Actinomycotic osteomyelitis in a child

by

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Contrary to what used to be the case, actinomycosis is now a rare disease and only infrequently mentioned in otolaryngological textbooks (Ballantyne, J. and Groves, J. 1979). The disease is a chronic suppurative infection caused by micro-organisms from the actinomyces group, most often israelii. Actinomyces species are all oral commensals. They are gram-positive, non acid-fast, anaerobic or microaerophilic filamentous bacteria (Walker et al., 1981; Bennhoff, 1984). Associated flora of both aerobic and anaerobic bacteria are always present, most frequently anaerobic streptococci, fusiform or gram-negative bacilli, and hemophilus species. The associated flora form a kind of symbiosis with the actinomyces species and may cause an anaerobic environment which furthers the growth of these species (Bennhoff, 1984). Topographically, a distinction is made between 3 favourite localizations: 1. Cervico-facial (55 per cent); 2. Abdomino-pelvic (20 per cent); and 3. Pulmo-thoracic (15 per cent).

Endemically, the disease is especially seen in middle-aged men, whereas it is rare in children (Yakata et al., 1978). Clinically, the cervico-facial form often manifests itself as a soft, indolent tumour with a pronounced tendency towards fistulisation and prolonged suppuration. Actinomycosis spreads locally, not respecting anatomic planes, which is why lymph node enlargements are rarely seen. Affection of the bones is unusual. Below, a case of osteomyelitis in a 3-year-old child is described.

Case history

A 3-year-old girl was hospitalized in June 1985 having developed trismus 2 weeks earlier. No trauma. It was suspected that the patient had a left-sided peritonsillar abscess, and a puncture was made under general anaesthesia, without any pus being found. This was interpreted as a phlegmonous process. The girl was treated with penicillin for 2 weeks and the symptoms disappeared completely. At the end of August the trismus returned as well as a swelling of the left chin. Tomography of the left mandible now showed osteomyelitis (Fig. 1), whereas in June the radiological findings were normal. A puncture was made and a biopsy taken of the tissue, and microscopy showed a chronic non-specific inflammation. Cultures showed anaerobic gram-negative cocci as well as streptococci, but no actinomyces species.

The girl was treated with ampicillin, 750 mg. per day, and metronidazole, 300 mg. per day. The metronidazole treatment ended after 4 weeks. During the first week of treatment, an abscess developed in the left chin. It was drained and microscopy of the pus now showed gram-positive filaments compatible with actinomycosis. During treatment, the trismus disappeared and tomography after about one month showed the bone to be healing well (Fig. 2). After 3 months the bone had healed and ampicillin treatment was continued for another 4 weeks.

Discussion

The case history is characteristic of insufficiently treated actinomycosis, the symptoms primarily disappearing only to return after treatment with antibiotics. After previous treatment, it is often difficult to arrive at the correct diagnosis, which is established either by cultures or by finding the characteristic 'sulphur granules', which are microcolonies of actinomyces organisms (Bennhoff, From Departments of Pediatrics, Otology and Radiology, Hørring Hospital, Denmark.
In these cases, the diagnosis must be based on the characteristic case history, the finding of associated flora, and, if possible, as in the above described case, the presence of gram-positive filaments by direct microscopy. It should be noted, however, that the actinomyces species are not coloured by the fungal stains used in microscopy (Bennhoff, 1984). Adequate treatment is penicillin or tetracycline, for about 6 weeks, by soft tissue localization, whereas bony affection requires treatment for another 4 weeks after radiological healing. Further, metronidazole is recommended for 2–4 weeks to kill the associated flora.

If treatment fails, checks should be made to ensure whether an undrained abscess or resistant associated flora remain (Mandell et al., 1979).

Conclusion

Actinomycosis should still be considered a possibility in cervico-facial infections with prolonged suppuration, especially as actinomycosis, when properly treated, has a good prognosis.
Fig. 2

Shows the mandible after the first month of treatment. It is nearly normal.

References

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