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A Case Report and Update of Giant Cell Fibroma

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ÖZET

Dev hücreli fibroma ile ilgili olgu raporu ve güncelleme

Dev hücreli fibroma, geleneksel fibromdan ayırt edici klinikopatolojik özelliklerle ayrılan fibröz bir tümördür. Biyopsi alınan tüm oral fibröz proliferasyonların yaklaşık %2 ile %5'ini oluşturmakla beraber ağırlıklı olarak Kafkaslarda nadiren diğer ırklarda görülür. Çoğu zaman dev hücreli fibroma, papiller yüzeyi nedeniyle papilloma ile ya da fibröz veya elastik yapısından dolayı fibrom ile karıştırılmaktadır. Bu olgu sunumunda 30 yaşındaki otistik bir kadın hastanın kesici papilla bölgesinde gözlenen dev hücreli fibroma anlatılmaktadır.
Anahtar sözcükler: Dev hücreli fibroma, fibrom, histopatoloji, dev hücreler

ABSTRACT

A case report and update of giant cell fibroma

The giant cell fibroma is a fibrous tumour with a distinctive clinicopathologic features which sets it apart from a conventional fibroma. It represents approximately 2% to 5% of all oral fibrous proliferations submitted for biopsy and is found predominantly in Caucasians and rarely in other races. Most often giant cell fibroma is mistaken for papilloma because of its papillary surface or fibroma because of its fibrous or elastic nature. Here, we report a case of giant cell fibroma, in the region of the incisive papilla, in a 30-year old autistic female.
Key words: Giant cell fibroma, fibroma, histopathology, giant cells

INTRODUCTION

The giant cell fibroma (GCF) is an interesting non-neoplastic lesion of the oral mucosa. It was first described by Weathers and Callihan in 1974. It was named for its characteristically large, stellate-shaped, mononuclear and multinucleated giant cells. Weathers and Callihan reviewed more than 2000 specimens at Emory University of which 108 specimens met the criteria for reclassification of GCF (1). Before Weathers' and Callihans' distinction of GCF, Eversole and Rovin compared and contrasted 279 fibrous hyperplastic gingival lesions, which falls into four categories: pyogenic granuloma, peripheral gingival fibroma, peripheral giant cell granuloma, and peripheral ossifying fibroma. Each has its own diagnostic histopathologic characteristics but exhibit overlap of clinical presentation (2,3). After distinguishing GCF among fibrous hyperplasias, Weathers and Campbell further elucidated the structure of the lesion when they studied them under light microscopy. They concluded again that dominant cells in the GCF were indeed unique, and that GCF merited its own classification (4,5).

Giant cell fibroma is a fibrous oral benign asymptomatic pedunculated or sessile nodule less than 1 cm in size, more commonly seen in the mandibular gingiva and the lesion may persist for several years (6,7). The giant cell fibroma is a localized reactive proliferation of fibrous tissue, much like the irritation fibroma. It usually remains small and may have a broad base or be on a thick stalk. It is painless and often has lobules or nodules on its surface. The most characteristic histological feature is the presence of large spindle-shaped and stellate-shaped mononuclear cells and multinucleated cells (4). Very few case reports are seen regarding this tumour and controversy regarding the origin of this lesion continues (8).

Here, we report a case of a 30-year old female who had

a growth in the palatal gingiva adjacent to the maxillary central incisors which turned out to be a giant cell fibroma after histopathologic confirmation.

CASE REPORT

A 30-year old female patient was referred to the department of oral medicine and radiology with a complaint of a growth in the gums behind the upper front tooth since one month. She was accompanied by her parents who noticed the growth a month back. History revealed that the patient was a known case of autism since childhood. History also revealed that the patient visited the psychiatrist during her childhood and was undergone behavioural therapy. She was not under any medication and had no other systemic diseases. The patient and her parents noticed the growth since one month. It was smaller than the present size at the time the parents noticed and gradually grew up to the present size. The lesion was asymptomatic.

On general examination, the patient was moderately built and nourished. Extraoral examination revealed no gross facial asymmetry, convex facial profile and protrusion of the anterior maxillary teeth. Intraoral examination revealed a solitary, pedunculated, nodular growth, pink in colour, measuring approximately 1 x 0.5 cm in dimension, occupying the palatal surface of 11 and 21, extending 3 mm lateral to the distal surface of 11 till 3 mm mesial to the distal surface of 21, superiorly up to the middle third of the crown of the palatal surface of the maxillary central incisors and inferiorly involving the marginal gingiva, interdental papilla and attached gingiva at the region of the incisive papilla (Figure 1). On palpation, the lesion had smooth surface and was firm in consistency. No pain, surface discharge or ulceration was seen on palpation. Examination of the upper and lower arch also revealed generalized erythematous and edematous gingiva, generalized gingival recession, periodontal pockets, generalized deposition of stains and heavy calculus deposition. Maxillary and mandibular anterior teeth and premolars showed diastema, partially rotated tooth w.r.t 14 and completely rotated tooth w.r.t 35. Mandibular anteriors showed grade 1

