



Case report

Formation of a pseudotumor in total hip arthroplasty using a tribological metal–polyethylene pair[☆]



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ABSTRACT

The aim here was to report a case of a young adult patient who evolved with tumor formation in the left thigh, 14 years after revision surgery on hip arthroplasty. Davies in 2005 made the first description of this disease in patients undergoing metal-on-metal hip arthroplasty. Over the last decade, however, pseudotumors around metal-on-polyethylene surfaces have become more prevalent. Our patient presented with increased volume of the left thigh 8 years after hip arthroplasty revision surgery. Two years before the arising of the tumor in the thigh, a nodule in the inguinal region was investigated to rule out a malignant neoplastic process, but the results were inconclusive. The main preoperative complaints were pain, functional limitation and marked reduction in the range of motion of the left hip. Plain radiographs showed loosening of acetabular and femoral, and a large mass between the muscle planes was revealed through magnetic resonance imaging of the left thigh. The surgical procedure consisted of resection of the lesion and removal of the components through lateral approach. In respect of total hip arthroplasty, pseudotumors are benign neoplasms in which the bearing surface consists of metal-on-metal, but they can also occur in different tribological pairs, as presented in this case.

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Formação de pseudotumor na artroplastia total do quadril com par tribológico metal-polietileno

R E S U M O

Palavras-chave:

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Relatar o caso de um paciente adulto jovem que evoluiu com tumoração na coxa esquerda após 14 anos de uma cirurgia de revisão de artroplastia do quadril. Davies em 2005 descreveu esta afecção em pacientes submetidos a artroplastia de quadril com par tribológico metal-metal, mas na última década é possível achar relatos de pseudotumores em superfície metal-polietileno. O paciente iniciou queixa de aumento de volume da coxa esquerda após oito anos da cirurgia de revisão da artroplastia do quadril. Dois anos antes do aparecimento da tumoração da coxa, a investigação para descartar um processo neoplásico maligno de um nódulo em região inguinal foi inconclusiva. Suas principais queixas pré-operatórias eram dor, limitação funcional e marcada redução da amplitude de movimento do quadril esquerdo. As radiografias do membro acometido evidenciavam soltura dos componentes acetabular e femoral, e uma grande massa entre os planos musculares se revelou à ressonância magnética da coxa esquerda. A abordagem cirúrgica consistiu de ressecção intralesional da coxa esquerda, seguida da retirada dos componentes pela via lateral direta. No âmbito da cirurgia de artroplastia de quadril, os pseudotumores são neoplasias benignas cujo par tribológico consiste em metal-metal, mas podem também ocorrer em diferentes pares tribológicos, como neste caso.

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Introduction

Total hip replacement is an established procedure in the context of orthopedic surgery. However, as in any surgical procedure, it is not free of complications. An uncommon complication is the appearance of pseudotumors, as cited by Panditt in 2008, which consists in the formation of structures (solid masses, cysts, nodules) in the peri-prosthetic tissues without infection or malignancy characteristics. This entity was originally associated with the metal-metal interface,¹⁻³ but the appearance of pseudotumors has also been described in the case of metal-polyethylene⁴⁻⁸ and metal-ceramic⁹ interfaces. This is a very undesirable complication for both the surgeon and the patient, as it can cause severe pain, restricting the range of motion and eventually compressing neurovascular structures. In addition, it also represents a major concern in relation to the hypothesis of a possible neoplasia.

Case report

Male patient, 45 years old, former smoker with no other comorbidities, was treated by the Hip Group and the Orthopedic Oncology Group. He reported pain and progressive bulging in the medial region of the left thigh since approximately 2 years ago. At 14 years of age, the patient had a fracture of the left femoral neck and was treated with osteosynthesis and cannulated screws in another service. Four years after the surgery, at age 18, he was admitted to another hospital for the treatment of posttraumatic osteonecrosis of left femoral head. On that occasion he underwent a left total hip arthroplasty (THA), of which tribological pair consisted of a metal head

and polyethylene insert, with uncemented femoral stem and uncemented acetabulum. Thirteen years after the THA, the patient suffered an automobile accident and had a periprosthetic fracture, which was treated with revision of the primary arthroplasty. An anatomical, uncemented femoral component was used, with porous coating (PCA Howmedica®), metal head and polyethylene insert. Five years after this surgery, the patient developed a nodule in the left groin area. A biopsy of the lesion had inconclusive results. Two years later, he started to feel left leg weakness and pain worsening in the inguinal region, mainly when he remained in the sitting position for more than 30 min. He also had difficulty driving because of the pain he felt when using the car clutch. The patient developed progressive hardening and increased volume of the left thigh. Venous Doppler ultrasound of the lower limbs diagnosed venous thrombosis of the left thigh. The patient was treated with full anticoagulation for 6 months, with thrombosis resolution, but the nodule in the groin persisted, which gradually increased in volume.

On physical examination, the patient was having difficulty walking, but did not need to use an orthosis. While in the supine position, the external rotation of the left leg, thigh volume increase and tumor with cystic consistency and not painful on palpation were demonstrated (Fig. 1). Upon inspection, there were no signs of inflammation, such as hyperemia and local heat or floating points on palpation. Imaging tests were performed for diagnosis clarification and treatment planning. Plain radiography of the hip and pelvis showed loosening of the acetabular and femoral components. The magnetic resonance imaging (MRI) examination of the left thigh disclosed soft tissue lesion amid the musculature of the medial thigh compartment, measuring 10 cm × 17 cm × 14 cm, with cystic areas and marked hypointense signal in all sequences

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