

Gossypiboma of the Thigh Mimicking Soft Tissue Sarcoma: Case Report and Review of Literature

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Abstract

Introduction: Foreign body granulomas due to surgical swab left after surgery (Gossypiboma) are rare. There are few cases of such lesion after orthopaedic procedure in thigh. Presentations vary from pathological fracture to painless mass. Gossypiboma with radiological appearance of soft tissue sarcoma are rare and we report one such case

Case Report: 32 year old male laborer had fracture shaft femur 13 years back which went into malunion after conservative treatment. Osteoclasts, open reduction and K-nailing was done at 6 months. Fracture united and K nail was removed 3 years later. Patient was asymptomatic for 10 years after which he presented to us with swelling and pain in the medial aspect of thigh. Radiograph showed soft tissue mass with excavating lesion of the posteromedial aspect of femur resembling soft tissue sarcoma. Biopsy revealed cystic lesion with sterile fluid with no malignant cells. Explorations of the lesion lead to discovery of shredded surgical swab. Complete removal of all granulomatous tissue was done and patient was given hip spica for 3 months after which he was gradually mobilized and is currently walking full weight bearing at one year follow up.

Conclusion: Cases with radiologically destructive lesions close to previous surgery scars should be assessed with gossypiboma as one of the differentials.

Keywords: Gossypiboma, retained gauze, soft tissue sarcoma, infection

Introduction

Gossypiboma is defined as foreign body (surgical gauze) surrounded by granulomatous reaction [1]. The reported frequency of gossypiboma after surgery varies from 1 in 1000 to 1 in 10000 interventions [2] and most are reported after abdominal, thoracic and pelvic surgeries. This is rarely encountered in orthopaedic surgery and

only few articles with lesion in thigh are published previously (Table 1) [3-10]. Although presentations vary infection and tumor are two most common differentials [11]. Appearance of radiologically destructive lesion with bony involvement is rare and we report one such case.

Case History

A 32 year old male reported to us with complaints of pain and swelling in right thigh for 3 years. The pain was moderate in intensity and was dull aching in nature, gradually increasing and aggravated on walking. Patient was operated for malunited fracture (Fig. 1a) of femur 13 years back. Open reduction and K nail fixation was done at that time (Fig.1b). Post-operative course was uneventful and patient starting walking normally after fracture healed. K nail was removed 3 years later. On

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Figure 1: a- Plain radiograph AP view of the femur showing malunion at the age of 10 years. b- For malunion patient underwent surgery 13 years back. Osteoclasis, open reduction and internal fixation with K nail was done at that time at another institution. c- The radiograph of the femur at the time of presentation showing marked erosion of the posteromedial cortex resembling sarcoma or osteomyelitis.

physical examination the overlying skin was normal and oval non fluctuant swelling was present on posteromedial aspect of thigh approximately 10cm by 10cm. The swelling was soft, tender on deep palpation and present deep to the medial group of muscles of the thigh. The margins of the swelling were ill defined. Range of motion in hip and knee joint were normal. Routine hematological investigations were done. The total and differential blood counts were essentially normal and ESR was slightly raised (20mm/hr). Radiograph of the right thigh showed increased soft tissue density over posteromedial aspect of upper third femur along with excavation of the posteromedial cortex of the femur (Fig. 1c). The healed fracture was also seen. The appearance was that of a destructive lesion suggesting soft tissue sarcoma. Fine needle aspiration cytology (FNAC) of the lesion was done and serosanguinous fluid was aspirated which was sent for



Figure 2: CT angiography was done at another centre to rule out vascular tumour like haemangioma but it was found to be normal.



Figure 3: Exploration of the lesion was performed. Medial approach was used. Adductor muscles were carefully dissected. Beneath the adductor muscle large cavity lined by fibrous tissue was found which contained shredded swab. The cavity was also extending posteriorly.

culture. The report was found to be sterile with no malignant cells.

CT-angiography of both the lower limbs was done earlier by a general surgeon. It showed normal blood flow in both the femoral arteries and there was no evidence of any vascular mass on the right side (Fig. 2). Patient did not agree for MRI due to financial constraints. Since the provisional diagnosis was either a chronic infection or a low grade malignancy a decision for surgical biopsy was taken to confirm the diagnosis. Medial skin incision was made 3 inches long over the swelling. Subcutaneous tissue dissected. Adductor group of muscles were carefully dissected (Fig. 3). Deeper to it, overlying posteromedial surface of bone was found to contain a malodorous, brown color necrotic mass consisting of shredded surgical swab around $7 \times 7 \times 7$ cm. There was no evidence of infection



Fig 4: It was not possible to remove the gauze in single piece as it was completely shredded. It was removed piecemeal along with fibrous tissue lining.