Figure 1: Photograph showing clinical appearance of giant cell fibroma

Figure 2: Photograph of the post surgical specimen

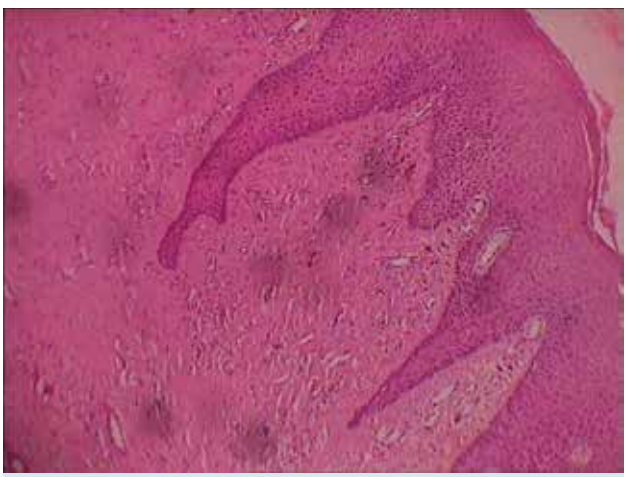

Figure 3: Photomicrograph of the hematoxylin and eosin-stained tissue sections of the lesion showing epithelium and connective tissue. The connective tissue comprised of dense bundles of collagen fibres with characteristic large, plump, stellate fibroblasts, few blood vessels and chronic inflammatory cells. The overlying epithelium showed parakeratinized stratified squamous type exhibiting thin, elongated rete ridges in few areas.

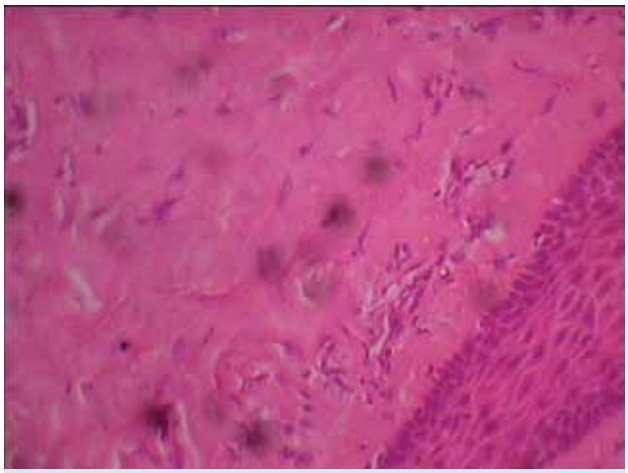

Figure 4: Photomicrograph of the hematoxylin and eosin-stained tissue sections of the lesion showing epithelium and connective tissue. The connective tissue comprised of dense bundles of collagen fibres with characteristic large, plump, stellate fibroblasts, few blood vessels and chronic inflammatory cells. The overlying epithelium showed parakeratinized stratified squamous type exhibiting thin, elongated rete ridges in few areas.

mobility, and presence of dental caries w.r.t 26, 37, 47, 48.

Based on its clinical presentation, a provisional diagnosis of pyogenic granuloma was established. Based on the clinical appearance and the lesion's history, the differential diagnosis included primarily reactive and benign neoplastic lesions, such as traumatic fibroma, peripheral ossifying fibroma, peripheral odontogenic fibroma, giant cell fibroma, peripheral giant cell granuloma.

The treatment procedure was explained and informed consent was obtained. The patient was advised for routine blood investigation and excisional biopsy. The blood investigation results were within the normal limits. The lesion was excised under local anaesthesia. Sutures were placed. Postoperative antibiotics were given. The patient was instructed to take analgesics, if needed. The excised specimen was sent for routine histopathological examination. Submitted specimen was whitish in colour and firm to hard in consistency measuring approximately 1.4 x1.1 x 0.5 cm in dimension (Figure 2).

Histopathological examination of hematoxylin and eosin stained sections showed epithelium and connective tissue. The connective tissue comprised of dense bundles of collagen fibres with characteristic large, plump, stellate fibroblasts, few blood vessels and chronic inflammatory cells. The overlying epithelium showed parakeratinized stratified squamous type exhibiting thin, elongated rete ridges in few areas (Figure 3 and 4). Based on the microscopic findings, the lesion was diagnosed as "giant cell fibroma".

DISCUSSION

Fibrous hyperplasias are considered reactive proliferations of fibroblastic tissue rather than neoplastic proliferations (9). Most are the result of chronic injury or irritation. GCF was at one time hypothesized to be virus-induced (10), but that claim was never substantiated; therefore, it is believed to arise as a result of a stimulus, the source of which cannot always be determined (11). Giant cell fibroma makes up about 1% of oral biopsies and 5% of all oral mucosal fibrous lesions. Giant cell fibroma occurs in the first 3 decades of life with peak incidence in the second decade. Lesions in older patients are usually found to be present for many years. These lesions are found to be more common in females and have a marked preponderance for Caucasians (12). The lesion is most often described as asymptomatic, small raised, pedunculated and papillary growth, often misdiagnosed as papilloma. The vast majority of the lesions are less than 1 cm in diameter with an average size more frequently under 0.5 cm. These lesions are most commonly seen on the mandibular gingiva, followed in descending order by the maxillary gingiva, tongue, palate, buccal mucosa, lips and floor of the mouth (6). It is typically of normal mucosal color unless traumatized during mastication or oral hygiene procedures (1,7). Four studies have shown a slight female preponderance for the occurrence of GCF (3,6,7,13), whereas another study has demonstrated no significant sex predilection (6).

