COMPARATIVE STUDY OF HYPERPLASTIC LESIONS OF THE ORAL MUCOSA

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Abstract

The aim of this study was to histologically compare two hyperplastic lesions from the oral cavity removed by conventional surgical techniques and the prosthodontic rehabilitation after healing of these hyperplastic lesions with new complete dentures. Epulis fissuratum occurs when the oral mucosa reacts to the irritation action of the poor fitting denture. These lesions due not spontaneously resolve and must be surgically removed. Following healing, a new denture is fabricated. Two separate cases of epulis fissuratrum are presented and their surgical and rehabilitative management discussed. The need for vestibuloplasty is addressed, along with the histopathological examination of the excised tissue. After one year, the oral examination reveals the patients have not had a reoccurance and the prosthodontic restorations are in good shape.

Keywords: Epulis fissuratum, hyperplastic lesion, denture, surgical therapy

Introduction

Hyperplasia represents a tissue growth into the oral cavity located over the alveolar ridges or the soft tissues of the vestibular sulcus, with a multifactorial etiology (Tamarit Borràs et al., 2005).

Gingival enlargements may be inflammatory, non-inflammatory, or a combination of the two type (Rajendran & Shivpathasundharam, 2007). Frequently, the hyperplasia appears because of local irritations such poor oral hygiene, accumulation of dental plaque or calculus and mouth breathing

(Kalburge & Metud, 2010).

Historically, the term “epulis” (Cooke, 1952) has been used to describe a pedunculated or sessile hyperplastic swelling of the gingiva (Savage & Daly, 2010). This may be localized (nodular) or generalized (symmetric) (Coletta & Graner, 2006). An histological examination indicates that there are different types of gingival overgrowth: focal fibrous hyperplasia, peripheral ossifying fibroma, pyogenic granuloma, peripheral giant cell granuloma (PGCG) (Nartey et al., 1994). The most frequently described gingival enlargements are the peripheral fibroma (PF)/epulis, followed by pyogenic granuloma, PF with calcification, and PGCG (Kfir et al., 1980; Zhang et al., 2007).

Gingival fibromatosis present around crowns may be an inherited condition, associated with medication, or may be idiopathic (Shyam & Swarakanath, 2013). It is characterized by massive gingival enlargement that appears to cover the tooth or crown surfaces. The cause of the disease can be unknown, but in some cases it appears to be a genetic predisposition (Salinas, 1982; Shapiro & Jorgenson, 1983).

Denture-related oral mucosal lesions (DML) such as denture-induced fibrous hyperplasia (IFH- epulis fissuratum) and inflammatory papillary hyperplasia (IPH) are more prevalent in older subjects than in younger individuals (Lin, 2001). Most types of lesions are benign and quite symptomless (Budtz-Jorgensen, 1981). However, a common tissue reaction to a chronically ill-fitting denture is inflammatory fibrous hyperplasia (DIFH) (Rajendran & Sivapathasundaram, 2006).

The treatment of these hyperplastic lesions includes elimination of the causative factors and surgical removal of the lesion (Blanco et al., 1999; Zarb et al., 1997). The most common techniques used for removing the hyperplastic lesion are surgical scalpel, electrical scalpel, carbon dioxide laser (Luomanen, 1992; Pogrel, 1989; Pick & Pecaro, 1987; Gaspar & Szabo, 1989; Paes-Junior & Niccoli-Filho, 2001), Erbium: YAG laser, Neodymium: YAG laser, and diode laser.

When using a conventional surgical approach, a high level of skill, and accurate planning of incisions and repositioning of tissues is mandatory to prevent loss of sulcus depth (Thuaksuban & Nuntanaranont, 2003; Naveen, Kumar & Bhaskaran, 2007).

Case Report

Case Nr.1

A 59 year-old male presented to the Dental Clinic of the University of Medicine and Pharmacy in Târgu-Mureş for dental treatment, having a chief complete of a fractured maxillary denture. His dental history revealed that he had had no teeth in the maxilla since he was 47 years old, and that he

wore complete maxillary and mandibular acrylic dentures. These dentures had never been relined or repaired.

The intra-oral clinical exam revealed that the patient had a retained, non-restorable maxillary left permanent cuspid. A multi-lobulated, hyperplastic lesion was present, extending from the right Stensen duct to the vestibule above the maxillary left canine. (fig. 1). On palpation, this growth was firm, pink, movable and painless.

Fig. 1 Clinical aspect of lesion - first case

A review of the patient's systems revealed that he had no conditions or medications known to include gingival overgrowth. A complete blood count and general biochemistry were within normal values. A provisional diagnosis of epulis fissuratum was made. Surgical removal of growth was proposed, followed by the fabrication of a new maxillary denture after the healing was completed.

Case Nr.2

A 64 year-old female presented to a dental private practice, expressing a chief complaint of poor aesthetic appearance and halitosis, as well as gingival enlargement in the maxillary anterior region. The dental history revealed that a fixed partial denture, extending from the maxillary right permanent canine to the maxillary left first molar, had been fabricated and placed approximately 20 years previously.