Study (year) [reference]	N	Clinical Presentation (Differential Diagnosis)	Last Surgery Details
Al Arabi (1992) [3]	1	Pathological fracture of femur (Chronic infection, low grade tumor)	Femur Shaft fracture treated with open reduction and K nail 13 years back
Suh DH (2009) [4]	1	Pathological fracture of femur (Tumor, infection)	Intertrochanteric fracture treated with Jewett nail 16 years back
Uchida 2010[5]	1	Painless mass (chronic infection, tumor)	46 years back (open femur fracture external fixation)
Sakayama (2004)[6]	1	Painless swelling (malignant neoplasms such as chondrosarcoma, osteosarcoma and chronic expanding hematoma)	40 yrs back (open femur fracture- external fixation)
Puri et al (2007)[7]	1	Recurrent gossypiboma (soft tissue sarcoma)	Fixation of intertrochanteric fracture 13 years back ; first Gossypiboma removed 6 years after first surgery and second removed 13 years after first surgery
Kominami (2001)[8]	1	Painful swelling (neoplasm)	External fixation of femur
Nakamura (2008)[9]	1	Painless mass (malignant soft tissue tumors)	Fracture shaft femur treated with plate 19 years back
Kalbermatten(2000) [10]	1	Painless mass (myositis ossificans, chronic osteomyelitis, squamous cell carcinoma, fibrosarcoma, epithelial cyst, post-traumatic pseudoaneurysm and arteriovenous fistula)	Fracture femur stabilized with plating 25 years back
Our case (2012)	1	Painful swelling (Soft Tissue Sarcoma)	Malunion femur fracture operated with K nail 13 years back

Table 1: Literature review of all cases of Gossypiboma in the thigh following orthopaedic surgery. Varied presentation and differential diagnosis entertained are to be noted.

or obvious tumor mass. Shredded gauze piece were removed piecemeal as it was completely adhered to adductor longus and medial hamstrings (Fig. 4). The material was sent for histopathological examination. On microscopy, cotton thread were visualized which were surrounded by chronic inflammatory cells forming foreign body granuloma (Fig. 5).

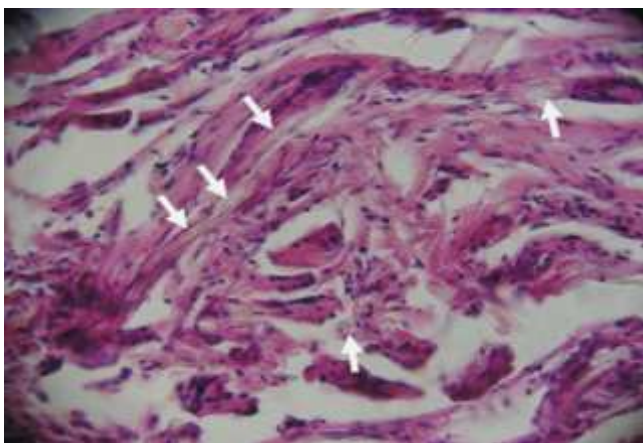


Figure 5: Histopathological examination showed cotton swab surrounded by inflammatory cells forming foreign body granuloma.

Post-operatively in view of excavated lesion in the femur, the patient was given hip spica for 3 months followed by gradual weight bearing.

Discussion

Although with use of modern radiopaque markers in

surgical gauze and change in practice of counting of gauze preoperatively and post operatively has decreased the number of cases of gossypiboma, still such cases could be found especially in developing countries where it is difficult to afford such surgical gauze with radiopaque marker. The incidence varies from 1 in 1000 to 1 in 10000 interventions.

Olnick et al [12] reported that that reaction of the body for retained surgical gauze could be of two types: either exudative or aseptic fibrous inflammatory response. The exudative response is more common and it leads to abscess formation with or without secondary bacterial contamination. Aseptic fibrous inflammatory reaction is usually is rare and it develops into cyst formation with adhesion to the surrounding structures. This type of presentation could be latent for many years [13]. Serra et al [11] used the term "Pseudotumour" for such entity. Only 6% are reported after orthopaedic surgery in comparison to 52% following abdominal surgery and no fatal complications have been reported in musculoskeletal sites [14].

Diagnosis of gossypiboma can be challenging and it requires high index of suspicion. On radiograph it may show a soft tissue shadow or if calcified may show a whorl-like pattern. MRI is the best modality to diagnose gossypiboma; Sugimura et al [15] reported that wavy low

signal intensity lines on T2W imaging are characteristic findings of gossypiboma. In present case MRI could not be done because of the financial constraints of the patient. Complications of the gossypiboma in musculoskeletal sites could be abscess formation, draining sinus formation, erosion of the underlying bone and pathological fracture. In cases reported in thigh the presentation varied from painful to painless swelling. Radiographic picture was mostly of a destructive lesion and differential of chronic infection and low grade tumor was given in most studies. In our case too, the same differentials were entertained and we did not suspect gossypiboma in our differential. Thus one of the learning points in this case report is to keep gossypiboma as a differential for slow growing destructive bony lesions in cases with previous surgeries at same site. In two cases, pathological fracture occurred [3,4] and in our case too we felt the bone was quite weakened. Hence hip spica immobilization was given in our case to prevent the pathological fracture and was well tolerated by the patient with good result.

The best way of preventing gossypiboma is by developing protocol at institutional level to write down the number of swabs preoperatively and post operatively with sterile marker pen by scrubbing nurse and tally it with senior surgeon and as far as possible swabs with radio opaque marker should be used.

Conclusion

The conclusion of the above case report is that whenever such eroding lesion in femur after history of surgery is seen, we should keep pseudotumour due to surgical sponge (Gossypiboma) as differential diagnosis. Its timely removal might prevent inadvertent complication like pathological fracture. Also it highlights the counting of sponges and use of radio opaque marker in sponges.

Clinical Message

Slow growing swelling close to scars of previous surgeries may represent gossypiboma. Radiographically this might appear as destructive bony lesions or with pathological fractures and can confuse with tumor or infection. A high index of suspicion will be useful in such cases.

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