

Arterial Thrombosis Left Lower Limb Misdiagnosed as Prolapse Inter-vertebral Disc with Neural Deficit: Case Report

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Abstract

Arterial thrombosis of lower limb is a rare clinical situation presenting with symptoms and signs of ischemia. Prolapse Inter-vertebral disc lumbar region with radicular pain can mimic arterial thrombosis presentation due to presence of radiating pain with or without neural deficit as seen in arterial thrombosis also. Knowledge of both entities and suspicion is important based on history and physical examination. Case reported herein was misdiagnosed as disc Prolapse due to history of radiating pain and finding of neural deficit in the left lower limb without any attention to the finding of peripheral pulsations and complete reliance on Magnetic Resonance Imaging (MRI) report. The case is described due to its rarity, with emphasis on differentiating features.

Keywords: Arterial Thrombosis; Left Lower Limb; Prolapse Inter-vertebral Disc; Neural Deficit

Introduction

Sudden interruption of blood flow to an organ or body part due to clot (embolus) that has come from another part of the body is arterial thrombo-embolism. The arterial blockage starves tissues of blood and oxygen and results in ischemia or death of tissue. Embolism in brain may cause stroke, in heart myocardial infarction and ischemia or gangrene in the legs and feet. Ischemia of any part causes severe pain in the involved part which may be radiating and burning in character particularly in lower limbs. Prolapsed inter-vertebral disc (PIVD) is a condition in which gelatinous nucleus pulposus comes out of weakened annulus fibrosus and travels down towards neural foramina pressing over the nerve root commonly on one side, thus causing severe radiating pain in the involved lower limb. Motor deficit in toes or ankle may develop due to more pressure on the nerve root. This occurs commonly at L4-L5 disc with pressure over L5 nerve root, followed by L5-S1 level. Arterial thrombosis is an uncommon condition in comparison to

prolapsed intervertebral disc. The report describes a case wherein arterial thrombosis of left lower limb was misdiagnosed as PIVD and this caused delay in initiation of proper management.

Case Report

A 59 years old female reported to orthopedic out-patient department of tertiary care rural health facility situated in the central India, with the chief complaints of sudden weakness of left lower limb with radiating pain along the limb, along with disturbing burning sensation over left ankle and foot for 10 days. The patient was alright 10 days back, when she felt sudden weakness of left sided ankle and toes and severe pain with burning sensation in the whole left lower limb. She developed the pain early in the morning while sweeping the floor with a broom in hand in a partially bent position of her trunk. There was no history of trauma to back or lifting heavy weight. History of occasional tingling sensation in both lower limbs was present. There was positive history of intermittent

claudication. The patient was habituated to tobacco chewing for more than 30 years. She didn't give any history of chronic illness like diabetes, hypertension, heart disease or previous hospitalization.

The patient took analgesics for two days as prescribed by local general practitioner. On getting no relief she was then referred to orthopedic surgeon who got MRI done for lumbar spine on suspicion of prolapse inter vertebral disc with left sided radiculitis. MRI showed mild bulge at L4-L5 inter vertebral disc with left paracentral and foraminal protrusion, compressing L5 nerve root. Diffuse posterior protrusion of L5-S1 disc and mild facet arthropathy at L3-L4 and L4-L5 were also reported (Figure 1). The patient was advised spinal surgery for disc prolapse, after which she reported to our center for management.

