

Odontogenic myxoma: Case report with reconstructive considerations

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Abstract

Odontogenic myxoma is a benign but locally aggressive neoplasm. The present case documents the resective and reconstructive management of a patient with a moderately large myxoma of the mandible.

Key words: Odontogenic myxoma, case report, reconstruction.

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Introduction

Odontogenic myxoma is an uncommon,¹ benign neoplasm of mesenchymal tissue.²⁻⁴ As it resembles the dental pulp microscopically, it is classified as an odontogenic tumour,⁴ ultrastructural features suggesting many lesional cells to be very similar to myofibroblasts.³ Although never proven to undergo malignant transformation or metastasize,⁵ it may show aggressive local growth. There is a high recurrence rate after inadequate surgical treatment.^{4,5}

Clinical presentation most commonly occurs in the second and third decades.^{1,4} The mandible is involved more often than the maxilla,^{1,2,6} and most reports show a slight predilection for females.¹ Odontogenic myxoma often grows without symptoms, most commonly presenting as a painless swelling.^{1,6} Pain, displacement of teeth, and paraesthesia are uncommon, thus the lesion can reach considerable size before the patient becomes aware of its presence and seeks treatment.⁶

Radiologically, the appearance may vary from a unilocular radiolucency to a multicystic lesion with a well defined or diffuse margin.⁷ A unilocular appearance may be seen more commonly in children,⁸ and in the anterior parts of the jaws.⁹ In tooth-bearing

areas, the tumour is often scalloped between the roots;⁹ root resorption can occur but is rare.⁶

Histologically, the lesion is non-encapsulated and has an infiltrative pattern of growth,^{2,3} its gelatinous nature enhancing its ability to infiltrate in thin layers through tissue planes.²

Report of a case

In October 1996, a 33-year-old female was referred for treatment. She gave a six month history of a slowly enlarging, painless swelling in the left anterior mandible. Intraoral examination revealed a firm, non-tender swelling expanding the buccal cortex of the mandible, extending from the midline to the left second premolar. Left mental nerve function was normal and there was no increased mobility in the overlying teeth. It was also noted that the patient had vertical maxillary excess and that the mandibular incisors were 5 mm to the right of the midline (Fig. 1).

The panoramic radiograph showed a large multi-locular radiolucent area with a well defined sclerotic margin extending from the right lateral incisor to the mesiolingual aspect of the lower left first molar (Fig. 2). A computed tomographic (CT) scan demonstrated an approximately 30 × 20 mm lytic lesion with expansion and thinning of the overlying buccal cortex (Fig. 3).

An incisional biopsy confirmed the diagnosis of odontogenic myxoma (Fig. 4).

The surgical management involved a combined intra- and extra-oral approach. The tumour was resected with a margin of normal tissue. This involved a mandibular ostectomy from the left angle to the premolar region on the right side. The left inferior alveolar nerve was included in the specimen but the nerve on the right side was preserved. The resulting defect was repaired with a deep circumflex iliac artery flap harvested from the left side. This was osteotomized to provide a chin point. Rigid internal

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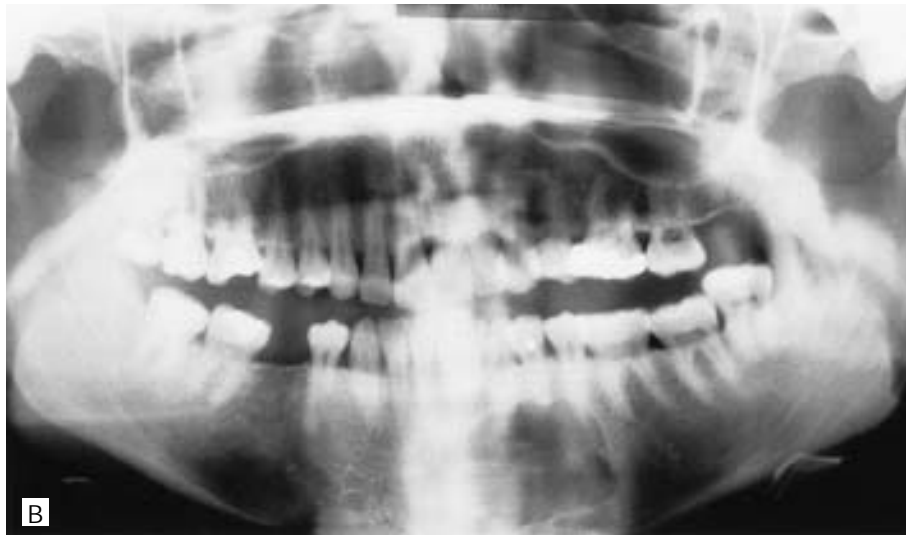
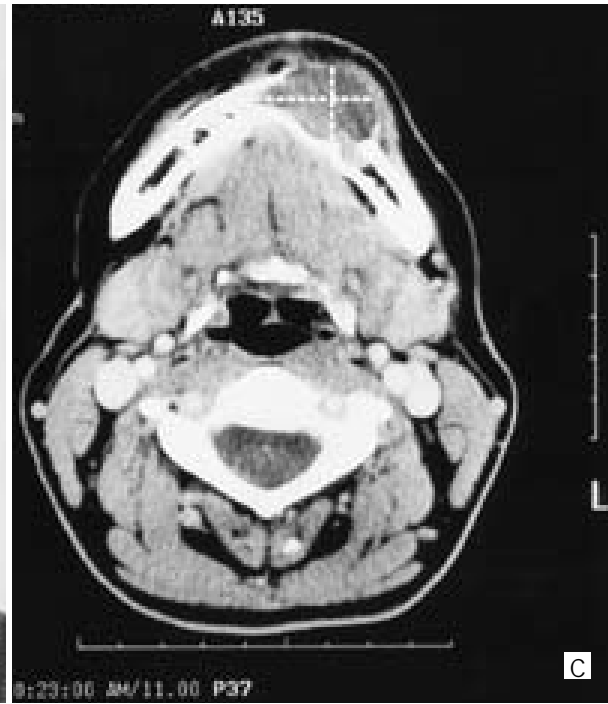


