CASE NOTES

OSTEOMYELITIS OF THE MAXILLA IN INFANTS*

BY

HOWARD REED, I. SPIRO, AND B. D. R. WILSON

London

OSTEOMYELITIS of the maxilla in infants is a rare but well-recognized clinical entity. Asherson (1939) collected 42 cases from the literature and reviewed the condition in detail. He stated that the mortality was 25 per cent. and remarked upon the frequency of such sequelae as cicatricial ectropion and sequestrum formation which require plastic surgery. He also emphasized the frequency with which relapses occur.

The condition commonly occurs in the first 12 weeks of life and usually follows an infection of the first deciduous molar tooth bud (Wilensky, 1932). Other sites from which the infection may arise are the maxillary antrum or lacrimal sac (Haworth, 1947). The cheek and orbital tissues of the affected side rapidly swell causing chemosis and later proptosis and ophthalmoplegia. The hard palate on the affected side is inflamed and swollen, and one or more sinuses may be seen. There may also be a secondary acute dacryocystitis. The infant is febrile and may have diarrhoea. Its general condition deteriorates rapidly.

Orbital cellulitis may be the diagnosis first suggested (Magnus, 1944) and these patients are likely to be referred to an eye department. This happened in two of the four cases seen by us. Orbital cellulitis, however, almost never appears in the first few months of life. It is associated with sinusitis and mucopus in the nostril of the same side. The site of maximum swelling and tenderness is at the margin of the orbit above the medial palpebral ligament. The hard palate is not involved.

In primary acute dacryocystitis the site of maximum swelling and tenderness is over the sac just below the medial palpebral ligament. The roof of the mouth is not involved and the infant is not seriously ill.

Case Reports

The authors have seen four cases of osteomyelitis of the maxilla.

Case 1.—A full-term male infant with a birth weight of 6 lb. 8 oz. was reported to have been discharged from hospital after 10 days quite fit except for a "sticky left eye." On the 18th day after birth the infant was readmitted. For 3 days before admission sulphatriad and penicillin injections had been given by the general practitioner.

On admission there was proptosis of the right eye and the cheeks on each side of the

* Received for publication May 26, 1953.

nose were swollen. The swelling was greater on the right side and pressure on this swelling caused a purulent discharge down the right nostril and from a sinus in the right upper jaw. The right half of the palate was red and swollen.

Procaine penicillin 150,000 units was injected twice daily for 48 hrs. During this time the child's condition continued to deteriorate steadily. A report was then received that a profuse growth of *Staphylococcus aureus*, coagulase positive, and weakly sensitive to penicillin had been cultured from the pus. Penicillin was at once stopped and chloromycetin 0.25 g. 4-hourly, and streptomycin 0.25 g. twice daily was administered.

The next day under general anaesthesia, the pus was released by an incision into the gingivo-labial sulcus on the right side and the tear ducts were syringed. The temperature fell to normal during the next 72 hrs. and the child's condition improved, but some oedema of the lids persisted.

Chloromycetin was stopped on the 14th day after admission; 4 days later the temperature rose again and chloromycetin 0.25 g. 4-hourly was resumed. The temperature settled quickly but 4 days later another rise occurred. Aureomycin was then administered and the temperature again fell rapidly.

4 days later a superficial abscess pointed at the right lower orbital margin and was incised. The child then made steady progress and was discharged one week later.

Case 2, a 6-week-old male infant, was admitted with a history of 2 days pyrexia and refusing the breast. The labour had been induced 3 weeks prematurely on account of maternal toxæmia. On admission temperature was 100°F., with some oedema of the eyelids and marked swelling and tenderness of the left cheek. There was a discharging sinus in the left alveolar margin, a thick purulent nasal discharge, and a purulent discharge from the eye. From all these sites *Staphylococcus aureus*, resistant to penicillin but sensitive to streptomycin and chloromycetin, was cultured. The mother, who was also admitted to continue feeding the infant, had several superficial septic lesions from which a similar organism was grown.

After a month's treatment with chloromycetin the infant has remained well for a period of 8 months' observation. At the site of the sinus a deformed and discoloured molar has erupted.

Case 3, a one-year-old male infant, had had a persistent nasal discharge for some months. Two other members of the same household had had superficial staphylococcal infections from which penicillin resistant organisms had been cultured. After a cold a week previously the infant suddenly became extremely ill with a fever of 105°. When seen the next day the right face was swollen and intensely tender to the touch and there was a bilateral purulent nasal discharge. There was oedema of the alveolar margin, spreading on to the hard palate. The lower eyelid was swollen and pus could be expressed from the naso-lacrimal duct.

After a 3-week course of aureomycin resolution appeared to be complete. As the infant then developed another cold, treatment was continued for a further fortnight; 6 months later the child was seen and no abnormalities could be discovered.

Case 4.—A female breast-fed infant, born some 4 weeks prematurely, developed an abscess of neck at the age of 3 weeks. This was treated by procaine penicillin injections and incision at another hospital. For 2 weeks the child appeared to be doing well and then suddenly became ill. When seen her temperature was 102°F. and the left upper and lower lids were so swollen that it was difficult to separate them in order to examine the eye. The left cheek was slightly swollen and the left side of the hard palate and alveolar margin were red and swollen. No sinus was present. 200,000 units crystalline penicillin 6-hrly. was started at once, but the infant's condition continued to deteriorate. The next day sulphamerazine 0.25 g. followed by 0.125 g. 6-hourly was given in addition. 48 hours after admission terramycin 50 mg. 6-hourly was started and the penicillin and sulphamerazine were stopped. The infant then began to make steady progress.

One week after admission an incision at the lower orbital margin released much pus. From this pus staphylococci were grown which were penicillin resistant but sensitive to terramycin. One week later the incision had healed and the infant was doing well. She made a slow but uninterrupted recovery. Terramycin was given for 5 weeks. The mother was admitted with the infant and breast feeding was maintained throughout. The oedema of the lids persisted for about 5 weeks.

Discussion

Asherson (1939) emphasized the risk to life and the dangers of facial deformity following this condition. This, however, was before the advent of antibiotics. A number of cases have since been reported, all of which were treated with penicillin with but isolated failures (Haworth, 1947). In this group of four cases all were infected with penicillin-resistant organisms. This may be a chance event but there is evidence that the development of resistance to penicillin is increasing.

Barber and others (1949) have shown that infants born in hospital are particularly exposed to the risk of infection with penicillin-resistant organisms. In fact, in their series of cases some 70 to 80 per cent. of the staphylococcal infections were penicillin-resistant.

Hitherto, penicillin has been considered to be the drug of choice in treating osteomyelitis of the maxilla. These four cases, and the work of Barber and others (1949), suggest that in any given case of this condition the probability of the infecting organism being resistant to penicillin is high. In order to avoid loss of time whilst awaiting results of culture and sensitivity tests the writers feel that it would be wise in these cases to use the newer antibiotics such as chloromycetin, aureomycin or terramycin from the start.

REFERENCES

- WILENSKY, A. O. (1932). *Amer. J. Dis. Child.*, **43**, 431.
ASHERSON, N. (1939). *J. Laryng.*, **54**, 691.
MAGNUS, J. A. (1944). *British Journal of Ophthalmology*, **28**, 135.
HAWORTH, J. C. (1947). *Arch. Dis. Childh.*, **22**, 175.
BARBER, M., HAYHOE, F. G. J., and WHITEHEAD, J. E. M. (1949). *Lancet*, **2**, 1120.