



Cutaneous Tuberculosis hiding pulmonary tuberculosis: A pediatric Case Report

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Abstract

Morocco is an endemic area of tuberculosis, where lung disease occupies the first place. Skin tuberculosis represents only 1 to 2% of extra pulmonary tuberculosis [1]. Its diagnosis is difficult to establish because of the polymorphism of the anatomic-clinical presentation and the multiplicity of differential diagnoses.

We report the case of a child who had developed bifocal tuberculosis after tuberculous contagium, and the skin tuberculosis led to discovering pulmonary tuberculosis.

Cutaneous tuberculosis occurs in several clinical forms that can coexist or complicate each other. It remains a current disease, the diagnosis of which is difficult because it is often unknown. In the case of a secondarily ulcerated and irregular nodular skin lesion, failure to respond to conventional treatment should lead to histological and bacteriological examination. Peri-orificial cutaneous tuberculosis, although rare, must also be mentioned in the face of a symptomatology that is dragging and resistant to symptomatic treatment.

The improvement of living conditions and the implementation of an anti-tuberculosis control approach are essential for the eradication of the disease.

Keywords: Cutaneous tuberculosis; Pulmonary tuberculosis; Skin; Infant; Peri-orificial tuberculosis

INTRODUCTION

Morocco is an endemic area of tuberculosis, where lung disease occupies the first place. Skin tuberculosis ranks 5th after pleuropulmonary, lymph node, urogenital and digestive diseases. It represents only 1 to 2% of extra pulmonary tuberculosis [1]. Its diagnosis is difficult to establish because of the polymorphism of the anatomic-clinical presentation and the multiplicity of differential diagnoses. It is a disease of the young patient, 60% of patients are under 30 years of age [2], a percentage also found in the Maghreb series [3]. Few studies have focused on the skin tuberculosis during the childhood.

We report the case of a child who had developed bifocal tuberculosis after tuberculous contagium.

OBSERVATION

This is a two-year-old infant with a personal history of tuberculosis with his father being treated for pulmonary tuberculosis TPM, whose treatment was stopped two months ago. Family screening during diagnosis and at the end of treatment was negative. The infant had received BCG vaccination

at the age of 14 days, according to the Moroccan national immunization program. The parents consulted because of a jugal tumefaction and cervical adenopathy that has been progressing for 04 months, not improved by antibiotic treatment prescribed by several doctors previously. The patient has also had a skin lesion in the thigh for 02 months. The clinical examination finds an apyretic child, whose weight and height are within the norms. Examination of the oral cavity found an ulcerated and budding lesion at the palate, extended to the inner face of the left cheek and to the labial commissure, limiting the opening of the mouth (Figure 1).

Examination of the right thigh found an oozing lesion of about 04 centimeters, on irregular edges, whose bottom is erythematous, located about 03 centimeters from the inguinal fold (Figure 2).

Examination of the lymph node areas finds multiple cervical adenopathy about two centimeters in diameter, painless, with



Figure 1 Ulcerated and budding lesion.

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Figure 2 Oozing erythematous-squamous lesion.

no inflammatory aspect. Inguinal lymph node areas are free. The rest of the exam was normal. Biological tests were carried out, objectifying a C-reactive protein at 66 mg/l, a sedimentation rate of 55mm the first hour. The intradermo reaction was positive at 25 mm. HIV serology was negative. Chest x-rays objectified a hilar overload. Chest CT scans showed mediastinal adenopathy with a diameter of less than 10 mm. A biopsy of the jugal and palatal mucosa was made; the anatomopathological study objectified an epitheloid granulomatous cheilitis and cell giganto without caseous necrosis. The diagnosis of follicular tuberculosis of the palatine mucous membrane was evoked. Faced with tuberculosis history, chronic evolution, positive IDR and the results of the anatomopathological study, the diagnosis of skin tuberculosis was very probable. The patient received anti-TB: pediatric RIP (Rifampicine-Isoniazide-Pyrazinamide; 60mg- 30mg- 150mg) 3 tablets/day + 1 tablet of isoniazide 50 mg/day. 15 days after starting treatment, the patient developed a polypnea with no signs of respiratory struggle or desaturation, in an apyretic context. A second chest x-ray was performed, showing flaky bilateral images. The final diagnosis was bifocal tuberculosis. The patient was put on ERIP K4 (isoniazide 150 mg, rifampicin 75 mg, pyrazinamide 400 mg and ethambutol 275 mg) 1 tablet/day + isoniazide 50 mg 1.5 tablets/day for 02 months then Rifampicine and isoniazide during 4 months. The child was seen again in consultation after one month, with a very good skin evolution, the oral lesion gradually regressing and the lesion in the thigh also. After 03 months, the periorificial lesion had disappeared, and the lesion in the thigh had healed, becoming dry and clean without retractable scarring (Figures 3,4 and 5).

