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Diagnosis at first sight

Muscle abscess of rare etiology

Absceso muscular de etiología poco frecuente

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Case report

This was a 45-year-old woman without any medical history of note. She was a carer of the elderly, without contact with animals and with a stable sexual partner until two weeks prior (with unprotected sexual intercourse). She was referred to the Accident and Emergency Department due to swelling on the right side of her face together with inflammation and pain in her right shoulder and arm. She also reported muscle pain in her right leg and ankle, without accompanying signs of inflammation. Examination revealed increased temperature in the middle third and anterior side of her right arm, where a mass 6–7 cm in diameter was palpable, hard, fluctuating and tender on palpation. She had attended the Accident and Emergency Department fifteen days prior for trauma following a presumed fall.

Laboratory tests showed a white blood cell count of 24,000/mm^3 (neutrophils 22,000/mm^3) and C-reactive protein of 330 mg/l. A CT scan of the face, neck and upper limbs was ordered, revealing a large abscess on the anterior side of her right arm, with peripheral enhancement (Fig. 1); a small collection between the scapula and thorax; and collections in the thickness of the pterygoid. The right arm abscess was surgically drained and a sample taken for microbiological culture. Empirical antibiotic therapy was started with vancomycin, clindamycin and ceftriaxone. The collections on the right side of her face were drained a few days later.

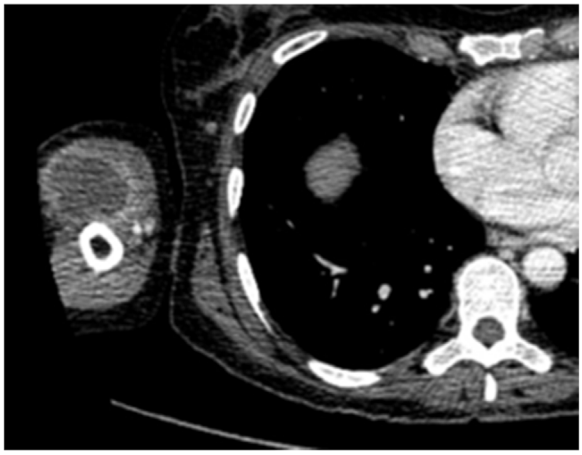

Fig. 1. Collection with peripheral enhancement on the anterior side of the arm, consistent with abscess.

Clinical course and diagnosis

Bright and raised oxidase-positive colonies grew in a CO_2 incubator set at 37 °C on blood agar as well as on chocolate agar (Fig. 2). Microscopic examination revealed Gram-negative diplococci, with flattened adjacent sides and a coffee bean appearance.

The germ was identified by Maldi-Tof as *Neisseria gonorrhoeae (N. gonorrhoeae)*, with a score of 2.300. The minimum inhibitory concentration (MIC) was determined using the Sensititre system. It was found to be susceptible to ceftriaxone (MIC < 0.12 mg/l), cefotaxime (MIC < 0.06 mg/l), penicillin (MIC < 0.03 mg/l) and tetracycline (MIC 0.5 mg/l), and resistant to ciprofloxacin (MIC 2 mg/l). The interpretation was based on the EUCAST 2022 criteria. Blood cultures and screening for sexually transmitted infections by *multiplex* PCR on vaginal and pharyngeal smears were negative.

Disseminated *N. gonorrhoeae* infection was diagnosed and antibiotic therapy was de-escalated to ceftriaxone 2 g IV/24 h. After one week, oral cefixime 400 mg/24 h was prescribed to complete a four-week course. Treatment duration was extended for undrained collections. The follow-up lab tests confirmed a decrease in inflammatory parameters, while the follow-up CT scan revealed a reduction in collections, consistent with the patient's favourable clinical course with resolution of symptoms.

