JIVAS
Jain Institute of Vascular Sciences

JIVAS NEWS

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Jain Institute of Vascular Sciences
Bhagwan Mahaveer Jain Hospital

BMJH
Caring with Compassion

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CASE REPORT OF PATIENT WITH AORTIC ARTERY ANEURYSM AND DISSECTION.

67 year old female known hypertensive for 8 months, presented to JIVAS with complaints of pain in the left lower limb and upper limb for 8 months, with incidental finding of a chronic Stanford Type B aortic dissection with aneurysmal dilatation of proximal descending thoracic aorta on CT angiography during evaluation for uterine fibroid.

On examination, she was hemodynamically stable, vitals normal. Lower limbs palpable pulses, no tissue loss. All the routine investigations were within normal limits.

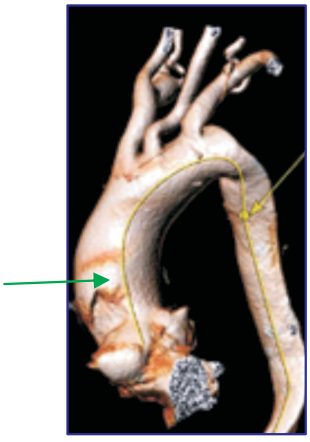


Fig 6a

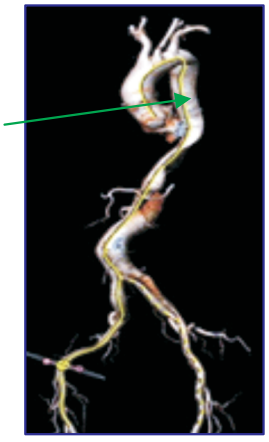


Fig 6b

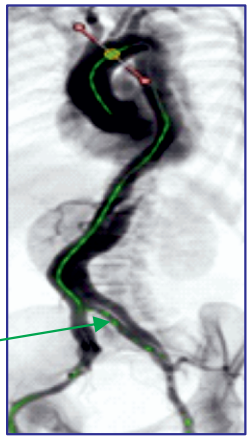
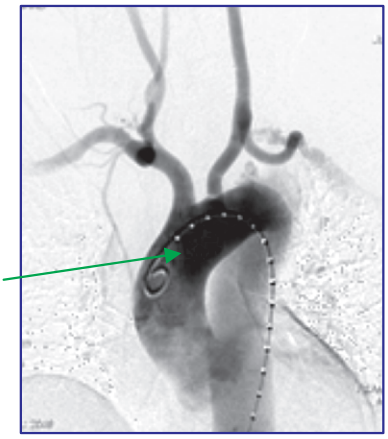


Fig 6c

CT Thoracic, abdominal aortic and peripheral angiogram showed ascending thoracic aorta mildly dilated measuring 36.0mm in diameter as seen in Fig 6b. Proximal arch of aorta is mildly dilated and measures 31.0mm in diameter as seen in Fig 6a. Dissecting aneurysmal dilatation with intimal flap and true /false lumen are noted involving distal arch, descending thoracic aorta, supra /infrarenal segments of abdominal aorta, left common iliac and proximal external iliac arteries as seen in Fig 6b. Dissection is seen to start just distal to the left subclavian artery origin and seen to end in proximal left external iliac artery as seen in Fig 6c.Few small focal defects are noted within the intimal flap in infrarenal abdominal aorta.

She was diagnosed with Stanford Type B aortic dissection with proximal descending aorta aneurysm. After complete evaluation, she underwent two-staged surgical intervention. First - Left Subclavian artery to Common Carotid artery bypass with ringed PTFE graft. Next day she underwent Thoracic Endovascular Aortic Repair (TEVAR) with thoracic stent graft, covering the proximal entry tear as seen in Fig 6d with temporary cardiac pacing via left common femoral vein access. Postoperatively patient stable. Discharged with healthy surgical wounds.



Pre procedure angio.

