SYNOVIAL ACTINOMYCOSIS OF THE HIP : CASE REPORT AND REVIEW

K. DOM, T. PITTEVILS[1]

A case of hematogenous spread of an actinomycotic granule to the left hip joint is presented. This occurred in a 62-year-old woman under immunosuppressive treatment for Wegener's disease. It was a chance finding on routine synovium biopsy during a total hip replacement. Treatment consisted of 1 g ampicillin I.M. a day for six weeks. The postoperative course was uneventful.

Keywords : actinomycosis ; synovium ; hip.
Mots-clés : actinomycose ; synoviale ; hanche.

INTRODUCTION

To our knowledge, hematogenous actinomycosis of the hip has never before been reported in the literature. The responsible organism is an anaerobic or microaerophilic, grampositive actinomycete. It should be emphasized that actinomycosis is a bacterial disease (1). There are several different species (A. bovis ; A. israelii ; A. propionicus ; A. naeslundii ; A. eriksonnii) (1, 2, 3).

CASE REPORT

A 62-year-old patient with the diagnosis of avascular necrosis of the left hip, was admitted to the hospital on October 29, 1995, for a total hip replacement. She had been taking immunosuppressive medication for years (methylprednisolone 8 mg alternate day therapy, cyclophosphamide 50 mg a day), as she suffered from Wegener's disease.

The erythrocyte sedimentation rate was 39 millimeters per hour and the WBC was 2,790 per cubic millimeter.

Intraoperatively a routine biopsy specimen of synovium was sent for pathologic examination. Microscopically a typical PAS-positive actinomycotic granule with peripheral clubbing was found embedded in the hip synovium.

The patient was treated with ampicillin : 1 g a day I.M. for six weeks. Postoperatively there was a satisfactory clinical evolution and the postoperative blood count also returned to normal.

DISCUSSION

Actinomycosis is a chronic infection forming suppurative abscesses with sinus tracts. On microscopic examination it resembles a mycotic infection. The pus contains yellowish brown macroscopically visible sulfur granules (0.5 to 1 mm diameter), which are formed by coalescence of microscopic actinomycotic granules (3).

Unlike most other fungal pathogens, actinomyces is an endogenous organism, which is found latent in the tracheobronchial tree, in the crevices of carious teeth or in the tonsil. Therefore finding actinomyces in the sputum is an insufficient evidence to establish a relationship with a cervicofacial or thoracic infection (3).

Four major sites of infection have been identified in man : cervicofacial, thoracic, abdominal and genital (IUD-endometritis). Actinomyces may be-

[1] Department of Orthopedic Surgery, Campus St.-Jan, Genk, Belgium.
Correspondence and reprints : K. Dom, Heilige Geeststraat 8, 2500 Lier, Belgium.

come pathogenic after being introduced into traumatized tissue or in conjunction with a bacterial invader (3, 4). Cervicofacial infection is the most common and usually follows extraction of a tooth or fracture of the mandible (3). Abdominal infection may result from ingestion of the organism, as respiratory infection may result from aspiration (4).

Infection of bone and joints is uncommon. Actinomycosis of the hands (metacarpal bone) occurs occasionally and almost always results from human bites or fist blows to the mouth (2). The spread of common foci (deep cervical phlegmon, extending mediastinal infection, perforated appendicitis or perforated peptic ulcer) of actinomyces may affect the spinal column (1, 4, 5). Actinomyces often involves the vertebral pedicles and heads of adjacent ribs. The intervertebral discs are usually spared, and collapse of a vertebral body with kyphosis is uncommon (4).

Diagnosis can be made by direct examination of purulent material or biopsy tissue. Microscopically, the sulfur granules appear as 0.5 to 1 mm Gram-positive fine branching hyphae, usually accompanied by Gram-negative organisms, such as Actinobacillus actinomycetemcomitans (2, 4). The latter organisms are believed to initiate actinomycotic infections. These anaerobic Gram-negative associates tend to be penicillin resistant (3). Anaerobic culture on blood agar at 37°C takes at least 4 days to establish the diagnosis and may require up to several weeks to reveal growing colonies (2, 5). Owing to the fact that anaerobic pathogens are rarely sought nowadays, actinomyces often goes unrecognized. The common habit of giving antibiotics at the first sign of infection is also responsible for a decrease in the incidence of the disease (3).

