

Malignomu podoben vnetni pseudotumor: redk zaplet popolne artroplastike kolka

Inflammatory pseudotumor simulating malignancy: a rare complication after total hip arthroplasty

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totalna artroplastika kolka,
nekrotični drobir, medenični
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Izvleček

Namen: Tujkov drobir, ki nastaja po
vstavitvi popolne kolčne endoproteze,
povzroča neželene lokalne odgovore
gostitelja. Prispevek poroča o izraziti
obliki takšnega odgovora bolnika, pri
katerem je po popolni artroplastiki le-
vega kolka prišlo do naraščajoče ste-
genske bolečine, izgube mišične moči
in odrevenelosti.

Metode: Računalniška tomografija
spodnjega dela trebuha in medenice
bolnika je pokazala veliko cistično
tvorbo. Ocenili smo jo kot maligni tu-
mor. Z aspiracijsko biopsijo ciste smo
dobili sivo-zeleno tekočino, s citološko
preiskavo je bil ugotovljen nekrotični
drobir brez malignih celic. Z biopsijo
smo potrdili nekroze in obilno granu-
lacijsko tkivo tujkovega tipa z drobir-
jem, ki je pod polarizacijskim mikro-
skopom značilno lomil svetlobo.

Rezultati: Med kirurško odstrani-
tvijo cistične tvorbe smo opazili de-
fekt kostnine notranje stene kolčnice.
Po uspešni revizijski artroplastiki in

Abstract

Purpose: Particulate debris created
by accelerated polyethylene wear in
totally replaced hips causes adverse
local reactions. We report an extreme
form of such a reaction in a patient
who developed progressive thigh pain,
weakness and numbness after total
arthroplasty of his left hip.

Methods: An abdominopelvic com-
puted tomogram showed a large in-
trapelvic cystic mass interpreted as a
malignant tumor. Dark grayish-green
fluid was aspirated from the cyst and
cytopathologic examination showed
necrotic debris without malignant
cells. Biopsy revealed necrosis and
abundant foreign body granulation
tissue with polarizable debris.

Results: During surgical removal of
the cyst a defect of the inner acetabular
wall was noted. After successful revi-
sion arthroplasty with allograft bone
the clinical symptoms improved.

Conclusion: A foreign-body reac-
tion to wear debris may produce an

uporabi homolognih kostnih presadkov so bolnikove težave izzvenele.

Zaključki: Vnetna reakcija tujkovega tipa na obrabne delce endoproteze lahko povzroči rast medeničnega tumorja in posledične simptome. Citološka in histološka preiskava tumorja ali njegove tekoče vsebine lahko pomaga razložiti klinično sliko in izvide slikovnih diagnostičnih preiskav.

intrapelvic mass and corresponding symptoms. Cytologic and histologic examination of the mass or fluid may aid in interpreting the clinical picture and imaging studies.

INTRODUCTION

Inflammatory processes have to be kept in mind when considering the differential diagnosis of a pelvic mass. Following total hip arthroplasty (THA), accelerated polyethylene wear is often associated with periprosthetic osteolysis, which may be asymptomatic, present with groin pain, or even produce compression symptoms including urinary obstruction, venous thrombosis, and neuropathy [1, 2]. We present a case in which a large mass containing wear debris originating from a failed THA mimicked malignancy and produced intrapelvic compression of the femoral nerve.

Case report

A 58-year-old male had undergone a left uncemented THA in 1994 because of osteoarthritis. Nine years later he experienced pain in the left groin and thigh. Over the next 4 years he noted loss of strength in his left thigh. On physical examination, diminished quadriceps motor function, hypoesthesia in the anteromedial aspect of the thigh, and an absent patellar reflex on the left side were noted. Plain films of the left hip showed the eccentric location of the femoral head. An electromyogram (EMG) demonstrated a lesion of the left lumbosacral plexus with denervation predominantly of muscles innervated by the femoral nerve. An abdominopelvic computed tomogram (CT) scan showed a large intrapelvic cyst (Figure 1). Percutaneous aspiration of the fluid was performed and a total of 80 mL of thick, grayish-green fluid was removed. Cul-

tures of the fluid were negative. These findings were believed to be consistent with malignancy. However, cytopathologic examination showed necrotic debris without malignant cells (Figure 2).

During surgical removal of the cystic mass, a defect was noted on the medial acetabular wall. Histologically, the cyst wall consisted of hyalinized fibrous and foreign-body granulation tissue without epithelial elements, and the mass was believed to represent a foreign body reaction to polyethylene wear debris originating from a failed THA (Figure 3). The hip was treated surgically 4 weeks later. On incising the pseudocapsule, large, thick, black masses were found around the neck of prosthesis (Figure 4). The polyethylene liner was fractured and the articular surface of the titanium alloy socket was burnished. The



Figure 1. Abdominopelvic CT showing a large cyst

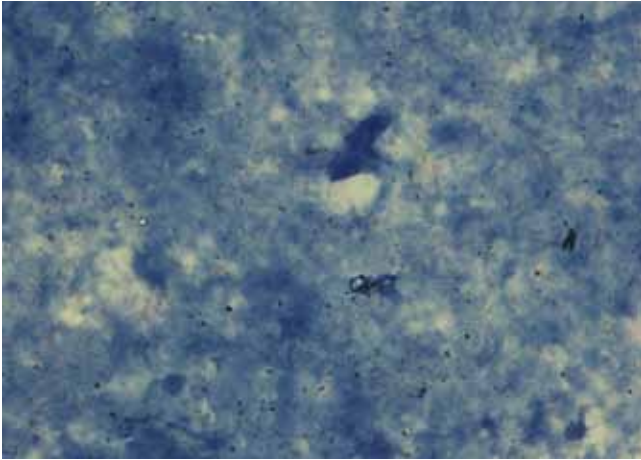


Figure 2. Cytopathologic examination of the cyst aspirate showing necrotic debris without malignant cells