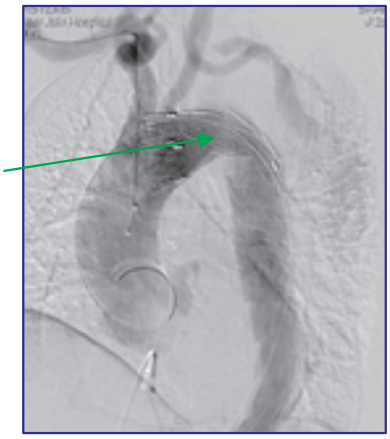
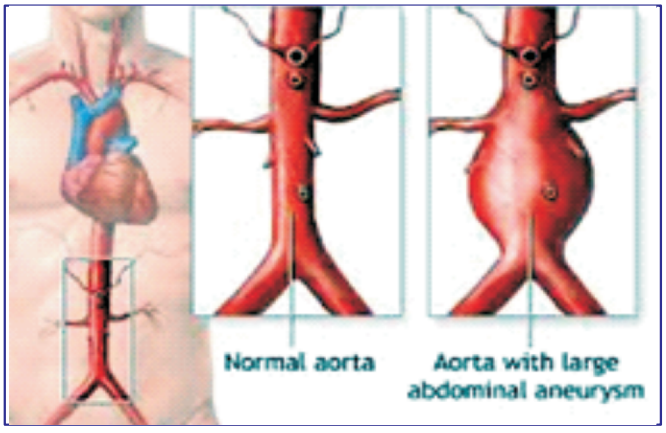
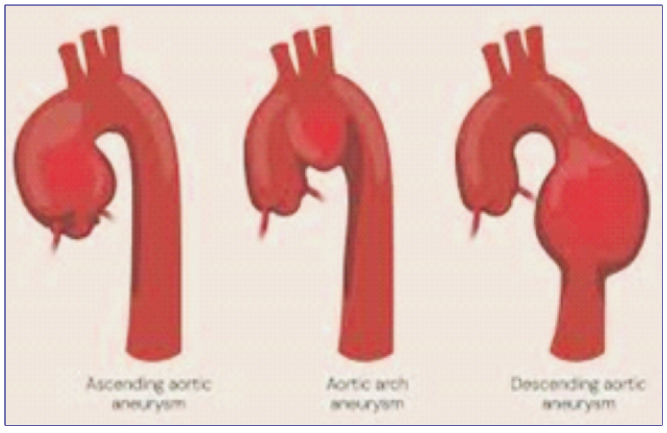


Fig 6d post procedure stent graft in sit

AORTIC ANEURYSM and AORTIC DISSECTION

Abdominal aortic aneurysm (AAA): A persistent dilatation of the abdominal aorta with a diameter greater than 3 cm or greater than 50% of the aortic diameter at the diaphragmatic level is indicative of an abdominal aortic aneurysm (AAA). Usually located inferiorly to the renal arteries in 88-89% of cases.



