



Case Report

Bilateral Subclavian Artery Stenosis in the Young: Anaesthetic Implications

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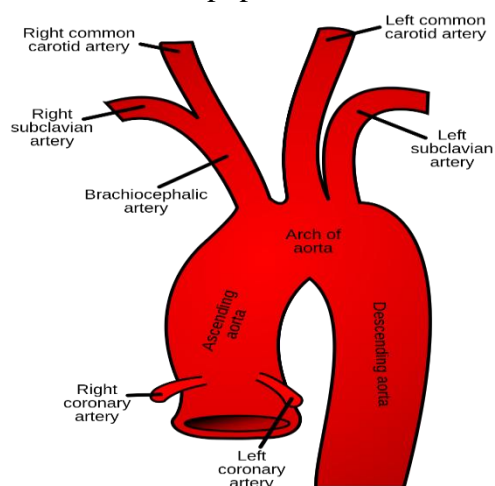
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INTRODUCTION

Peripheral artery disease assessment typically focuses on the evaluation of lower extremity symptoms and signs. Few practitioners consider the importance of upper extremity arterial disease; which, besides causing hand and arm symptoms, is associated with significant neurologic and cardiac sequelae.

Significant Subclavian artery stenosis is present in approximately 2% of the free-living population and 7% of the clinical population.



CASE REPORT

A 30 year old woman with Endometrial polyp was posted for total abdominal hysterectomy. During the pre-anaesthetic check up, the pulsations of subclavian, axillary, brachial, radial and ulnar arteries were not palpable in bilateral upper limbs. The carotid and all the lower limb pulsations were well felt bilaterally. Blood Pressure in bilateral upper limbs was 60/40 mm Hg by automated NIBP while that in the lower limb was 120/80 mm Hg. Muscle bulk and caliber of the veins was normal. The patient was asymptomatic and had no risk factors. Preoperative laboratory findings included a normal CBC, BUN, creatinine, PT, aPTT, electrocardiogram, ECHO and Chest radiograph (PA). Colour Doppler of bilateral upper limb vessels showed narrowing of proximal part of bilateral subclavian arteries with distal dampened flow. USG abdomen showed normal abdominal aorta and renal arteries. On the day of surgery, the patient was preloaded with i.v Ringer lactate 20ml/kg through a 18G i.v cannula. NIBP readings were recorded in the lower limb along with monitoring of ECG, SpO₂ & Heart rate.

Intraoperatively, the patient was managed with the combined spinal epidural technique. The epidural catheter was passed in L2-L3 space without difficulty and spinal anaesthesia was administered with 25G Quincke needle and 3ml of 0.5% Bupivacaine with 25µg Fentanyl. A Sensory level upto T4 was achieved. Intraoperative Systolic Blood Pressure varied between 80 and 120 mm Hg and Diastolic Blood Pressure between 40 and 80 mm Hg whereas Heart rate varied between 70 and 120 bpm. Intravenous fluids were administered to maintain an hourly urine output of 0.5ml/kg and i.v Mephentermine in 6mg increments was administered as per requirement. The patient received epidural analgesia with 10 ml of 0.0625% Bupivacaine with 150µg Buprenorphine for postoperative pain and was discharged on post operative day 5 after uneventful hospital stay

DISCUSSION

The subclavian artery and brachiocephalic trunk are the most common locations for atherosclerotic lesions in the upper extremities. Clinical features include pulse deficit, arm pain, pallor, paraesthesia, coldness and unequal arm pressures. The most common presentation for subclavian arterial occlusive disease is unequal arm pressures. A difference of 15 mm Hg or more indicates possible subclavian stenosis. Ischaemia affecting the arm causes cramp-like pain on exercise (arm claudication). More severe cases cause rest pain and ischaemia of the fingers with gangrene. Examination should include bilateral blood pressure measurement and assessment of the axillary, brachial, radial, and ulnar artery pulses. Auscultation is important and should begin in the supraclavicular fossa. Investigations include duplex ultrasonography, CT angiography, MR angiography and digital subtraction angiography. The subclavian steal syndrome (SSS) refers to a vascular disorder in which there is occlusion or stenosis of the subclavian artery proximal to the vertebral artery origin (which is the subclavian artery) leads to altered vascular haemodynamics

resulting in retrograde blood flow in the ipsilateral vertebral artery toward the upper arm, distal to the subclavian artery narrowing, where decreased blood pressure had been established. Subclavian artery lesions are usually asymptomatic because of the abundant collateral blood supply in the head, neck, and shoulder. However, these lesions produce neurologic symptoms when compensatory flow to the subclavian artery from the vertebral artery diverts too much flow toward the arm and away from intra-cranial structures leading to vertebrobasilar insufficiency.



CONCLUSION

Anesthesiologists must be familiar with the specificity of the peripheral arterial disease, especially if multiple organ systems are affected and with the possibility of development of different complications. In our patient, there were no systemic complications and inflammatory etiology was ruled out. Since lower limb pulses and BP could be recorded, an invasive line was not required. Therefore, in uncomplicated cases, we can use CSE technique provided appropriate precautions are taken like adequate preloading, rapid correction of hypotension to avoid cerebral ischemia. As 2% population has the disease, this case is an example of managing it successfully even in centres without facilities for invasive monitoring.

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