Upon examination, the patient had poor oral hygiene. Marginal adaptation and gingival overgrowth near the prosthesis was evident. The overgrowth was extensive, and almost completely covered the maxillary left labial region (fig. 2). A review of the patient's systems revealed that she had no conditions or medications known to include gingival overgrowth. A complete blood count and general biochemistry were within normal values. We suggested investigations for hypersensitivity to dental materials; however, the examination didn't confirmed any allergies to dental materials.

Fig. 2 Clinical aspect of the lesion - second case

On palpation, the growth was firm, dense, fibrous, pedunculate, painless, with normal gingival color. The panoramic radiographic examination revealed crestal bone loss with periodontal pockets near the remaining teeth and calculus in this region.

A provisional diagnosis of gingival fibromatosis was made. Surgical removal of the hyperplastic area was proposed. Following complete healing, the fabrication of a new prosthesis would be performed.

Treatment

The surgical management of these cases was similar. Surgical anesthesia was obtained using 2% articaine with 1:100,000 epinephrine local anaesthesia, blocking the infraorbital nerves, the naso-palatine nerve, and greater palatine nerve.

After the excision of the gingival overgrowth an uncovered mucosal area resulted, the dimension of the operatory piece was 52 mm (fig. 3a).

At the second case uncovered fix gingival area was obtained, without any consequences on the confection of an acrylic denture, and without modifications on the vestibular sulcus depth. The dimension of the operatory piece was 57 mm (fig. 3b).

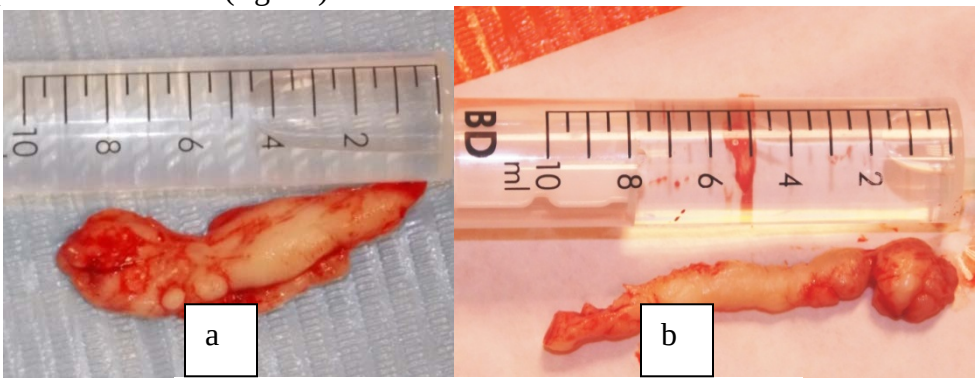

Fig. 3 Macroscopic aspect of the growths (52 mm, 57 mm)

Iodoform gauze compresses were used to obtain hemostasis and were sutured to the surgical site for 2 days. A prescription of 500 mg of Amoxicillin was prescribed every six hours for 5 days. Postoperative pain was managed with 10 mg of Ketorolac for 3 days, to be taken twice a day as needed. 0.2% clorhexidine gluconate mouth rinse was prescribed to aid healing.

The sutures were removed after 10 days. The postoperative pain and edema were minimal.

Impressions for new prosthesis were obtained 4 weeks after the surgery. New well-formed acrylic dentures were fabricated. The patients were comfortable with their new dentures, and were recurrence-free during the follow-up period of 1 year.

The histologic examination showed no signs of malignancy in both cases.

Diagnosis:

First case: **Fibrous epithelial hyperplasia with marked inflammation**

„Fragments from gingival mucosa are showing hyperplasia both in the epithelial layer and underlying connective tissue. The epithelium is moderately thickened, with a marked inflammatory limfoplasmocitar infiltrate. The epithelial hyperplasia is mostly simple, just in a few outbreaks it becomes complex, with a weaker boundary in the stromal-epithelial tissue. The stromal compartment is made of mature connective tissue, rich in collagen fibers with vascular elements (fig 4a).

