emphysema. Often, no treatment is needed because the body will gradually absorb the air. Breathing high concentrations of oxygen may speed up this process.[5] But in our case, the air extended to the cranium and caused the severe neurologic deficits. And the shunt device extends the fascia layer and provides a tunnel between the mediastinum and cranium. Although pneumomediastinum is generally self-limited and responds well to conservative treatment,[3] we must remove the foreign body to make soft tissues seal to decrease the air leak immediately. After removal of the shunt, the air absorbed by the body and the symptoms improved. The shunt tract and the source of the air were also eliminated. So, the swelling of the buccal region and pneumomediastinum and the muscle weakness caused by the pneumocranium were all improved. The situation is controlled soon and the method is effective. However, regular postoperative follow-up is most important to monitor possible complications. The prevention is always the best treatment.

CONCLUSION

The VP shunt is a common operation, and the tension pneumocranium with pneumomediastinum was a rare complication in the literatures. We should care more to those patients with asthma or small airway disease. We should do the physical examination of the wound and tract of shunt device. Once we could early detect the complications, prove it by the image study and removal of the shunt immediately to stop the air extension, we can prevent the patient from the permanent neurologic deficits.

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Surgical Management of Myofibroma of the Gengiva

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Abstract: The purpose of this paper is to report a rare patient of oral myofibroma in a 12-year old patient and to describe its clinical, histopathologic, and immunohistochemical features to establish the correct diagnosis and surgical management.

Pathological and immunohistochemical examination is a mandatory method for establishing a definitive diagnosis of this lesion avoiding unnecessary treatment. Surgical excision and careful postoperative observation should be a treatment option.

Key Words: Maxillofacial surgery, myofibroma, oral surgery

Myofibroma is a rare fibroblastic tumor with predilection for head and neck region characterized by solitary and multicentric presentation. It is composed mainly of benign spindle myofibroblasts situated around thin-walled blood vessels.[1]

The lesions can appear at any age (from birth to 70 years), but they occur mainly in children (69%). Among this group 17% were reported during the first year of life.[2]

Myofibromas are more common in males than in females with a male:female ratio being 2:1.[2] In the solitary form of myofibroma, the head and neck region (scalp, forehead, orbit, parotid region, oral cavity) is predominantly involved (36%).[3] The trunk is the second most commonly affected site, followed by the lower and upper extremities.[4]

In case of myofibromatosis, the nodules occur not only in dermis, subcutis, and mucosae but also in muscle, internal organs, and skeleton.

The purpose of this paper is to report a rare patient of myofibroma of the gingiva occurring in the right mandibular posterior region and to describe its clinical, histopathologic, and immunohistochemical features to establish the correct diagnosis and avoid morbidity of unnecessary aggressive therapy.

CLINICAL REPORT

A 12-year-old child was referred to the Department of Maxillofacial Surgery Hospital, AziendaOspedalieraCittàdella Salute e dellaScienza, Molinette, Turin in February 2015 complaining asolitary mandibular mucosae neoformation appeared 2 months before. The patient referred a rapidly enlarging lesion causing dysphagia and weight loss. Intraoral examination disclosed an esofitic nontender ulcerated lesion at the lingual and vestibular side of the lower right molar region measuring approximately $25 \times 20 \times 15$ mm (Fig. 1A).

The painless lesion was ulcerated because of the crunching of the upper teeth. Patient's medical history was unhelpful. A panoramic radiograph and a computed tomography dental scan were obtained. No signs of cortical bone erosion were found (Fig. 1B). Incisional biopsy was performed and the specimen, fixed in 10% neutral buffered formalin, after pathological examination showed a lesion composed entirely by granulation tissue, suggesting an ulcerated angiomatoid fibrous epulis. A surgical procedure was planned. The lesion was completely excised, with 5 mm of security margin, under general anesthesia (Fig. 1C). The specimen was sent for histopathological examination. The former diagnosis was not confirmed. At gross examination, the lesion was a grayish, oval mass measuring $25 \times 20 \times 15$ mm of elastic and firm consistency; after cutting, the lesion revealed a bundled appearance, occupying entirely the specimen. Histological examination disclosed a mesenchymal neoplasm composed of spindle cells arranged in a variably fascicular or whorled growth pattern with

