Available online at www.sciencedirect.com

ScienceDirect

journal homepage: www.elsevier.com/locate/jcot

Letter to the Editor

Revisiting 'The Double malleoli' sign in nutritional rickets

Sir,

Nutritional rickets is a disease of high prevalence among children in India, with studies suggesting prevalence as high as 16.4% in the underprivileged children.¹ To diagnose rickets, a number of clinical signs are routinely mentioned in text books. However the 'Double malleoli' sign a typical, easy to demon-

strate clinical sign, lacks acknowledgement in literatures published over the last 50 years. The 'Double malleoli' sign is probably a handy tool for spot diagnosis of rickets in busy Outpatient Department (OPD) settings. We therefore would like to impress upon its importance with a clinical case example.

We had a 6 year old male child presenting with complaints of deformity in bilateral legs and ankles along with difficulty in

Fig. 1 – 6 year old male child presented with deformity in bilateral legs; A: Knobbed ankle of the rachitic child (anterior view) takes appearance of two distinct medial prominences resembling a second malleoli (blocked arrows), one atop of the other – The 'Double malleoli' sign; B: (posterior view) again a 'Double malleoli' can be appreciated; C: The detailed clinical picture of the child in whom the first clue to rickets was double malleoli as parents exposed only the child's legs initially. On complete exposure, other typical clinical sign of rickets like widening of wrists, pot belly and gross genu valgum were also discovered. D: Anteroposterior (AP) view of ankles showing the splayed metaphyseal ledge forming the second medial malleoli. Other evidences of rickets like widened physis, cupping of metaphysis also visualized in AP and lateral view D & E respectively.

walking. As per usual practice, they elaborated complaints exposing only the child's legs to demonstrate leg deformities and knobbed ankles. Taking 'Double Malleoli' sign as a cue, complete exposure of the child was done to detect other clinical signs of rickets like widening of wrists, pot belly and gross genu valgum (Fig. 1A–C). Radiological and laboratory assessment were done to corroborate rachitic clinical findings. X-ray illustrated cupping and fraying of metaphysis and a widened physis (Fig. 1D and E). Laboratory parameters showed alkaline phosphatase of 797 IU/L, serum calcium 9.62 mg/dl and phosphorus 5.73 mg/dl. Treatment with vitamin D, calcium supplementation, necessary dietary and sun exposure advice resulted in clinical and radiological improvement demonstrable as early as 3 weeks with child walking more comfortably and white line evident in radiographs.

The 'Double malleoli' sign gets its name from the presence of two distinct medial bony prominences found in ankle of a rachitic child (Fig. 1A and B). The more proximal bony prominence, a metaphyseal ledge, formed by the enormous profusion of cartilage cells in rachitic maturation zone, mimics presence of a second medial malleoli atop of the true medial malleolus (formed by epiphysis)² (Fig. 1D and E).

This sign is frankly evident because of its anatomical location at ankle which has an ease of exposure in a busy OPD setting. Moreover, the subcutaneous location of the swelling allows a hard to miss palpatory finding to clinicians. Anxious parents of rachitic children often come up with chief complains of bow legs, and checking this sign in continuity to the bowed knees would readily give the clinician the first cue to a clinical diagnosis and help formulation of a detailed clinicoradiological and laboratory assessment.

REFERENCES

1. Ekbote VH, Khadilkar AV, Mughal MZ, et al. Sunlight exposure and development of rickets in Indian toddlers. *Indian J Pediatr.* 2010;77:61–65.
2. Mankin HJ. Rickets, osteomalacia and renal osteodystrophy. Part I. *J Bone Joint Surg Am.* 1974;56:352–386.

Anubrat Kumar MS Orthopaedics*
Senior Resident, Department of Orthopaedics,
Chacha Nehru Bal Chikitsalaya, Delhi, India

Anil Agrawal MS Orthopaedics
Head of Department, Department of Orthopaedics,
Chacha Nehru Bal Chikitsalaya, Delhi, India

Abbas Shaharyar MS Orthopaedics
Mohammad S. Bhat MS Orthopaedics
Senior Resident, Department of Orthopaedics, Chacha Nehru Bal
Chikitsalaya, Delhi, India

*Corresponding author. H2 Hostel, Chacha Nehru Bal
Chikitsalaya, Geeta Colony, Delhi 110031, India.
Tel.: +91 9650660798

E-mail address: dranubrat5@gmail.com (A. Kumar)

Available online 25 March 2015

0976-5662/

© 2015 Delhi Orthopaedic Association. Published by Elsevier
B.V. All rights reserved.
<http://dx.doi.org/10.1016/j.jcot.2015.03.004>