

Acute limb threatening ischemia following radial coronary angiogram

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ABSTRACT

Transradial access for cardiac catheterization is now widely accepted among the invasive cardiology community as a safe and viable approach with a markedly reduced incidence of major access related complications compared with the trans femoral approach. As this access technique is now being used more commonly for cardiac catheterization, it is of paramount importance to be aware of its complications and to trans radial access include asymptomatic radial artery occlusion, pseudo aneurysm and radial artery perforation are rarely reported complications of the trans radial approach. We here report a rare complication in a patient who underwent routine coronary angiogram through radial route and developed severe compartment syndrome and limb threatening ischemia following the procedure.

key words Transradial, ischemia, coronary.

CASE REPORT

A 60 years old thinly built male presented with symptoms of breathlessness on exertion and mild pain and heaviness of chest. His ECG showed nonspecific mild ischemic changes with T wave inversion in inferior and lateral leads. His echocardiogram was done which revealed good LV ejection fraction. His Trop I was negative, but due to constant complaint of chest pain he was planned for coronary angiogram through radial route. His angiogram revealed non significant mild triple vessel disease and was advised medical management by cardiologist. Same evening he complaint of pain and swelling in the fore arm from where angiography was done. He was given pain killer and advised glycerine magnesium sulphate dressing of fore arm for swelling [1]. Next day swelling increased in the fore arm with development of blisters and color changes and blackening of the arm. After surgical consultation ,immediate limb salvaging extensive fasciotomy was done followed by skin grafting two weeks later.Finally patient was discharged with viable functioning upper limb. Such limb threatening ischemia following radial angiogram is not reported till date [2].

DISCUSSION

To decrease the risk of hand ischemia before making the decision on radial artery access, the Allen test is performed. It assesses sufficiency of the ulnar artery supply to the hand and if it is safe to puncture the radial artery. Many authors stress that clinical examination has limited specificity, which can be caused by delayed filling through collaterals between forearm arteries. The use of Doppler ultrasound examination and pulsoxymetry is helpful in showing sufficient ulnar supply to the hand in patients with posi-

tive Allen test results. However, in those patients, despite the lack of symptoms of hand ischemia, an increased level of lactic acid in capillary blood taken from the thumb is observed. It is postulated by some authors to avoid radial access in all patients with a positive Allen test, excluding those in whom femoral access is very risky or impossible.

Following risk factors for radial artery thrombosis have been described: small diameter of radial artery, small ratio of radial artery diameter and introducer sheath diameter, introducer sheath diameter itself, hypotension during the procedure, many arterial puncture attempts, high doses of vasoconstrictors and non-use of statins in patients undergoing coronary angiography.

Treatment of upper limb ischemia caused by iatrogenic occlusion of the radial artery is complicated and may end up with limb amputation. It is considered that critical hand ischemia after instrumentation on the radial artery may be caused by small emboli to digital arteries, which may explain the low efficacy of reconstructive surgery [3,4].Figures 1-4



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Figure 1: Showing blackening and blisters in forearm.**Figure 2:** Forearm developing compartment syndrome**Figure 3:** Fasciotomy done in emergency**Figure 4:** Forearm after skin grafting

CONCLUSION

Access-site complications can be minimized by avoiding multiple punctures, selection of smaller sheaths, gentle catheter manipulation, adequate anticoagulation, use of appropriate compression devices and avoiding prolonged high pressure compression. In addition, careful observation for any ominous signs such as pain, numbness and hematoma formation during and in the immediate post procedure period is essential in the prevention of catastrophic hand ischemia. Alternate arterial access should be considered in patients with abnormal Allen test findings, poor hand perfusion, or physical examination results suggesting that the radial artery is too small for sheath insertion. Any symptoms or signs suggesting compartment compression should result in early surgical consultation for limb salvaging fasciotomy.

CONFLICT OF INTEREST

Author has no conflict of interest

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