CASE REPORT

TEXTILOMA OF THE THIGH PRESENTING AS A SARCOMA

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Textiloma is defined as a tumor composed of cotton matrix surrounded by granulomatous reaction. It occurs following operations in which surgical sponges were inadvertently left behind. We describe a case of a 59-year-old man presenting with a pathologic fracture of the proximal left femur. The results of the biopsy, unlike diagnoses suggested by radiographs, CT scan and magnetic resonance imaging revealed a textiloma of 23 years of evolution. Because of major bone loss, resection of the involved bone was performed followed by ipsilateral fibular bone graft.

Keywords : textiloma ; gossypiboma ; sarcoma ; femur ; retained sponges.
Mots-clés : textilome ; sarcome ; fémur ; compresses.

INTRODUCTION

In 1884, Wilson (22) described the case of a retained foreign body after a laparotomy. Since then, many authors reported their experiences with forgotten surgical sponges (1-21). The true incidence and prevalence of the textiloma cannot be determined precisely (10). Jason *et al.* estimated the global occurrence between 1/1000 and 1/1500 operations (8). This pathology is mainly encountered in females between 16 and 90 years. Abdominal surgery accounts for about 75% of the cases (13). The medicolegal aspects, the difficulty in making the correct diagnosis due to the clinical and radiological polymorphism and the presumptive malignant degeneration led to more preventive attitudes. Textilomas after bone and soft tissue surgery are rarely reported. The present case is a longstanding history of pain with finally a pathological fracture, which presented either as a bone-derived or a bone-invading sarcoma of the left thigh.

CASE REPORT

A 59-year-old man presented with a pathological fracture of the left proximal femur. Past medical history revealed a car accident 23 years previously with fractures of several ribs, the pelvis and the proximal left femoral diaphysis. The latter had been treated by Küntscher nailing with subsequent removal of the rod 1.5 years later. Since then, he complained of intermittent local discomfort and pain.

On admission, physical examination showed a painful left thigh, tenderness and loss of function. Hematological and chemical studies were within normal limits. Radiographs (fig. 1) showed a complex fracture arising in a lytic tumor with smooth scalloped borders. Magnetic resonance imaging of the proximal one-third of the femoral diaphysis demonstrated an osseous defect, a pathological fracture, heterogeneous lesions surrounded by positive-gadolinium areas and a mass located on the posterolateral aspect of the femur (fig. 2). Bone scan showed increased technetium uptake. These preoperative investigations suggested a malignant

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Fig. 1. — Initial presentation of a pathological fracture of the midshaft of the femur showing an osteolytic and bone-invading tumor.

process. Complete work-up failed to detect any distant metastases.

In order to confirm the diagnosis of sarcoma, an open biopsy was performed. Unfortunately, it showed only necrotic tissue. A second limited biopsy yielded no different results. An atypical proliferation of bone was identified on light microscopy, and no conclusive diagnosis could be drawn. Slides were then sent to two international experts on bone pathology, who saw respectively an osseous callus and an atypical osteoblastoma.

Finally, in the absence of a relevant clinico-pathologic diagnosis, a larger biopsy was undertaken, which revealed a largely decomposed surgical sponge (fig. 3).

Fig. 2. — The same lesion on MRI

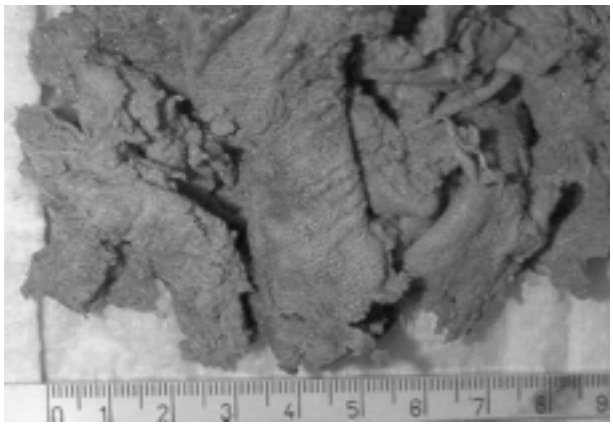

Fig. 3. — The largely decomposed abdominal sponge

Because of segmental bone destruction a large resection of the involved femur was done, and the bone defect was bridged by two fibula struts augmented by cortico-cancellous bone graft and held together by an internal plate fixation (fig. 4). The