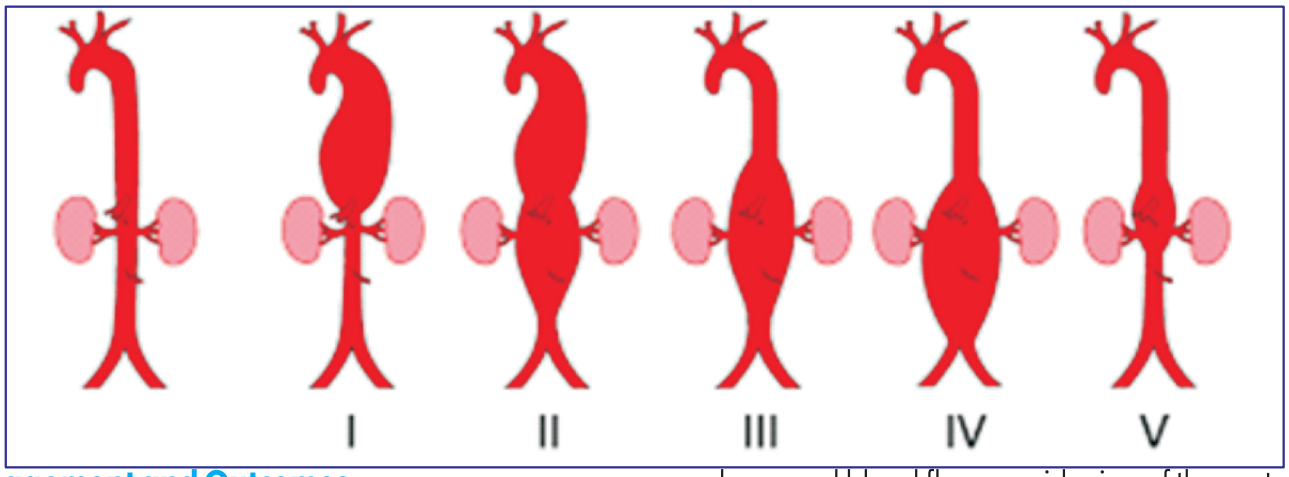


- In India, the prevalence is estimated at 0.4% (~0.6 million cases in 2016). It predominantly affects men above 65 years of age, with a male-to-female ratio of about 4:1. AAA is the ninth most common cause of death for men over 65.
- AAA results from gradual vascular wall deterioration that causes dilating and weakening if left untreated.
- Atherosclerosis, smoking, male gender, advancing age, Caucasian ethnicity, having a family history of AAA, hypertension, high cholesterol, and an existing history of aortic dissection are the main risk factors. Smoking is considered the most important modifiable risk factor, not only for the development of AAA but also for its expansion rate
- The size of the aneurysm determines the rupture risk, and rupture results in a mortality rate higher than 80%. If untreated, AAAs tend to enlarge progressively, with the risk of rupture increasing as the size increases. Smaller aneurysms (<4 cm) usually expand slowly, while larger aneurysms (>5 cm) enlarge faster and are more prone to rupture. Ruptured AAA carries an alarmingly high mortality rate of up to 90%, whereas mortality after elective repair is generally <10%.
- Most AAAs are asymptomatic and often discovered incidentally on imaging. When symptoms occur, they commonly include abdominal pain, lower back pain, or pain radiating to the flank, groin, or legs.

Distal embolization may cause blue toe syndrome (painful cyanotic toes with palpable pedal pulses). Sudden, severe, and persistent abdominal or back pain often indicates rupture or dissection, which is a surgical emergency.

Diagnosis and Screening:

- Clinical examination alone is unreliable, especially in obese patients, though abdominal palpation may detect larger aneurysms in thin individuals.
- Ultrasound is the first-line screening tool due to its safety, accuracy, and cost-effectiveness, particularly for men above 65 years.
- CT angiography is the gold standard for diagnosis, accurate measurement of aneurysm size, and preoperative planning, while MRI can be used when radiation exposure or contrast allergy is a concern.



Management and Outcomes :

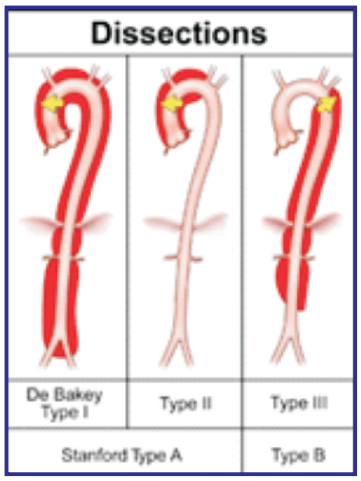
- Management depends on the size and symptoms of the aneurysm.
- Surveillance with periodic ultrasound or CT is appropriate for small, asymptomatic aneurysms (<5 cm).
- Elective surgical repair is recommended for symptomatic aneurysms, rapidly enlarging ones, or when the diameter exceeds 5.0–5.5 cm.
- Repair options include open surgical repair and endovascular aneurysm repair (EVAR). Elective repair carries an operative mortality of 1.4–5.8% with a complication rate around 30%, whereas rupture repair has a significantly higher mortality.
- Post-procedure, long-term follow-up is essential to monitor for complications such as endoleaks, graft migration, or recurrence.

