

**Subclavian artery thrombosis after abdominal hysterectomy - A Rare Event**

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**Abstract**

Subclavian Artery Thrombosis (SCAT) is very rare and can result in occlusion of upper limb blood supply. Because of its catastrophic results, prompt treatment of disease and an underlying cause should be done. Treatment of the disease depends upon the severity of the disease. Herein we present a case of 45 years old female who underwent abdominal hysterectomy and develop pain in the left index finger, 2-3 days after surgery. After evaluation left-sided SCAT was diagnosed. She was a known case of long-standing hypertension and on irregular intake of anti-hypertensive. Our report also details the important causes, clinical features, and various management modalities for the disease.

**Keywords:** Subclavian Artery Thrombosis, abdominal hysterectomy, hypertension.

**Introduction**

Subclavian arteries are paired and supplied to the left and right upper extremities. The left subclavian artery directly arises from the arch of the aorta while the right subclavian arises from bifurcation of the innominate

artery. Like other arteries, this one is also at risk of developing pathology. Incidence of thrombosis in the same vessel is less than 1% of the population. The main pathology involved in the development of thrombosis is intimal damage and common etiological factors are atherosclerosis (due to any reason), trauma, external muscular compression, and repetitive stress [1]. Clinical features are secondary to the decreased blood supply to the upper left limb. Upper limb ischemia is a rare event after any surgical procedure but can occur, as happened in our case.

**Case Report**

A 45-year-old P4L4 female presented with chief complaints of heavy menstrual bleeding for 3 years and pain in the abdomen for 3 months. The patient also had a history of hypertension for 10 years partially controlled on antihypertensive medications (non-compliant patient). BP on admission was 160/92mmHg.

USG revealed multiple fibroids; hence, the patient was diagnosed with a case of AUB-L and abdominal hysterectomy was done with the patient's proper

informed consent. Intraoperative and immediate postoperative periods were uneventful. On postoperative day 3, the patient complained of mild, intermittent pain in the left hand; local examination revealed no major abnormality, and the pain was diminished with analgesics. On day 4, the patient complained of severe and continuous pain in the left hand below the elbow, not relieved on analgesics.

On local examination, wrist with finger beds was pale, decreased capillary refill, index finger skin darkening seen and radial pulse was not palpable. CT Angiography of the left upper limb revealed partial thrombosis of the proximal part of the left subclavian artery with non-opacification of the distal part of the brachial artery and partial opacification of distal 2/3<sup>rd</sup> of the radial artery. The patient was immediately referred to the CTVS team and put on anticoagulant therapy after which symptoms resolved and was discharged. She was strongly counseled and advised to control her blood pressure with regular visits to the physician.

### **Discussion**

Symptomatic SCAT is relatively uncommon and affects less than 1% of the population. Left-sided subclavian artery involvement is 4 times more common than its right counterpart [1].

The most common risk factors for thrombosis are obesity, trauma, hypertension, diabetes, and smoking [1,2]. Atherosclerosis is the main etiological factor for the development of thrombosis. Carotid-subclavian and carotid-vertebral areas are the most common sites for the formation of atheroma. SCAT also results from regional anatomical abnormality, exertional activities, and muscle enlargement. Here damage of the intimal wall occurs as a result of external compression and shear [3].

Some other common etiologies include radiation exposure, trauma, autoimmune vasculitis, fibromuscular dysplasias, and neurofibromatosis [4].

The onset of symptoms depends on the presence of collateral blood supply. Presenting manifestations are because of interrupted blood supply to the upper limb. Gangrenous limb and basilar stroke are the most common complication of SCAT.

Imaging is the gold standard to make the diagnosis of disease. If some doubt is made on Duplex – Ultrasound with the color flow, CT-Angiography and MRI are needed to confirm the diagnosis.

Currently, the best option for surgical treatment is percutaneous transluminal angioplasty with stenting [5]. The medical management gives limited benefit with limb-threatening ischemia. Medical treatment includes aspirin, clopidogrel, ACE inhibitors, etc.

Our patient was having long-standing uncontrolled hypertension with Abnormal Uterine Bleeding caused by uterine fibroids. For her complaints, she was first offered conservative management as she was made unfit by an anesthetist thrice for major surgery. After blood pressure control and anesthetic clearance, her total abdominal hysterectomy was done. On the third postoperative day, she complained of pain in the left hand which was not relieved by analgesics.

