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Conventional Surgery in the Management of Denture Induced Fibrous Hyperplasia - ACase report

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Abstract

Denture induced fibrous hyperplasia (DFH) is a reactive lesion arising from excessive and chronic mechanical pressure on the vestibular oral mucosa. It has a female predilection and it is mostly seen in the maxilla. The size of the lesion may be as small as a few millimeters to massive lesion involving the entire vestibule. It is usually asymptomatic but sometimes severe inflammation and ulceration can occur. Denture induced fibrous hyperplasia (Epulis fissuratum, inflammatory fibrous hyperplasia) represents a reactive tissue alteration that obviously is related to persistent traumatization by ill-fitting dentures. The lesion is most commonly found in elderly patients, with a female predominance. It presents as single or multiple firm folds mostly of the anterior alveolar mucosa. Sometimes ulcerations can occur. Elimination of the inflammation and excision of the lesion is the treatment of choice. DFH in maxillary buccal vestibule in a middle age-old female patient was presented. Surgical excision was performed, and new denture was fabricated.

Keywords

Epulis Fissuratum; Fibrous; Mucosa; Surgery

Introduction

Hyperplasia refers to the tissue growth into the oral cavity, located over the alveolar ridges or the soft tissues of the vestibular sulcus. The gingival mucosa is most vulnerable to such hyperplasia as it is exposed to constant irritation. There are numerous irritating factors that result in such reactive lesions such as ill-fitting prostheses (too sharp or excessive edges), inadequate chewing forces, entrapment of food debris, dental calculus, or other iatrogenic factors. Gingival tissue can react to these irritating factors by developing a lesion commonly known as epulis in dental practice [1].

Case Report

A 56 year old female patient visited the department of Medicine and Oral Surgery, Dental Clinic of Monastir, with a four months complaint of pain, while chewing and a history of a soft tissue mass, related to the upper arch, developed to the present size, over a 12 month period. The patient has been wearing upper removable complete denture for 5 years (Figure 1). Pain was moderate and intermittent. The patient used to wear the denture during night time also. Her medical and family history was noncontributory. She had no deleterious habits (e.g. tobacco chewing). Extra oral examination showed no abnormality. Intraoral examination revealed multiple hyperplastic tissue folds in the anterior maxillary buccal vestibule, with maxillary denture flange fitting in between the tissue folds. There was an irregular ulcer on the surface. The lesion was firm and non sensitive, except for the area where ulcer was present. Palatal mucosa was normal (Figure 2).

Material andMethods

Based on history and clinical examination, a provisional diagnosis of denture induced hyperplasia was made. The patient was instructed not to wear the denture, and was educated and motivated to maintain the oral hygiene. Seeing the extent of the lesion, a surgical resection was planned. Under local anesthesia, the excision of epulis fissuratum lesion was performed usinga scalpel. Following total excision of the lesion, bleeding control was achieved by compression and primary closure was performed with interrupted

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Figure 1: Denture fitting in place,the lesion is split into two parts by the buccal vestibular edge of the denture, one part lying under the denture and the other part lying between the upper lip and the outer denture surface

Figure 2: Multiple hyperplastic tissues folds in the maxillary buccal vestibule

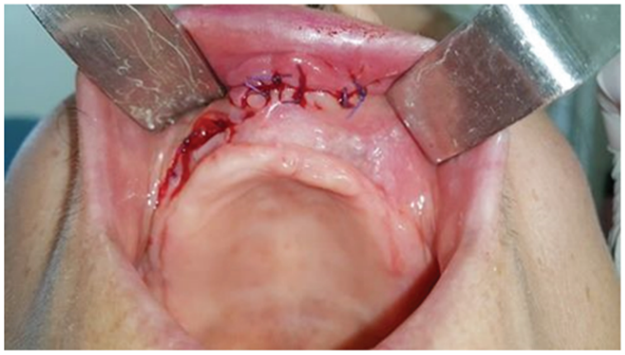

Figure 3: Immediate aspect of the treated areas

sutures (Figure 3).All specimens obtained from the patients were sent for histopathological examination to confirm the diagnosis (Figure 4). Patient was recommended to rinse with a chlorhexidine 0.2% mouthwash, starting on the second day after surgery, three times a day during the post-operative first week. Amoxicillin (1000 mg, 2x1/day) and paracetamol (500mg, 3x1/day) were prescribed. The patient was kept on a soft diet for the first 72 hours following the operation. Post-operative controls were performed, and the assessment of wound healing as well as measurement of the depth of the floor of the mouth was performed. Once the re-epithelization of surgical sites was achieved, the patient was referred for prosthetic rehabilitation.

