Köhler disease: an infrequent or underdiagnosed cause of child's limping?

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ABSTRACT

Köhler disease (KD) is the osteochondrosis of the tarsal navicular bone of the young children, which is a self--limited condition. Typically the child reports pain with mechanical characteristics in the medial region of the foot, however, intermittent or continuous limping may be the only clinical manifestation, which delays the diagnosis and consequently exposes to unnecessary tests and treatments. We describe a bilateral KD whose clinical manifestation was unilateral limping with 4 months evolution. The radiologic evaluation showed flattening, sclerosis and irregular rarefaction of both navicular bones. Claudication persisted for four weeks, after which, the child remains asymptomatic.

Keywords: Köhler disease; Underdiagnosis; Child's limping.

INTRODUCTION

Limp and lower extremity pain are common musculo--skeletal manifestations in children[1,2]. Younger children frequently cannot localize the pain source[1]. Clinical evaluation requires a thorough history and an in-depth physical examination[1,2]. We describe a bilateral Köhler disease (KD) case whose only clinical manifestation was limping.

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CASE REPORT

A 6-year-old male child was observed by a pediatric orthopedist because of left lower limb limping lasting for 1 month, without any pain. Local trauma was denied. Hip and knee radiographs and hip ultrasound were done which showed no changes. Laboratory investigation showed normal complete blood count, erythrocyte sedimentation rate of 37 mm/1st and C-reactive protein of 0.8 mg/dl. With lower limb limping with 4 months of duration, the boy was referred to our pediatric rheumatologic department. Pain was denied. Osteoarticular and neurologic examinations were unremarkable except lower limb limping. Due the persistence of limping and the absence of localizing pain, bone scintigraphy was made, an attempt to locate the etiologic focus of the limping. It showed slight diffuse increase of bone metabolic activity in the projection area of the left foot. Then, a radiologic evaluation of the feet showed bilateral sclerosis, collapse and irregularity of navicular bones (Figure I), compatible with bilateral KD (asymptomatic on the right side). Rest and analgesic were prescribed. Claudication persisted for four weeks, after which the child remains asymptomatic. After 9 months, feet radiograph showed significant radiological improvement.

DISCUSSION

KD is a rare osteochondrosis, typically occurring in children from ages of 2 to 7 years, being more common in boys[3,4]. The most generally accepted KD aetiology is interruption of blood supply to the ossification nucleus of navicular bone which results in necrosis[3]. KD is bilateral in up to 25% of cases[5], and may be asymptomatic in up to 50%[4]. Children usually present with intermittent or continuous limping, limb pain and/or middle foot pain aggravated with activity[3,4]. Physical

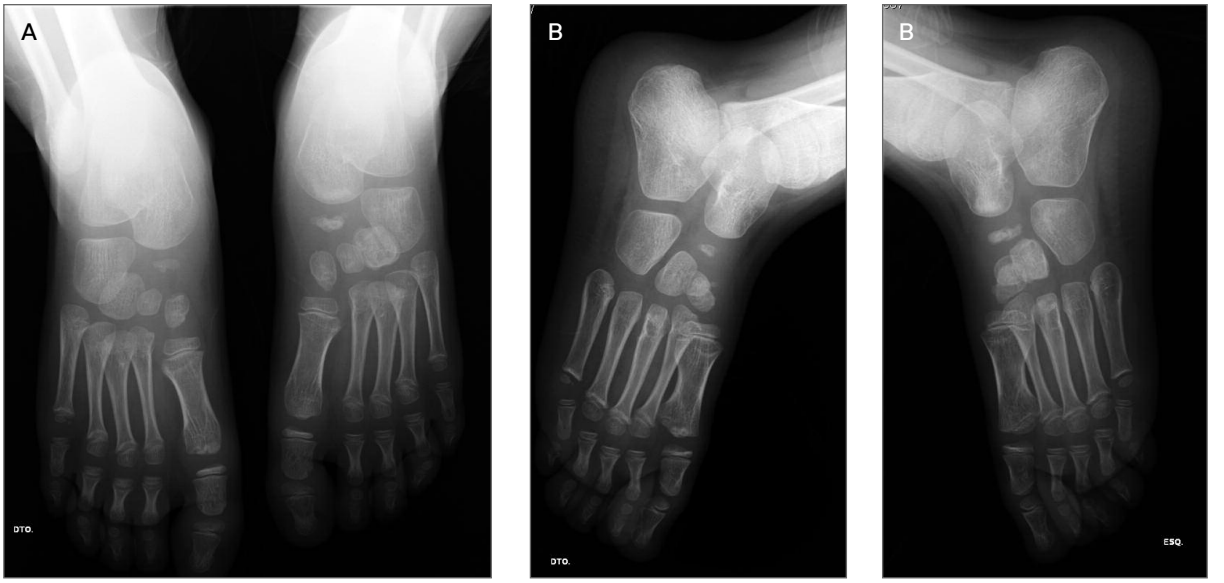

FIGURE 1. Antero-posterior (a) and lateral (b) feet radiographs showing sclerosis, collapse and irregularity of both navicular bones

signs include tenderness, swelling, and rarely, redness over the dorsum of the foot[4]. The diagnosis is radiological, showing irregularity, flattening, dense sclerosis and fragmentation of navicular[3,4]. There is no relationship between the duration of symptoms and radiographic changes[4]. Some children had slower nucleus ossification of navicular bone, with radiological appearance similar to KD[4]. At 6 years old the radiological changes (as found in our case) are always pathological. Treatment includes rest, avoidance of excessive weight-bearing and pain control. Some patients may benefit from cast, and uncommonly from temporary immobilization[4]. Symptoms last from a few days to more than a year. Radiographic abnormalities have spontaneous resolution over a period ranging from 1 to 3 years[4]. No residual deformity or disability occurs.

CONCLUSION

KD is a benign and transitory cause of foot pain and limp in children. This case emphasizes the need to think in KD in children with limping without foot pain. Feet radiological evaluation is the diagnostic key. Early diagnosis avoids unnecessary investigations and treatments.

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REFERENCES

1. Leet AI, Skaggs DL. Evaluation of the acutely limping child. Am Fam Physician 2000; 61(4):1011-1018.
2. Sawyer JR, Kapoor M. The limping child: a systematic approach to diagnosis. Am Fam Physician 2009; 79(3):215-224.
3. Khoury J, Jerushalmi,J, Loberant N, Shtarker H, Militianu D and Keidar Z. Köhler disease: diagnoses and assessment by bone scintigraphy. Clin Nucl Med 2007; 32:179–181.
4. Herring JA. Köhler's disease. In: Tachdjian's Pediatrics Orthopedics. 5th ed. Philadelphia, Saunders Elsevier, 2014:767-769.
5. Houghton KM. Review for the generalist: evaluation of pediatric foot and ankle pain. Pediatr Rheumatol Online J 2008;6:6.doi:10.1186/1546-0096-6-6.