The Tuberculosis Of A Child's Shoulder: A Report Of Two Cases

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Citation

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Abstract

Introduction: The shoulder is an exceptional location for osteoarticular tuberculosis particularly in children. We are reporting two observations of male children's shoulder tuberculosis.

Observation 1 :E.M.D., aged 14, was examined on June 28, 2001 for a three-week shoulder suppuration which was related to a trauma caused by a fall. The clinical examination revealed a 37.4° C temperature, a pain associated with a deformation of the shoulder and pus producing axillary fistula. The standard radiography showed lesions of osteoarthritis of the shoulder. The bacteriological examination of the pus was negative. Iterative arthrotomies and an antibiotherapy did not result in a healing. Intradermal tuberculin test was highlly positive. The shoulder's biopsy showed caseous necrosis and an epithelio-giganto-cellular follicle. The antituberculosis treatment, which just started 21 months after the beginning of the symptoms made the healing possible but at the cost of functional after-effects.

Observation 2 :I. D, aged 10, was examined on April 7, 2005 for a painful five-month tumefaction of his right shoulder and left hand related to a trauma resulting from a fall. The clinical examination showed a 37.8 ° C febricule, an abscess on the left hand, a pain and tumefaction on the left shoulder the punction of which drained pus out. The bacteriological examination of these different samples did not isolate any germ. The standard radiography showed osteoarthritic lesions on the left shoulder and lesions on the third left metacarpal. Repeated arthrotomies, a fattening of the hand abscess and a non specific antibiotherapy did not improve the symptoms. Intradermal tuberculin test was highly positive. The biopsy of the hand and shoulder showed caseous necrosis and an epithelio-giganto- cellular follicle. The antituberculosis treatment which had been started six months after the first consultation did not cure him. He died of meningo-encephalitis.

Conclusion: The diagnosis of shoulder tuberculosis among children was always late. One has to be able to identify it in front of a chronic suppuration of a shoulder which does not heal despite the non specific antibiotic treatment and vainly repeated arthrotomies.

INTRODUCTION

Tuberculosis is a contagious disease caused by a mycobacterium. Koch's bacillus is its main agent among human beings. The people who are most at risk are children, old people, immunodeficient individuals and people with a low socio-economic living conditions [1]. It prevails among men and affects 8 million people around the world [1]. The extrapulmonary forms are less common. Among these forms, the osteoarticular location is the rarest. It is evoked with clinical, radiological and laboratory signs. The definite diagnosis is based on the discovery of Koch's bacillus in the different samples or on the discovery, through histologic examination of an epithelo-giganto-cellular follicle associated or not with caseous necrosis. The cure is essentially medical and consists of a long term antituberculosis polychemotherapy. Surgery is specially reserved for functional after-effects. We are presenting two observations of osteoarticular tuberculosis, rare because of its location on a shoulder and because it affects children.

OBSERVATION 1

EMD, a 14-year-old boy, with antecedents of an arm trauma that had occurred a year before, was examined on June 28, 2001 for a three-week fistular abscess. The clinical examination showed a weight of 31 kg, a temperature of 37.4° C, a suppurating fistular collection on the right

shoulder. The radiography of the shoulder revealed lytic images of humeral head and the later of glenoid cavity.A diagnosis of an osteoarthritis of a right shoulder was made. A draining arthrotomy was carried out. The child was subjected to an oxacillin and gentamycin – based antibiotherapy and his shoulder was immobilised by a Mayo Clinic. The immediate effects were the outbreak of a 38.2° C fever, sweats, loss of weight and the persistence of suppuration. On July 28, 2001, a second arthrotomy was made, which improved the symptoms. On December 10th , 2002, he came back because of a suppuration of his shoulder and the appearance of a dry cough. The history had not found the tuberculosis counting notion. The clinical examination found a pain and a relative functional impotence of the right upper limb with deltoid atrophy and suppuration of the shoulder. The radiography of the lungs was normal. On December 29, 2002, the biology showed an inflammatory syndrome with an erythrocyte sedimentation rate of 50 mm at the first hour. The hepatic, renal and retroviral serology check ups were normal. Intradermal tuberculin test was positive up to 18 mm. The direct search for BAAR was negative in the pus as well as in the culture. The synovial biopsy performed on February 9th, 2003 directed towards the diagnosis of a shoulder tuberculosis as it showed caseous necrosis and an epithelio-giganto-cellular follicle. An antituberculosis chemotherapy associating R H : 3 tablets a day Z: 2 and half tablets a day E: 2 tablets and a half a day was followed for two months, relayed by the same doses of H and E for ten months. At the end of the medical treatment, the child had gained a weight of 10 kg, the temperature was at 37.1° C and the shoulder became painless. The erythrocyte sedimentation rate came down to 10 mm during the first hour. He got functional after-effects with a serious abduction and antepulsion limitation. He benefited physiotherapy sessions with good results. He kept after-effects radiologic images of shoulder reconstruction [figure 2].

