

Case Report

Typical nodal calcifications in the maxillofacial region: a case report

Guomin Wu^{1*}, Xiumei Sun^{2*}, Shilei Ni³, Zhimin Zhang⁴

¹Department of Oral and Maxillofacial Surgery, Hospital of Stomatology, Jilin University, Changchun 130021, China;

²Department of Orthodontics, Hospital of Stomatology, Jilin University, Changchun 130021, China; ³Department of Oral Pathology, Hospital of Stomatology, Jilin University, Changchun 130021, China; ⁴Department of Oral Medicine, Hospital of Stomatology, Jilin University, Changchun 130021, China. *Equal contributors.

Received July 29, 2014; Accepted August 26, 2014; Epub September 15, 2014; Published September 30, 2014

Abstract: Multiple nodal calcifications in the maxillofacial region are very rare. This case report described a 49-year-old female patient diagnosed with calcified lymph nodes due to chronic inflammation of the lymphatic nodes, including the parotid lymphatic nodes, the posterior auricular lymphatic nodes and submandibular lymphatic nodes in the right maxillofacial region. In clinical practice, we conducted ultrasonography, three-dimensional reconstruction of CT and sialography make a preliminary diagnosis. Then we took surgery, while removing the calcified blocks within the lymphatic node and cleaning the wound cavity. After surgery, we used anti-inflammatory therapy for one week. Six months follow-up indicated no evidence of other calcified lymph nodes infection.

Keywords: Nodal calcification, oral and maxillofacial region

Introduction

Nodal calcifications in the neck region are uncommon, only occurring in about 1% of enlarged nodes [1]. Clinical studies have shown that calcifications of the soft face and neck tissues may occur in several mostly benign processes such as hemangioma, lateral cleft cysts, unspecific inflammations, or lymph nodes [2]. While neoplastic lesions of the major salivary glands usually do not calcify. Rarely, there may be small dot-like calcifications of the parotid gland in patients with Sjogren's syndrome. Carcinoma ex pleomorphic adenoma as well as low-grade mucoepidermoid carcinoma may both contain dystrophic calcifications [3]. Because fewer cases of maxillofacial calcified lymph nodes, an accurate clinical diagnosis is difficult.

The purpose of this article is to present a typical case of a 49-year-old female patient diagnosed with calcified lymph nodes due to chronic inflammation of the lymphatic nodes, including the parotid lymphatic nodes, the posterior auricular lymphatic nodes and submandibular lymphatic nodes in the right maxillofacial

region. This case reported the typical nodal calcifications occurred in the oral and maxillofacial unilateral, which has rarely been reported in previous literatures.

Case report

A 49-year-old female patient was admitted to Department of Oral and Maxillofacial Surgery with the chief complaint of swelling and pain on right side of parotid, which appeared for the first time 1 month before, with recurrent, clinical symptoms alleviated with anti-inflammatory treatment, intermittent episodes of swelling accompanied by pain and induration. The patient was in good general health with no history of trauma, facial infection, dental problem or major systemic disease, and there was no elevation in local temperature at the site of the swelling. Clinical examination showed limitation swelling in the right post-auricular region, resulting in facial asymmetry. Her physical examination showed a mass with the size of about 2.5 cm × 2.0 cm, hard texture, tenderness and unclear boundary in palpation of the right parotid area. The bilateral parotid gland secretion was normal, and without swelling of parotid