N. gonorrhoeae is a Gram-negative diplococcus that usually causes localised disease in the genital, rectal or pharyngeal tract. Cervicitis and pelvic inflammatory disease are the most com-

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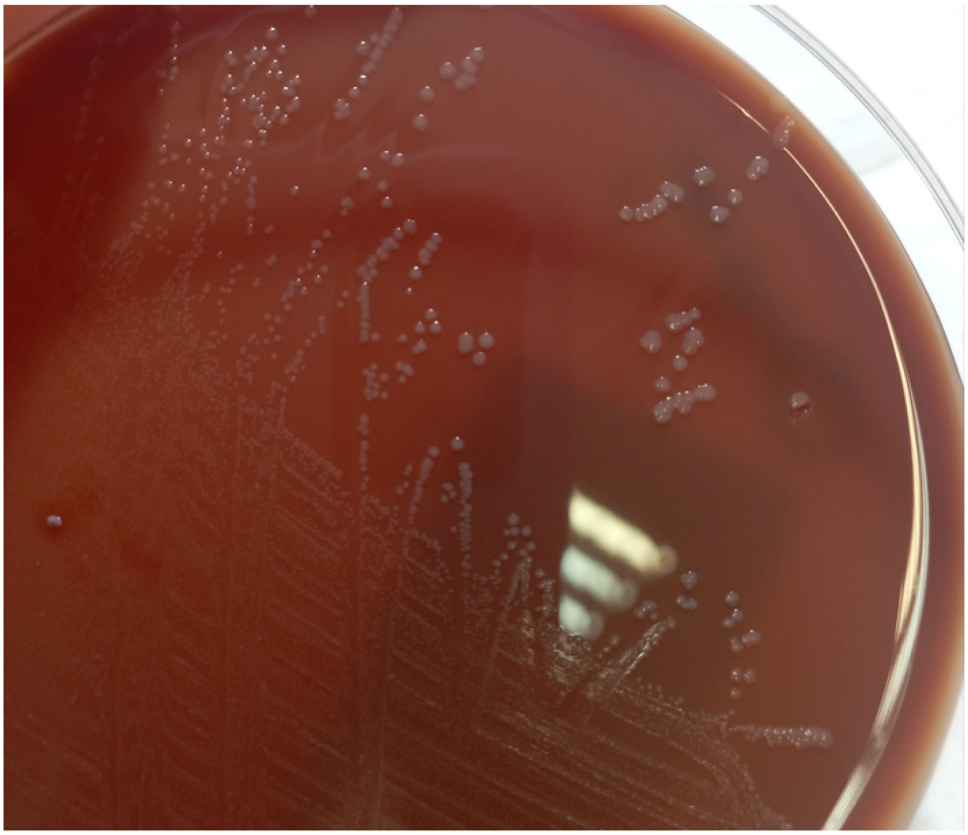

Fig. 2. White, bright and raised colonies on blood agar.

mon manifestations in women, while urethritis, proctitis and epididymitis are the most common in men. In women in particular, gonorrhoea can be asymptomatic and cause salpingitis, ectopic pregnancy and infertility in the long term.[1,2]

Disseminated gonococcal infection is rare, accounting for 0.5%–3% of all gonococcal infections. It is caused by the haematogenous dissemination of *N. gonorrhoeae*. Menstruation, pregnancy, pelvic surgery, intrauterine devices, human immunodeficiency virus and serum complement deficiency are known risk factors for disseminated disease.[3] Most patients do not exhibit urogenital symptoms prior to dissemination. Its clinical presentation can be categorised into two broad groups. Its classical form of presentation is characterised by the triad of exanthem, tenosynovitis and polyarthralgia and is known as arthritis-dermatitis syndrome. Skin involvement is polymorphous: macules, papulopustular rash or vesicles on a haemorrhagic base can be seen. Cellulitis, petechiae, purpura, necrotising fasciitis, vasculitis and abscesses may also develop. The second group presents as septic arthritis, generally without skin involvement. It most typically affects the knee.[1,2] Abscesses due to *N. gonorrhoeae* have been reported in the periurethral and perirectal regions, as well as in the context of pelvic inflammatory disease.[3]

Although abscesses due to *N. gonorrhoeae* are relatively uncommon, this case is even more unusual because of its location far from the genital and pelvic regions where they usually manifest. The growing incidence of sexually transmitted infections in general, and *N. gonorrhoeae* infections in particular,[1] together with their tropism for the locomotor system, highlights the importance of always maintaining a high index of suspicion.

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