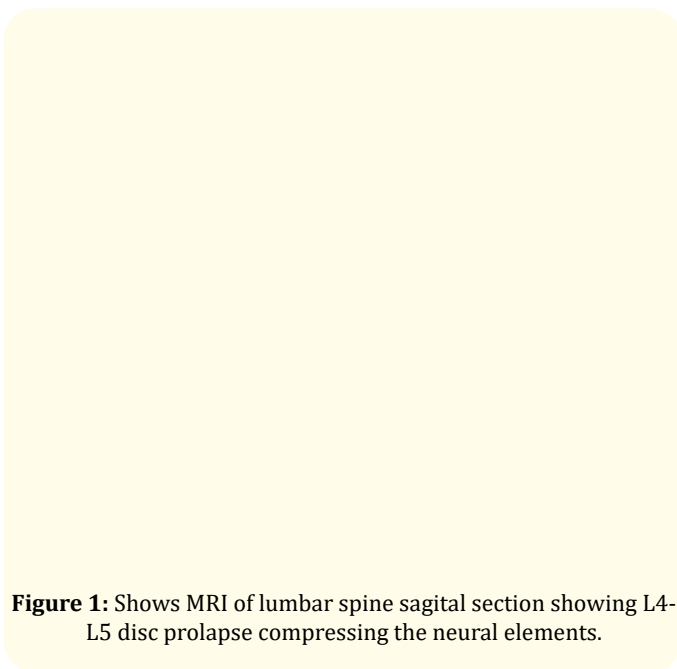


Figure 1: Shows MRI of lumbar spine sagittal section showing L4-L5 disc prolapse compressing the neural elements.

Examination revealed an overweight elderly lady in agony with no clinical abnormality on systemic review. Her back was mildly tender at Sacro-iliac joints. Passive straight leg raising test was normal on both sides. Sciatic stretch and femoral stretch tests were found negative. There was no weakness in her left hip and knee but moderate weakness in ankle and toes dorsiflexors was noted, with paresthesia in left foot and toes both on dorsal and plantar aspects. Right lower limb was totally normal. Due to severe radiating pain in the left lower limb with neural deficit and MRI findings suggesting disc prolapse L4-L5, she was diagnosed as a case of disc prolapse. She was put on rest with injectable tramadol 8 hourly. On no relief in pain and persistence of burning sensation and sensory

motor deficit, she was planned for elective decompressive surgery at L4-L5 level. Her routine blood investigations including Kidney Function Tests, Liver Function Tests, Blood sugar, Bleeding Time, Clotting Time and Prothrombin time were within normal limits. ECG and Echocardiography studies did not show any evidence of valvular or ischemic heart disease.

Meanwhile, examination by the senior author revealed additional findings of markedly decreased temperature of the left foot, left calf tenderness, increase in pain in calf on dorsiflexion of toes and ankle and absent dorsalis pedis, posterior tibial, popliteal and femoral pulsation in the left lower limb. A suspicion of arterial thrombosis was considered and color doppler study was done at the earliest. Partial pressure of oxygen in the toes were noted to range from 80% to 95% ascending from little toe to great toe. Right lower limb was normal. Physician consultation was done and the patient was put on ecospirin 150 mg and clopidogrel 75 mg once daily. Duplex Color Doppler study of both the lower limbs was done.

It showed normal study of right lower limb, with acute thrombotic occlusion of left external iliac artery with dampened flow in common femoral artery, proximal superficial femoral artery and no flow in distal superficial femoral artery, popliteal artery, anterior tibial artery, posterior tibial artery and dorsalis pedis artery in the left lower limb. Differentiating features between arterial thrombosis and prolapsed intervertebral disc can be summarized as shown in table 1.

Intra-arterial thrombolysis was done by intervention radiologist under radio imaging using c arm IITV. Under local anesthesia, using right femoral artery access canula was passed over guide wire to left common femoral artery. Thrombolysis till mid superficial femoral artery was done using inj. Urokinase 1.5 lakh IU in 15 ml normal saline as bolus and further by continuous infusion using inj. Heparin 1000 IU @ 10 ml/hour for 12 hours. Three days post procedure Doppler study showed good recanalization of left external iliac artery, with good forward flow noted in common femoral artery, superficial femoral artery, popliteal artery, anterior tibial and posterior tibial artery (Figure 2). Venous Doppler study was normal. Femoral and popliteal pulsations reappeared and the patient was relieved of her symptoms for a few days. She was discharged on her request on Ecospirin and Clopidogrel. But her condition again deteriorated and the patient reported in emergency 3 days after discharge with burning pain in distal leg and foot with blackening in tip of great and second toes. She was admitted under general surgery and found to be developing dry gangrene in all her left foot

