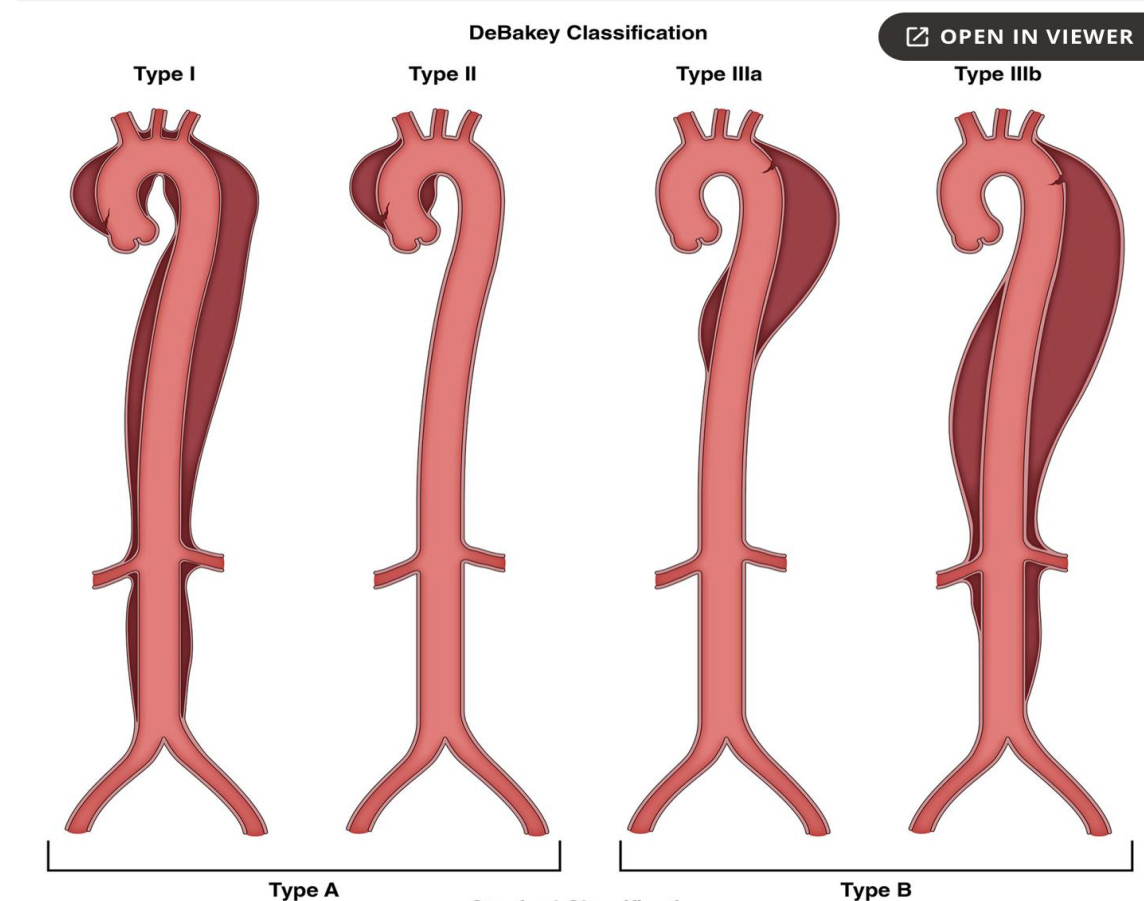
- Aortic dissection (AD) is the most common of the “Acute aortic syndrome”.
 - The most common AAS are aortic dissection, intramural hematoma, and penetrating atherosclerotic ulcer , all of which can lead to rupture.
- AD is a life-threatening aortic condition with a reported incidence of 2.5–6 per 100 000 per year. Type B aortic dissection is reported to represent ~22–38% of all ADs .



Chronicity	Time From Onset of Symptoms
Hyperacute	<24 h
Acute	1–14 d
Subacute	15–90 d
Chronic	>90 d

DeBakey system and the Stanford system.

