A rare case report of limb ischemia following vascular compression secondary to implant impingement

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ABSTRACT

Limb ischemia following vascular compression secondary to implant impingement is a rare scenario. Generally it is seen in neglected cases where early management has not been done. We present a case of distal lower limb ischemia, which occurred chronically due to impingement by a broken implant on superficial femoral artery. The management of this complicated case has been described in the present case report.

Key Words: Amputation, Implant Impingement, Implant Breakage, Ischemia

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INTRODUCTION

Mechanical failure of implant is a rare occurrence in internal fixation surgeries. The various modes of implant failure include deformed implant, breakage of implant and loosening of implant.[1] The various causes include metal fatigue, early weight bearing, trauma and trivial fall. These groups of patient pose great difficulty in management.[2] Here we present a case of broken implant, impinging on an artery and the difficulty encountered in managing this case.

CASE REPORT

A 68 years old male patient presented to us with complaints of pain and discolouration of left foot. The patient was asymptomatic one month back when he developed discolouration over distal part of left foot associated with pain. There was history of trauma 18 years back, after which he was diagnosed as fracture shaft femur, left thigh, for which he was treated with intramedullary K-nail. Six months following successful surgery, he fell down at home and developed swelling and deformity at the middle part of the left thigh on the medial side (figure1). He did not go to any hospital for treatment and continued walking with axillary crutches with same deformity till past one month. There is no history of hypertension, diabetes mellitus, tuberculosis or bronchial asthma. He had a history of tobacco chewing for the last forty years. On examination, left lower limb was externally rotated. The deformity and swelling at middle of left thigh on the medial side was present. Muscular wasting over left thigh was present. The swelling was of 3x3 cms, hard in consistency, skin over the swelling was normal, no transmitted pulsations were felt. Abnormal mobility was present in the middle part of the left thigh. Blackish discolouration was present over lateral four digits and adjacent parts of the left foot dorsally and on the plantar surface (figure2). Sensations were absent over the distal part of the left foot. Popliteal, dorsalis pedis and posterior tibial pulses were not felt on the left side. A shortening of 13cms was measured on the left thigh segment, 3 cms wasting was present over the left thigh. Abduction was restricted at left hip, fixed flexion deformity of 30 degrees was measured at the left knee and left ankle movements were painfully restricted. On Radiograph of left thigh, broken K-nail was seen (figure3). Doppler ultrasound scan suggested narrowing of middle 1/3rd of superficial femoral artery. On CT angiogram, intramedullary nail obstructing the superficial femoral artery was seen with loss of the caliber of distal arteries (figure 4, 5). Vascular surgeon consultation was taken in an attempt to guide our management for salvage of limb. The vascular

surgeon advised for above knee amputation as there was no caliber of distal vessels for doing a bypass procedure. The patient was taken to the operation theatre and under spinal anaesthesia, intramedullary nail was removed from the fracture site and a medial transfemoral amputation was done (figure 6,7). In postoperative period patient was stable. Physiotherapy exercises were started for the stump. Sutures were removed two weeks after surgery. Six weeks after surgery, he was sent to a prosthetic technician for appropriate prosthetic placement and gait training.

Figure -1

Figure -2

Figure -2

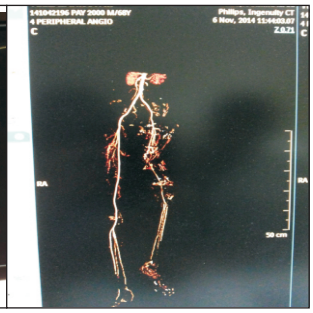

Figure -4

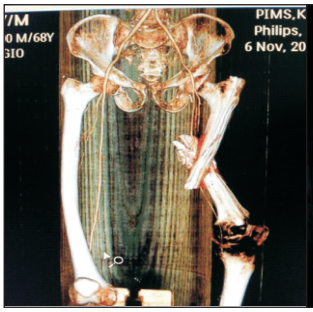

Figure -5

Figure -6

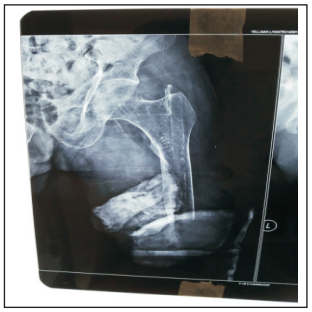

Figure -7

Figure 1: Preoperative clinical photograph indicating the deformity and swelling over the middle of the left thigh
Figure 2: Preoperative clinical photograph indicating ischaemia of the distal part of the left foot
Figure 3: Preoperative radiograph of left thigh
Figure 4: Preoperative CT angiogram image
Figure 5: Preoperative CT angiogram image
Figure 6: Intraoperative image after stump closure
Figure 7: Postoperative radiograph of the stump

DISCUSSION

Implant failure, although an uncommon entity, it usually immediately reports for management.[3] It is very rare that, it is neglected and left in situ fora long timee leading to secondary changes such as massive fibrosis, vascular impingement and distal limb ischaemia.[4, 5] Such cases usually present with enormous risk and challenges for further treatment as they are plagued with complications leading to massive bleeding and limb loss if not managed properly. The challenges we faced with this case were massive intraoperative bleeding due to enormous and diffuse soft tissue entrapment of vasculature and difficulty in removing the failed implant due to loss of contour and bone remodeling around the nail. The neurovascular structures were unidentifiable because they were entrapped within the fibrous tissue. These structures were identified with the help of a vascular surgeon and then ligated. Amputation was done above the level of fibrous tissue with a near ideal stump length.

CONCLUSION

Early diagnosis and management is of utmost importance in cases of implant failure as they are at risk of various complications, including vascular occlusion leading to ischemia thereby preventing any attempts to salvage the limb.

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