DISCUSSION

Studies on childhood skin tuberculosis are rare, even more so in industrialized countries. In the Maghreb, in 2 Tunisian studies, childhood skin tuberculosis accounts for 20 and 25.3% respectively, 14% in a Moroccan study [4,5]. Skin damage in the first 10 years accounts for 13% in an Indian series [6], 36.3% in Hong Kong [7] and 45% in a Pakistani series [8]. In three Indian studies, skin tuberculosis in childhood skin tuberculosis accounts for 18.7, 32 and 47.9% of skin TB cases respectively [9-10]. The child's tuberculosis is always the consequence of contamination by an adult, but both diagnosis and therapeutic management of exposed children cannot obey simple rules

because of the heterogeneity of the situations encountered. The risk of developing TB disease from a major TB contagium varies greatly with age. It is usually estimated at 45% before 1 year, 25% between 1 and 5 years of age and 15% in adolescents compared to 5% to 11% in adults [12-14]. Therapeutic decisions may therefore be different for members of the same family who themselves present different clinical presentation. In our observation, the patient had close contact with his father who has pulmonary tuberculosis. The risk of tuberculosis around the contact subject appears to be much higher if the contaminator expects a large



Figure 3 Healing lesion.



Figure 4 Dry lesion.



Figure 5 Healing lesion.



number of bacilli, as recently confirmed by a prospective study [15]. This series shows that the risk of tuberculosis is high for children in contact with adults with negative direct examination and culture, but with sufficient radiological images to cause treatment [16]. The clinical presentation of skin tuberculosis is highly variable. Several anatomico-clinical forms can be found, depending on their primary or secondary character, according to the classification of Beyt et al.:

Primary tuberculosis: Inoculation tuberculosis, inoculation canker, Verrucous tuberculosis, tubercular lupus(some);

Secondary tuberculosis:

- by adjacency: scrofuloderma
- by self-inoculation: periorificial tuberculosis, haematogenic tuberculosis, TB miliary, TB gumma, TB lupus (some), TB tuberculides, TB lichen scrofulosorum, TB papulonecrotictuberculides, Erythema induratum of Bazin [17].

Scrofuloderma and lupus vulgaris lesions are still predominant in the younger age group. In European countries, one case of scrofuloderma was reported in Italy in a young girl arriving from Morocco [18], and another case was reported in France in a young boy after his return from Morocco also [26].

In a study carried out in Morocco, clinical aspects were dominated by gummas and scrofulodermas which account for 83%. This goes accordingly with the overall Moroccan series [2]. Scrofulodermas are the extension to the skin of an underlying tubercular focal spot (ganglionary, bone or more rarely epididymal). The skin becomes red, inflammatory, evolving towards ulceration mimicking gummas. These clinical forms are multibacillary and occur in subjects with low to moderate immunity, attesting the endemic status of this disease in our country. In three Indian series, the scrofulodermas represent respectively 36.5, 44 and 53.3% [9–11]. According to the authors, the consumption of non-pasteurised milk contaminated with *Mycobacterium bovis* infects the cervical lymph nodes by adjacency [8, 10]. In industrialized countries, TB lupus is the most common form of TB [19]. In the other Maghreb countries, tubercular lupus tends to be the first against the BK thanks to vaccination efforts and to raising the socio-economic level [3–5]. The term lupus was originally used as an analogy to wolf eating flesh to describe mutilating facial lesions. It typically occurs in previously infected individuals with a high susceptibility to tuberculin. Tubercular lupus is readily located on the face and initially contains soft dermal micronodules, which by coalescence form smooth or scaly polycyclic papular placards. These skin lesions slowly evolve towards central collapse with the appearance of micro-ulcerations and crusts.

