

Case Report

Pyogenic Granuloma - Non-Surgical Management by Ligation Therapy: A Case Series

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ABSTRACT

Pyogenic granuloma is a frequently seen tumour-like benign vascular growth of the oral cavity which is thought to be an exuberant tissue response to a local low-grade chronic irritation or minor trauma. Clinically the growth looks pink to red in colour, depending upon the age of the lesion, smooth or lobulated mass that is usually pedunculated. Treatment options include complete surgical excision, electrocautery, cryotherapy, sclerotherapy or laser surgery. The aim of this case series is to present an alternative non-surgical less invasive treatment option which has not been explored in dental literature to the best of our knowledge.

Key words: Angiogramuloma; granuloma pyogenicum; granuloma telangiecticum; ligation therapy; pyogenic granuloma.

INTRODUCTION

Pyogenic granuloma (PG) is one of the most common, acquired, benign vascular, tumour like growth seen in the oral cavity and skin. The aetiology of PG is not clear. It is thought to be an exuberant tissue response to a local irritation or trauma. [1] Various treatment options are available which includes complete surgical excision, [2] electrocautery, [3] cryotherapy [4] or laser surgery, [5] all are invasive in nature. Sclerotherapy [6] has been also tried. This report presents a series of PG cases which was managed by Ligation therapy (LT) a non-surgical, non-invasive and cost effective procedure.

CASE DESCRIPTION AND RESULTS

Case 1

Case 1 shows a 50-year-old female patient was referred to the department of periodontics, for excision of a gingival

overgrowth. A thorough clinical and radiographic examination was done. Medical history and periodontal charting were recorded. The patient presented with a painless, reddish pink, pedunculated and firm gingival overgrowth on the palatal aspect of teeth #8 and #9 involving the interdental papilla approximately 5 mm wide x 5 mm high (Figure 1). It was provisionally diagnosed as PG. All the treatment options were explained to the patient. Patient preferred a less traumatic procedure. So LT was planned.

Case 2

Case 2 involved a 34-year-old female patient who was referred to the same department for gingival overgrowth excision. A thorough clinical, radiographic examination, medical history and periodontal charting were recorded. The patient presented with a 10 mm wide x 12 mm high painless, reddish pink,

pedunculated gingival overgrowth which is firm in consistency on the buccal aspect of teeth #6 and tooth #7 involving the interdental papillae (Figure 2). The provisional diagnosis was PG and ligations of the lesion were done.



Figure 1: Initial presentation of the lesion at the palatal aspect of teeth #8 and #9.



Figure 2: Initial presentation of the lesion on the buccal aspect of teeth #6 and #7.

Case 3

Case 3 illustrates a 17-year-old female patient who was referred to the same department for the treatment of gingival overgrowth. All the above-mentioned examinations and chartings were recorded. A pedunculated lesion of 9 mm wide x6 mm high firm in consistency and reddish pink in colour on the buccal aspect of tooth #11 was presented by the patient (Figure 3). It was provisionally diagnosed as PG and LT were performed.



Figure 3: Initial presentation of the lesion on the buccal aspect of tooth #9

Initially phase I therapy was performed in all the three cases. Without using anaesthesia, the lesions were tightly ligated as close as possible to its base using a sterile surgical silk suture 3-0 without causing any pain to the patients (Figure 4. A, B & C)

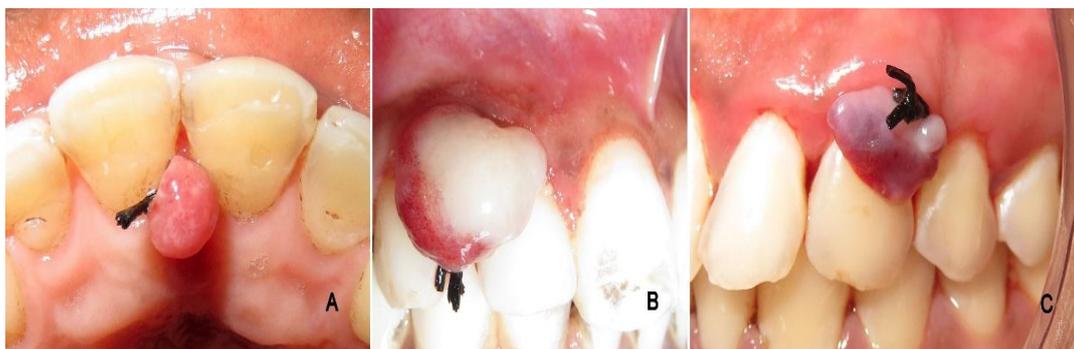


Figure 4: The lesions were ligated at their bases using sterile 3-0 non-resorbable silk sutures after phase I therapy (A - case 1, B - case 2 & C - case 3).

