

SECTION EDITOR: BEVERLY P. WOOD, MD

Radiological Case of the Month

H. Simon Schaaf, MBChB, DCM(SA), MMed(PAED); Peter R. Donald, MBChB, FCP(SA), DCH, MRCP, DTM&H, MD

A 13-MONTH-OLD girl fell and had painful swelling of the right ankle on which she did not want to bear weight. Delivery was at term after an uncomplicated pregnancy. The mother's venereal disease research laboratory serology test for syphilis was negative early in pregnancy, and it was not repeated. Immunizations, including BCG vaccine, were up to date. Two adults in the household had pulmonary tuberculosis. The child was not

evaluated and received no tuberculosis chemoprophylaxis. The child weighed 10.2 kg (50th percentile) and was 80 cm long (75th-90th percentile). Her temperature was normal, she was anemic, had submandibular and inguinal lymphadenopathy, swelling and tenderness of the right ankle and lower leg, and to a lesser degree, of the left ankle and lower leg. The ulnar aspect of the right hand was swollen, and cardiovascular, respiratory, and abdominal examination findings were normal. Symmetrical, flat, dark perianal lesions were observed, suggesting condylomata lata. Radiographs of both lower extremities (**Figure 1**) and hands (**Figure 2**) were obtained.

From the Department of Paediatrics and Child Health, University of Stellenbosch, Tygerberg, South Africa.



Figure 1.



Figure 2.

Denouement and Discussion

Multiple-Bone Tuberculosis and Dactylitis

Figure 1. Radiographs of the lower legs show multiple cystic lesions in the proximal and distal ends of the tibiae with periosteal reaction. A pathologic fracture is present in the distal right tibia (A and C).

Figure 2. Dactylitis of the metacarpals in the right hand and cystic spina ventosa lesions.

The patient's erythrocyte sedimentation rate was 130 mm/h (Westergren method), and the Mantoux tuberculin skin test was positive with an induration of 30 mm. Results from complete blood cell count confirmed a severe hypochromic, microcytic anemia (hemoglobin, 70 g/L). The child's rapid plasma reagin titer for syphilis was 1:512; the mother's, 1:64. Findings from human immunodeficiency virus serology were negative. A chest radiograph was unremarkable, and a single orbital lytic lesion was noticed on a lateral radiograph of the skull. Surgical drainage of the soft tissues of the right hand yielded thick pus and granulomatous tissue. Mycobacterium tuberculosis (TB) susceptible to isoniazid and rifampin was obtained from tissue culture. The child was treated for congenital syphilis with penicillin G procaine intramuscularly daily for 10 days and for TB with isoniazid, rifampin, and pyrazinamide for 12 months. Clinical and radiological responses after 5 months were remarkable.

Tuberculosis and congenital syphilis cause bone lesions in infants and young children but are rarely reported in the same child.^{1,2} Dactylitis is present but rare in both diseases.²⁻⁴ Although the combination of dactylitis and multiple cystic lesions is typical of multiple bone TB, the clinical feature of condylomata lata and the severe periosteal reaction in the long bones lead to the suspicion of congenital syphilis.

A literature search produced no recent cases of both TB and syphilis in an infant, but Komins¹ in 1952 described 3 cases of multiple cystic lesions with confirmed TB and congenital syphilis and traced another 6 patients from the literature. Findings from biopsy and in 1 case autopsy revealed no evidence of congenital syphilis as the cause for bone disease, and it was concluded that congenital syphilis does not contribute to the development of multiple cystic TB except perhaps by altering the immune response of the body. Although Cremin et al² found no cases of congenital syphilis among their patients with multiple-bone TB, they found it possible to distinguish these lesions from congenital syphilis because bone involvement in the latter usually is seen before age 9 months. Syphilitic dactylitis can occur up to age 2 years.³ Periosteal reaction is said to be uncommon in osteoarticular TB,⁶ but smooth, layered, periosteal reaction is common and can be extensive in the long bones overlying the multiple cystic TB lesions.⁷

Multiple-bone TB is a disease of young children and is the result of hematogenous spreading from a lung focus that has healed by the time the bone TB is observed.⁷ The multiple bone-type TB occurs in tubular and flat bones. Classic spina ventosa dactylitis rarely occurs in the hands and feet and sometimes breaks through the cortex to form a cold abscess. In larger bones recent lesions cause bone expansion and periosteal layering. Older lesions have a cystic appearance as described by Komins.¹ Sclerosis is common.⁷ The orbit is a site for skull involvement. Both congenital syphilis and TB are often preventable by timely evaluation and preventative measures. Screening children in contact with adult pulmonary TB and giving directly observed chemoprophylaxis could have prevented this case.

Accepted for publication January 7, 1999.

Reprints: H. Simon Schaaf, MBChB, DCM(SA), MMed (PAED), Department of Pediatrics and Child Health, University of Stellenbosch, PO Box 19063, Tygerberg 7505, Republic of South Africa (e-mail: hss@maties.sun.ac.za).

REFERENCES

1. Komins C. Multiple cystic tuberculosis: a review and revised nomenclature. *Br J Radiol.* 1952;25:1-8.
2. Cremin BJ, Fisher RM, Levinsohn MW. Multiple bone tuberculosis in the young. *Br J Radiol.* 1970;43:638-645.
3. Rasool MN, Govender S, Naidoo KS. Cystic tuberculosis of bone in children. *J Bone Joint Surg Br.* 1994;76:113-117.
4. Sachdev M, Bery K, Chawla S. Osseous manifestations in congenital syphilis: a study of 55 cases. *Clin Radiol.* 1982;33:319-323.
5. Dennie CC, Pakula SF. Congenital syphilis of bones and joints. In: *Congenital Syphilis*. Philadelphia, Pa: Lea and Febiger; 1940:187-270.
6. Vallejo JG, Ong LT, Starke JR. Tuberculous osteomyelitis of the long bones in children. *Pediatr Infect Dis J.* 1995;14:542-546.
7. Goldblatt M, Cremin BJ. Osteo-articular tuberculosis: its presentation in coloured races. *Clin Radiol.* 1978;29:669-677.

Submissions

The Editors welcome contributions to *Pathological Case of the Month*, *Picture of the Month*, and *Radiological Case of the Month*. Those who wish to contribute should send their manuscripts to Dr Gilbert-Barness (*Pathological Case of the Month*), Department of Pathology, Tampa General Hospital, University of South Florida, Davis Island, Tampa, FL 33606; Dr Tunnessen (*Picture of the Month*), The American Board of Pediatrics, 111 Silver Cedar Ct, Chapel Hill, NC 27514-1651; or Dr Wood (*Radiological Case of the Month*), KAM 211, USC-HSC, 1975 Zonal Ave, Los Angeles, CA 90089-9024. Articles and photographs accepted for publication will bear the contributor's name. There is no charge for reproduction and printing of color illustrations.