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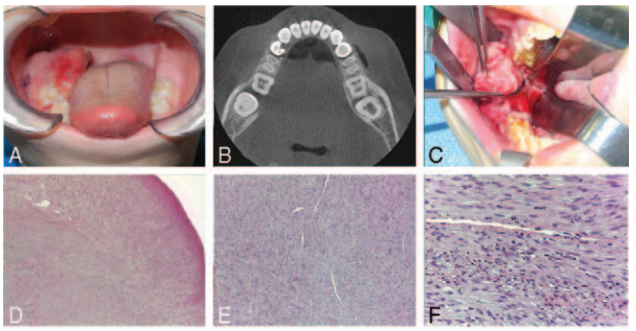

FIGURE 1. Intraoral examination showing esofitic ulcerated lesion at the lingual and vestibular side of the lower right molar region (A). Cone beam computed tomography scan axial (B) views show no erosion of cortical bone. Intraoperative view (C). The lesion has a surface ulceration with granulation tissue (D, ×50 magnification) and is composed by broad bundles of spindle cells; at higher magnification (E, ×10), the spindle cells do not show pleomorphism or significant atypia and have a myoid appearance with eosinophilic cytoplasm; the presence of elongated thin-walled vessels can be observed; at ×400 magnification (F), some mitoses are evident.

a surface ulceration with granulation tissue. A striking feature was the presence of numerous, elongated thin-walled vascular channels, around which the neoplastic cells are arranged. No significant cellular pleomorphism or atypia was present. Several mitoses were observed (4/10 high power fields) but atypical mitoses and necrosis were absent (Fig. 1D–F). Immunohistochemical stains showed a positivity for vimentin and smooth-muscle actin and a focal positivity for caldesmon. Desmin, MDM-2, S-100, pancytokeratin (clone AE1/AE3), Alk and beta-catenin were negative. Proliferation index (obtained using antibodies anti-Ki67, clone MIB-1) was around 15%. The patient was sent for consultation and the diagnosis of myofibroma was thus formulated. The postoperative course after antibiotic and antiinflammatory therapy was unremarkable and the patient was discharged after 2 days. The patient was free of local recurrence after 8 months of follow-up.

DISCUSSION

Myofibroblastic lesions are recognized and divided into 4 main groups: reactive lesions, benign tumors, borderline condition (locally aggressive fibromatoses), and sarcomas.[5]

Daimaru et al in the year 1989 first used the term Myofibromatosis and later in the same year, Smith et al called myofibroma a solitary patient of this tumor.[6,7]

Actually, the term myofibroma is adopted for a solitary lesion, while the term myofibromatosis is preferred in case of multiple lesions.[4]

The WHO classified myofibroma as a perivascular tumor.[1]

Myofibromas are relatively uncommon in the oral cavity and may be confused with benign lesions and low-grade malignant lesions.[8,9] It has been reported in the mandible, tongue, buccal mucosa with only a few patients reported from the gingiva.[10,11]

Aiki et al[12] found, in a patient series of 94 patients, that myofibromas involved the mandible (33%), gingiva (23%), tongue (15%), cheek or buccal mucosa (12%), palate (8%), lip (4%), and other areas (5%) in that order.

Clinically, the appearance of the oral myofibroma is quite variable, usually painless, rapidly enlarging and ulcerate, prompting medical attention in the suspect of malignancy. However it may regress spontaneously.[9,13]

Bone destruction is unusual, and, if present, it indicates a potential aggressive behavior. Lapela et al[14] found that among head and neck tumors, malignant lesions have been reported to accumulate significantly more 18F-FDG than benign lesions, with median standardized uptake values of 6.8 and 3.3, respectively.

Chung and Enzinger[15] reported more than 10% of patients were initially diagnosed as malignancy. Recognition of this diagnostic entity is important to avoid unnecessary surgical management with resulting functional impairment.

Histopathologically, the neoplasm appears to be of myofibroblastic origin. At low magnification, some typical architectural features may be present: the growth pattern may appear biphasic owing to alternation of light (plump myoid spindle cells with eosinophilic cytoplasm arranged in nodules) and dark-staining areas (round cells with hyperchromatic nuclei or small spindle cells). As in our patient, a distinct hemangiopericytoma-like vascular pattern may be present. As in our patient, Foss and Ellis[13] reported that mitotic figures ranged from 1 to 5 per 10 high-power fields (mean, 1.6) in 42 of 79 tumors, but there were no atypical mitoses. Immunohistochemical study has been increasing gradually since 1987 and is considered a reliable method for establishing a definitive diagnosis of this lesion: the cells are immunoreactive for vimentin and actin but do not stain for desmin or S-100 protein, consistent with a myofibroblastic differentiation.[16]

Under an appropriate diagnosis, no recurrences or overtreatments were reported.[17]

