

Treatment of Pregnancy Induced Pyogenic Granuloma Using Diode Laser

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Abstract

Pyogenic granuloma is a common inflammatory hyperplastic lesion of oral cavity. The term is a misnomer because it is not related to infection and arises in response to various stimuli such as low-grade local irritation, traumatic injury, or hormonal factors. It is most commonly seen in females in their second decade of life due to vascular effects of hormones. This paper presents a case of pyogenic granuloma in 24-year-old pregnant lady in relation to lower anterior teeth. The lesion was excised by using diode laser at 1.5W settings. The healing was uneventful and no coe-pak, sutures or anti-inflammatory analgesics were used.

Keywords: Pyogenic granuloma (PG); Diode Laser.

Introduction

Pyogenic granuloma (PG) is a well known hyperactive benign inflammatory lesion that occurs mostly on the mucosa of females with high levels of steroid hormones. Females are more frequently affected in their 2nd and 5th decades of life with a ratio of 3:2 over males.[1] It is generally believed that female sex hormones play an important role in its pathogenesis.[2,3] It usually occurs in response to hormonal changes during pregnancy[4], puberty and low grade chronic irritation[5] or certain kind of drugs.[6] Gingiva is the most predominant site followed by lips, tongue, buccal mucosa and hard palate.[7] It usually appears as a painless, localized solitary lump with sessile or pedunculated base. The surface can be smooth or lobulated with a deep red or purplish colour. The first report of PG in literature was described by Hullihen in 1844[8] but the term "pyogenic granuloma" or "granuloma pyogenicum" was introduced by

Hartzell in 1904.[9]

Case report

A female patient of 24 years old reported to our outpatient department with a chief complaint of painless growth in the lower right interdental central & lateral incisor region which bleeds on brushing and chewing food

Figure 1: Pre-operative



Figure 2: Preoperative image showing 8-9mm lesion



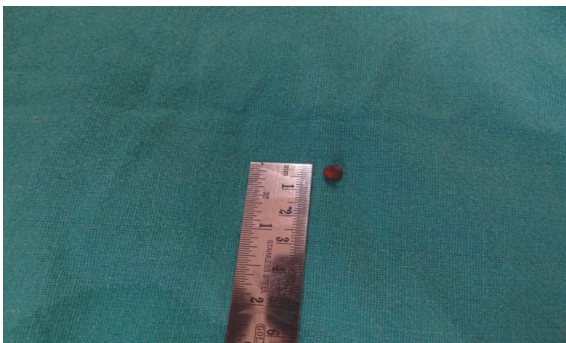
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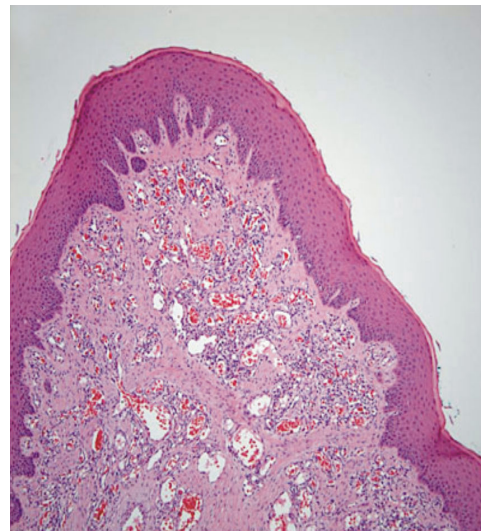
Figure 3: Intraoperative**Figure 4: Immediate post op**

since 4 weeks [Fig 1]. On medical history, she was in her 2nd trimester of pregnancy while on intraoral examination there was a smooth, pinkish-red color, approximately 8-9mm size, exophytic soft tissue pedunculated mass in the lower right labial region covering almost 2/3rd of the lateral and central incisors [Fig 2]. The lesion was painless but bleeds spontaneously on slight probing of the area. Physical examination revealed no other abnormalities like cervical lymphadenopathy and facial asymmetry. The haemogram of the patient was within normal limit but serum

Figure 5: Excised tissue**Figure 6: Post op after 6 months**

hormonal levels were increased 2 to 3 folds as she was pregnant. After a provisional diagnosis of pyogenic granuloma, excisional biopsy with diode laser was planned. The patient was subjected to Phase I periodontal therapy 1 week before the surgical excision.

