

A RARE AND UNUSUAL CAUSE OF DISCHARGING SINUS AROUND THE KNEE

SURENDRA UMESH KAMATH, SHAILA S KAMATH, PURNACHANDRA TEJASWI

Department of Orthopaedics and Anaesthesiology, Kasturba Medical College, Manipal University, Manipal, Karnataka, India.
Email: skamath3@hotmail.com

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ABSTRACT

A 56-year-old male presented to our outpatient department with a history of discharging sinus over the medial aspect of right knee since 6 months. He had a history of road traffic accident with a crush injury to right knee 17 years ago for which he was treated by vascular, plastic, and orthopedic surgeons with hospitalization for about 3 months. Imaging studies with clinical examination suggested a possible diagnosis of chronic osteomyelitis distal femur right with a sequestrum. On exploration, the sinus tract was leading to cavity in the posterior aspect femur containing pus and 4 cm long vascular graft material. Possibly the vascular graft was used for the treatment of vascular injury 17 years ago was the cause for persistent sinus.

Keywords: Persistent sinus, Sinus exploration, Vascular graft.

INTRODUCTION

A sinus is a blind track, usually lined with a granulation tissue leading from an epithelial surface into the surrounding tissues. Various causes persistence of a sinus include a retained foreign body or necrotic tissue is present, inefficient or non-dependent drainage due to long, narrow, tortuous track, dense fibrosis prevents contraction, and healing; the type of infection like tuberculosis or actinomycosis, the presence of malignant disease, ischemia; drugs like steroids or cytotoxics, malnutrition [1-3]. We report a rare case of chronic discharging sinus presenting 17 years after the primary operation due to infected synthetic vascular graft prosthesis.

CASE REPORT

A 56-year-old male presented to our outpatient department with complaints of a discharging sinus in the medial aspect of right knee since the past 6 months. The discharge was seropurulent in nature and non-foul smelling. He also complained of nagging pain around the sinus which was mild to moderate in nature. There was no history of associated fever or any systemic symptoms. He had no major difficulty in walking except for a minor limp. The patient gives history of a road traffic accident around 17 years back for which he was hospitalized for around 3 months. He was treated by orthopedic, plastic and general surgeons. He gives history of multiple surgeries to the involved limb but not aware of the details. He is not a known case of diabetes mellitus or any chronic illnesses. For the present complaints, he has been on multiple oral antibiotic courses prescribed by a general surgeon, but he has no relief of his symptoms.

On examination, he had a discharging sinus with hyperpigmentation of surrounding skin on the anteromedial aspect of his right knee. There was active seropurulent discharge. On palpation, there was tenderness and the sinus was not movable with the underlying soft tissue. In the posterior aspect of the knee, there was puckered scar that was non-tender (Fig. 1).

A preliminary diagnosis of chronic osteomyelitis of the distal femur was made. The discharge was sent for culture and sensitivity, Ziehl-Neelsen (ZN) staining, and polymerase chain reaction (PCR) for *Mycobacterium tuberculosis*. The culture did not grow any organism and ZN staining and PCR for *M. Tuberculosis* were negative. Routine blood investigations and serology were unremarkable. Radiograph of the knee joint showed cortical erosion in the lateral aspect of the distal femur (Fig. 2). A sinogram was attempted but the dye could not be injected into the sinus. However, the

computer tomography scan showed a structure resembling a sequestrum in the posterolateral aspect of the distal femur (Fig. 3).

A diagnosis of chronic osteomyelitis of the distal femur with the sequestrum was made. The patient was taken up for sinus exploration and sequestrectomy and curettage. Intraoperatively, gross fibrosis of the sinus tract was found. The entire sinus tract tracking down to the muscles was excised and foreign body measuring 4 cm × 1 cm was extracted (Fig. 4). Around 5 ml of purulent material was seen which was sent for culture but did not grow any micro-organisms. The foreign body was later confirmed to be a synthetic vascular graft.

Post-operatively, patient was put on intravenous antibiotics for a week and oral antibiotics continued for another 5 weeks. The wound healed well at the end of post-operative day 10 and patient remained asymptomatic later on.

Probably the patient had a popliteal artery injury 17 years back for which reconstruction using a synthetic graft was done. Subsequently, the graft got infected and was lying free in the soft tissue. However as there was no compromise in the vascularity due to the collaterals subsequent limb ischemia did not follow.

DISCUSSION

The persistence of a sinus can be due to a retained foreign body or necrotic tissue is present, inefficient or non-dependent drainage due to long, narrow, tortuous track, dense fibrosis prevents contraction and healing; type of infection like tuberculosis or actinomycosis, the presence of malignant disease, ischemia; drugs like steroids or cytotoxics, malnutrition [1-3].

