



## Swelling of the hard and soft palates

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### CLINICAL PRESENTATION

A 53-year-old female patient complaining of pain in the infraorbital region of the right side of her face for the last 2 months, but with no facial asymmetry, was referred to our service. The patient's past dental and medical histories were noncontributory, and she denied any visual or nasal problems. Intraoral evaluation revealed an extensive asymptomatic swelling measuring approximately 35 × 23 mm, with a firm consistency. According to the patient, the swelling had been present for over 2 years, but with an increased rate of growth in the last 2 months. The lesion mainly had a normal-colored surface and affected the right side of the hard palate, causing expansion of the vestibular side of the alveolar ridge and extending to the anterior portion of the soft palate, where it showed a reddish and telangiectatic surface (Figure 1). T1- and T2-weighted magnetic resonance imaging (MRI) revealed a heterogeneous tumor mass, with areas of different densities completely obliterating the right maxillary sinus, superiorly extending to the floor of the orbit, and closely associated with the inferior and medial nasal turbinates. The lesion also grew inferiorly, leading to palatine compression (Figure 2).

### Differential diagnosis

A wide range of differential diagnoses can be raised for lesions causing swellings of the upper alveolar ridge and palate; however, some clinical and radiographic features may guide diagnosticians to a more accurate provisional diagnosis before microscopic analysis. Based on the clinical appearance and MRI findings of the current case, our hypotheses included a salivary gland tumor (SGT), central ossifying fibroma, an odontogenic tumor, osteosarcoma or chondrosarcoma, and a sinonasal neoplasm extending to the oral cavity.

SGTs are usually the main differential diagnosis for swellings of the palate. A number of benign and malignant SGTs should be considered, but pleomorphic adenoma is the most common.<sup>1,2</sup> Intraorally, pleomorphic adenoma has a predilection for the palate, occurring at any age but usually affecting patients in the fourth to sixth decades of life, with a slight female preponderance.<sup>2,3</sup> Although these features are consistent with the current case, pleomorphic adenoma normally does not present the reddish telangiectatic surface observed on the posterior region of the lesion reported. On the other hand, extensive and occasionally even aggressive cases of canalicular adenoma affecting the minor glands of the palate have been described with this clinical feature. Nonetheless, this benign salivary entity is far more common in the upper lip and buccal mucosa than in the palate.<sup>4-6</sup> According to some authors,<sup>3</sup> and in our own clinical experience, the superficial telangiectatic appearance described here is more frequently observed in malignancies, and because of that, the inclusion of salivary gland malignancies in the differential diagnosis would be favored over benign neoplasms, especially mucoepidermoid carcinoma, adenoid cystic carcinoma, and polymorphous low-grade adenocarcinoma, which represent the most common intraoral malignant entities of this group. They may present with a long evolution time and also more frequently affect females in the fourth to sixth decades of life.<sup>2,7</sup> Nevertheless, the involvement of the alveolar ridge causing vestibular expansion is not typical for SGTs, and because of the presence of this characteristic, we believed that an intraosseous lesion (other than a rare central SGT) would be a better diagnostic possibility.

Because of the slow growth pattern of the lesion, causing expansion of both the vestibular and palatine aspects, we also considered the possibility of a central ossifying fibroma. This benign osseous tumor is more frequently diagnosed in females in the third and fourth decades of life,<sup>8</sup> which is consistent with our patient's age. Radiographically, a central ossifying fibroma can present a broad spectrum of images, ranging from total radiolucency to mixed and then to a more radiopaque lesion, depending on the degree of calcification. However, central ossifying fibromas are more commonly found in the posterior region of the mandible<sup>9</sup> and also lack the telangiectatic appearance observed in the

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Fig. 1. Extensive nonulcerated swelling involving the alveolar ridge and hard and soft palates. The tumor causes expansion of the osseous plates, and its surface becomes reddish and telangiectatic in the soft palate region.



Fig. 2. Magnetic resonance imaging (MRI) showing, in a coronal section, a hyperintense lesion involving the entire right maxillary sinus, going up to the floor of the orbit and pushing the palate down.

posterior area of the swelling. Similarly, odontogenic tumors, such as calcifying epithelial odontogenic tumors, were initially included in the differential diagnosis, in view of the alveolar ridge expansion and the long evolution time. However, this odontogenic tumor is also more frequently found in the posterior region of the mandible, usually associated with an impacted tooth, and a lesion completely filling the maxillary sinus would not be an expected presentation for this entity.

Head and neck osteosarcoma and chondrosarcoma are both rare aggressive malignant bone neoplasms that have already been described in almost all sites, including the

maxillary and sinonasal areas.<sup>10,11</sup> There is a slight male preponderance for both entities, and patients are usually in the third to fifth decades of life. These tumors may present with a wide range of clinical signs and symptoms, but a painless swelling is the most common complaint.<sup>12,13</sup> The radiographic appearance of osteosarcoma and chondrosarcoma may be varied, but they usually exhibit features consistent with malignancy, that is, osteolytic lesions with poorly defined borders often containing scattered radiopaque foci, more typically showing a “sun-ray” pattern.<sup>13,14</sup> The age of the patient and the location of the lesion discussed here are consistent with a presumptive diagnosis of osteosarcoma or chondrosarcoma; however, a more destructive or invasive MRI appearance would be expected for these malignancies, instead of the well-defined, more upward-pushing growth pattern of the current case. The long evolution time of the current case, with more than 2 years of duration, made us consider these possibilities unlikely.

Malignancies arising from the nasal cavity and paranasal sinuses comprise approximately 0.2% to 0.8% of malignant tumors.<sup>15</sup> Because of the anatomic proximity of the paranasal sinuses to the orbits and skull base, most tumors extend into these structures, also affecting the oral cavity through involvement of the palate.<sup>15</sup> Therefore, tumors arising from the maxillary sinus and nasal cavity must be included in the list of differential diagnoses when dealing with palate swellings. A number of entities can be found in this group, including epithelial (squamous cell carcinoma; sinonasal undifferentiated carcinoma; small cell carcinoma, neuroendocrine type), neuroectodermal (olfactory neuroblastoma, melanoma, Ewing sarcoma or primitive neuroectodermal tumor), mesenchymal (desmoplastic small round cell tumor, rhabdomyosarcoma, synovial sarcoma), and hematolymphoid malignancies, particularly extranodal natural killer or T-cell lymphoma.<sup>15-18</sup> Patients affected by these tumors present a broad age range and slight gender preponderance. Sinonasal malignancies are frequently diagnosed in advanced stages as locally spread diseases, as in the present case, and usually show many nonspecific clinical characteristics. Although the clinical presentation of the current case and the long duration can exclude most of the sinonasal high-grade malignancies, they can occasionally be less aggressive, causing palate swelling and associated facial pain, as in the present case. Moreover, the extensive involvement of the maxillary sinus, as shown by MRI, favors the diagnosis of a sinonasal tumor of an intermediate degree of aggressiveness.

### Diagnosis and management

An incisional biopsy was performed under local anesthesia, and significant bleeding occurred during the procedure. Histologic examination revealed a neoplasm

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