Tubercular canker has become very rare. It results from inoculation of the bacillus in a person who has no history of tuberculosis and is not sensitized to tuberculin disease. Canker occurs as a painless crusty ulceration, 0.5 cm in diameter at the inoculation site and up to several centimeters later. The base is pink red. It is accompanied by a regional lymphadenopathy that

evolves secondarily towards fistulization. It is the prerogative of the young child and usually sits on the lower limbs and the orogenital mucous membranes (kiss, circumcision). Another exceptional form of cutaneous tuberculosis is orificial ulcerative tuberculosis. It is often due to self-inoculation from pulmonary, laryngeal, digestive or urogenital foci in highly bacilliferous subjects. The young man is most frequently affected. Lesions are readily located in the natural orifices: nostrils, mouth, anus and urethra. The clinical appearance is that of superficial ulcerations, poorly limited, with a fibrous base and particularly painful. It is often due to self-inoculation from pulmonary, laryngeal, digestive or urogenital foci in highly bacilliferous subjects. Genital locations tend to be vegetative. In skin biopsy, the inflammatory infiltrate is massive, non-specific and may contain BK. Cultures are often positive. Our patient likely had this form, as the lesion in the mouth was the site of poorly limited, superficial, and very painful ulcerations. However, he had skin tuberculosis with two types of lesions. That of the oral cavity was different from that of the thigh. Since proof of tuberculosis is rarely provided, its diagnosis is difficult and is most often based on a bundle of anamnestic, clinical, histological, biological, evolutionary and therapeutic arguments. This was indeed the case in our patient. We selected the diagnosis of cutaneous tuberculosis initially, then bifocal before the anamnestic criteria, the clinical presentation and the results of biological and radiological explorations. In this sense, to attest to the initial absence of radiological signs pointing towards lung involvement, before the development of lung manifestations, a chest CT scan was performed in our patient. The image of overload in the hilum on the chest X-ray could not cut through the lung and mediastinal involvement. In fact, child tuberculosis is ganglionic tuberculosis and it is necessary to look for mediastinal or hilaradenopathies, often poorly detected by standard chest x-rays, as several studies have shown [20–22,23]. Thoracic CT is irradiant, however, and the only hesitations are in children under 5 years of age, where simple radiography is difficult to interpret in the hilum of the lung.

The conclusions of the series of Gendrel et al. therefore follow the conclusions of the current recommendations [24], which advise to perform chest CT only in case of doubt. In common practice, this applies only to young children: it is under the age of five years that the pulmonary hilum is the most difficult to read on a simple x-ray, and CT is often necessary. The therapeutic protocols for cutaneous tuberculosis are identical to those for pulmonary tuberculosis. The purpose of the institution of tri- or quadritherapy is to prevent the emergence of resistant mutants and to make patients non-contagious quickly. These protocols include three to four months of three-drug therapy: isoniazid (3–5 mg/kg per day), rifampicin (10 mg/kg per day), pyrazinamide (20–30 mg/kg per day), ethambutol (15–20 mg/kg per day), followed by a combination of rifampicin and isoniazid for 4 months. Therapeutic efficacy is judged clinically on wound healing. The evolution is usually satisfying [24].

CONCLUSION

Despite widespread means of control, tuberculosis is still endemic in developing countries, especially in Morocco. The



improvement of living conditions and the implementation of an anti-tuberculosis control approach are essential for the eradication of the disease. Cutaneous tuberculosis occurs in several clinical forms that can coexist or complicate each other. It remains a current disease, the diagnosis of which is difficult because it is often unknown. In the case of a secondarily ulcerated and irregular nodular skin lesion, failure to respond to conventional treatment should lead to histological and bacteriological examination. Periorificial cutaneous tuberculosis, although rare, must also be mentioned in the face of a symptomatology that is dragging and resistant to symptomatic treatment. Also, treating them involves recognizing and monitoring them, but also educating physicians and patients about a possible association. Finally, with regard to the tubercular contamination of the child by his family, the risks of developing latent or patent tuberculosis are major, given the current uncertainties. The absence of systematic prophylaxis in favour of a re-evaluation a few months later is a decision that can only be made if the social tools of this surveillance exist.

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