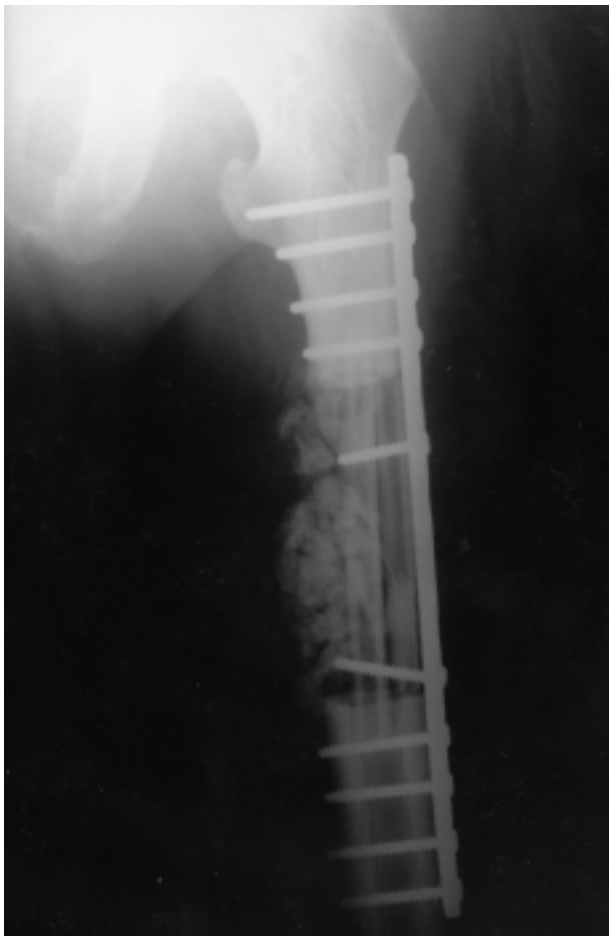

Fig. 4. — Postoperative view of the reconstructed bone defect

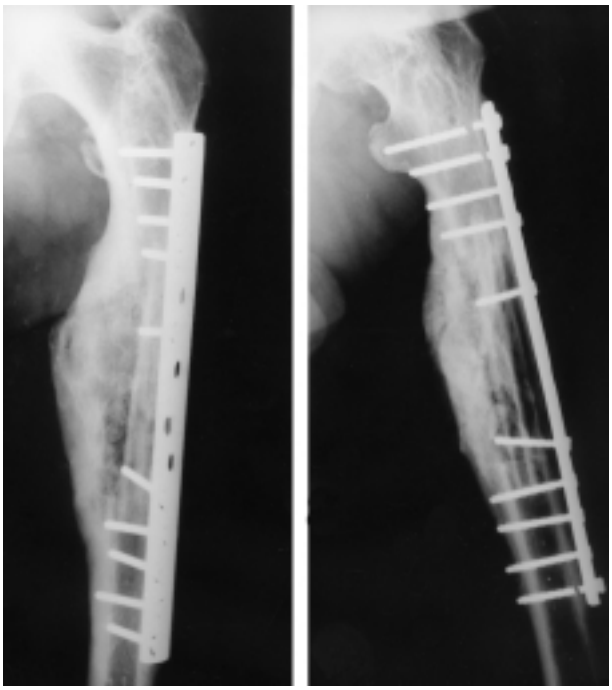

Fig. 5. — Situation four years after surgery showing rupture of screws, which did not influence the excellent final outcome.

postoperative period was uneventful. When last seen, 48 months after surgery, the patient did not complain of any pain or discomfort. Radiographically, the bone defect was healed (fig. 5).

