Isolated tuberculosis of the navicular bone in a child.

Tuberculose de l'os naviculaire chez l'enfant. À propos d'un cas

Rim Boussetta, Ghassen Belhaj, Sami Bouchoucha, Mohamed Zairi, Ahmed Msakni, Walid Saied, Mohamed Nabil Nessib

Service d'orthopédie pédiatrique, Hôpital d'enfant «Béchir Hamza»/ Université EL Manar, Faculté de Médecine de Tunis

RÉSUMÉ

La tuberculose ostéoarticulaire est peu fréquente et intéresse surtout le squelette axial.
L'atteinte au niveau du pied est rare, environ 5-10% de toutes les atteintes ostéoarticulaires. Cette localisation est plus rare chez les petits enfants surtout si la vaccination contre la tuberculose est à jour.
Le tableau clinique n'est pas spécifique, occasionnant un retard diagnostic.
La biopsie est indispensable pour le diagnostic et doit être effectuée de façon systématique devant un tableau d'infection ostéoarticulaire atypique, surtout en zone endémique.
Mot clés : tuberculose, os naviculaire, chirurgie, arthrite

SUMMARY

Tuberculosis is a topical issue in endemic countries. Foot involvement is rare and accounts for 5-10% of all osteoarticular tuberculosis. Pediatric cases of osteoarticular tuberculosis are uncommon especially in well vaccinated children. The clinical presentation is not specific and can be confused with common germ like staphylococcus.
Biopsy is mandatory in endemic zone, and if the evolution is not good with antibiotherapy.
Debridement can be indicated but must be gentle, because of the risk of navicular necrosis.
Keys word : tuberculosis; children; surgery; foot.

Correspondance
Rim Boussetta
Service d'orthopédie pédiatrique, Hôpital d'enfant «Béchir Hamza»/ Université EL Manar, Faculté de Médecine de Tunis
boussettarim@hotmail.fr

INTRODUCTION

Tuberculosis (TB) is still a topical issue in endemic countries and on a world scale. It is the world's leading cause of death due to a single infectious agent (outperforming HIV) and ninth in absolute terms. In 2016, the number of people with this disease is estimated at 10.4 million [1]. The osteoarticular location is infrequent, corresponding to only 2-5% of infections due to Koch bacillus. Foot involvement is even rarer and accounts for 5-10% of osteoarticular tuberculosis [2]. The misleading symptomatology and the lack of specificity of the imaging findings lead furthermore to a frequent diagnostic delay [3].

We report the case of isolated tuberculosis of navicular bone in a 3-year-old girl who was treated by symptomatic therapy before the diagnosis was made.

CASE PRESENTATION

A three-year-old girl complained of lameness and pain in her left foot for three weeks. There was no notion of trauma, fever or weight loss. The girl could mobilize her foot normally but she had a swelling of the dorsal surface of her foot. The area was firm and painful to the touch. There were no systemic signs of infection and the plain radiography of the foot showed no abnormalities.

She was initially treated symptomatically with immobilization of the foot by a splint. She consulted again after three weeks. The pain had increased and there was swelling of the medial hindfoot with a cutaneous discoloration suggesting an underlying collection. Successive X-rays showed peripheral osteolysis of navicular bone (Fig. 1). An MRI of the left foot showed a T1 hypointense and T2 hyperintense signal of the navicular bone, as well as an effusion at the tibio-talar and midtarsal joints (Fig. 2).

The bone lesion was biopsied. Inflamed, crumbly and greyish soft tissues around the talo-navicular joint were entirely removed by curettage. The navicular bone was partially resected and talo-navicular debridement was performed. The foot was immobilized with a splint.

Pathological examination concluded that there was a granuloma with epithelioid macrophages, Langhans giant cells and a caseous necrosis, which is strongly suggestive of tuberculosis.

The patient received anti-tuberculosis treatment for nine months, in accordance with the national public health program specific to this pathology. Clinical improvement was achieved after two months of treatment, with decreased pain and swelling. At the end of nine months, there was no pain left. Two years later, no complication was noted. In particular, there was no deformation of the foot (Fig.3).

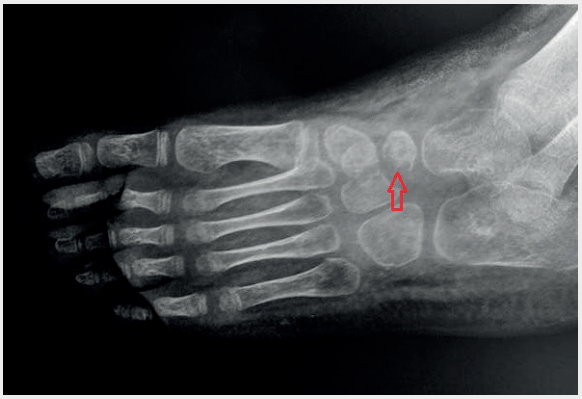

Figure 1. Anteroposterior plain radiography showing peripheral lytic lesion of the navicular bone.

