Osteosarcoma of the Mandible. A Case Report

Summary

Osteosarcoma is a malignant tumour of bone mesenchymal cells. It accounts for 20% of all primary bone malignancies, but only 5-6% of jaw malignancies. The peak incidence is during the third decade of life. There is a 2:1 male-to-female preponderance. This is a report of a 30-year-old man with painful swelling on the right side of the mandible and parotid on the same side. He was previously treated under a diagnosis of dental abscess (that diagnosis was made by a general dentist). Over a very short period of time tumour progressed and the patient lost weight. After the clinical and radiographic examination (CT scan, MRI) and biopsy, we diagnosed osteosarcoma of the mandible, grade 3.

In consultation with an oncologist, the first step was preoperative chemotherapy and after that a radical surgical procedure. The wound after surgery was repaired with myocutaneous pectoral major flap. PH examination was osteosarcoma with clear margins. In perspective this patient is a candidate for reconstruction of bone defect with one of familiar methods - a second stage procedure.

Keywords: Osteosarcoma; Mandible; Reconstruction; Myocutaneous Pectoral Major Flap

Case Report

A 30-year-old man with a painful swelling of the right side of the mandible and parotid was referred (Fig. 1). He was previously treated under a diagnosis of dental abscess (that diagnosis was made by a general dentist) and underwent some tooth extractions. Over a very short period of time, tumour progressed and there was loss of weight, with body temperature of 38°C. Clinical examination revealed a large tumefaction on the right side of the mandible, about 10x10 cm, of solid consistency, with early metastasis in the lungs.

CT scan showed the large tumour mass in parotid-masseteric region on the right side, without differentiation...
of parotid gland and sternocleidomastoid muscle, and with destruction of zygomatic arch (Fig. 3). Tumour penetrated in pterygopalatine fossa and parapharyngeal space on the right side. Distally, it destructed ramus and corpus of the mandible.

We took biopsy in local anaesthesia for PH examination. Diagnosis was osteosarcoma of the mandible, grade 3. In consultation with an oncologist, the first step was preoperative chemotherapy. After that, we performed a radical surgical procedure (Figs. 4 and 5). The wound after surgery was repaired with myocutaneous pectoral major flap, just soft tissue reconstruction (Fig. 6). We did not make reconstruction of the hard tissue because of the general condition of the patient prior to and after surgery. We also did not know how radical we were during the operation. In this case the reconstruction method was myocutaneous pectoral major flap with a dominant blood supply from the thoraco-acromial artery, demonstrated for the first time in 1979.
The definite PH was osteosarcoma of the mandible, grade 3, with clear margins. After surgery the patient was stable, without signs of metastasis. In perspective, this patient is a candidate for reconstruction of bone defect with one of familiar methods (fibula, iliac crest, scapula), rehabilitation of TMJ function, and rehabilitation occlusion with implants (second stage procedure).

Discussion

After surgical removal, osteosarcoma often gives local recurrences. In cases like this, when we confront with a big developing tumour invading local tissue, a radical surgical removal is a method of choice in the treatment of such lesions. However, large operative defects after surgery, especially after hemi-mandibulectomy and disarticulation of the temporomandibular joint, with generally bad conditions of the patient, can present a problem in reconstruction of the jaw.

The problem is even bigger if we do not know how radical we were on margins during the operation. In case report of osteosarcoma of mandible, Soares et al. performed partial mandibulectomy and reconstructed bone using the rib. 8 months after surgery, there was local recurrence of the lesion and patient died approximately 1 year after surgery.

Clear surgical margins correlated statistically with improved survival. August et al. showed that 27% of patients were alive when margins were less than 5 mm, compared to 62% disease free patients with surgical margins greater than 5 mm. These authors also stressed that early diagnosis, definitive surgical treatment and aggressive adjuvant chemotherapy are additionally important in the treatment of jaw osteosarcoma.

The treatment of choice for osteosarcomas of the mandible is hemi-mandibulectomy with disarticulation at the temporomandibular joint. Bone reconstruction from the iliac crest should be done at a second stage. However, immediate mandibular reconstruction after tumour surgery does offer advantages in selected cases, especially when tumour has been adequately excised, the nutritional status is satisfactory, and the patient is able to tolerate an extended operating time. Reconstruction of the mandible in children is very complex, and surgeon must be sure to make stability during the growth. Resection and reconstruction must be done in the first stage of surgery.

In the presented case, reconstruction of soft tissue was solved with myocutaneous pectoral major flap only because of the general conditions of the patient. After reconstruction of the bone defect (second stage procedure), rehabilitation of the TMJ function can be a problem. One of the latest procedures is rehabilitation with implants, where osseointegrated implants are used for dental restoration after mandibular reconstruction. Simultaneous dental implant insertion allows immediate prosthetic rehabilitation but requires meticulous planning of implant position, adequate soft tissue management, and sufficient primary stability of the implants. However, there are still many dilemmas concerning the after-care of patients operated on jaw malignant tumours.

References


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