Odontogenic Myxoma

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Overview

An odontogenic myxoma is a rare, benign, mesenchymal tumor that grows within bone (Gupta et al. 81). It is locally invasive (Shivashankara et al. 94) and can occur throughout the body, but usually appears in the jaws (Gupta et al. 81). An odontogenic myxoma usually appears more in the mandible (Gupta et al. 81). It was first described by Thoma and Goldman in 1947 (Gupta et al. 81).

Etiology

An odontogenic myxoma is mesenchymal in origin (Gupta et al. 81). According to Gupta et al., there are two theories explaining the development of an odontogenic myxoma (83). Either the tumor developed from the "myxomatous degeneration of fibrous stroma (Gupta et al. 83)" or it developed from the "mesechymal portion of the tooth germ, i.e. the dental papilla, follicle, or PDL (Gupta et al. 83)."

Clinical Presentation

The odontogenic myxoma is slow growing, expansile, usually painless, and does not metastasize (Gupta et al. 81). Extraorally, the clinician may observe diffuse swelling of the affected area accompanied by facial asymmetry (Gupta et al. 81). Intraorally, one may see a single, well-defined, localized swelling covered by intact mucosa (Gupta et al. 82). The swollen area is firm and resilient to the touch ((Shivashankara et al. 96). At the same time, tooth mobility is possible (Gupta et al. 82) along with paresthesia (Shivashankara et al. 94). Finally, delayed tooth eruption may be noted (Shah et al. 336).

The gross specimen appears loose, slippery, gelatinous, and whitish (Gupta et al. 82) to gray-white (Shivashankara et al. 96). The tumor is transparent, soft (Gupta et al. 82), and nodular (Shivashankara et al. 96) with very little, if any, capsule (Shivashankara et al. 96).

Demographic

The odontogenic myxoma accounts for 3-6% of all odontogenic tumors (Kawase-Koga et al. 1). Most sources report that an odontogenic myxoma usually occurs in the second and third decades of life with an average age of onset of 26.5 years old (Gupta et al. 82). Some sources say it can occur in the fourth decade as well (Shivashankara et al. 94). It is rare in children and adults over 50 years old (Shah et al. 335). There is a slight female predilection with a 1:1.5 male to female ratio (Shah et al. 335).

Biopsy / Histology / Radiographs

A biopsy will allow for a definitive diagnosis of an odontogenic myxoma (Shah et al. 335). An excisional biopsy is preferred over an incisional biopsy (Shivashankara et al. 100).

Histologically, an odontogenic myxoma presents as loosely-arranged spindle, stellate, or round cells (Gupta et al. 81) in abundant mesenchyme (Shivashankara et al. 96). Uninucleate, normal cells are surrounded by loosely-arranged collagen fibers (Shivashankara et al. 96). There may be "long cytoplasmic processes on the ends of cells (Shivashankara et al. 96)", occasional inflammatory cells, and few blood vessels, though some capillaries may be present (Shivashankara et al. 96).

Radiographs of the odontogenic myxoma care varied in their appearance (Shivashankara et al. 94). Generally, this tumor presents as a multilocular radiolucency in the posterior mandible/third molar ramus area (Gupta et al. 81). However, it may appear initially or in anterior areas as a unilocular radiolucency (Gupta et al. 82). It consists of well-developed locules with fine, thin trabeculae arranged at right angles (Gupta et al. 81). Radiographs may show a tennis-racquet, step-ladder, sun ray, sunburst (Gupta et al. 81), soap bubble, or honeycomb appearance (Shivashankara et al. 100). One may observe root resorption and cortical expansion (Gupta et al. 81), as well as possible scalloping between the roots of teeth (Gupta et al. 82).

Differential Diagnosis

There are many pathologies that an odontogenic myxoma may resemble. First and foremost, the clinician must consider an ameloblastoma, odontogenic keratocyst, intraosseous or central hemangioma, and central giant cell granuloma (Gupta et al. 83). Simple cysts (Gupta et al. 83), including a radicular cyst (Shivashankara et al. 100), must be ruled out. Other pathologies include glandular odontogenic cyst, cherubism, and metastatic tumor (Shivashankara et al. 100). In addition, osteosarcoma, fibromyxoid sarcoma, myxoid chondrosarcoma, and rhabdomyosarcoma resemble the odontogenic myxoma (Shivashankara et al. 100).

Treatment

There are numerous treatment options for an odontogenic myxoma. Treatments range from relatively conservative to extremely aggressive. Many clinicians choose enucleation and curettage (Shivashankara et al. 100). Surgery, including segmental resection, and hemimandibulectomy, may also performed (Kawase-Koga et al. 1). Any surgical procedure must be done with wide margins so as to completely remove the tumor, but this is often difficult due to its invasive nature (Shivashankara et al. 100). To help remove all of the odontogenic myxoma, Carnoy's solution may be applied to the area. This is a mixture of absolute alcohol, chloroform, glacial acetic acid, and ferric chloride (Shah et al. 337). When applied for different amounts of time, the solution penetrates the bone and destroys the myxoma (Shah et al. 337).

Other treatments include cryotherapy (Shah et al. 335). Some sources caution against radiotherapy because of the "radioresistent nature of the tumor (Shivashankara et al. 100)."

At this time, there is no consensus on treatment protocol (Shivashankara et al. 100), and no definitive management options for this tumor (Shah et al. 335). When designing a treatment plan, it is important to consider the age and sex of patient, as well as the site and size of the lesion (Shivashankara et al. 100). Signs of invasion into surrounding tissue need more aggressive treatments (Shah et al. 337).

Despite no clear evidence-based surgical management guidelines (Kawase-Koga et al. 1), some clinicians use enucleation and curettage for lesions under three centimeters, and segmental resection with immediate reconstruction for lesions larger than three centimeters (Kawase-Koga et al. 6).

After treatment, a two-year minimum follow-up is recommended. However, patients are often followed for five years, especially before performing reconstructive surgery (Kawase-Koga et al. 6). Reconstruction should only be done after the threat of recurrence is over (Shivashankara et al. 100). Ideally, the patient is followed for life (Kawase-Koga et al. 6).

Prognosis

With treatment, it is possible to completely remove an odontogenic myxoma. However, there is a 25% recurrence rate. It is more likely to recur following conservative treatment because of the potential for incomplete removal (Kawase-Koga et al. 1). Regrowth is most likely to recur within the first two years following treatment (Shah et al. 340). There is virtually no recurrence risk with radical treatments like segmental/block resection or hemimandibulectomy with resection (Kawase-Koga et al. 6).

Without treatment, the tumor will continue to grow and invade tissue while destroying the surrounding bone due to the lack of a capsule (Kawase-Koga et al. 6).

Professional Relevance

It is important to learn about and consider an odontogenic myxoma. It is an invasive and destructive tumor that can have disastrous consequences for patients. As a clinician, if I know what to look for, it is more likely that I will be able to take appropriate action.

According to Shah et al., early referral to an appropriate specialist is vital to the success of treatment (338). Less damage can be done (Shah et al. 339). At the same time, clinicians have more frequent access to patients and are more likely to "be the first to notice subtle clinical changes that a patient may not be aware of (Shah et al. 339)."

Works Cited

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