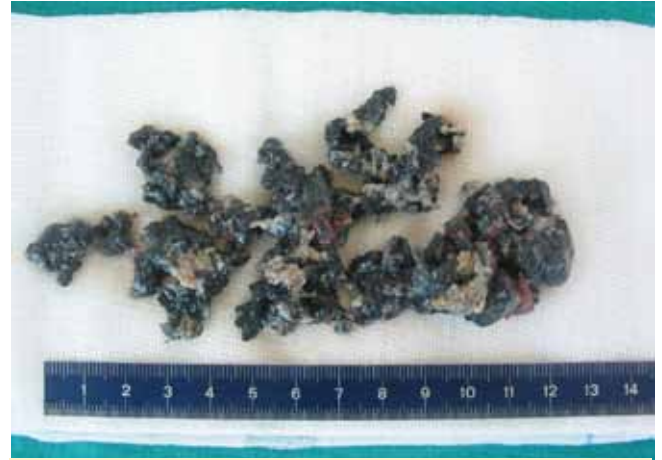


Figure 4. Thick black masses found during revision surgery around the neck of the prosthesis

acetabular shell, the modular neck and the head of the prosthesis were replaced. Histological analysis of the resected tissue revealed foreign-body giant cells within hyperplastic synovium. Abundant foreign-body granulation tissue containing coarse granular black pigment, an unusually large number of histiocytes and polarizable polyethylene particles were noted (Figure 5).

The pain from the femoral nerve irritation improved postoperatively. Ten months later, follow-up EMG demonstrated neurophysiologic improvement without any significant denervation. On X-ray the pros-

thesis remained securely stable at the 12-month follow-up examination.

DISCUSSION

Particulate debris from total joint implants extending well beyond bone can simulate malignancies owing to mass effects and pressure on adjacent tissues [3]. However, malignant tumors can arise a long time after bone surgery [4]. Therefore, each case of such a mass needs surgical removal and thorough histopathological examination.

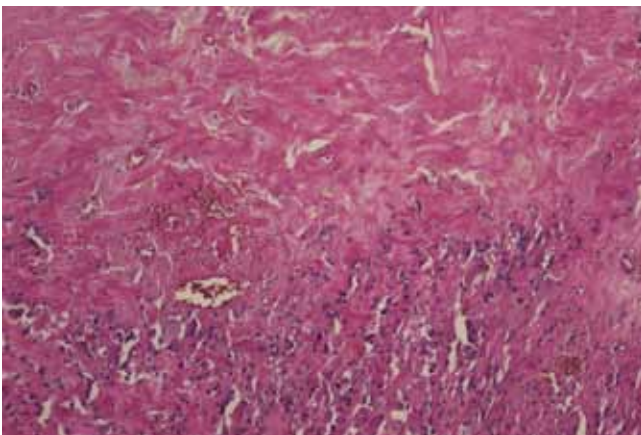


Figure 3. Hyalinized fibrous tissue of the cyst wall (HE, x100)

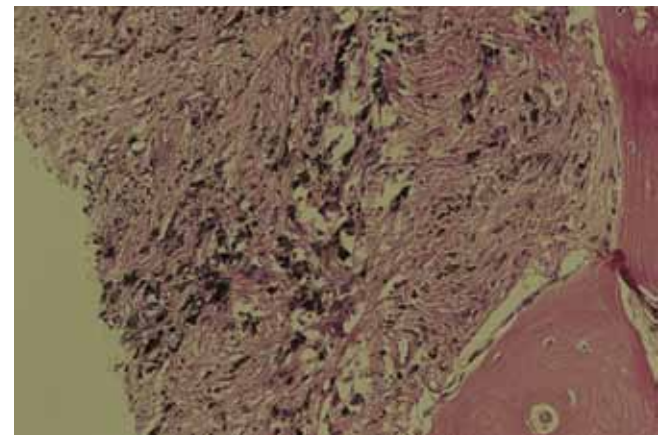


Figure 5. Foreign-body granulation tissue containing coarse granular black pigment (HE, x100)

Characteristic osseous and soft tissue reactions caused by release of polyethylene particles into periarticular tissue as well as the differential diagnosis, including infectious and malignant conditions, are discussed in a paper by Olesen Schaarup and Varmarken [5]. Parwani et al. described the cytopathologic findings of particle disease in an unusual case in which an ultrasound-guided aspiration produced hypercellular smears consisting predominantly of proliferating mesenchymal cells, foamy macrophages, inflammatory cells and background acellular debris [6]. Numerous multinucleated giant cells were also observed. Their differential diagnosis included primary or metastatic clear-cell tumors.

A delayed onset of nerve palsy after THA is rare. In a meta-analysis of the English literature on intrapelvic complications after THA failure, Bach et al. identified 50 cases of injury, including three cases of sciatic nerve injury and two cases involving intrapelvic mass formation [7]. In a thorough recent

report, Hananouchi et al. described a huge pelvic mass causing severe ureteral obstruction and found 18 additional cases of pelvic masses caused by particle debris after THA [8]. With regard to wear debris masses and femoral nerve palsy after THA, we are aware of only two previous reports [9, 10].

CONCLUSION

In this case a large mass containing particulate wear debris originating from a failed THA mimicked malignancy and produced intrapelvic compression of the femoral nerve. We suggest looking carefully for mass effect symptoms and signs in addition to osteolysis during follow-up examinations of THA patients. Cytologic examination of the mass or fluid may aid in interpreting the clinical picture and imaging studies. Moreover, thorough histopathological examination of such lesions is highly important to exclude malignant tumor.

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