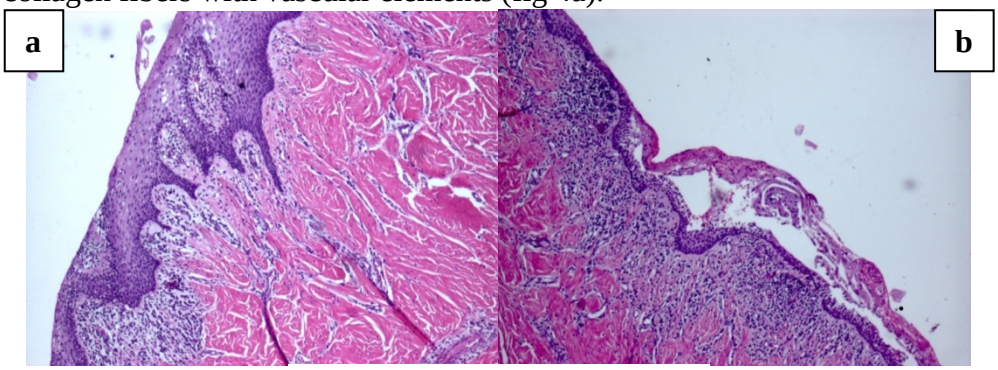

Fig. 4 Histopatologic aspect – first case

A marked inflammatory infiltrate with epithelial and underlying stromal component involvement can be observed. Inflammatory infiltrate is dominated by small, mature lymphocytes, with rare plasmocytes and polymorphonuclear leukocytes. Sometimes epithelium is thinned, with a fibrinous exudate on it's surface (fig. 4b)“.

Second case: **Fibrous epithelial hyperplasia**

„The tissue fragments are showing hyperplasia both in the epithelial layer and underlying connective tissue. The epithelium is thickened especially at the level of squamous layer (acanthosis). The epithelial hyperplasia is mostly simple, just in a few outbreaks it becomes complex, with a weaker boundary in the stromal-epithelial tissue, with epithelial protrusions of stromal compartment and their anastomosis. Into the stromal compartment is remarkable the presence of dense connective tissue with collagen fibers, and a discrete limfoplasmocitar inflammatory infiltrate (fig. 5)".

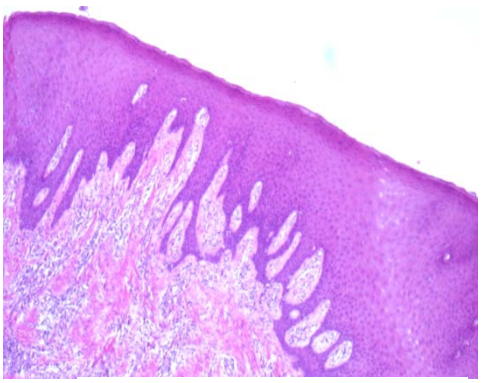

Fig. 5 Histopatologic aspect – second case

Discussion:

Localized gingival enlargements represent a group of lesions with distinctive clinical manifestations. They are reactive lesions emanating from the superficial fibers of periodontal ligaments and their rapid growth. After the removal of these lesions a follow-up is required to ensure the early diagnosis of any recurrence (Savage & Daly, 2010).

When inflammatory cell infiltration, vascular engorgement and edema predominate, gingival enlargement is referred to as inflammatory gingival hyperplasia. When the predominant component is represented by dense fibrous tissue, the condition is referred to as fibrotic gingival hyperplasia (Greenberg & Glick, 2005).

Most cases of epulis fissuratum occur in the anterior region of the jaws, and is more frequent in elderly patients (Tamarit-Borras, 2005). Lobulated hyperplastic lesions can be explained by pronounced bidirectional (horizontal and vertical) resorption of the bone, and by the absence of relining in the last 12 years (Firoosmand, 1979).

Surgical excision is the definitive treatment of epulis fissuratum, always followed by prosthetic treatment. It is important to perform histopathological examinations in order to confirm the clinical diagnosis or to discover malignancy in any of the lesions (Vargas et al., 2005). Usually,

conventional surgical techniques are utilized to perform this surgery. It must be remembered, however, that surgery can result in significant loss of sulcus depth or even result in full elimination of the vestibule (Keng & Loh, 1992).

The surgical excision must be planned carefully in order to avoid excising attached mucosa, to prevent loss of sulcus depth. In the absence of mucosal over-ridge a skin graft must be placed, and a splint inserted to maintain the patency of the sulcus following surgery. Dentures must be made and inserted into the mouth as soon as possible (Niccoli-Filho, 1999).

The success of the prosthetic treatment is conditioned by a mucosal area, capable to support the prosthetic pressures of the dentures (Lello & Makek, 1985).Oral hygiene and the periodic plaque control have a crucial effect on the prognosis of gingival fibromatosis (Shetty et al., 2010). Some authors consider, that brushing isn't an effective method for denture disinfection, and recommended the use of chemical agents in the cleaning process (Shay, 2000).

Conclusion:

Because of the possibility of malignant transformation, histopathological examination has to be performed. In the presented cases, the microscopic examination strengthened the clinical diagnosis. There were no remarkable differences between the two types of hyperplasia after the reviewing the findings of the histological examination. Classical surgical techniques yielded very good results. The patients are recurrence free, have healthy gingiva and are satisfied with the results.

New prostheses should be fabricated as soon as healing allows. This returns the patient to form and function as well as maintains the integrity and normal anatomy of the surgical site. The course of the patient's rehabilitation must be monitored carefully. Relining and adjustments to the prosthesis should be made, as necessary. Further, patients must be educated to maintain their own hygiene as well as correct method of cleaning their denture prosthesis.

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