Histologic differential diagnosis consists of benign and low-grade malignant spindle cell neoplasms, such as nodular fasciitis (more frequent in adults), solitary fibrous tumor, neurofibroma, leiomyoma, myopericytoma, inflammatory myofibroblastictumor, benign fibrous histiocytoma, low grade fibrosarcoma, leiomyosarcoma, and myofibroblastic sarcoma. Treatment for the typical solitary lesion is excisional biopsy or simple excision. Local recurrence has been reported in 7% to 31% of excised patients of myofibromatosis caused by multicentric tumor feature or insufficient excision.[18] Thus, the clinical course seems to be largely determined by the extent of the disease. The prognosis of this tumor is typically excellent for solitary myofibromas with complete surgical excision. On the other hand, the patients with multicentric visceral lesions, as myofibromatosis, may show an aggressive and sometimes fatal outcome. Lower rates of recurrences, ranging from 0% to 12.5%, are reported in the study of Yon Moon et al; the recurrent patients were multiple lesions or solitary lesions with difficult surgical access or incomplete removal.[19] Chemotherapy or radiation has seldom been used for myofibromatosis except for a few patients with recurrence or nonresectable lesion.[20]

CONCLUSION

Myofibroma is a benign tumor that can cause diagnostic problems with unnecessary aggressive therapy. In fact, because of its variability in clinical presentations and rapid enlargement, it could be confused for a malignant lesion. More than 10% of patients were initially diagnosed as malignancy.[15]

In the present patient, the lesion was found on the posterior gingiva, lingual and distal to 4.7, a site common to many different types of tumors, thereby resulting in a wide range of differential diagnostic possibilities. Pathological examination is a mandatory method for establishing a definitive diagnosis of this lesion.[16] The treatment of choice is wide surgical excision with adequate safety margins in all patients and careful postoperative observation shall be continued.

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Endoscopic Versus Microscopic Transsphenoidal Surgery for Pituitary Tumors

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Background: To compare the clinical outcomes and complications of 247 pituitary tumor patients managed by endoscopic and microscopic approaches in our hospital.

Methods: The authors performed a retrospective review of 100 pituitary tumor patients treated by endoscopic endonasal transsphenoidal surgery (ETS) and 147 patients treated by microscopic transsphenoidal surgery (MTS) at our center from January 2007 to July 2014. The tumors were stratified by Knosp classification and modified Hardy classification, and tumor gross total resection (GTR)/remission rate, visual improvement rate, complications, operation time, intraoperative bleeding and length of hospital stay were compared between ETS and MTS.

Results: The GTR rate decreased with increasing Knosp grades for both ETS and MTS, with the rates of 93.3%, 87.5%, 71.4%, 58.8% for ETS and 82.8%, 92.0%, 70.7%, 36.0% for MTS in resecting Knosp grades 0, I, II, and III tumors, respectively. The visual improvement rates increased with increasing Hardy grades, which was 66.7% and 45.5% for Hardy grade B lesion, 72.2% and 71.4% for grade C lesion, and 88.9% and 78.9% for grade D lesion treated by ETS and MTS, respectively. No significant differences were observed for GTR rate, visual outcome and complication rate between ETS and MTS, while ETS resulted in more intraoperative blood loss, longer operative time, and shorter hospital stay than MTS.

Conclusions: These data conclude that, compared with MTS, ETS needs longer operation time and results in more intraoperative blood loss, but appears to achieve higher GTR rate for Knosp grade III pituitary tumors.

Key Words: Endoscopy, microscopy, pituitary neoplasms, transsphenoidal

Being an abandoned surgical approach, endoscopic endonasal transsphenoidal surgery (ETS) has now become one of the standard surgeries for pituitary tumors. With the improvements of illumination and surgical instruments, surgeons can observe anatomical structure in more detail and access the lesion easier. Limitations of endoscopic technique include a relatively steep learning curve and a two-dimensional visualization.[1] It has been a long-time debate between ETS and microscopic transsphenoidal surgery (MTS) as to which approach is superior in managing pituitary tumors. Many clinical studies comparing 2 approaches and several meta-analyses have been published in the past 20 years.[2–8] However, reports of resection rate, complications, operation time, and hospitalization associated with these 2 approaches are quite inconsistent. In this study, we retrospectively reviewed 247 pituitary tumor patients treated by ETS or MTS at our hospital, and the data showed that ETS took longer time and caused more intraoperative blood loss, but appeared to have a higher resection rate for pituitary tumors of Knosp grade III compared with MTS.

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