Prosthetic vascular grafts for bypass procedures and arterial reconstructions have been successfully employed for decades. Known complications include infection, material deterioration, erosion or fistulization, anastomotic aneurysm, and occlusion [4]. Furthermore, amputation rates up to 70% and cumulative mortality rates ranging from 25% up to 88% are seen after prosthetic vascular graft infection [5]. The causative organisms for infection are most commonly reported as *Staphylococcus aureus* and coagulase-negative *staphylococci*, although in as many as 25% of cases, the causative organism is never identified. Infection affects, especially prosthetic grafts, which are implanted during emergency procedures (for example emergency surgery for the ruptured abdominal aortic aneurysm) and prostheses anastomosed to the femoral artery or placed into a subcutaneous tunnel (for example



Fig. 1: Clinical photos of the patient showing discharging sinus in the medial aspect of the knee with pucker scar in the popliteal fossa region



Fig. 2: Radiograph of the distal femur showing suspected cortical erosion

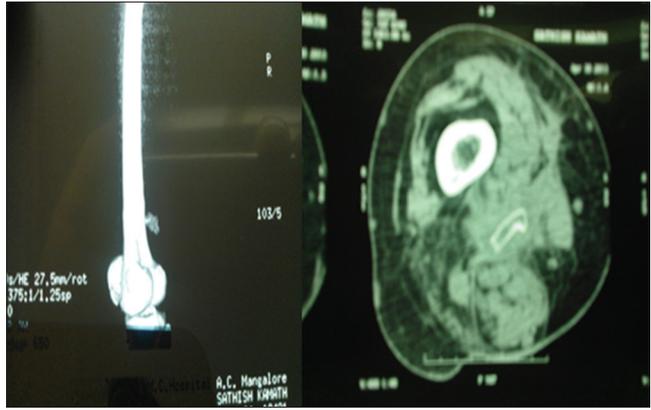


Fig. 3: Computer tomography showing structure resembling a sequestrum in the posterolateral aspect of the distal femur



Fig. 4: Sinus tissue and synthetic vascular graft

the axillofemoral or axillobifemoral grafts) [6]. Vascular graft infections are classified by their appearance time (early infections which appear earlier than 4 months after graft implantation; late infections which appear after 4 months), their relationship to the post-operative wound and the extent of graft involvement. Szilagy's classification [7] is referring to the grades of post-operative's wound infection. Hence, we have three grades as follows: Grade I: Cellulitis involving wound; Grade II: Infection involving subcutaneous tissue; Grade III: Infection involving the vascular prosthesis.

In our case as the graft was found to be completely extruded and lying free in the cavity of pus, the graft was removed with drainage of pus and the entire sinus tract was excised.

CONCLUSION

Managing a case of persistent discharging sinus around a joint can be difficult and sometimes challenging. The various possible causes need to be kept in mind while diagnosing a case of chronic sinus. A retained sequestrum or foreign body can be one of the common causes. A detailed history, investigation including special imaging may be needed before taking up these cases for exploration.

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REFERENCES

1. Marya KM, Yadav V. An unusual cause of a discharging sinus. *Postgrad Med J* 2003;79(933):420, 424-5.
2. Leijnen M, Steenvoorde P, van Doorn LP, da Costa SA, Schuttevaer HM, van Leeuwen GA, *et al.* A Non-healing sinus of the lower leg 5 years after vacuum-assisted closure therapy due to a gossypiboma. *Wounds* 2007;19(8):227-30.
3. Butcher M. Managing wound sinuses. *Nurs Times* 2002;98(2):63.
4. Piano G. Infections in lower extremity vascular grafts. *Surg Clin North Am* 1995;75(4):799-809.
5. Antonios VS, Noel AA, Steckelberg JM, Wilson WR, Mandrekar JN, Harmsen WS, *et al.* Prosthetic vascular graft infection: A risk factor analysis using a case-control study. *J Infect* 2006;53(1):49-55.
6. Saleem BR, Berger P, Zeebregts CJ, Slart RH, Verhoeven EL, van den Dungen JJ. Periaortic endograft infection due to *Listeria monocytogenes* treated with graft preservation. *J Vasc Surg* 2008;47(3):635-7.
7. Szilagy DE, Smith RF, Elliott JP, Vrandeic MP. Infection in arterial reconstruction with synthetic grafts. *Ann Surg* 1972;176(3):321-33.