

# MENINGOCOCCAL OSTEOMYELITIS OF THE FIBULA

S. PERCIN<sup>1</sup>, O. SAVK<sup>1</sup>, D. ICAGASIOGLU<sup>2</sup>

**Postmeningitis meningococcal osteomyelitis, a rare form of osteomyelitis is reported in the fibula of a 5 year-old girl.**

**Keywords :** fibula ; meningococcal osteomyelitis.

**Mots-clés :** péroné ; ostéomyélite méningococcique.

## INTRODUCTION

The spread of meningitis organisms to bone in childhood is a rare condition, but is characterized by a high mortality rate and sequelae. Any delay in diagnosis and therapy will make it difficult to eradicate the infection.

## CASE REPORT

A 5 year-old girl was admitted to the pediatric service of the Medical School of Cumhuriyet University, Sivas, with a skin rash (fig. 1), stupor and a history of fever and vomiting for one day.

On admission, her body temperature was 37.6°C, and the blood pressure was 50/20 mmHg. Tachycardia (140/min.) and tachypnea (62/min.) were observed. Bilateral Brudzinski signs and neck stiffness were found, while Kernig was negative.

Laboratory data included a hematocrit of 35%, white blood cell count of 18,600/mm<sup>3</sup> with mainly polymorphonuclear leukocytes (PMN's) and a sedimentation rate of 56 mm/h. The cerebrospinal fluid (CSF) pressure was 140 mm of water. Lumbar puncture yielded clear fluid containing 660/mm<sup>3</sup> PMN's, 550/mm<sup>3</sup> mononuclear cells, 37 mg/dl glucose and 30 mg/dl protein. Cultures were taken from the blood, CSF, urine and throat.



*Fig. 1a*



*Fig. 1b*

**Fig. 1a and 1b.** — Skin rashes and fistula formation of osteomyelitis on right leg of the patient.

Intravenous therapy was initiated with penicillin G (500,000 U/kg body weight/day in 4 doses) and chloramphenicol sodium succinate (in 4 doses).

Cultures of the blood, urine and CSF were sterile, but the specimen from the throat showed growth of *Neisseria meningitidis*. The patient continued to receive the same therapy and began to improve. However, 12 days after hospitalization

<sup>1</sup> Orthopaedic Service, Medical School of Cumhuriyet University, Sivas, Turkey.

<sup>2</sup> Pediatric Service, Medical School of Cumhuriyet University, Sivas, Turkey.

Correspondence and reprints : S. Percin.

she complained of significant pain and swelling on the extensor surface of her right leg. She was referred to the orthopedic service. Radiography of the right fibula showed a periosteal reaction and demineralization of the distal metaphyseal portion.

She was operated on the 13th day of hospitalization. A long-leg splint was applied after decompression and curettage of the distal end of the fibula. The culture of purulent material obtained from the fibula showed *N. meningitidis*, and ceftazidime ( $2 \times 500$  mg/day, IV) was added to the existing therapy according to the sensitivity results. Chloramphenicol was stopped.

The patient improved and resumed her usual activities, although she continued to receive ceftazidime (IM) for 3 weeks. Six months after discharge from the hospital she was completely normal (fig. 2).



Fig. 2. — The roentgenogram of right leg 6 months after discharge from hospital.

## DISCUSSION

The majority of infections caused by *N. meningitidis* localize in the meninges; however bones and joints can rarely be involved (1, 2, 3). Nevertheless, the infection may spread from bone to joint or vice versa (3). Nelson reported a review of 221 children with specific arthritis in which 1.8% of the cases were attributed to *N. meningitidis* (6).

On admission to the hospital, our patient had symptoms of meningitis. Although the blood and CSF culture were found to be sterile, other laboratory findings and the growth of *N. meningitidis* on throat culture confirmed the diagnosis. Freehafter *et al.* reported a patient with *N. meningitidis* infection in his lumbar vertebrae in whom a throat culture showing *N. meningitidis* had been disregarded (2).

In the infant and child the metaphyseal portion of long bones is the most commonly affected site of acute hematogenous osteomyelitis as a sequel of bacteremia or septicemia (5). The infection in the distal metaphyseal portion of the fibula in our patient and the growth of *N. meningitidis* in the culture of the material obtained from surgery is probably a result of bacteremia. Additionally, the location of the infection in our patient is interesting, since O'Brien *et al.* reported only 2 of their 45 patients to have osteomyelitis located in the fibula (7).

Although broad-spectrum antibiotics can be used in the treatment of meningococcal meningitis and bone and joint infections, penicillin should be the first choice. There is agreement in using penicillin as maintenance treatment; however we preferred to use ceftazidime because of ease of use.

## REFERENCES

1. Bannatync R. M., Karmali M. A. Meningococcal osteomyelitis. *CMA Journal*, 1981, 125, 1313-1314.
2. Freehafter A. A., Heiser D. P., Saunders A. P. Infection of the lower lumbar spine with *Neisseria meningitidis*. *J. Bone Joint Surg.*, 1978, 60-A, 1001-1002.
3. Hammerschlag M. R., Baker C. J. Meningococcal osteomyelitis: A report of two cases associated with septic arthritis. *J. Pediatr.*, 1976, 88, 519-520.
4. Kolyvas E., Ahronheim G., Marks M. I., Gledhill R., Owen H., Rosenthal L. Oral antibiotic therapy of skeletal infections in children. *Pediatrics*, 1980, 65, 867-871.

5. Nade S. Acute haematogenous osteomyelitis in infancy and childhood. *J. Bone Joint Surg.*, 1983, 65-B, 109-119.
6. Nelson J. D. The bacterial etiology and antibiotic management of septic arthritis in infants and children, follow-up. *Pediatrics*, 1972, 50, 437.
7. O'Brien T., McManus F., MacAuley P. H., Ennis J. T. Acute hematogenous osteomyelitis. *J. Bone Joint Surg.*, 1982, 64-B, 450-453.

#### SAMENVATTING

*S. PERCIN, O. SAVK, D. ICAGASIOGLU. Meningococcal osteomyelitis van de fibula.*

Een osteomyelitis van de fibula, ontstaan na een meningococcal meningitis bij een 5-jarig meisje, wordt gerapporteerd.

#### RÉSUMÉ

*S. PERCIN, O. SAVK, D. ICAGASIOGLU. Ostéomyélite méningococcique du péroné.*

Les auteurs présentent un cas rare d'ostéomyélite du péroné après méningite à méningocoques chez une fillette de 5 ans.