First case report on pyogenic tenosynovitis in the hand caused by Paenibacillus sp

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INTRODUCTION

Bacteria from the genus Paenibacillus are widely distributed in the environment, but rarely cause infections in humans. We report the first case of infectious tenosynovitis caused by this agent.

CLINICAL CASE

The case report is of the patient K.T.M., female, 23 years old, professional judo athlete. At the time of infection, she was in her second month of rehabilitation from an anterior cruciate ligament reconstruction of her left knee, operated on 11/03/2016. Her main complaint was pain and edema of her right hand for the past 10 days. She denied any type of trauma, fever or chills. When she came into the emergency room she had already been seen in two different hospitals and was treated as inflammatory tendinitis caused by overuse. She had been prescribed a forearm splint and sent home.

Physical Exam

Patient was afebrile, in good general health, walking without crutches, and with no other complaints other than the right hand. She presented small erythematous papules, irritation from the splint and sweat. She had clear Kanavel signs in her middle, annular, and small finger of her right hand. (Figure 1) She had intense pain when palpated on the volar side of the distal third of the forearm. Her neurological exam was normal.

Laboratorical exams

Hemoglobin: 10.6 g/dL
Hematocrit: 32.5 %
Leucocyte count: 8390 cells x 10^9/L
C reactive protein: 57.2 mg/L

Figure 1 - Clinical aspect of the patient

Ultrasoundography

Liquid in the flexor tendon sheath of the IV and V fingers of the right hand, in zone III of Verdan.

Surgical Technique and intraoperative findings:

An incision was made at the distal palmar crease of the anular and small finger, with another incision at the distal interphalangeal joint level of the same fingers.

We observed intense synovitis in the pulleys of the flexor tendons but did not observe purulent drainage, even after a irrigation catheter was placed and the tendon sheath irrigated.

The tissue in the A1 pulley and the proximal portion of the A2 pulley of the small finger, was friable, as well as the subcutaneous tissue around them. Samples of these tissues were sent for culture analysis.

Another 4cm longitudinal incision was made over the flexor radialis carpus, proximal to the palmar crease at the wrist and the Parona’s space was explored. We found clear serous liquid with abnormal viscosity of sinovial liquid.

The wounds were irrigated and closed with 5-0 nylon.

The patient was admitted for ten days, and was prescribed Oxaclillin (2g intravenous every 4 hours) for ten days and Ceftriaxone (2g intravenous every 12 hours) for eight days. At discharge, she was prescribed oral Levofloxacin and had good clinical remission of the signs and symptoms after 4 weeks of treatment.

The culture analysis of the tissue was positive for Paenibacillus spp. She was referred to the OT (occupational therapist) for rehabilitation.

The sutures were removed after 21 days and the patient was allowed to perform all physical activities. At the present moment, patient is asymptomatic.

Figure 2 - Incisions for hand drainage

DISCUSSION

This case is of importance because it is the first case reported of pyogenic tenosynovitis caused by a bacteria from the genus Paenibacillus sp. Paenibacillus sp is found in most common environments, specially in soil and water. It rarely causes infections in humans. Few cases are reported, such as sepsis in neonates, infection of the tibia, or urinary tract infection in a patient with chronic renal failure. There has also been a case report of sepsis in a patient with heroin abuse and a splenectomy.

The patient was a healthy, professional judo heavy weight athlete, which meant that she was not on a diet for fast weight loss, limitation of specific food groups or in risk of dehydration. She was in rehabilitation for a knee surgery for two months, which excluded post operative immunosuppression or by overtraining.

The possibility of contamination of the sample is minimal because the culture was done with a solid tissue, taken from the pulley of the tendon after aspiration procedures. This material had a friable aspect, compatible macroscopically with tenosynovitis.

This is the first case report on pyogenic tenosynovitis caused by Paenibacillus. Even though it was an isolated case, it alerts health professionals of the fact that this can be an agent that causes pyogenic tenosynovitis in the hand in healthy patients. Despite the fact that the diagnosis was made late, the patient had a satisfactory recovery and presented no sequelae.

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