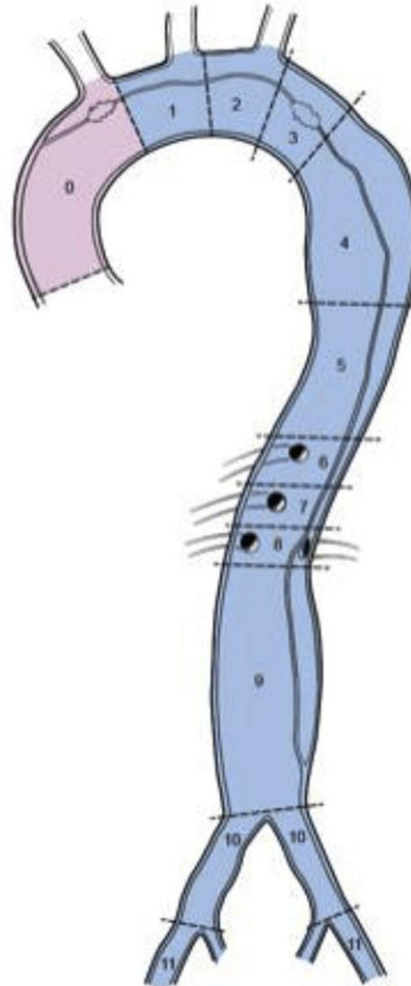
- Approximately 30% of patients with acute Stanford type B will develop complications, including>
 - persistent symptoms
 - malperfusion
 - enlarging aneurysms and impending rupture.
- The mortality in the acute cases is 6.6%, with 4.2% permanent paraplegia and 2.5% stroke.



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SVS and the STS new classification- 2020

- New classification scheme that defines the aortic dissection anatomy.
- Dissections are defined anatomically according to the location of intimal tears and the proximal and distal extent of the dissection process.



Type	Proximal Extent	Distal Extent
A_D Entry tear: Zone 0	0	0
	1	1
	2	2
	3	3
B_{PD} Entry tear: ≥Zone 1	4	4
	5	5
	6	6
	7	7
	8	8
I_D Unidentified entry tear involving Zone 0	9	9
	10	10
	11	11
	12	12

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SVS and the STS guidelines

Recommendations for Multidisciplinary Aortic Teams		
COR	LOE	Recommendations
1	C-EO	1. For patients with acute aortic disease that requires urgent repair, a multidisciplinary team should determine the most suitable intervention.
2a	C-LD	2. For patients who are asymptomatic with extensive aortic disease, or who may benefit from complex open and endovascular aortic repairs, or with multiple comorbidities for whom intervention is considered, referral to a high-volume center (performing at least 30-40 aortic procedures annually) with experienced surgeons in a Multidisciplinary Aortic Team is reasonable to optimize treatment outcomes. ¹⁻⁶

Recommendations for AAS: Diagnostic Evaluation (Imaging, Laboratory Testing)		
COR	LOE	Recommendations
1	C-LD	1. In patients with a suspected AAS, CT is recommended for initial diagnostic imaging, given its wide availability, accuracy, and speed, as well as the extent of anatomic detail it provides. ¹⁻⁵
2a	C-LD	2. In patients with a suspected AAS, TEE and MRI are reasonable alternatives for initial diagnostic imaging. ¹⁻⁶

SVS and the STS guidelines- Management

Recommendations for the Management of Acute Type B Aortic Dissection		
Referenced studies that support the recommendations are summarized in the Online Data Supplement .		
COR	LOE	Recommendations
1	B-NR	1. In all patients with uncomplicated acute type B aortic dissection, medical therapy is recommended as the initial management strategy. ¹⁻³
1	C-LD	2. In patients with acute type B aortic dissection and rupture or other complications (Table 27), intervention is recommended. ⁴⁻⁶
1	C-EO	In patients with rupture, in the presence of suitable anatomy, endovascular stent grafting, rather than open surgical repair, is recommended.
2a	C-LD	In patients with other complications, in the presence of suitable anatomy, the use of endovascular approaches, rather than open surgical repair, is reasonable. ^{4-6,7}