Fig. 1.—Patient with tumour outline marked on overlying skin, note also vertical maxillary excess.

Fig. 2.—Panoramic radiograph shows radiolucency in left anterior mandible.

Fig. 3.—Axial computed tomographic (CT) scan showing extent of tumour with expansion and thinning of buccal cortex.

fixation was achieved with four 2.0 mm titanium miniplates and screws, two Kirschner wires, and two transosseous wires (Fig. 5). The flap was anastomosed to the superior thyroid artery and external jugular vein. The lateral cutaneous nerve of the thigh was anastomosed to the proximal stump of the inferior alveolar nerve on the left side and to the resected distal stump of the mental nerve as it entered the soft tissue of the cheek and lip.

Macroscopically, the surgical specimen consisted of a segment of central and left body of mandible measuring approximately 65 × 35 × 25 mm. Overlying the anterior surface of the mandible was a

soft nodule with a smooth capsule, consisting of focally haemorrhagic myxoid tissue.

Microscopically, the tumour was composed of loosely arranged spindle cells with serpentine nuclei within a variably myxoid and fibrous stroma. Anteriorly the cortical table was eroded and the tumour margin delineated by reactive new bone, periosteum and skeletal muscle. The tumour was confirmed as odontogenic myxoma, and reported to be completely excised.

The immediate postoperative course was complicated by a chest infection, the patient being

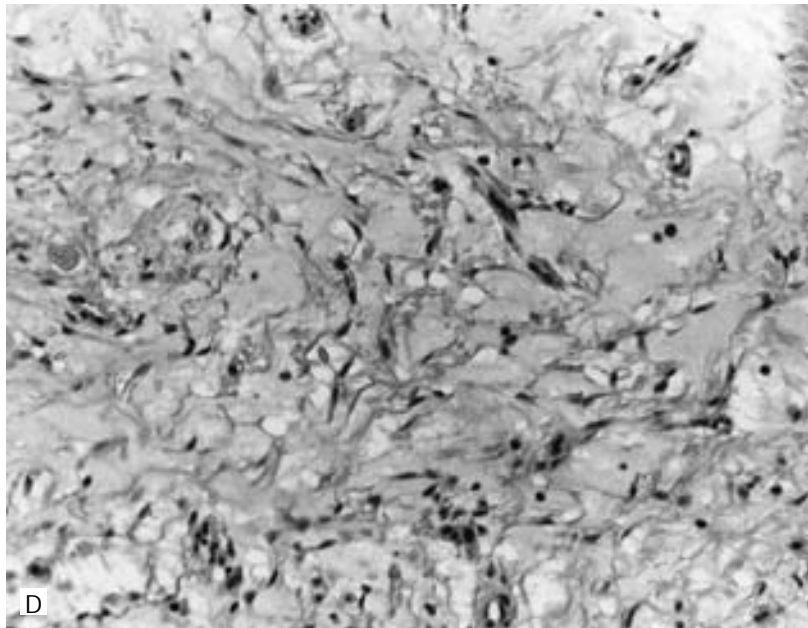


Fig. 4.—Photomicrograph of lesion shows typical spindle cells of myxoma. $\times 20$.