DISCUSSION

Textiloma, a well-known iatrogenic complication, may lead to various clinical presentations, which constitute a major diagnostic problem (1-21). This usually results from failure to include textilomas in the differential diagnoses. Le Néel *et al.* (13) found that the clinical diagnosis was initially evoked in only 35% of 117 cases reported from the literature.

Our case is illustrative of this situation. We considered the following diagnoses : chondrosarcoma, osteosarcoma, malignant fibrous histiocytoma, a lytic bone metastasis and aneurysmal bone cyst. The first biopsy revealed necrotic tissue. The second was examined by three independent pathologists, who described respectively atypical bone formation without conclusive diagnosis, osteoblastoma and callus formation. The two biopsies were done through a small skin incision according to current principles of sarcoma biopsy. The histologic features of atypical osteoblastoma are the irregular bony trabeculae with prominent osteoblastic and osteoclastic rimming, the intervening stroma consisting of osteoblasts, which have an epithelioid appearance with nuclear atypia. The hypertrophic osseous callus described by one pathologist is classical reactive osteogenesis. He did not find any sarcomatous cells. The last pathologist saw a kind of “tumoral proliferation” ; and although these histological features together with the clinical and radiological presentation made the diagnosis of malignancy possible, slides were sent to outside pathologists expert in the field of bone tumors.

Table I. — Body inflammatory response to forgotten surgical sponges

Type I	Type II
– Fibroblastic reaction	– Exsudative reaction
– Later occurrence	– Early occurrence
– Aseptic	– Secondary bacterial invasion
– Complete encapsulation	– Extrusion attempt
– Less common	– More common
– Usually asymptomatic	– Frequently symptomatic
– Granuloma	– Granulation tissue
– Calcification	
– Angiosarcomatous degeneration ?	

The cotton or the synthetic matrix of a retained surgical sponge is an inert biochemical material (16). It is not resorbable and elicits non-specific immunological reactions which are divided arbitrarily into two types (3, 9, 13, 16, 19, 21) (table I). The inflammatory reaction leads to the disintegration of the gauze over the years, surrounded by a fibrous capsule. This capsule seems to be important. Some authors consider it to contain mesenchymal cells capable of giving rise to sarcomas (3, 9). In 1988, a review of the literature disclosed six cases of angiosarcoma and 40 cases of other histologic types of sarcoma associated with various foreign bodies regardless of their chemical nature (9). According to animal studies, all these reports provided compelling evidence that tumorogenesis may occur from various implanted materials in humans.

To our knowledge, only two cases of angiosarcoma arising in association with forgotten sponges have been described (3, 9) (table II). Pardo *et al.* found a surgical sponge associated with a primary jejunal osteosarcoma in a dog (18).

The radiographs demonstrated a whirl-like pattern (16). Peripheral calcifications and a radio-opaque marker were shown. Sometimes gas bubbles, separated by areas of liquid density may also be seen (4). Typical ultrasound features have been divided into three types :

1) An echogenic area with strong acoustic shadowing due to a retained sponge ;
2) A well-defined cystic mass with distinct, internal hyperechogenic, wavy, striped, enfolded structures ;
3) A nonspecific hyperechogenic or complex mass (7).

At computed tomography, a spongiform pattern with small gas bubbles seems to be a pathognomonic sign, although present in only 7/13 patients (54%) of Kopka's (12) series. This CT sign is more specific than the radio-opaque marker or the presence of a high-density capsule. MRI features are not specific. A whirl-like pattern can be demonstrated in the center of the mass that may show variable intensities, depending on the amount of fluid and protein concentration. Both T1- and T2-weighted images result in low signal intensity along the fibrous capsule (16). Depending upon the location endoscopy, angiography, fistulography or a contrast gastrointestinal tract series could be of some help (2, 20, 21).

Table II. — Longstanding retained surgical sponges with angiosarcoma

Case Reference	Age/sex	Previous Surgery	Location	Interval	Symptoms	Treatment	Sponge	Outcome
1. Jennings (9) *et al.*, 1988	70 yr./F	Cholecystectomy	Peritoneum	20 yrs.	Abdominal mass	Surgical removal	Gauze surrounded by fibrous capsule	Died with metastases
2. Ben-Izhak (5) *et al.*, 1991	70 yr./F	Subtotal hysterectomy	Rectum	25 yrs.	Rectal bleeding	Surgical removal	Pieces of gauze contained in giant cells	Died with metastases

Presently, the diagnosis of a forgotten sponge is less and less difficult, because it has become a rule to use sponges with a radio-opaque line. This was not the case in our patient.