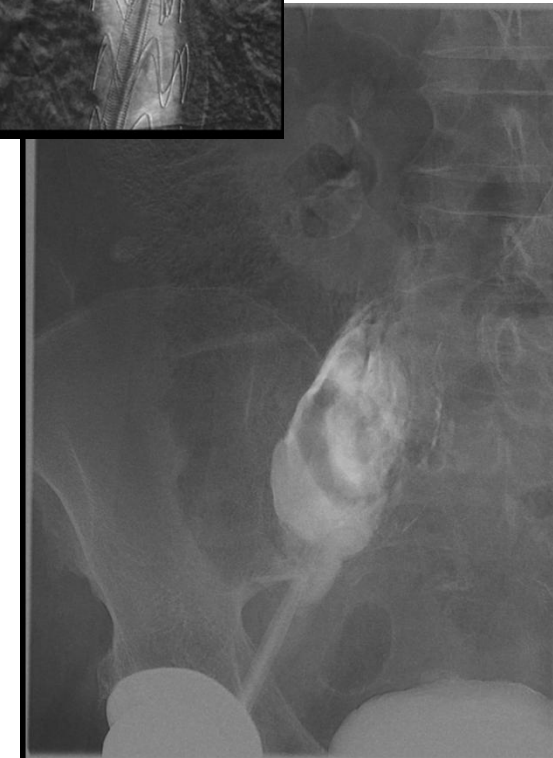
Case Report

- A 74-year-old female patient was presented with a sudden acute onset of back pain. CTAG of the thoracic and abdominal aorta was performed.
- CTAG of the thoracic and abdominal aorta: Type-B aortic dissection.
 - From the level of Th 5-6, an intramural hematoma of the aorta is shown ventrally up to a width of 13mm.
 - The hematoma can be traced up to the level of Th11. From this level, the dissection of the aorta begins ventrally for 50mm. Here, a falsely filling lumen up to a width of 8mm is present. The dissection ends at the level of the Th12 vertebra.
 - Hemodynamically significant stenosis of the truncus coeliacus.
 - Severe atherosclerotic infiltration of the iliac arteries.
- Patient medical history: borderline compensated arterial hypertension