Nodal calcifications in the maxillofacial region

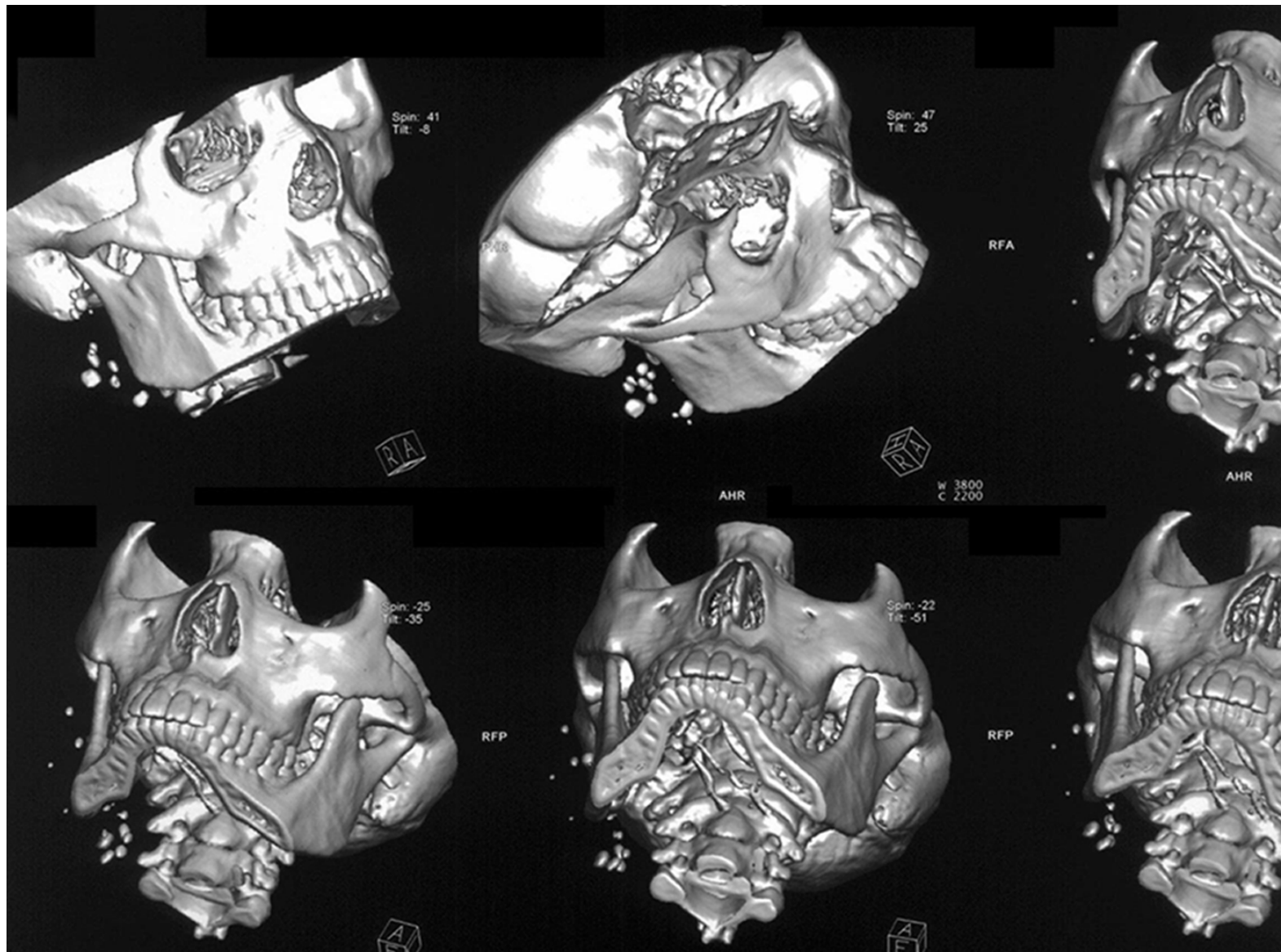


Figure 1. Three-dimensional reconstruction of CT of the patient. A number of high-density calcifications (2.5 mm × 2.0 mm × 1.5 mm) located in the parotid gland, the posterior auricular region and the submandibular region in the right maxillofacial region.

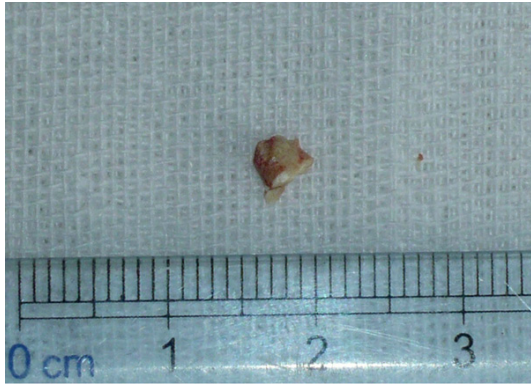


Figure 2. The high-density calcification (2.5 mm × 2.0 mm × 1.5 mm) inside the parotid gland.

duct opening. A complete lymph node examination of the cervical, submandibular, submental, supraclavicular sites revealed no positive lymphadenopathy. Intraoral examination showed no swelling or teeth displacement. Blood test, including white blood cell count, red blood cell count, calcium, alkaline phosphatase and inorganic phosphorus demonstrated no abnormality.

The ultrasound examination demonstrated an irregular lesion, 1.5 cm in diameter, in the area adjacent and posterior to the earlobe located in the right parotid. Ultrasound hint: the right parotid lymph nodes. Three-dimensional reconstruction of CT, (**Figure 1**) revealed that there were a number of high-density calcifications inside and outside the parotid gland. Radiograph of parotid angiography revealed that the right parotid duct filling was good, branch duct and acinar were not displayed, and emptying function of the right parotid was well. Diagnostic tips: The right parotid angiography showed no abnormalities. Based on the patient's medical history, clinical feature and auxiliary examination, the differential diagnosis included calcified lymph nodes, calcified lymph node tuberculosis, malignant lymph node calcification, low-grade mucoepidermoid carcinoma, hemangioma, lateral cleft cysts and unspecific inflammations. However, the definitive diagnosis could not be confirmed in this case.