After 0.2% CHX mouth wash rinse for 10-15 seconds, a local infiltration of 2% lignocaine with epinephrine (1:100,000) was administered perilesionally. The patient and all operating staff wore a special laser protection eye glasses. The lesion was treated by using Diode laser manufactured by Picasso (wavelength-890nm) with 1.5W power in continuous mode [Fig 3]. Once the lesion had been removed, the surgical field was wiped with sterile gauze soaked in 1% normal saline solution [Fig 4,5]. The patient was advised to avoid smoking, alcohol and spicy food till the

Figure 7: 100x biopsy photo of pyogenic granuloma

operated site heal. No analgesic was prescribed. The patient was followed up for a period of 6-8 months but no recurrence reported [Fig 6].

The excised mass was sent for histopathological analysis which showed hyperplastic stratified squamous epithelium with an underlying fibrovascular stroma. The stroma consists of large number of budding and dilating capillaries, plump fibroblasts and areas of extravasted blood and dense chronic inflammatory cells. All these findings clearly suggested the diagnosis of pyogenic granuloma [Fig 7].

Discussion

The name pyogenic granuloma is a misnomer since the condition is not associated with pus and does not represent a granuloma histologically.[10] The pregnancy tumor variant of pyogenic granuloma occurs in up to 5% of pregnancies.[11] Daley *et al* found that pregnancy granuloma accounted for only 42 of the 757 granulomas of all types.[12]

The incidence of the pyogenic granuloma has been described as between 26.8% to 32% of all reactive lesion[13] Bhaskar *et al* in their study observed that oral pyogenic granuloma comprised about 1.85% of all oral pathoses, other than caries and gingivitis treated at US Army Institute of Dental Research.[1] Pyogenic granuloma was first thought to be a mycotic infection contracted from horses.[14,15] Subsequently it was claimed without scientific evidence that pyogenic granuloma results from a purulent change within benign oral tumours.[16] Recently, the angiogenesis-associated factors Tie2, angiopoietin-1, angiopoietin-2, ephrin B2 and Eph B4 have been detected in pyogenic granuloma by immunochemistry.[17] It is now generally accepted that the lesion is an exaggerated localized connective tissue reaction to minor injury, irritation and hormonal changes.

Differential of pyogenic granuloma includes parulis, peripheral giant cell granuloma,

peripheral ossifying fibroma, hemangioma, peripheral fibroma, leiomyoma, hemangiopericytoma, bacillary angiomatosis, kaposi sarcoma, metastatic tumour, pregnancy tumor and post extraction granulomadiagnosis.[18]

Pyogenic granuloma is a benign lesion; therefore surgical excision is the treatment of choice. There are also reports in the literature that lesion being eliminated with Cryosurgery[19] or Electric scalpels. Other methods used by various surgeons include Cauterization with silver nitrate, Sclerotherapy with Sodium tetradecaly sulfate and Monoethanolamineoleate ligation[20], Absolute alcohol injection dye[21], Nd:YAG& CO₂ Laser[22] ,Shave excision and Laser photocoagulation.[23,24]

Different types of lasers have been used to treat various types of soft tissue lesion like haemangioma, papilloma, epulis oral lichen planus and pyogenic granuloma because they carry an advantage of surgical precision, bloodless surgery, sterilization of the surgical site, minimal swelling and scarring, minimal suturing, and virtually no pain during and after the surgery.

Conclusion

Lasers have been part of the dental scene for over 25 years. Unfortunately, they have tended to be big, clunky, hard to-use, expensive machines that were largely ignored. Affordable, effective, user-friendly diode lasers have only recently arrived on the scene. In fact, the diode laser, in a very short time, has proven itself to be the ideal "soft-tissue hand piece". Despite the various treatment modalities pyogenic granuloma still have a high recurrence rate[25] of 16%.

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