Aortic dissection(AD) :

- is a life-threatening condition and medical emergency where the inner layer of the aorta (an area of the aorta that has been weakened), the body's main artery, tears. This tear allows blood to surge between the layers of the aortic wall, creating a false channel. The dissection can lead to rupture, decreased blood flow, or widening of the aorta, and it often requires immediate medical care, which may involve medication or surgery.
- The Stanford classification divides aortic dissections into Type A, involving the ascending aorta (close to the heart), and Type B, which does not involve the ascending aorta and is located in the descending aorta, distal to the left subclavian artery as seen in Fig 6e. This system, which simplifies the DeBakey classification, helps determine treatment; Type A dissections typically require emergency surgery, while Type B dissections may be managed medically or with endovascular procedures.

Risk factors :

- High blood pressure: Chronic high blood pressure puts stress on the aorta.
- Genetic conditions: Marfan syndrome and other genetic disorders can cause weakened aortic walls.
- Traumatic injury: Chest injuries can also cause a tear.
- **Other factors:** Atherosclerosis (hardening of the arteries), inflammation of arteries, aortic aneurysm, and even certain drug use can increase risk.



Treatment :

- Aortic dissection repair involves surgical procedures like open-heart surgery to replace the damaged aorta with a synthetic graft, or endovascular repair where a stent graft is placed from the inside to reinforce the aorta, often accessed through the groin.
- Hybrid procedures combine both techniques, used when the dissection extends into the aortic arch. The choice of surgery depends on the type and location of the dissection, with Type A dissections (involving the ascending aorta) typically requiring open surgery, while Type B dissections are often treated with endovascular methods.

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CASE REPORT OF SPLENIC ARTERY PSEUDOANEURYSM (SAP)

75-year-old male known hypertensive for 10 years, treated conservatively for acute pancreatitis 2months back, presented to JIVAS with occasional upper abdominal pain, not associated with food intake. On clinical examination: mild tenderness over the epigastrium and left hypochondria.

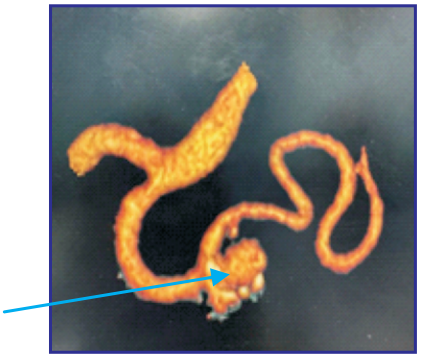


Fig 7a

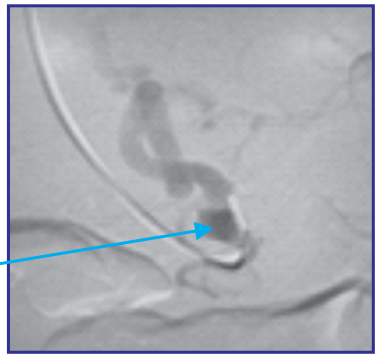


Fig 7b

USG abdomen done elsewhere showed a splenic artery saccular pseudoaneurysm, likely a sequela of acute pancreatitis. Laboratory findings were within normal limits except hemoglobin of 9.8. CT Angiogram done revealed splenic artery pseudoaneurysm measuring 2.5cm in diameter as seen in Fig7a.

After multidisciplinary evaluation he underwent splenic artery stent graft placement as seen in Fig 7c, d, e via right common femoral and left brachial artery access. Postoperative period was uneventful, and he was discharged in stable condition, no abdominal pain.

A multidisciplinary discussion is an important step in choosing the optimal treatment for visceral aneurysms. Surgical approaches should take place especially in cases where splenic perfusion is seriously threatened. Endovascular treatment is the standard of care for splenic artery aneurysms.

