CLINICOPATHOLOGIC CONFERENCE

Slowly enlarging gingival mass in a 50-year-old man

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CASE PRESENTATION

A 50-year-old man presented to the Dental Clinic of the Washington, DC, Department of Veterans Affairs Medical Center with a triangle-shaped, dark red, lobular, soft gingival mass protruding from the embrasure of the maxillary central incisors (Figure 1). There was no ulceration or erosion of the surface. The patient reported that the growth had been present for about 2 months and was slowly enlarging. His past medical history was remarkable for an excisional biopsy of a small "fibroma," which consisted of mature collagen bands and bundles with a few foci of inflammatory cells, in the lower labial mucosa 14 months previously. He also had undergone a total hip replacement 3 months previously. His medications included flunisolide, gabapentin, hydrochlorothiazide, and vardenalil. Routine blood tests were normal.

A comprehensive periodontal examination revealed probing depths ranging from 2 to 4 mm. There were a limited number of sites, mainly associated with the mandibular incisors, which exhibited bleeding on probing consistent with the diagnosis of localized gingivitis.

The mass was firm and did not blanch under pressure. The mesial aspects of the crowns of the central incisors were stained and had slight accumulations of plaque and calculus (Figure 1). A periapical radiograph (Figure 2) showed a minute subgingival spur of calculus on the mesial aspect of the root of the left central incisor. There was no widening of the periodontal ligament space, and no erosions or other abnormalities of the alveolar bone.

This article was declared exempt from review by the Chairman of the Human Subject Subcommittee and the Research and Development Committee of the Washington, DC, Veterans Affairs Medical Center, as the procedures were undertaken for diagnostic, not research, purposes, and it contains no personal identification data.
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DIFFERENTIAL DIAGNOSIS

The interdental gingival location, soft consistency, dark red color, and lack of bony involvement suggested several common reactive growths and a number of neoplasms.

Pyogenic granuloma (PG)[1,2] took first place in the initial differential diagnosis of the gingival mass in this case, as the clinical presentation was a textbook example of a PG. This reactive hyperplastic lesion generally presents as a lobular red mass of vascular tissue, similar in appearance to granulation tissue. It is relatively common, slightly more so in females, occurs in a wide age range, may be ulcerated, and sometimes causes shallow erosion of the underlying alveolar bone. The gingiva is the most common oral site. The rate of enlargement varies, and some may reach several centimeters in diameter. An important predisposing factor is hormonal changes at puberty and during pregnancy. Capillaries are the dominant blood vessel, and chronic inflammatory cells are common but variable. When inflammatory cells are scarce, PG may be histologically indistinguishable from hemangioma. Indeed, lobular capillary hemangioma has been proposed as a term to replace PG.[3] Neither term is ideal, as few cases of PG exhibit purulence and they are not granulomas (but do resemble granulation tissue), whereas hemangioma connotes a neoplastic rather than a reactive lesion. Growth is thought to be stimulated by chronic trauma or a nidus of calculus or foreign material. Peripheral giant cell granuloma (PGCG) is identical to PG with respect to clinical features and age range, but it is uncommon and is not influenced by hormonal factors associated with puberty and pregnancy.[1,2] Both PG and PGCG are treated by surgical excision and removal of sources of chronic trauma and irritation such as fragments of calculus. Recurrences occur occasionally and usually are treated with excision to deeper tissues, such as periosteum and periodontal membranes.

The failure to blanch under pressure tended to rule out hemangioma (other than PG/lobular hemangioma), although this test might be inhibited in one with drainage partly blocked by a phlebolith or thrombus. The edema of PGs with a strong inflammatory component might also inhibit blanching.

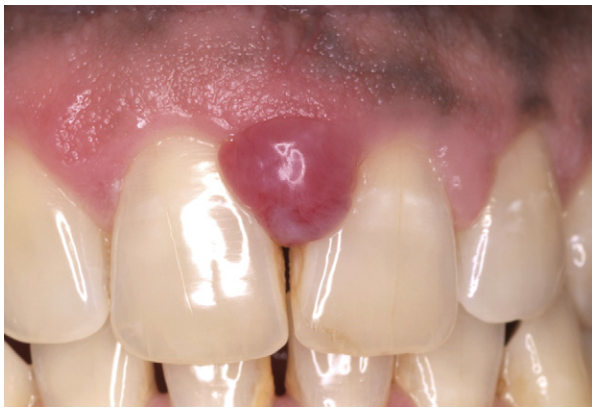

Fig. 1. An exuberant, dark red mass emanates from the interproximal gingiva of the maxillary central incisors. The presence of slight stain and supragingival plaque can be appreciated.