Features	Arterial Thrombosis	Prolapsed Intervertebral Disc
History	Commonly heart disease or prolonged immobilization	Sudden twisting or forward bending
Pain	Excruciating, Burning and radiating in nature	radiating in nature
Examination	Spine-No deformity or tenderness	Tenderness present in lower lumbar spine
Straight leg raising test and nerve stretch sign	Negative	Mostly positive with positive nerve stretch sign
Sensory motor deficit	May or may not be positive depending on stage of ischemia	May or may not be present
Temperature of limb	Involved part will be relatively cold	Normal
Peripheral pulsations (Dorsalis Pedis, Posterior Tibial, Popliteal, Femoral)	Feeble or absent	Normal Pulsations
Color Doppler study	Shows Thrombosis of arteries with or without venous involvement	Normal study
MRI study	Normal appearance	Will show nerve root compression by protruding disc

Table 1: Shows Differentiating features between arterial thrombosis and prolapsed intervertebral disc.

toes (Figure 3). There were no pulsations in left lower limb except femoral pulsation. Color Doppler was repeated and monophasic flow was seen in left popliteal, anterior tibial, posterior tibial and dorsalis pedis artery. The plan was to do toe amputation after establishment of line of demarcation.

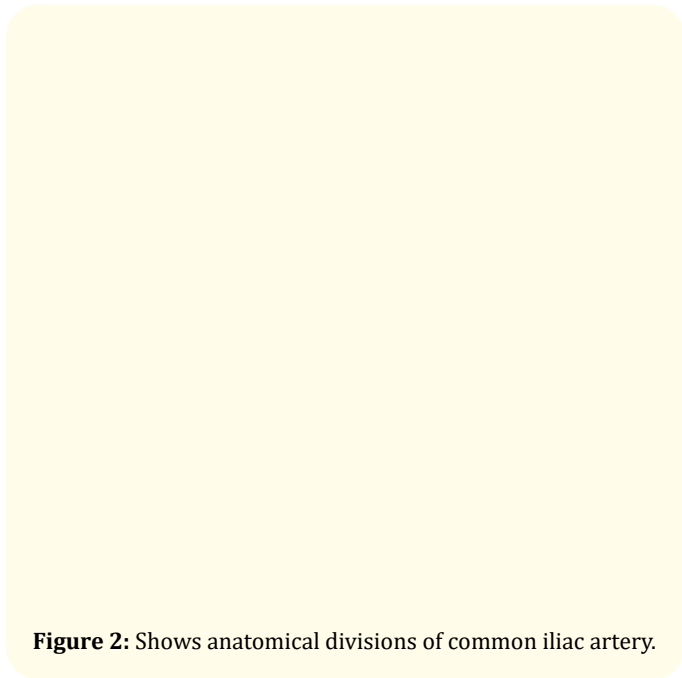


Figure 2: Shows anatomical divisions of common iliac artery.

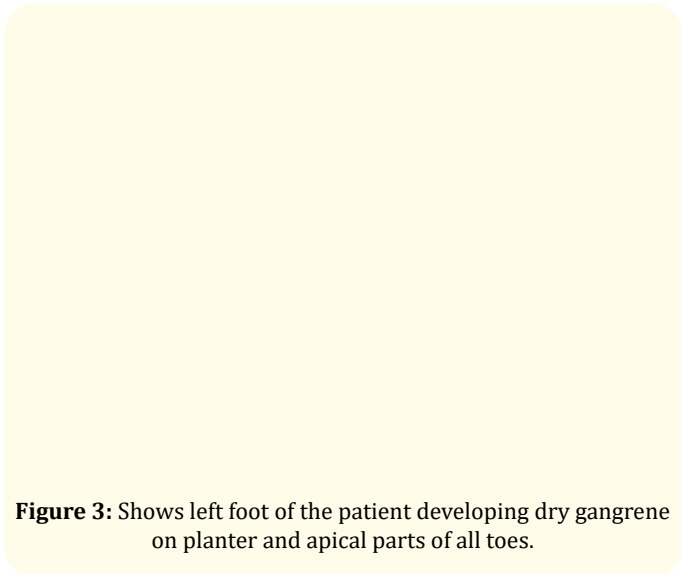


Figure 3: Shows left foot of the patient developing dry gangrene on planter and apical parts of all toes.