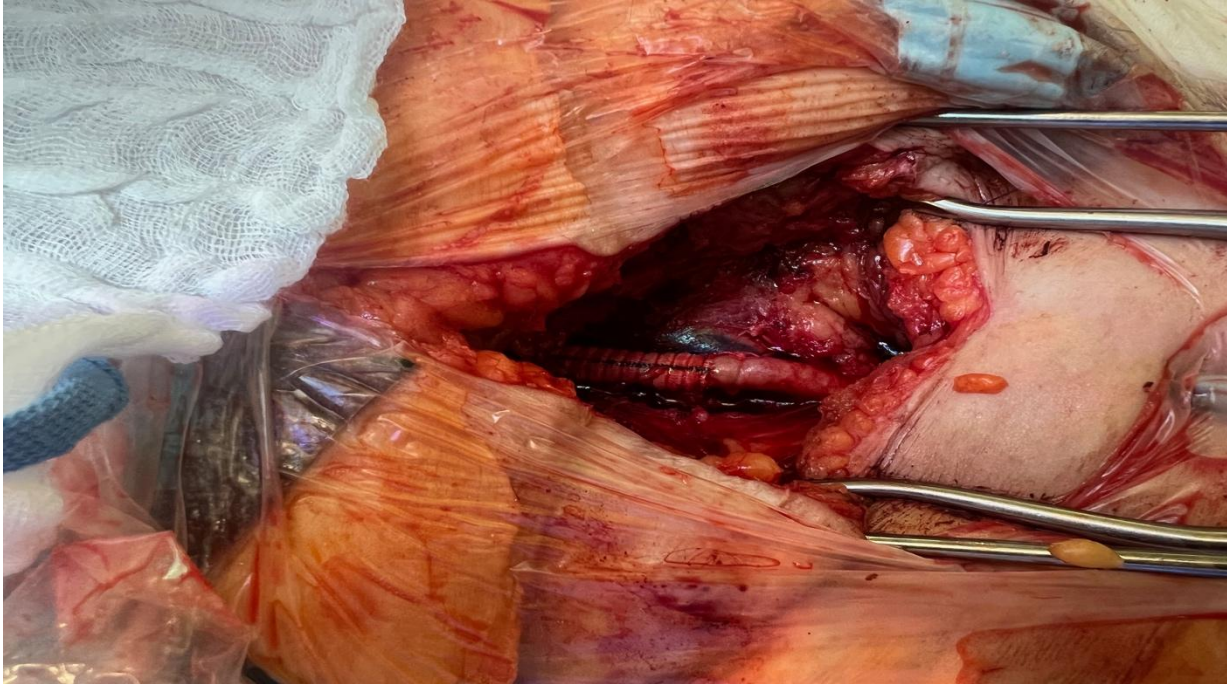
Case Report

- The patient was scheduled for an emergency endovascular repair.
 - Vascular access site: right common femora artery.
 - The distance from the left subclavian artery to the tr. coeliacus 26 cm.
 - Under local anaesthesia, two Proglide sutures were placed.
 - After administering heparin, the first stent graft, Zenith Alpha 36/161, was implanted. It was placed so that the end of the graft was just above the tr. coeliacs.
 - As the second stent graft, we tried to implant the Zenith TX2; however, the stent graft shaft could not be passed through the right iliac arteries.
 - Angiography revealed a retroperitoneal bleeding.
 - The patient was stable. The stent graft shaft was secured, and the patient was transported to the hybrid OR for an acute surgical repair of the right iliac arteries.



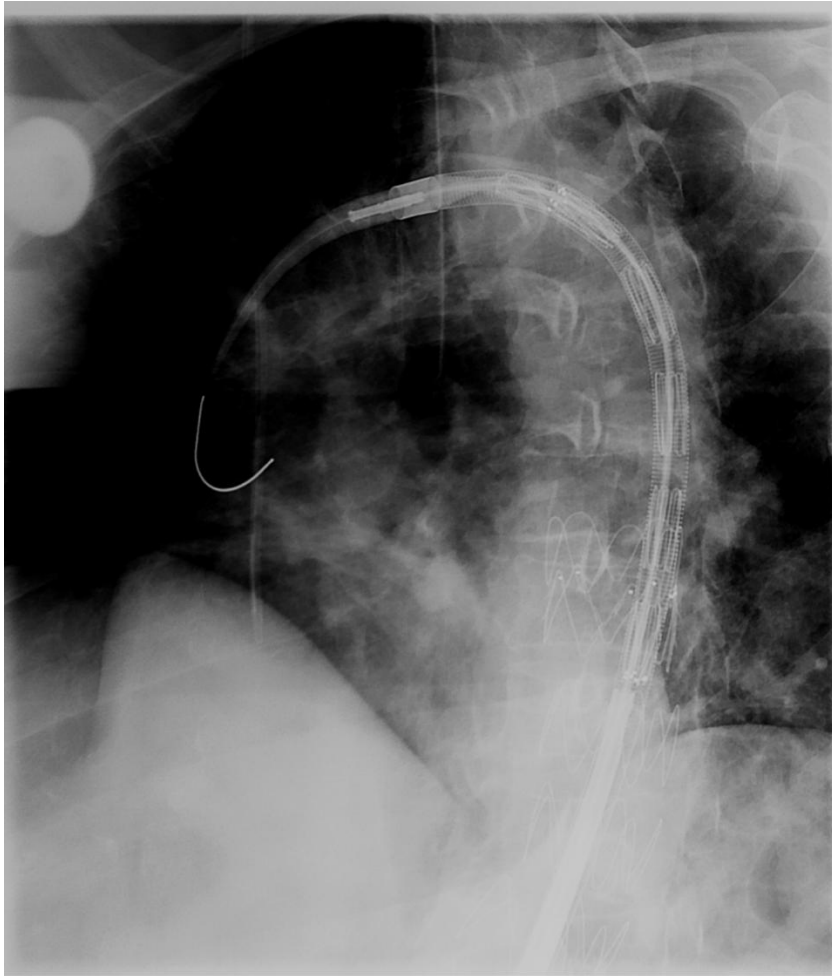
Case Report

- Under full anaesthesia, the common and external iliac arteries were dissected through the right retroperitoneal access.
- The perioperative findings showed a complete tear of the right external iliac artery (AIE) being compressed by the 18F sheet.
- After acute clamping of the EIA, an ilio-femoral reconstruction was performed (perioperative blood loss 1450ml).