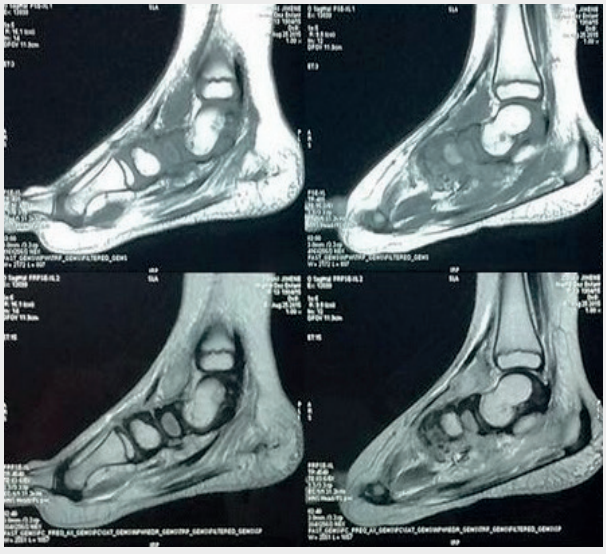

Figure 2. A sagittal MRI of the left foot showing navicular destruction and bone oedema, with a T1 hypointense and T2 hyperintense signal of the navicular bone, as well as an effusion at the tibio-talar and midtarsal joints

Figure 3. follow up at 4-year post surgery.

DISCUSSION

Tuberculosis is still an endemic disease in some parts of the world, especially in developing countries. Osteoarticular tuberculosis is the fourth most frequent localization after the lungs, urogenital and lymphatic systems [2]. When the foot is involved in 5-10% of osteoarticular tuberculosis, calcaneus, metatarsals, cuboid bones and phalanges are the most affected [2]. In tarsal localization, navicular bone is rarely reached, especially in children.

Immune deficiency and poor socioeconomic conditions are the classic risk factors for tuberculosis, including its osteoarticular location. Other risk factors exist, such as hemodialysis, cancer and organ transplants [4]. In our case, none of them were noted. There was also no personal history of tuberculosis.

Osteoarticular tuberculosis has a chronic evolution and a symptomatology in which pain plays a leading role. The lack of specificity of the clinical signs can delay the positive diagnosis and therefore the adequate treatment. In our case, the pain of the young patient did not improve under the effect of painkillers and immobilization. The diagnosis was made only after overt osteolysis and biopsy.

Imaging results also lack specificity. MRI is very useful at an early stage, showing osteolysis before plain radiography and CT scan. Nevertheless, it does not allow to select one of the different possible etiologies: tuberculosis, brucellosis, osteomyelitis, etc.

Pathological examinations make it possible to identify the lesions in favor of a specific etiology. Microbiological examinations isolate the causative germ and study its sensitivity to different antibiotics. Culture on a specific medium may take up to eight weeks [2]. Polymerase chain reaction (PCR) makes it fortunately possible to overcome this long duration and to prove the presence of Koch bacillus in a paucibacillary bone lesion [5].

The treatment is based on multiple antibiotic therapies for nine to twelve months. In our case, the patient has recovered a good gait. However, sometimes bone damage is such that orthotic treatment or surgery is necessary [6-7].

CONCLUSION

In the absence of favoring factors, it is easy to miss out on foot tuberculosis. Patients have insidious symptoms such as pain and localized swelling that are anything but specific. It is important to keep in mind the possibility of this rare diagnosis. Histological and bacteriological examinations represent the gold standard for the diagnosis of osteoarticular tuberculosis. Treatment based on a combination of several anti-TB drugs should be initiated as soon as the diagnosis is suspected without waiting for the result of the cultures.

Conflict of interest statement: None of the authors have any conflict of interest to declare.

RÉFÉRENCES

1. Global tuberculosis control, 2017 [Available from: www.Who.int/tb/publications/global_report.
2. Dhillon MS, Aggarwal S, Prabhakar S, Bachhal V. Tuberculosis of the foot: An osteolytic variety. Indian J Orthop 2012; 46(2): 206-11.
3. Grosskopf I, Ben David A, Charach G, Hochman I, Pitlik S. Bone and joint tuberculosis--a 10-year review. Isr J Med Sci 1994; 30(4): 278-83.
4. Pertuiset E, Beaudreuil J, Lioté F et al. Spinal tuberculosis in adults. A study of 103 cases in a developed country, 1980-1994. Medicine (Baltimore) 1999; 78(5): 309-20.
5. Pandey V, Chawla K, Acharya K, Rao S, Rao S. The role of polymerase chain reaction in the management of osteoarticular tuberculosis. Int Orthop 2009;33(3): 801-5.
6. Pertuiset E. Tuberculose osseuse et articulaire des membres. EMC Rhumatol Orthop 2004; 1(6): 463-86.
7. Lemnouer. A.Navicular tuberculosis: A rare localization of bone tuberculosis.IDCases 2015;2(3):8-82.