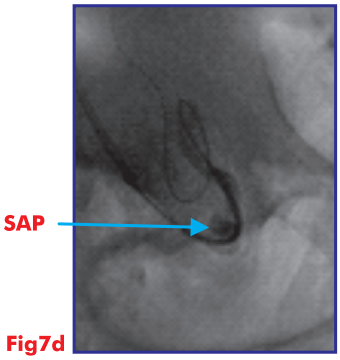


Fig7d

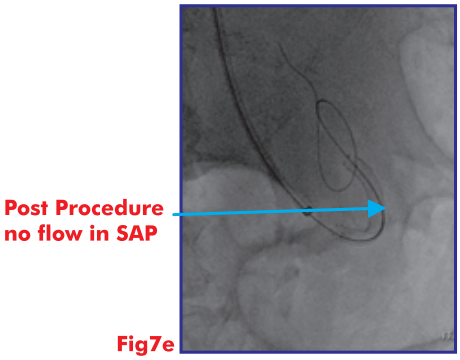


Fig7e

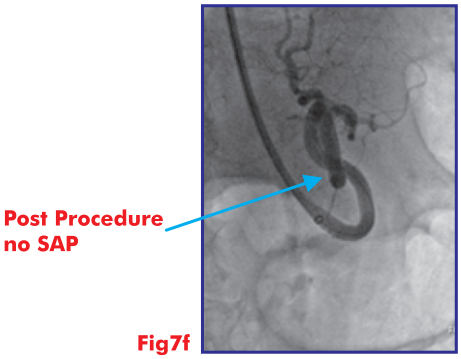
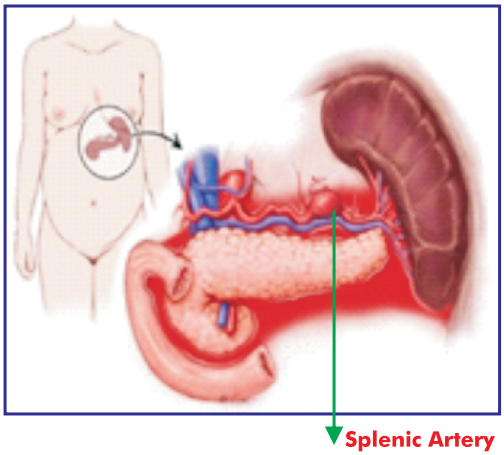
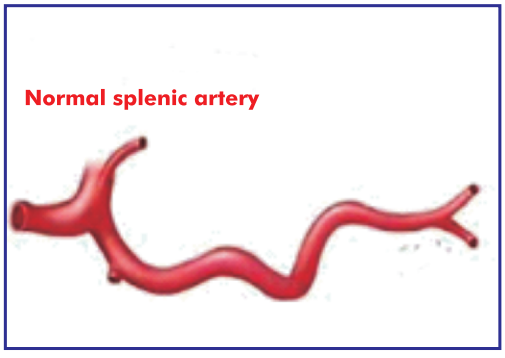


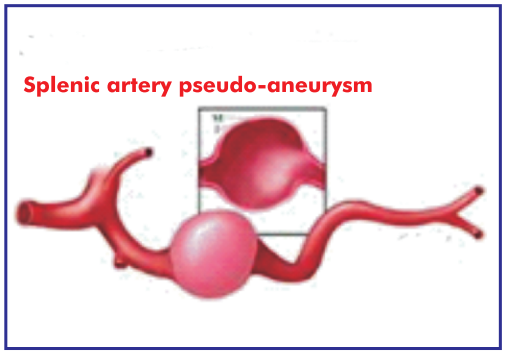
Fig7f

SPLENIC ARTERY PSEUDOANEURYM : Aneurysms of the splenic artery are being diagnosed with greater frequency as incidental findings on cross-sectional imaging. Splenic artery pseudoaneurysms or false aneurysms are even rarer than true aneurysms.