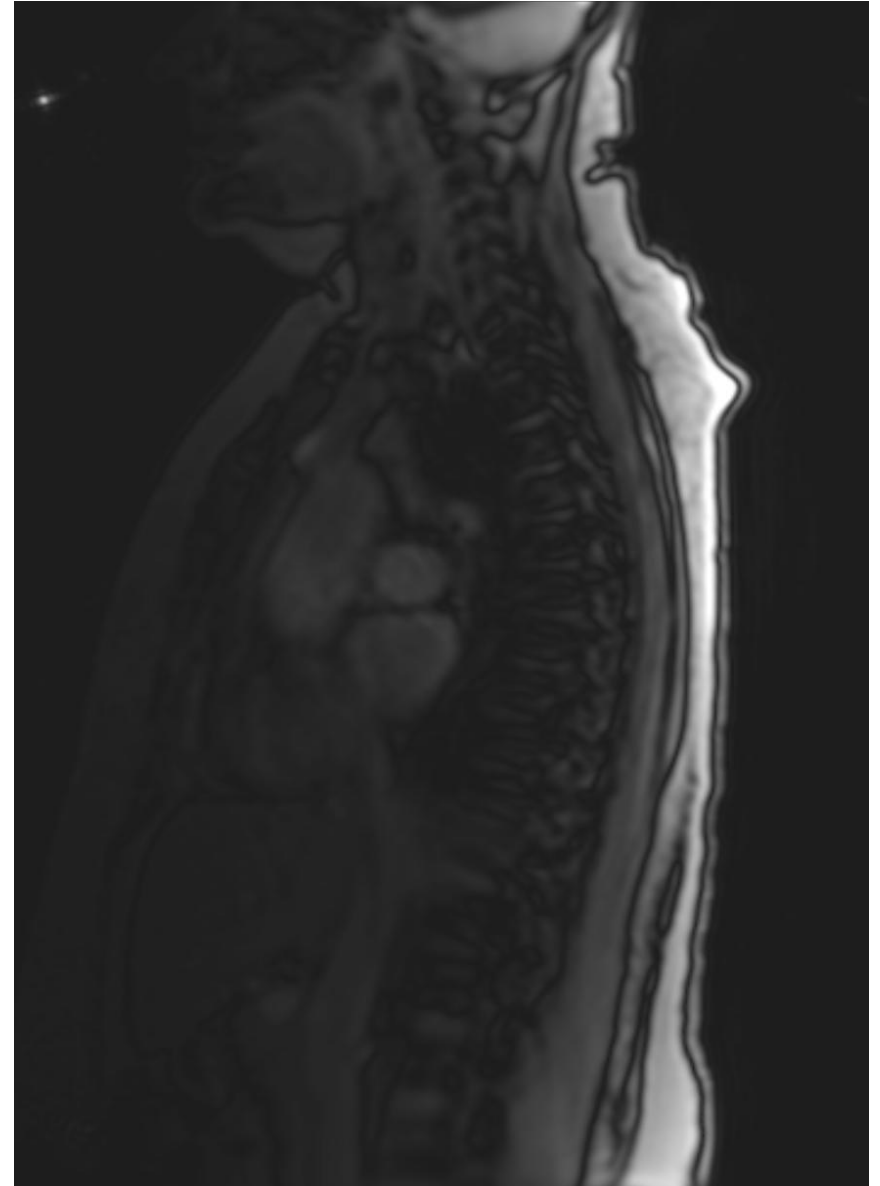
Case Report

- Afterwards, a second SG (Zenith TX 2 40/117) was implanted through the prosthetic vascular reconstruction, ending just under the left subclavian artery.



Case Report

- The postoperative period was complicated by a syndrome of incomplete transversal spine lesion.
 - Paraplegia/paraparesis of the lower extremities with tactile hypoesthesia from TH 11-12.
- MRI of the spine showed myelomalacia caudal to the Th7 disc.