Localized juvenile spongiotic gingival hyperplasia usually presents as a "papillary, bright red and easily bleeding gingival overgrowth," superficially resembling PG.[4] This entity differs clinically from PG in having a "granular, pebbly, or velvety," not lobular, surface, and almost all cases have occurred before the age of 20 years. Histologically there is papillary hyperplasia of noncornified epithelium and intracellular edema, with richly vascular connective tissue pegs.

Wegener's granulomatosis is a serious disease that classically affects the lungs, kidneys, and upper respiratory tract, but sometimes affects the gingiva.[1-3] The gingival lesions are bright red and granular with yellow flecks, and so have been described as "over-ripe strawberries."[5] The histologic picture is a vascular granulomatous mass with pseudoepitheliomatous hyperplasia, microabscesses, and multinucleate giant cells. The patient in the present case had no systemic signs or symptoms and the gingival lesion bore little resemblance to "strawberry gum."

Malignant neoplasms such as squamous cell carcinoma arising in the gingiva had to be considered, as some may present as a lobular red mass.[1] A number of gingival growths resembling PG or PGCG have been reported to be the initial manifestation of metastatic neoplasms, with the lung being the most common source.[6] Although enlargement of PG and PGCG may be fast enough to be alarming, gingival metastases have tended to exhibit almost exponential growth. Such rapid growth would suggest that it might be prudent to undertake an extensive physical workup early on.

Several other reactive and benign neoplastic gingival growths were considered lower in the differential diagnosis because most are the color of the normal mucosa rather than red, unless the surface has been traumatized.

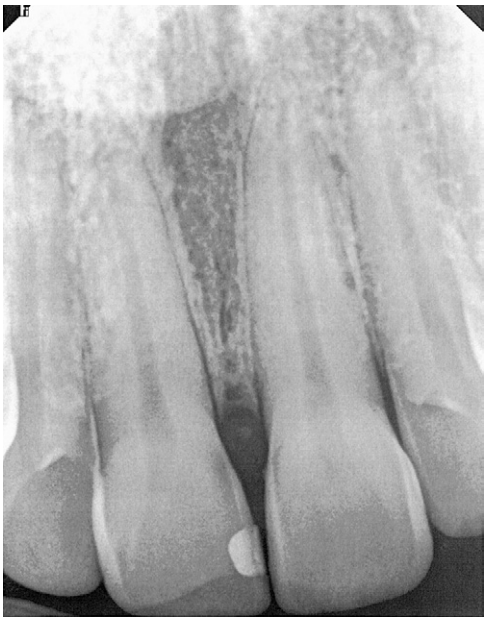

Fig. 2. A periapical radiograph of the maxillary central incisors shows intact periodontal ligament spaces and interproximal bone. One small spur of subgingival calculus is attached to the mesial surface of the root of the left central incisor.

Peripheral fibroma (PF), also known as gingival fibroma, "irritation" fibroma, and focal fibrous hyperplasia,[1,2,7] is an exuberant reactive overgrowth of the gingiva. The incidence differs somewhat from PG in being even greater in females and in ages 10 to 20. Histologically, the bulk of PF is collagenous connective tissue. Foci of chronic inflammation and granulation tissue, especially near the base where calculus and other irritants may have lodged, seem to be the source of growth. Occasionally, granulation tissue is concentrated on or near the surface, and the resulting red color makes the lesion resemble a PG. This suggests that some PFs may be the end result of fibrosis of a PG. Peripheral ossifying fibroma is a PF harboring foci of calcification, osteoid and bone with a tendency for surface ulceration. Giant cell fibroma is a reactive fibrous hyperplasia sprinkled with moderately large, often multinucleated, stellate giant cells.[1] The most common site in the gingiva is lingual to a mandibular canine, where it also is known as the "retrocuspid papilla." Treatment of all of these variants of PF is surgical excision, including affected periodontal ligament, and removal of potential irritants, such as entrapped calculus and foreign material. Recurrence is uncommon and is treated with excision to the periosteum.

A number of odontogenic neoplasms may bear resemblance to PF or PG but are much less common. Peripheral odontogenic fibroma (PODF) is a firm gin-