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CASE REPORT

Extensive actinomycosis of the face requiring radical resection and facial nerve reconstruction

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Summary We present a case of extensive actinomycosis of the face, which appeared after dental surgery. Since antibiotic therapy was ineffective, the lesion was radically resected, and the skin, soft tissue and facial nerve were reconstructed using a free rectus abdominis musculocutaneous flap and simultaneously harvested intercostal nerves. Successful reanimation of the face was achieved 14 months postoperatively.

Craniofacial actinomycosis is a rare infectious disease, usually caused by *Actinomyces israelii*, an anaerobic, gram-positive bacterium.[1—4] Although this bacterium is a normal inhabitant of human oral cavity and pharyngeal region, it may invade adjacent tissues and lead to suppurative and granulomatous disease characterised by draining sinuses, fibrosis and multiple abscesses. These abscesses contain small white-yellow granules, termed 'sulphur granules', which consist of bacterial filaments. Treatment commonly involves long-term antibiotic therapy and drainage.[1,3] Surgical resection is recommended for chronic cases resistant to antibiotic therapy[5,6] but reports of extensive actinomycosis requiring radical resection of the lesion and reconstruction are limited.[5,7]

We present a case of extensive facial actinomycosis that was resistant to antibiotic therapy and was treated by radical resection of the skin, masseter muscle, parotid gland and facial nerve. The resultant defect was reconstructed using a free rectus abdominis musculocutaneous (RAMC) flap with simultaneously harvested intercostal nerve grafts.

Case report

A 46-year-old female was referred to our department with an ill-defined, hard, brownish red

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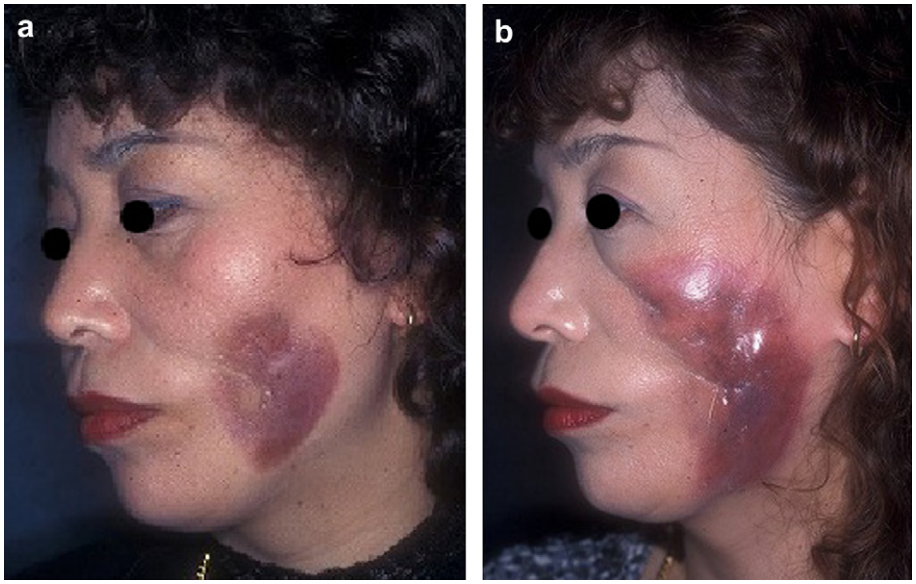

Figure 1 (a) A well-defined, hard, brownish red induration on the left cheek at the first medical examination. (b) After 1 year of administration of antibiotics. The lesion on the cheek rather widened.

induration on the left cheek (Fig. 1-a), approximately 60 × 45 mm in size. This had appeared after dental surgery for follicular cyst enucleation in the lower left 3rd molar region six years previously, and had since gradually enlarged. No other cutaneous lesion or lymphadenopathy was apparent. Laboratory investigations including routine blood chemistry, whole blood count and urine analysis revealed no abnormal findings. A CT scan of the face showed a left buccal mass extending from the skin deeply into the masseter muscle (Fig. 2). The biopsy revealed chronic granulomatous tissue and granular colonies of filamentous, gram-positive bacteria, but aerobic and anaerobic culture of the biopsied tissue did not yield actinomyces. Based on the overall clinical and laboratory findings, we diagnosed actinomycosis, and conservative therapy with antibiotics started. Ampicillin, amoxicillin, cefdinir and levofloxacin were administered either orally or intravenously for more than 14 months. However, during this time the cheek lesion widened and spread to the periosteum of the mandible (Fig. 1-b).

Figure 2 CT scan results, showing a left buccal mass that has spread from the skin to the masseter muscle.

Since conservative therapy was unsuccessful, radical resection and reconstruction of the face was performed. The lesion extending to the deep layer of the parotid gland, masseter and mandibular periosteum was radically resected, and parts of the parotid gland, masseter muscle and mandibular periosteum were removed. A part of mimetic muscles including the zygomatic major and minor muscles was also resected, together with branches of the facial nerve. The distal and proximal ends of the temporal, zygomatic and marginal mandibular branches were dissected and tagged (Fig. 3-a).

A RAMC flap was then elevated for coverage of the skin defect and reanimation of the paralysed cheek using the rectus abdominis muscle. Three intercostal nerves entering the RAMC were harvested simultaneously with the elevation of the flap (Fig. 3-b), and grafted as cable nerve grafting to the gap of temporal, zygomatic and marginal mandibular branches of the facial nerve (Fig. 3-c).