Based on these findings, a treatment plan was decided to take pathology surgery. The treatment objectives and alternatives were explained to the patient, and informed consent was obtained. The patient underwent surgical resection through a pre-tragus incision to

expose the lesion in the right parotid, and to take pathology surgery was adopted to remove the lesion and calcifications, (**Figure 2**) under local anesthesia.

Histopathological examination of the tissue by hematoxylin and eosin staining revealed chronic inflammation spread over the gland. The acini were destroyed and atrophied because of the infiltration of lymphocytes and plasma cells, and replaced by proliferated fiber and histiocytes. Small focal hyaline degeneration of the fiber was found. Ducts of the gland were expanded and surrounded by proliferated fiber. Besides, slight hemorrhage was observed which may be caused by the rupture of small vessels during the operation. It is a pity that no calcified spots were found under microscope within the removed tissue.

After pathology surgery, we used anti-inflammatory therapy for one week. There was no evidence of clinical occurrence of other lymph nodes infection during 6-month follow-up.

Discussion

Physiologic and pathologic calcifications in the face and neck usually do not play a major role during the evaluation and diagnosis of diseases in the face and neck [2]. Calcified cervical lymph nodes are uncommon, but when they are identified, the most common etiologies include infection, inflammation and malignancy [4]. As surgeons dealing with the oral and maxillofacial region, we must not forget that clinical possibilities may simulate this phenomenon. The main differential diagnoses are foreign body, calcified lymph nodes, calcified parotid gland stones, tuberculous lymph nodes, calcified vascular lesions, haemangiomas, lymphangiomas, or as atherosclerotic plaques inside the major blood vessels, myositis ossificans and, finally, metastasis from distinct calcifying neoplasm [5]. The patient was in good general health with no history of trauma, facial infection, dental problem or major systemic disease, and there was no elevation in local temperature at the site of the swelling. So, we excluded the diagnoses of foreign body, tuberculous lymph nodes and malignant lymph node metastasis. Finally, the histological findings made the nodal calcifications with chronic inflammation of the parotid a definite diagnosis.

Nodal calcifications in the neck region are uncommon, only occurring in about 1% of enlarged nodes [1]. In this case an accurate clinical diagnosis was difficult because the nodal calcifications occurred in the oral and maxillofacial unilateral, which has rarely been reported in previous literatures. One of the most frequent misleading clinical states, calcified lymph node, will present as a non-painful swelling (without any "meatime syndrome"), or as a randomly revealed radiopaque lesion in the maxillofacial region, usually after tuberculous infection [6]. Phleboliths are calcified thrombi occurring in venules, veins or haemangiomas. Their formation is thought to be as a result of vascular anomaly, which induces thrombus formation. The end result is calcium deposit with eventual stone formation [7]. However, further examinations must be held when the clinical and radiographic signs are not conclusive. We recommend performing plain radiographs from different angles, sialography of the adjacent salivary gland, ultrasound and three-dimensional reconstruction of CT. The final diagnosis must be obtained according to all relevant information gathered, and only then should the appropriate treatment take place.

In this case, histological examination revealed chronic inflammation spread over the gland with the infiltration of lymphocytes and plasma cells. So it was effective to take anti-inflammatory therapy clinically. However, the surgical intervention of removal of calcification or being removed along with the lymph nodes, was not implemented.

Acknowledgements

This study was supported by a grant from Jilin University (No. 450060491134).

Disclosure of conflict of interest

None.

Address correspondence to: Dr. Zhimin Zhang, Department of Oral Medicine, Hospital of Stomatology, Jilin University, 1500 Qinghua Road, Changchun 130021, China. Tel: 86-431-88796031; E-mail: zhangzhim@jlu.edu.cn

References

- [1] Som PM and Brandwein MS. Lymph nodes. Head and neck imaging. In: Som PM, Curtin HD, editors. St. Louis: Mosby; 2003. pp. 1865-1934.
- [2] Keberle M and Robinson S. Physiologic and pathologic calcifications and ossifications in the face and neck. *Eur Radiol* 2007; 17: 2103-2111.
- [3] Som PM and Brandwein MS. Salivary glands: anatomy and pathology. In: Som PM, Curtin HD, editors. St. Louis: Mosby; 2003. pp. 2005-2133.
- [4] Eisenkraft BL and Som PM. The spectrum of benign and malignant etiologies of cervical node calcification. *Am J Roentgenol* 1999; 172: 1433-1437.
- [5] Hirschfeld JJ. Calcification in lymph nodes. *Oral Surg Oral Med Oral Pathol* 1986; 61: 412.
- [6] Bar T and Zagury A. Calcifications simulating sialolithiasis of the major salivary glands. *Dentomaxillofac Radiol* 2007; 36: 59-62.
- [7] Hessel AC, Vora N, Kountakis SE. Vascular lesion of the masseter presenting with phlebolith. *Otolaryngol Head Neck Surg* 1999; 120: 545-548.