Discussion

The Epulis fissuratum lesions may be single or numerous and

Figure 4: Operatory specimen of the maxillary lesions

they are composed of flaps of hyperplastic tissue. The presence of inflammation is variable and, if present,it is seen in the bottom of deep fissures. In some cases, ulceration may occur[1,2]. Diagnosis can be made based on the history and clinical examination of the patient. However, after surgical excision, histopathological examination is mandatoryfor confirming the diagnosis, as many other lesions may appear in the area, with a more serious outcome [3]. Typical histopathologic features of epulis fissuratum include an excessive bulk of fibrous connective tissue, covered by a stratified squamous epithelium [3]. Lesions with almost similar clinical features that can complicate the decision for a final diagnosisare: pyogenic granulomas, fibromas, peripheral giant cell granulomas, peripheral ossifying fibroma, neurofibroma, oral squamous cell carcinoma [4]. Pyogenic granulomas, again more commonly in females, are purple-red nodular inflammatory hyperplastic lesions, usually pedunculated, due to chronic irritation of the gingiva, on the maxillary anterior region especially [1]. They bleed on slightest provocation, but they are painless (unless ulcerated)and havea rapid growth pattern (unlike Epulis fissuratum), are not associated with denture wearing, and the histologic picture shows granulation tissue. Fibromas are common benign soft tissue neoplasms, most often seenin the line of occlusion of the buccal mucosa, although they can also appear on other sites, including gingiva [3,4]; they are elevated nodules of normal color, with a smooth surface and a sessile, or occasionally pedunculated base; slow growing lesions, they are more frequently seen in females of the third, fourth and fifth decades. Histological features include bundles of collagen fibers interspersed with fibroblasts and blood vessels. The distinction between hyperplasia and neoplasia may not be very clear cut in all the cases. The main differentiating factor between neoplasia and hyperplasia is that hyperplasia occurs under the influence of certain physiological factors like: growth factors, trophic hormones etc, and ceases in their absence. Neoplasia in contrast has a defect at nuclear level and hence can occur in the absence of such factors and continue to divide even after the withdrawal of the causative factor[4]. Peripheral giant cell granuloma/epulis is a reactive lesion, more commonly in females during the fourth to sixth decade of life, occurring in the mandibular gingiva or alveolar process anterior to molars, as a sessile or pedunculated mass; their surface has a dark red or vascular aspect and ulcerations may appear. Histological appearance is characteristic, with presence of multinucleated giant cells. In edentulous patients peripheral giant cell granuloma can cause superficial erosion of bone, observed as a peripheral cuffing on X-rays [5]. Peripheral ossifying fibromaisa focal gingival overgrowth, anterior to the molars, in young females . The surface of the lesion is smooth and it is of the same color as the surrounding mucosa. The characteristic and at the same time, the differentiating histopathologicalfeature is the presence of multiple calcifications [6]. Neurofibroma is a benign nerve-sheath tumor in the peripheral nervous system[8]. Oral lesions are rare, but whenpresent, occur on the buccal mucosa, palate, alveolar ridge, vestibule and tongue, as discrete non ulcerated nodules, having the same color as the surrounding mucosa. From histological point of view, they are poorly circumscribed lesions composed of fusiforme

cells (mixture of Schwann, perineurial, and fibroblasts), with elongated nuclei and numerous mast cells [7].

Denture-induced hyperplasia can be treated surgically or conservatively. In the early stage, denture coverage with a soft liner material is frequently sufficient for elimination or reduction of the lesion. However, in later stages, when the hyperplastic tissue is composed of significant fibrosis, surgical excision is the treatment of choice. Excision can be performed by either conventional surgical approach or bylaser ablation (which provides minimal postoperative edema and pain); laser procedures are the new treatment modality,offering high qualityand being considered an enhancement to traditional treatments (they provide areduced need of anesthesia during the treatment and a great reduction or lack of posttreatment pain, making the patient experience easier) [2]. Recently, the liquid nitrogen cryosurgery has also been studied for its utility in this regard. A novel study has shown that, in terms of hemorrhage control and postoperative healing, the liquid nitrogen cryosurgery has results equal to that of the carbon dioxide laser. There are various mechanisms of action for cell death after freezing, which can be divided as direct and indirect effects. The first is the direct or cellular effect, by intracellular and extracellular crystallization, whereas secondary or vascular effects are due to the increase in vascular permeabilitywith capillary liquid extravasation to the outside of the cellthat leads to the cell death [8,9]. The appropriate prosthetic reconstruction is mandatory after the surgery, the prosthesis should be adjusted immediately, loosening the vestibular skirt and shortening the vestibular labial frenum to avoid trauma in the area of the lesionthen reinserted over the surgical bed, permitting by the maintenance of vestibular sulcus to prevent a loss of sulcus depth [10].

Conclusion

Oral mucosa demonstrates a significantly low tolerance level to injury and irritation compared to human skin. If the complete removable denture plays an important role in improving the quality of life of edentulous patient, it is a known fact that, the wearing of poorly adapted prosthesis can cause mucosal lesions, very often an epulis fissuratum. This can be avoided by establishing hygiene means and periodic checks of dentures to prevent bone resorption and fibrous hyperplasia due to chronic irritation by too sharp or excessive edges. Surgical excision is the definitive treatment of epulisfissuratum, always with appropriate prosthetic reconstruction. The treatment is usually performed with conventional surgery excision. The denture covered with tissue conditioner is adapted and reinserted over the surgical bed, permitting the maintenance of vestibular sulcus.

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