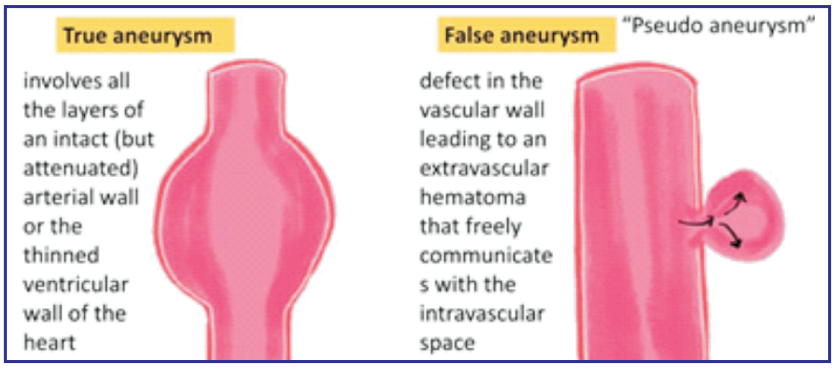
The splenic artery is the third most common site of intraabdominal aneurysms after aneurysms of the abdominal aorta and the iliac arteries. The true prevalence is unknown, with estimates varying widely, from 0.2% to as high as 10.4%. Although they were once thought to be rare, with wider use of cross-sectional imaging, splenic artery aneurysms are being diagnosed with increasing frequency as incidental findings. As uncommon as true splenic artery aneurysms are, pseudoaneurysms are even rarer, with fewer cases reported. The mean size of splenic artery pseudoaneurysms was 4.8 cm (range, 0.3–17 cm).





Unlike splenic artery aneurysms, splenic artery pseudoaneurysms will nearly always present with symptoms. The most common presentations are abdominal pain (29.5%), hematochezia or melena (26.2%), hemorrhage into the pancreatic duct (20.3%), and hematemesis (14.8%).

The risk of rupture of a splenic artery pseudoaneurysm can be as high as 37%, with the mortality rate approaching 90% when untreated. Furthermore, both small and large pseudoaneurysms are at risk for rupture. Prompt diagnosis and treatment are therefore critical in the management of these patients. The causes of splenic artery pseudoaneurysm include pancreatitis, trauma, iatrogenic and postoperative causes, and, rarely, peptic ulcer disease. In the case of pancreatitis, pancreatic enzymes are thought to cause a necrotizing arteritis with destruction of vessel wall architecture and fragmentation of elastic tissues, leading to aneurysm or pseudoaneurysm.



Investigation: Direct catheter angiography has been assumed to be the gold standard for the diagnosis of splenic artery aneurysm and pseudoaneurysm

Treatment: Because of the high risk of rupture and the high mortality rate, if splenic artery pseudoaneurysm ruptures, the earliest possible intervention is deemed necessary. Surgical intervention carries mortality and morbidity risks of 1.3% and 9%, respectively. Transabdominal and endovascular techniques have reported variable success

1. rates. Endovascular techniques using coils, detachable balloons, inert particles, or Gelfoam (gelatin sponge, Upjohn) have reported success rates of 75-85%. Endovascular techniques such as coil embolization and covered stent placement are increasingly favored due to lower morbidity, particularly for saccular and fusiform aneurysms respectively.

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ENDOVASCULAR REVASCULARISATION IN GERIATRIC AGE GROUP

Peripheral artery disease (PAD) refers to obstructive disease of major arteries below the aortic bifurcation and atherosclerosis is the cause in vast majority of cases. Chronic limb threatening ischemia (CLTI) represents the most advanced and severe phase of the disease with rest pain, ulcers, or distal gangrene and affects about 11% of patients with PAD.Without revascularization, the incidence of amputation is approximately 25% a year after diagnosis. The prevalence of critical limb ischemia is 12% in the adult population, with men affected slightly more than women. This prevalence is age-dependent.