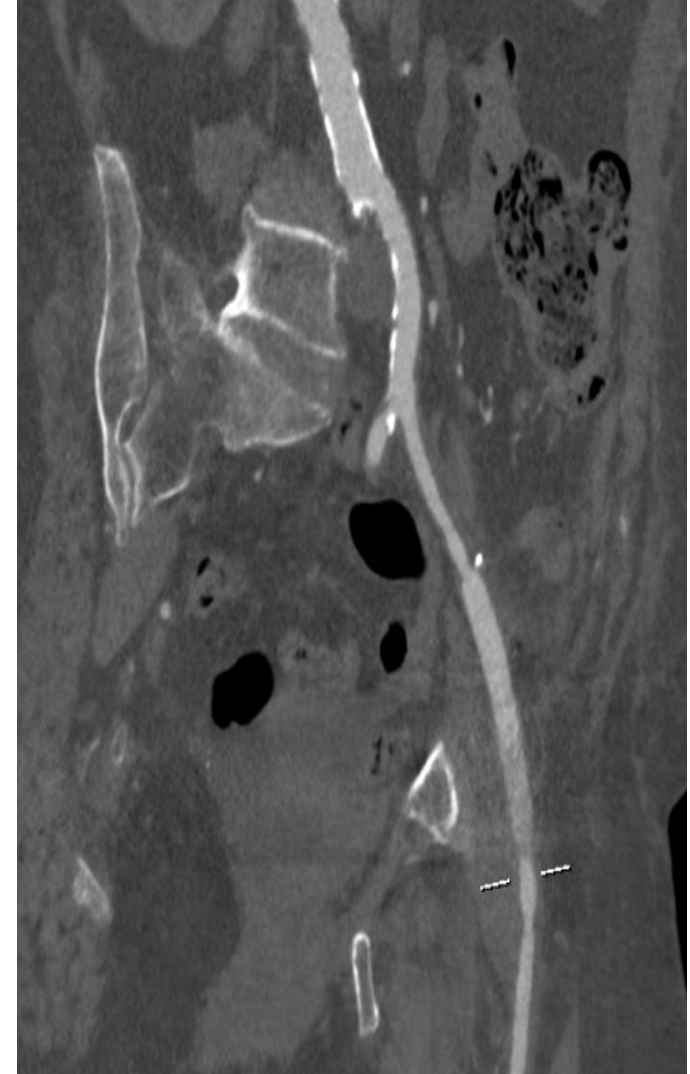
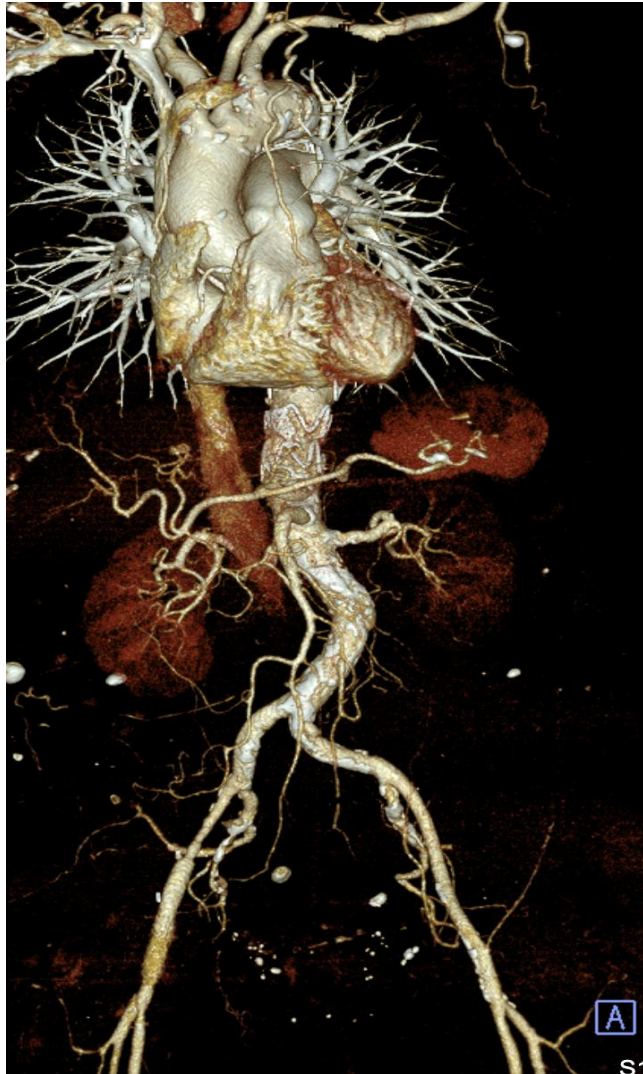


Case Report

- Complicated healing of the wound in the right groin required multiple VAC treatments.
- The total hospital stay was 79 days.
- The patient was transferred to the Department of Neurology (Spinal Unit) for further rehabilitation with good progress.
- After an 8-month follow-up, the patient can walk without assistance.

Case Report

- An 8-month follow-up CTAG showed the good function of the SGs and patent vascular reconstruction.



Conclusion

- Endovascular SG repair of the thoracic aorta is an alternative to surgical repair, not without significant morbidity and mortality.
- Potentially lethal periprocedural complications may occur.
- Cooperation between interventional radiologists and cardiac and vascular surgeons is essential when tackling these complications.

Thank you for your attention !!!



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