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Case report

A large pyogenic granuloma with extensive maxillary bone resorption penetrating the maxillary sinus: A rare case report

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ABSTRACT

Oral pyogenic granuloma, also known as lobular capillary hemangioma, is a common benign lesion in the oral cavity. Although the etiopathogenesis of oral pyogenic granuloma remains to be determined, it is speculated to be one of the inflammatory hyperplasias that arise in response to stimuli such as traumatic injury or hormonal factors. We recently experienced a gingival lesion in a 49-year-old female that presented diagnostic difficulties and was finally diagnosed as an oral pyogenic granuloma. The lesion had been initially suspected to be a malignant tumor or arteriovenous malformation because of severe bone resorption of the maxilla or its throbbing. Due to the hypervascularization of this lesion, transarterial embolization was carried out, followed by surgical excision. Pyogenic granuloma with bone resorption is quite rare and to the best of our knowledge has never been reported with extensive maxillary bone resorption penetrating the maxillary sinus. With regard to possible etiologies of this lesion, chronic stimulation by unstable tooth root that was bridged to adjacent teeth and/or a hormonal imbalance caused by progestin, which the patient has taken for many years for the treatment of endometriosis were suspected to be involved.

1. Introduction

Oral pyogenic granuloma is a common inflammatory hyperplasia in the oral cavity, arising in response to various stimuli. Microorganisms are seldom found within the lesion; therefore, it is considered to be unrelated to infection. Macroscopically, pyogenic granulomas are soft, red to purple in color, smooth or lobulated and exophytic, with a pedunculated base and usually hemorrhagic. They occur over a wide age range of 4.5–93 years. Females are slightly more often affected than males. The gingivae are known as the most common site of pyogenic granulomas followed by the lips, tongue, buccal mucosa, and hard palate [1].

The etiopathogenesis of oral pyogenic granuloma is still debatable. Currently, it is theorized that pyogenic granuloma may originate as chronic irritation of the oral mucosae in response to minor trauma such as defective fillings, periodontitis, hormones, drugs, etc. In young females especially, hormones involving vascular effects are well-known etiologic factors [2].

Among the lesions in the oral cavity, pyogenic granuloma is a relatively common lesion. However, bone resorption related with this lesion is rare [3–6]. Furthermore, pyogenic granuloma comprising extensive maxillary bone resorption penetrating the maxillary sinus has not been reported yet. Here, we experienced a rare oral pyogenic granuloma with alveolar bone resorption, which was confused with malignant tumor or arteriovenous malformation in diagnosis, describe the details of this uncommon lesion and discuss its proper treatment.

☆ AsianAOMS: Asian Association of Oral and Maxillofacial Surgeons; ASOMP: Asian Society of Oral and Maxillofacial Pathology; JSOP: Japanese Society of Oral Pathology; JSOMS: Japanese Society of Oral and Maxillofacial Surgeons; JSOM: Japanese Society of Oral Medicine; JAMI: Japanese Academy of Maxillofacial Implants.

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Fig. 1. A large, soft, exophytic mass of the upper-left gingiva.

2. Case report

A 49-year-old Japanese female had noticed bleeding from the mass of gingiva of her left maxilla for six months. However, she ignored it because she had no symptoms. She noticed the increasing size of the mass, which prompted her to visit our hospital for examination despite having no pain.

The patient had a history of Graves' disease, ovarian cysts and severe periodontitis as her complications. She had been taking methimazole for Graves' disease from the age of 32. The disease was well controlled. The ovarian cysts developed bilaterally before ten years, and the cysts were surgically resected when she was 40 years old. After that surgery, she continued taking a progesterone receptor stimulant, Dienogest, for eight years under the supervision of her physician, and the disease had been well controlled. She had periodontitis from her early years and noticed that the periodontitis became severe when she was pregnant at 32 years of age.

In our first medical examination, the dental bridge was connecting the 2nd premolar and the 2nd molar of the upper left maxilla. On both buccal and palatal sides of the gingiva around those teeth, we found a large exophytic mass of reddish purple color on the gingiva with the major axis of 25 mm. It was soft, painless, hemorrhagic and appeared to be throbbing (Fig. 1). The mass was supposed to be a hypervascularized lesion through the sonographic examination.