Discussion

Arterial thrombosis is an uncommon condition. Risk factors for arterial embolism include atrial fibrillations, damage to artery wall and conditions causing blood clotting. Mitral stenosis and endocarditis can also cause arterial emboli. A common source of emboli is from areas of atherosclerosis in the aorta and other large vessels [1]. Atherosclerosis is noted to be closely related to risk factors such as hypertension, hyperlipidemia, hyperglycemia, obesity and smoking [2]. It is hard to explain why some people without evident

risk factors develop acute arterial thrombosis and those without coronary artery plaque still develop myocardial infarction.

Deep Venous thrombosis (DVT) is formation of blood clot in a deep vein mostly in legs though it can extend higher to thigh and iliac vessels also. Its common symptoms are pain, swelling, redness and warmth in the involved region. Risk factors for DVT are recent surgery, trauma and lack of movements of joint. In arterial thrombosis as against DVT, the pulsations are absent and there is severe ischemic pain in the involved part. Ischemia of neural tissue causes tingling and burning sensations which may be considered as radicular pain as seen in PIVD. The history of back pain may not be present in any of the two conditions. Painful active straight leg raising may be positive in both situations. However passive straight leg raising and sciatic stretch test should be painful and positive in PIVD. In arterial thrombosis passive straight leg raising test will not be positive. Neurological deficit may be present in both arterial thrombosis of lower limb and PIVD.

The key to differentiate these two conditions clinically lies in assessing the temperature of the part and its vascular status. Temperature of the part will gradually become low in arterial thrombosis whereas it will be normal in PIVD and may be slightly raised in DVT initially [3]. Pulsations of lower limb including femoral, popliteal, posterior tibial and dorsalis pedis will be normal in PIVD and relatively feeble in DVT. In arterial thrombosis depending on the extent and level of involvement the peripheral pulsations will be absent. The described case did not have any history suggestive of either PIVD or arterial thrombosis. She didn't have any pre-existing cardiac disease. Only pre-existing factors noted were overweight constitution and chronic tobacco chewing. Growing evidence suggests that abnormal fibrin properties represent a novel risk factor for arterial and venous thrombotic events, particularly of unknown etiology in young and middle-aged patients [4]. Treatment of arterial embolism as prescribed by American Heart Association remains antiplatelet therapy with Aspirin (75 mg - 325 mg) or Clopidogrel 75 mg daily in patients with symptomatic atherosclerotic disease [5]. Thrombolysis or other vascular surgical procedure need to be decided by vascular surgeon and/or interventional radiologist. These procedures have their own limitations, complications and problems of execution.

In the above case, arterial thrombosis was misdiagnosed as PIVD due to lack of examination of vascular status of limb and biased diagnosis in view of MRI reporting of PIVD at L4-L5. Had the primary examination been done properly including temperature checking of lower limb and peripheral pulses examination (PTA,DPA), the diagnosis was sure to be suspected. MRI lumbar spine may show disc protrusion in asymptomatic elderly patients also as a result

of degenerative changes occurring in disc and spinal joints [6]. As doctors we should first examine the patient in totality, in a step-wise manner without missing neurovascular status in each case, next make a clinical diagnosis and then only look at investigations' reports and films of X-ray, CT scan or MRI. Going through the reports and films first makes examiner biased, physical examination may remain incomplete and the proper and additional diagnosis on many occasions may be missed. Lumbosacral plexopathy due to common iliac artery aneurysm has also been misdiagnosed as intervertebral disc herniation [7].

Conclusion

Local temperature of limb and peripheral pulsations examination are essential to avoid missing correct diagnosis of arterial thrombosis in lower limb which can be misdiagnosed as prolapsed intervertebral disc due to presence of radiating pain and neural deficit in both the conditions. Over reliance on MRI findings or reporting, in the absence of corroborating clinical examination may lead to incomplete or wrong diagnosis and management.

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