In 90% of cases, the correct count of sponges is achieved (16, 21). In France, about 3 cases of trials are reported annually (21).

As a recommendation, any identified sponge should be removed even if asymptomatic. This can be achieved by classical surgery, laparoscopy, endoscopy and percutaneous approaches.

Textiloma (9, 13) has established complications (1, 3, 7, 9, 20, 21) (table III). Without doubt, this pathology is caused by the surgeon, and in almost all cases, he is the sole responsible in court trials (10, 20). Documented presence of a sponge represents evidence that negligent care may be presumed to have taken place (10). However, despite precautions taken by the operating team, forgotten sponges remain a continuing problem (10, 14, 16, 21).

The case presented here shows a major bone defect after a longstanding bone destruction due to the presence of a surgical sponge. It was almost impossible to perform reconstructive surgery without the addition of bone grafts. We chose reconstruction with two fibula struts and corticocancellous bone taken from the iliac crest with an excellent final outcome.

Table III. — Complications due to forgotten surgical sponges

Spontaneous resolution
Fistulization to surrounding organs
Vessel embolization
Vessel erosion with hemorrhage
Migration to surrounding tissues
Stenoses
Adhesions
Granulomatous peritonitis
Infections and sepsis
Pancreatic pseudocyst
Reoperative risks
Chronic pain
Gradual bony erosion with pathological fracture
Malignant degeneration

CONCLUSIONS

Currently, the use of radio-opaque marked sponges and their exact count is of greatest importance. With the development of coelioscopic surgery, perhaps, the cases of digestive and gynecologic textilomas will be less frequent ; but, as long as non-absorbable gauzes continue to be used, textilomas and related risks will be encountered. Research focused on inert and rapidly absorbable sponges eliciting little inflammatory reaction could help eradicate the problem.

While awaiting future improvements, the most important thing to do is not to forget to consider a textiloma in the differential diagnosis of a previously operated patient presenting an incidental mass.

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SAMENVATTING

B. MBOTI, M. GEBHART, D. LARSIMONT, K. ABDELKAF. Textiloma van de dij met sarcoma voorkomen.

Een textiloma is een weekdeel tumor bestaande uit een granulomateuse reactie op een katoen matrix, gevolg van accidenteel achtergebleven kompressen na chirurgie. Een dergelijk letsel wordt hier beschreven bij een 59-jarige man die werd opgenomen met een pathologische fraktuur van het linker fremur.
Biopsie weerlegde de op radiografies, CT scan en NMR steunende diagnosis van sarcoma en weerhield een vreemd lichaam reactie op textiel, een zg textiloma met een klinisch verloop over 23 jaren.
Er was majeur botverlies onstaan ; derhalve diende het aangetaste bot te worden gereseceerd en vervangen ter gelegenheid van de osteosynthese door een ipsilaterale fibulagreffe.

RÉSUMÉ

B. MBOTI, M. GEBHART, D. LARSIMONT, K. ABDELKAF. Textilome de la cuisse se présentant comme un sarcome.

Le textilome se définit comme une tumeur constituée d'une matrice de coton entourée d'une réaction granulomateuse. Il survient à la suite d'opérations au cours desquelles des compresses ont été laissées en place par inadvertance. Les auteurs rapportent le cas d'un homme de 59 ans qui s' est présenté avec une fracture pathologique de la partie proximale du fémur gauche. Les radiographies, le CT scan et l'IRM suggéraient un diagnostic de tumeur maligne, mais une biopsie a révélé l'existence d'une textilome qui évoluait depuis 23 ans. En raison de la perte osseuse importante, le segment osseux intéressé a été réséqué et remplacé par une autogreffe de péroné, associée à une ostéosynthèse.