JIVAS EXPERIENCE OF ENDOVASCULAR REVASCULARISATION IN GERIATRIC AGE GROUP

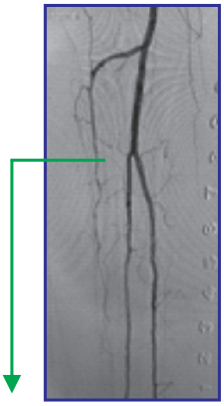


Fig 1a : Intra OP angio - ATA lesion

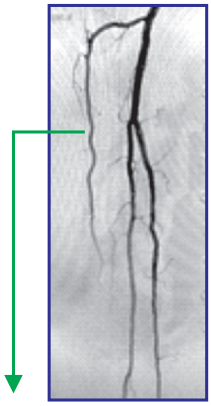


Fig 1b : Post angioplasty ATA Flow

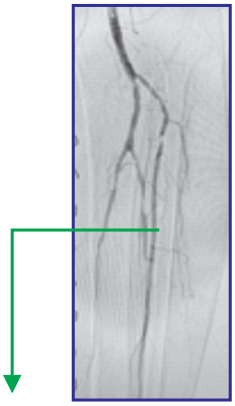


Fig 2a : Intra OP angiogram infrapopliteal lesions

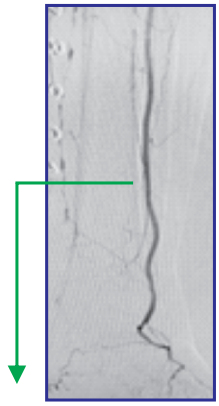


Fig 2b : Post angioplast ATA flow

Case 1: 85-year-old male presented to JIVAS with non-healing ulcer over right heel, absent pulses below popliteal artery. s/p left below knee amputation. He is a known case of Diabetes mellitus, Hypertension, Ischemic heart disease S/p CABG, Parkinson's disease on medical management. MR angiogram showed infrapopliteal lesions. He underwent Right Proximal anterior tibial artery (ATA) Angioplasty as seen in Fig 1a. Post operatively anterior tibial artery is palpable. On follow up wound is clean with good granulation tissue

Case 2: 95-year-old male presented to JIVAS with left non healing wound over tendoachilles region and absent

pulses below popliteal artery. He is known Diabetes mellitus. Arterial doppler showed infrapopliteal lesions. He underwent Left lower limb Digital subtraction angiogram + Peroneal artery/ Anterior tibial artery/ proximal posterior tibial artery (PTA) Angioplasty + heel wound debridement. Post operatively anterior tibial artery and dorsalis pedis artery was palpable (Figure: 2a -2b).