The patients were advised that the lesion will become necrotic and will fall off in several days and bleeding might occur from the nurturing blood vessel which can be easily controlled by applying simple

compression of the lesion for few minutes. The patients were provided with small containers with contains 10% formalin and instructed to put the fallen off lesion into the container and report to the department as

soon as possible. In all the three cases, the lesion was exfoliated within two weeks (Figure 5. A, B & C)

Two of the patients were immediately referred to the department of oral and maxillofacial pathology and one to a private histopathological lab for histopathological examination (HE) to avoid

bias. HE revealed the presence of hyperplastic stratified squamous epithelium with parakeratin and connective tissue showing multiple proliferating capillaries with profuse chronic inflammatory cell infiltration suggesting PG (Figure 6. A, B & C)

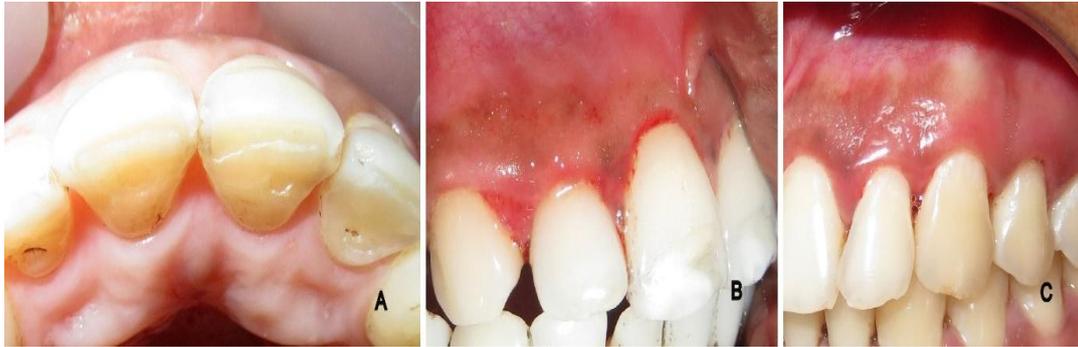


Figure 5: Two weeks after the ligation, the lesions were completely exfoliated. (A - case 1, B - case 2 and C - case 3)

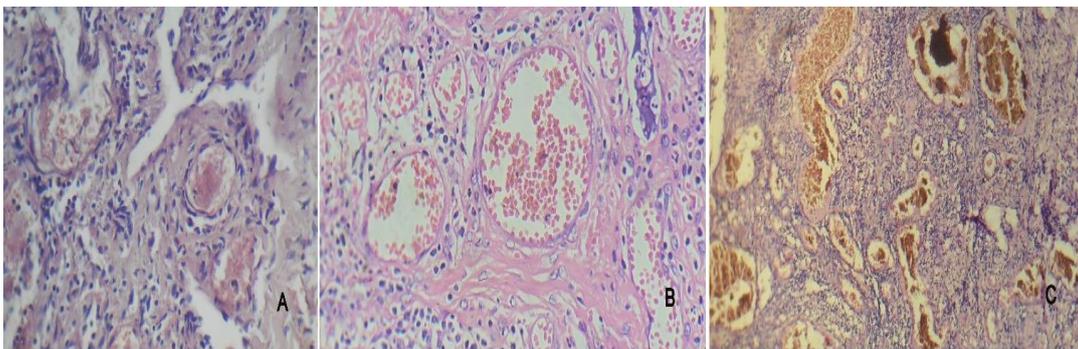


Figure 6: A. Case 1: Histologic section showing multiple capillaries in a fibrous connective tissue stroma with perivascular inflammatory infiltration. B. Case 2: Histologic section showing numbers of endothelium-lined vascular spaces with the proliferation of fibroblast and budding endothelial cells. C. Case 3: Photomicrograph demonstrates numerous endothelium-lined blood channels with fibroblasts and hemosiderin pigments. (Hematoxylin and eosin stain; original magnification $\times 100$).

DISCUSSION

PGs which are pedunculated and larger in size are most suitable for this procedure as they can be easily ligated at the base. [7,8] Pain and bleeding are the most common complication of the LT. Ligation which is very tight may injure the tumor causing pain and bleeding. [8] The most important disadvantage of LT is the lack of HE. [7,9] But in our cases, we were able to do a HE from the non-necrotic part of the exfoliated lesion as previously reported by Nishimura et al in the year 2004. [8]

Another limitation of LT is recurrence because the ligation may not reach the nurturing vessel. [7,9] Recurrences can also occur in other treatment procedures like excision or curettage followed by

electrodesiccation if the nurturing vessel persist. [10] Recurrence of 3.7% and 5.8% have been reported after the surgical excision of PG. [2,11] Recurrence rate of 2% - 100% and 9% - 33% have been reported after CO₂ and pulsed dye laser therapy respectively. [3,5,12] Recurrent cases can be treated with other invasive procedures like complete surgical excision, [9] laser operations or light electrodesiccation. [7,8] Our patients have not reported with recurrence after 6 months of treatment.

Within the limits of this case series, LT can be considered as the first choice of treatment in PGs which are pedunculated [7,8] as it is less traumatic, minimally invasive, simple, fast and less expensive and when patient requests for a non-invasive

treatment [8] as it avoids the psychological trauma due to surgery. LT can be performed in medically compromised patients or in cases of pregnancy tumours which are large and interfering with occlusion where surgical excision cannot be performed or in patients with tomophobia. The primary limitation of LT is that the patient has to report immediately with the sample for a good histological examination.

However, larger controlled randomized clinical trials with long-term follow-up periods are required to verify the results of this current case series and to address the potential advantages and disadvantages of this treatment option compared to the conventional ones. This case series highlights the possibility of histopathological examination after ligation therapy which may be considered as a simple, less traumatic, minimally invasive and cost-effective treatment option for pedunculated pyogenic granuloma in patients who are not indicated for surgery due to pregnancy, medical conditions or tomophobic patients. Further studies are needed to determine the best indications for ligation therapy.

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