Surgical drainage in connection with antibiotics is the recommended therapy. Penicillin is the drug of choice, and it must be given in a moderately high dosage parenterally over a long period of time. Routinely 1 to 6 million units per day is administered for a minimum of six to eight weeks. Severe cases may require 12 to 20 million units a day for a more sustained period of time. After several weeks, oral treatment with penicillin can be continued (2, 3, 4). Erythromycin and carbomycin are also effective and are used for penicillinallergic patients. Broad spectrum antibiotics (tetracycline, chlortetracycline, chloramphenicol, oxytetracycline) have also been shown to be active against actinomyces, but the toxic effects of these drugs and the possibility of creating drug-resistant strains make them less indicated than penicillin as a therapeutic agent (3, 5).

The prognosis of actinomyces infection has improved since the use of penicillin (90% recovery for the cervicofacial form, 80% for the abdominal form and 40% for the thoracic form).

Hematogenous spread of actinomyces is an extremely rare condition. Hematogenous transmission to the hip joint is likely to have taken place, in our patient who because of her medication was in an immunosuppressed condition. In most cases actinomycotic infections appear as a suppurative condition forming abscesses with sinus tracts. Because our patient was immunosuppressed, firm active inflammation with pus formation did not occur (the microscopic picture established the absence of active inflammation arround the actinomycotic granule).

A daily dosage of 1 g ampicillin I.M. for 6 weeks was considered sufficient therapy, as this was not a severe suppurative infection despite the patients' immunosuppressed condition.

As this case was a chance finding, we may wonder whether a biopsy specimen should be taken routinely for microscopic examination when performing replacement surgery at the hip or any other joint.

REFERENCES

1. Conrad S. E., Breivis J., Fried M. A. Vertebral osteomyelitis, caused by Arachnia propionica and resembling actinomycosis. J. Bone Joint Surg., 1978, 60-A, 549-553.
2. Montgomery R. M., Welton W. A. Primary actinomycosis of the upper extremity. A.M.A. Arch. Derm., 1959, 79, 126/578-128/550.
3. Peabody J. W. Jr., Seabury J. H. Actinomycosis and nocardiosis. A review of basic differences in therapy. Am. J. Med., 1960, 28, 99-115.
4. Pritchard D. J. Granulomatous infections of bones on joints. Orth. Clin. N. Am., 1975, 6, 1029-1047.
5. Rhangos W. C., Chick E. W. Mycotic infections of bone. S. Med. J., 1964, 57, 664-674.

SAMENVATTING

K. DOM, T. PITTEVILS. Synoviale actinomycose van het heupgewricht.

We melden de toevallige vondst van een hematogeen verspreide actinomycose naar het heupgewricht. Dit trad op bij een patiënt met de ziekte van Wegener, die zich in een medicamenteus geïnduceerde immunodepressieve status bevond. Het betrof hier een toevallige ontdekking op anatomopathologisch onderzoek van synoviaal weefsel, uit het heupgewricht. De behandeling bestond uit 1 g ampicilline intramusculair per dag gedurende 6 weken, met een verder gunstig postoperatief verloop.

RÉSUMÉ

K. DOM, T. PITTEVILS. Actinomycose synoviale de la hanche.

Nous rapportons un cas d'actinomycose hématogène au niveau de l'articulation de la hanche. Le cas s'est presenté chez une patiente atteinte de la maladie de Wegener et qui de ce fait se trouvait dans un état d'immunodépression induit par traitement médicamenteux. Des biopsies synoviales effectuées en peropératoire à l'occasion d'une prothèse totale de hanche nous ont fourni le diagnostic d'actinomycose. Le traitement a consisté en une cure d'ampicilline à raison de 1 gr I.M. par jour pendant six semaines. Les suites opératoires ont été des plus simples.