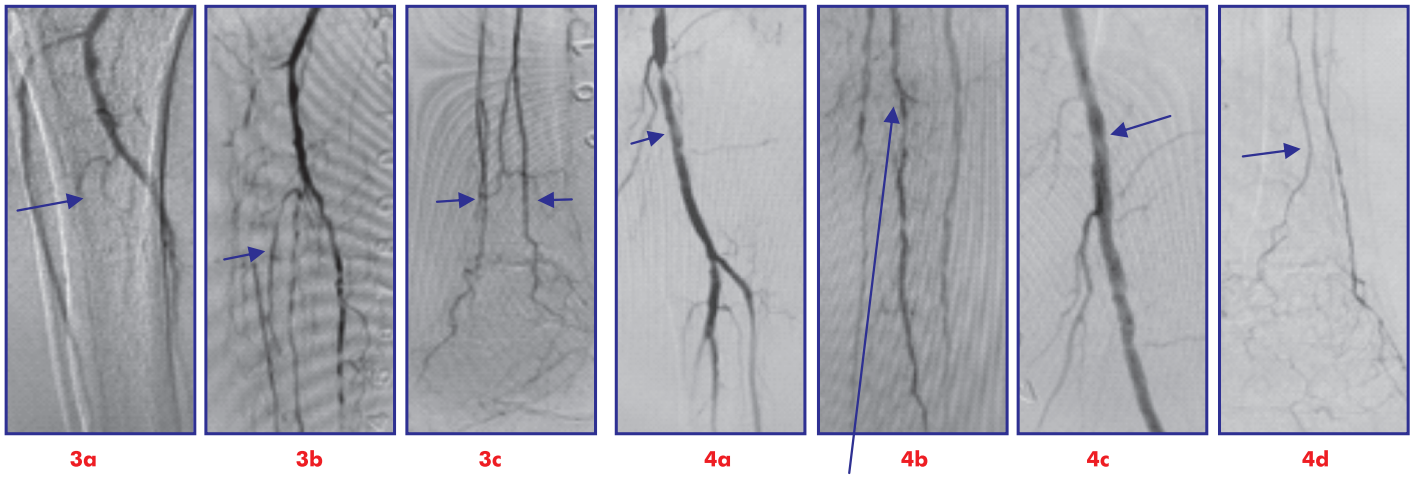


Fig 3a and 3b DSA - infrapopliteal lesions
Fig 3c, post angioplasty ATA and PTA flow

Fig 4a, 4b DSA - Popliteal A and infrapopliteal lesions.
Fig 4c, 4d Post angioplasty flow seen in peroneal and popliteal

Case 3:94-year old male presented to JIVAS with right 1st to gangrene. Known Diabetes mellitus and hypertension. Right lower limb pulses below popliteal artery absent.DSA showed infrapopliteal lesions as seen in Fig 3a,3b. He underwent Right ATA and PTA angioplasty, post procedure flow seen in both arteries as seen in Fig 3c. Post operatively ATA and PTA palpable.

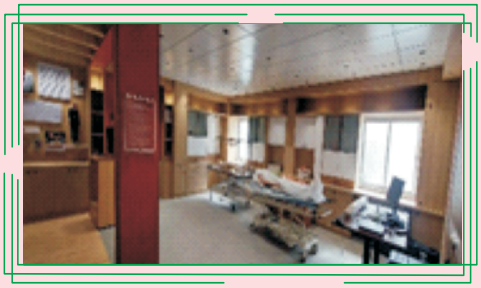
Case 4: 86-year-old male presented to JIVAS with right great toe blackish discoloration and absent pulses from popliteal below. Known Diabetes mellitus and hypertension. MR Angiogram showed popliteal and infrapopliteal lesions. He underwent Left lower limb Popliteal and Peroneal artery angioplasty with great toe amputation. Post operatively Popliteal was palpable and peroneal signals improved (Fig4c,4d).

- In the very elderly patients, limb salvage and improved daily function outweigh the pursuit of prolonged survival, aligning treatment goals with what matters most to patients – comfort, autonomy, and quality of remaining life. Revascularization in patients >85 years is feasible and worthwhile. With careful selection, minimally invasive strategies, and team-based care, we can help preserve independence and mobility even in the very elderly.
- In the elderly population it is estimated that nearly 6-10% will have intermittent claudication, and of these 10-20% will be at risk for limb threatening ischemia, requiring revascularization or amputation The elderly with critical chronic limb ischemia (CCLI) are especially challenging patients to treat due to the relatively higher surgical risk involved. The operative mortality for elective surgical patients over 80 is more than twice as high as that for patients 65–69 years of age.
- As the prevalence and severity of PAD are increased with age, so too are the risks associated with surgical revascularization. When compared with younger patients undergoing surgical revascularization procedures for PAD.

JIVAS SILVER JUBILEE CELEBRATION

JIVAS SILVER JUBILEE CELEBRATION INAGURATION

Inaguration of New Vascular OT by 1st Jivas DNB Students : Dr. Murali Krishna now heading Vascular surgery Department at Jayadeva Hospital Bangalore, Dr. Adarsh Kabra at Jaipur.



Inaguration of Vascular Innovative Skill Lab -
By Anju Majeed (Sami Labs) & Doyen's of Vascular Surgery.

JIVAS ALUMINI - 55 VASCULAR SURGEONS FROM ALL OVER INDIA, UNITED STATES OF AMERICA AND UK.

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