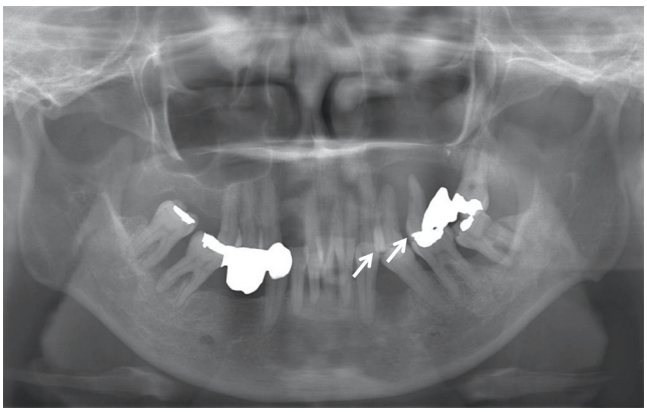

Fig. 2. The pantomography showed the floating of the 1st and 2nd premolars (arrowheads) by the loss of upper left alveolar bone and severe periodontitis.

The pantomography showed the floating of the 1st and 2nd premolars by the loss of upper left alveolar bone (Fig. 2). An enhanced computerized tomography (CT) scan showed lesion of soft tissue with extensive bone resorption to the floor of the left maxillary sinus, suggesting malignant tumor as a differential diagnosis (Fig. 3a). Magnetic resonance imaging (MRI) showed a hypervascular mass in gingiva and an accumulation of liquid in maxillary sinus (Fig. 3b). Angiography identified the descending palatine artery and posterior superior dental artery as the feeding vessels of the mass (Fig. 4). Although we confirmed the hypervascular lesion, it was not typical nidus observed in arteriovenous malformation. A biopsy was performed under local anesthesia and the pathological diagnosis of the lesion suggested the possibility of pyogenic granuloma. The result of the needle biopsy which had been performed in the previous hospital had not also shown malignancy.

After an initial dental cleaning to reduce the infectious risk accompanying surgery, scaling was repeated several times to remove the dental plaque and calculus. In order to refrain from excessive intraoperative bleeding from hyper vascular lesion, transarterial embolization of the descending palatine artery and posterior superior dental artery was performed using a platinum coil. The dental bridge connecting the 2nd premolar and the 2nd molar was removed before surgery to make the approach to the mass easier. During the procedure, the 2nd premolar fell off together with the dental bridge without any surgical approach.

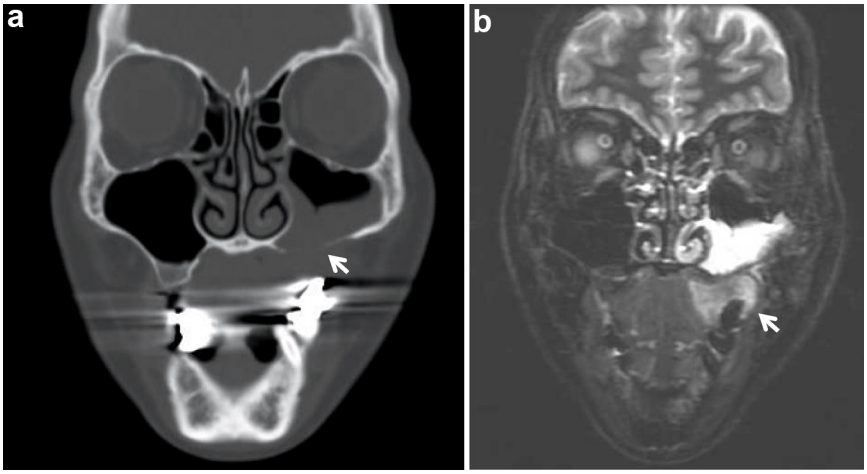

Fig. 3. CT and MRI images (a) An enhanced CT scan showed a mass with bone resorption of the floor of the left maxillary sinus (arrowhead). (b) MRI showed hypervascular mass in gingiva (arrowhead) and an accumulation of liquid in maxillary sinus.

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