On complete evaluation, she was diagnosed as partial left SCAT as well as non-visualization of some part of the left brachial artery. Coexisting chronic hypertension was also present in our patient.

We believe that chronic medical history of uncontrolled hypertension, irregular intake of antihypertensive, and abdominal surgery with immobilization predispose our patient to the left SCAT. Therefore, we recommend in cases with high-risk factors should be offered medical

management. Even if the surgery is indicated, hypertension should be well controlled before the procedure. Early mobilization, stockings, and thromboprophylaxis are the important steps to avoid the development of thrombotic phenomena.

### Conclusion

Although SCAT is a very rare event but can occur in any patient with high-risk factors like Hypertension and diabetes etc. Thus, thorough evaluation before surgery is a must to look for the presence of any high-risk factor for thrombotic disorders.

Medical management should be the treatment of choice, but even if the surgery is indicated, proper care should be taken to avoid the development of thrombotic disorders.

### Abbreviations

SCAT – Subclavian artery thrombosis

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### Legend Figures

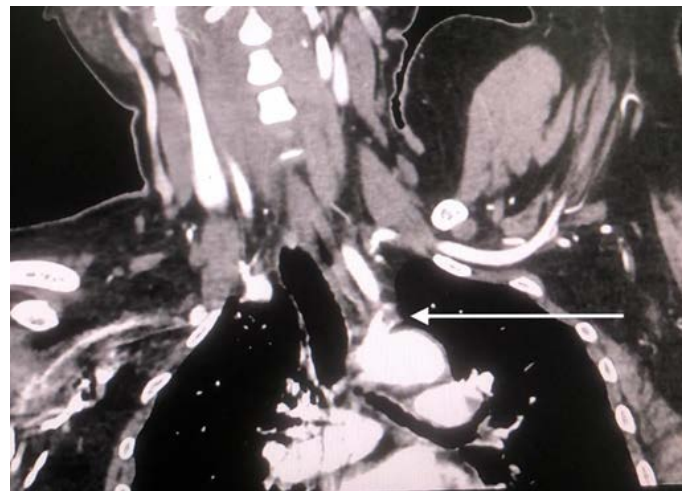


Figure 1: Coronal section of thorax on CT Angiography.



Figure 2: Axial section of thorax on CT Angiography  
Figure 1 and Figure 2: CT Angiography showing partial thrombosis of proximal part of subclavian artery near its origin with normal opacification of rest subclavian artery



Figure 3: CT Angiography showing non-opacification of distal part of left brachial artery involving the bifurcation of radial and ulnar arteries (thin white arrow); distal 2/3<sup>rd</sup> of radial artery is partially opacified through collateral formation (thick white arrow)

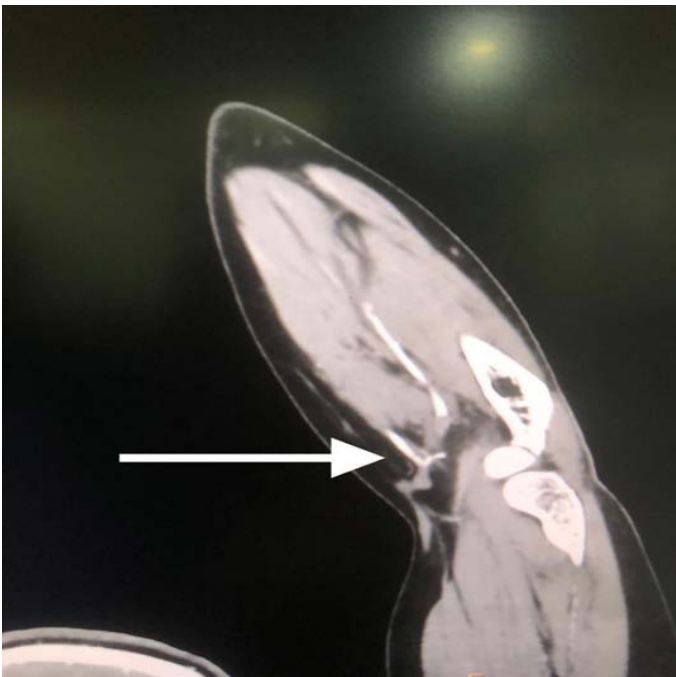


Figure 4: Coronal section of left upper limb on CT Angiography showing non-opacification of distal part of brachial artery involving bifurcation of radial and ulnar arteries.