

## Orthopedic case

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A previously healthy 12-month-old boy was admitted in the emergency department due to refusal to walk and a limp on the left leg with a 5-day evolution. There was no history of fever, trauma or recent infection. On admission, besides the refusal to walk, he crawled well and physical examination was unremarkable. Conventional hip radiography and blood tests were normal. Anti-inflammatory medicines were prescribed and he was discharged with the clinical diagnosis of transient synovitis of the hip. After several observations in the emergency

department and a month after the initial complaint, he was once again observed due to the persistence of symptoms and fever. The radiography showed a lytic lesion on the medial femoral condyle (Figure 1A) which was later confirmed by computed tomography and magnetic resonance (Figure 1B).

### What is your diagnosis?



**Figure 1A** - Hypertransparency observed in the X-ray, regarding lytic lesion on the medial condyle of the left femur



**Figure 1B** - Cystic lesion, about 3 cm long observed in the magnetic resonance

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## DIAGNOSIS

Brodie's abscess

## DISCUSSION

Firstly diagnosed by Sir Benjamin Brodie in 1832, Brodie's abscess is an uncommon subtype of a subacute osteomyelitis with the formation of an intramedullary abscess. It usually affects the cancellous portion of the metaphyseal, epiphyseal, and diaphyseal long bone and is normally caused by *Staphylococcus* species.<sup>1</sup> The disease has an indolent course due to the combination of host resistance with low virulence of the causative organisms. It is more common in males and usually occurs in young patients.<sup>1,2</sup>

Pain is the most consistent complaint followed by loss of function or limping. Actually, diagnosis is challenging because patients present with mild symptoms and almost normal blood tests.<sup>1</sup>

Brodie's abscess may mimic various benign and malignant conditions such as osteoid osteoma or Ewing's sarcoma. Radiology plays an important role in the differential diagnosis, being the magnetic resonance the most commonly used for this purpose.<sup>2,3</sup>

Biopsy of the Brodie's abscess cavity does not usually enable isolation of the microorganism, and therefore it is regarded as non-essential. The initial treatment is primarily conservative, with intravenous antibiotics. Surgical therapy may be an option, in cases of uncertain diagnosis, non-responsiveness to antibiotics, and larger lesions or presenting more aggressive features.<sup>1,3</sup>

Once the diagnosis is confirmed and the treatment is initiated, results are typically excellent either with medical or medical and surgical treatment.<sup>3,4</sup>

## CASE TREATMENT AND CLINICAL OUTCOME

The patient initiated empirical antibiotic therapy and was referred to a Pediatric Orthopedist specialist. Given the intraosseous abscess size, it was surgically drained. Blood and local exsudate cultures were negative. He completed a two weeks course of intravenous antibiotics (cefuroxime and gentamicin), followed by two weeks of oral antibiotics (cefixime). No sequelae were reported one year after the treatment.

## CONCLUSIONS

Although well documented in the literature, Brodie's abscess is a rare entity. In this case, normal crawling and hip radiography pointed to an initial misdiagnosis. The authors emphasize the importance of clinical suspicion in a child with refusal to walk, since Brodie's abscess can mimic various diseases. Radiology plays a key role in those insidious situations.

## ABSTRACT

A previously healthy 12-month-old boy, was observed in the emergency department due to refusal to walk, initially diagnosed as transient synovitis of the hip. After one month, he is again observed due to the persistence of symptoms and fever. On objective examination he presented refusal to walk, reporting no

difficulties in crawling. A conventional radiography showed lytic lesion on the medial condyle of the left femur and computed tomography (CT) revealed a probable Brodie abscess. Patient was referred to pediatric orthopedics consultation and then performed a magnetic resonance that confirmed osteomyelitis with an intraosseous abscess. He was submitted to surgical drainage and four weeks of antibiotic therapy, with no sequelae after one year.

Brodie's abscess is a subtype of subacute osteomyelitis characterized by the formation of an intramedullary abscess, predominantly in the long bones. It is difficult to diagnose since the symptoms can be mild, mimicking several malignant or benign conditions. Radiology plays a key role in its identification. The treatment can be medical or medical-surgical, usually with a good prognosis.

**Keywords:** Brodie's abscess; osteomyelitis; transient synovitis of the hip

## RESUMO

Criança de 12 meses de idade, sexo masculino, observada no serviço de urgência por recusa da marcha. Inicialmente diagnosticada como sinovite transitória da anca. Reobservada após um mês por manutenção dos sintomas e febre. Ao exame objetivo recusava marcha, mas gatinhava bem. Realizou radiografia que mostrou lesão lítica no côndilo medial do fêmur esquerdo e tomografia computadorizada, que revelou provável abscesso de Brodie. Transferido para observação por ortopedia pediátrica, realizou ressonância magnética, que confirmou osteomielite com abscesso intraósseo. Submetido a drenagem cirúrgica e quatro semanas de antibioterapia, encontrando-se sem sequelas após um ano.

O abscesso de Brodie é um subtipo de osteomielite subaguda caracterizada pela formação de um abscesso intramedular, predominantemente nos ossos longos. É de difícil diagnóstico, uma vez que a sintomatologia é pouco exuberante, podendo mimetizar algumas condições benignas ou malignas. A imagiologia tem um papel fundamental na sua identificação. O tratamento pode ser médico ou médico-cirúrgico, habitualmente com bom prognóstico.

**Palavras-chave:** Abscesso de Brodie; osteomielite; sinovite transitória da anca

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