Figure 1

Figure 1: Picture of reconstruction after treatment

OBSERVATION 2

I.D. , a 10-year-old boy was examined on April 7th, 2005 for a closed 5-month trauma on his left shoulder, caused by a fall. The clinical examination revealed an abscess on his left shoulder and another abscess on his left hand. The standard radiography showed osteolytic lesions on the left shoulder and on the third left metacarpal. He benefited from a shoulder arthrotomy and a flattening of the hand abscess. The bacteriological analysis of the pus did not lead to an isolation of a germ. The child was subjected to oxacillin and gentamycin and his shoulder was immobilised by a Mayo Clinic. The evolution was marked by a return of shoulder suppuration, justifying then a second arthrotomy on May 21st, 2005. The effects were favourable and the patient went home on. The erythrocyte sedimentation rate revealed an inflammatory syndrome with 28 mm during the first hour. The retroviral serology was negative. Three months after the first consultation, he came back again for a left hand and shoulder suppuration. The standard radiography revealed a thickening of the soft tissues of the shoulder and a periosteum detachment of the third left metacarpal. Blood cell counts revealed a 9.4 g / dl anaemia and a rate of white corpuscules at 9400. A shoulder arthrotomy and a flattening of the hand were performed again. On September 13th , 2005, four months and a half after the first consultation, he came back because of a productive fistula of the axillary cavity and a limitation of his shoulder movements together with a shirt-button like abscess on the left hand. The standard radiography revealed a capsula distention of the left shoulder and lesions at the level of the third metacarpophalangeal articulation. Intradermal tuberculin test was positive up to 19 mm. A synovial biopsy was then carried out both his hand and shoulder. During the hospitalization he developed, in turns, a suppurating otitis,

cephalalgia, vomiting, convulsion and an extrapyramidal syndrome. Examination of cerebrospinal fluid revealed low glucose (0.47 g/ l) and elevated protein (1.11 g/l) on million. The anatomopatholigical analysis of synovial biopsy on October 10th, 2005 concluded a bifocal tuberculosis and the patient was then subjected to an antituberculosis chemotherapy. He died five days the beginning of treatment of meningo-encephalitis.

DISCUSSION

The incidence of tuberculosis is rising, even in developed countries [2]. Osteoarticular tuberculosis is rare, for it just represents 1 to 5 % of the whole tuberculosis location [3] Several risk factors have been incriminated in its occurrence; the absence of BCG vaccination, trauma that can reactivate a preexisting tuberculous foci [4] and a low socio economic level [5] which seem to be the major. These last two factors were found among our children. Osteoarticular tuberculosis mainly occur among adults. Children are rarely affected though young age is seen as factor favouring the occurrence of tuberculosis [1]. Concerning the 11 cases published by Kapukaya [6] in 2005, the age was between 19 and 55 years. In the 2003 Belgian report on tuberculosis, osteoarticular represented just 1.2 % and one child only was concerned [7]. To explain the contrast existing between physiopathology and epidemiologic realities, Benbouazza evoked the role of BCG vaccine which would decrease the incidence of child tuberculosis [8].

Articular contamination is done by contiguity from an acute osteomyelitis or by a hematogenous route from a lung lesion. Concerning the child EMD, the articular affection took probably place by contiguity with a acute osteomyelitis of the upper extremity of the humerus due to the fact of the initial location of lesions at this level. On the contrary, for the child I.D., the articular affection certainly occurred by hematogenous way because of the multifocal location of the tuberculosis infection.

The diagnosis of osteoarticular tuberculosis is based on a set of clinical, radiological and laboratory results. Usually, it is a chronic monoarthritis with an insidious evolution. A pain, a fever and a limitation of articular movements are often noticed [3]. Sometimes, it is a complication with abscess, or fistula types or a deformation that reveal the affection [9] as it was the case with our children. The acceleration of the erythrocyte sedimentation rate was noticed in several series [10,11]. It mainly allows to watch the treatment efficiency.

Intradermal tuberculin test is without a doubt the laboratory examination that directed us most towards the diagnosis of tuberculosis due to its high positivity. However, it is not always positive. Teklali and al [11] and Hsing Nung Shih and al [12] respectively found a 69% and 87.5 % positivity.

As for radiographies, they can also show osteoarticular lesions that are uneasily linkable to tuberculosis, because degenerative, inflammatory, malignant diseases can cause similar lesions.

The definite diagnosis is based on the isolation of the tuberculosis bacillus in the different samples or the discovery of an epithelio-giganto cellular follicle with or without caseous necrosis during histologic analysis of synovial biopsies. Among our children, shoulder tuberculosis diagnosis was always carried out with a histologic examination, respectively 21 months ans 6 months after the first consultation. The diagnosis delay is first related to the rarity of osteoarticular tuberculosis and mainly shoulder tuberculosis in young children. It is also connected to diagnosis errors. In fact, the persisitence of the shoulder suppuration despite the non specific antibiotic treatment and the repeated arthrotomies should direct towards a tuberculosis osteoarthritis all the more reason as the children live in a tuberculosis endemic area.

The medical treatment, alone, is enough, if the diagnosis is done early. It is based on 3 or 4 antituberculosis drugs. It has to be long enough (9 to 12 months) to be efficient. It allowed the first patient to be cured but at the cost of limitation of shoulder movements. It did not manage to save the second patient who presented a fatal multifocal location (shoulder, hand and brain). Hence the importance of starting a treatment test in case of a tuberculosis presumption. Other authors associate a surgical action with the medical treatment. Ferro performs a resection of the affected elements, which allowed him to achieve good results on the functional level [13]. Rachid advocates a surgical treatment in order to confirm the diagnosis and evacuate the cold abscesses to limit the progression of the tuberculosis infection [14]. He describes as a rule the spontaneous recovery with a bone reconstruction after the treatment. As far as our surviving patient is concerned, the radiographies revealed reconstruction images but there was no recovery of the shoulder mobility necessitating physiotherapy sessions.

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