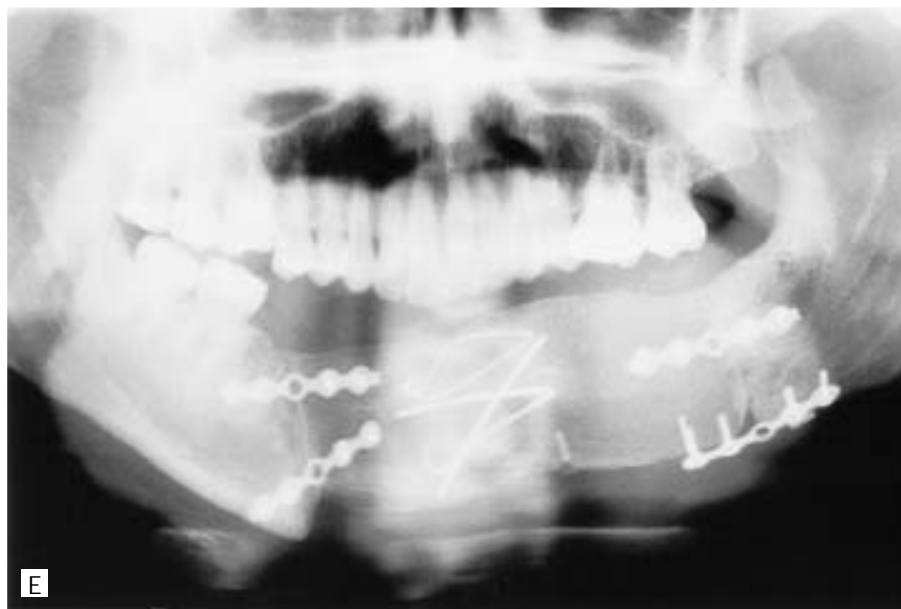


Fig. 5.—Panoramic radiograph taken immediately postoperatively showing bone graft and internal fixation.

discharged from hospital on the eleventh post-operative day. Over the next seven months the internal fixation plates and wires became palpable and were removed. At seven months postoperatively the patient reported returning sensation to the left side of the lower lip.

The patient's facial appearance has been restored to her preoperative position but she remains edentulous from 37 to 46. During the planning process for dental reconstruction with osseointegrated implants it became clear that the patient wished to have correction of her vertical maxillary excess. A

combined orthognathic, orthodontic and prosthodontic treatment plan is proposed. This will involve a surgically assisted maxillary expansion followed by an initial orthodontic treatment phase. This will be followed by orthognathic surgery. A posterior maxillary impaction and bilateral sagittal mandibular osteotomies will be performed; the left sided mandibular osteotomy, incorporating the iliac crest flap. First stage mandibular endosseous implants will be placed in combination with this procedure. A final orthodontic detailing phase and second stage implant surgery will be performed. This will allow

the patient to wear an implant-anchored fixed prosthesis.

Discussion

The aggressive nature of odontogenic myxoma is well documented in the literature. The tumour is not radiosensitive,² and treatment is by surgery. The lack of a capsule and infiltrative growth pattern is responsible for high rates of recurrence when conservative enucleation and curettage are performed.^{3,5} Tumour recurrence is minimized with extensive partial or total resection procedures,^{1,3,9} and this method of treatment is particularly indicated in the maxilla due to the proximity of vital structures.¹ Regardless of the technique of removal, advanced imaging studies such as CT or MR should be used to clearly define the tumour margins, ensuring that the true extent of the tumour is visualized before surgery.⁶

It can be seen that if radical mandibular resection is required, the resulting defect will require reconstruction. Most investigators agree that benign tumours can be reconstructed immediately,² and advances in reconstructive surgery have allowed the surgeon the option of using vascularized free tissue transfer. This method of reconstruction has gained many advocates and iliac crest,¹⁰ radial forearm,¹¹ and fibula¹² free tissue transfers are well described.

These repair techniques allow reconstruction and full rehabilitation of the patients. This is especially important in odontogenic myxoma as the majority of the patients are young. The favourable shape and quantity of bone along with a dependable blood supply, makes the deep circumflex iliac artery-based free osseous flap an ideal method of reconstruction.¹³ Graft survival is excellent,¹³ and the quality of the bone is adequate for the subsequent placement of endosseous implants. Postoperatively, patients should be closely followed for the first two years, as this is the period in which recurrence is most likely.¹⁴ An indefinite period of follow-up may be required as the literature confirms the possibility of late recurrence.³

This case illustrates a resective and reconstructive strategy for the treatment of a moderately large mandibular odontogenic myxoma, which is aimed at

minimizing tumour recurrence whilst maximizing the functional and aesthetic result.

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