Pyogenic granuloma was considered as the provisional diagnosis because it arises most commonly in the gingiva. The lesion is usually an elevated, pedunculated or sessile mass with a smooth surface, as seen in our case. The pyogenic granuloma may develop rapidly, reach full size and then remain static for an indefinite period and the lesion is also found most commonly in maxillary anterior region. The clinical differential diagnosis includes squamous papilloma, irritation fibroma, pyogenic granuloma, ossifying fibroma and peripheral giant cell granuloma (14). GCF usually develops sometime in the first three decades of life, whereas irritation fibroma, possibly the lesion most similar to GCF, is found in older adults, in

the fourth to sixth decades. Irritation fibroma is also found more in females (2:1), while GCF is generally considered to have no gender predilection. As for location, the irritation fibroma is located more commonly on the buccal or labial mucosa along the line of occlusion, as opposed to the gingiva for GCF (5). Retrocuspid papilla has a very characteristic location on the mandibular lingual attached gingiva, inferior to the canine. It is a small, pink papule measuring up to 5mm and is frequently bilateral (15). The clinical diagnosis of ossifying fibroma was a logical inclusion in the differential diagnosis of this lesion, as it can look much like the GCF clinically (16). Ossifying fibromas are typically normal mucosal color like GCFs, but they have islands of osteogenic cells dispersed throughout the lesion. Unlike GCF, peripheral ossifying fibroma is found only in the gingiva, occurs more in females, and is thought to arise from the periodontal ligament. The clinical diagnosis of papilloma was highly unlikely because most of the squamous papillomas have a bosselated or papillary surface, but this was merely a smooth, round enlargement in the gingiva (5). Peripheral giant cell granuloma affects females almost twice as frequently as males. Lesions are asymptomatic and have a relatively rapid growth rate. It varies in size from 0.5-1.5 cm. It is most often dark red, vascular or hemorrhagic in appearance (14).

Histologically the GCF are characterized by a diffuse, somewhat immature, rather avascular collagenic stroma with small bipolar and slightly stellate fibroblasts scattered throughout in moderate numbers. Occasional fibroblasts will be quite large and angular, and may have more than one nucleus. GCF is characterized by the presence of numerous large stellate and multinucleated giant cells in a loose collagenous stroma. These pathognomonic cells are never hyperchromatic, as they would be if they were truly dysplastic fibroblasts, and they often have a smudged appearance (2,17). Ultrastructural examination has suggested that the stellate and multinucleated giant cells are unusual fibroblasts (2,18,19). Electron microscopic and immunohistochemical study revealed that this giant fibroblast are identified as atypical fibroblasts and formed by fusion of mononuclear cells (2,20). Several immunohistochemical studies have been performed to determine the origin of these giant cells. Giant fibroblasts showed negative reactivity for cytokeratin, neurofilament, HHF, CD 68, HLA DR, Tryptase and S 100 protein (2,10). The Results showed positive staining only for vimentin and prolyl-4 - hydrolase. This suggests that the stellate and multinucleate cells of GCF have a fibroblast phenotype (2).

The choice of treatment for GCF is surgical excision in adults whereas in children electrosurgery or laser excision is preferred (8). Electrosurgery's main advantage is the direct tissue haemostasis without need for sutures (21,22). In addition, there can be access to areas difficult to reach and reduction of chair time (22). Laser therapy has been suggested as an alternative approach (23,24). Concerning the excision of soft tissue lesions, CO2 and Nd:YAG laser have been suggested for the excision of fibromas with various advantages such as direct haemostasis and disinfection of the surgical field, minimal postoperative pain and inflammation, elimination of sutures and acceleration of the healing process. However, they lead to vaporization of the lesion and do not allow histopathological analysis of the tissue (24). Diode and erbium lasers are also optional in the treatment of soft tissues indicated for the excision of lesions while permitting histopathological analysis (25). Recurrences are considered rare. The recurrence of these cases are reported in few incidences and found to be due to incomplete removal of the lesion (1).

CONCLUSION

Weathers and Callihan in 1974 first postulated that GCF is a separate entity. It is much more important to distinguish giant cell fibroma from other non-neoplastic lesions that could have impact on developing structures or bone lesion. All authorities do not believe that the giant cell fibroma should be classified as a separate entity. They feel that the histology of the giant cell fibroma is not sufficiently characteristic or unusual to warrant separation from other focal fibrous hyperplasias. However, Weathers and Callihan feel that, along with its distinctive histolopathologic features, its characteristic location, age distribution, size, surface characteristics, and lack of remarkable gender predilection clearly separates it from the usual fibrous hyperplasias of the oral mucosa.

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