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A CASE REPORT OF UNCOMMON COMPLICATION OF DELAYED SUTURE REMOVAL: A TECHNICAL NOTE

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Abstract
Improper follow up of the patient following the surgical procedures may happen at few instances in the day-to-day clinical practice. These scenarios with delayed suture removal or may cause the suture material to permeate into the tissue and cause irritation. The present case report is about an uncommon complication of delayed suture removal following frenectomy leading to growth consisting of granulation tissue.

keywords: Alveolar mucosa, case report, nonabsorbable suture, postoperative, granulation tissue,

INTRODUCTION:

Suturing the surgical site is almost the last step in the surgical management especially in intraoral sites. Sutures aid to close the wound, stabilize the re-approximated wound edges, help in reduction of the infection and thereby subsequently promote healing.[1] An array of suture materials are available with each having specific characteristics. It can be broadly segregated as absorbable and nonabsorbable, based on the degradability.[2]
Despite a wide choice available, dentists are familiarized with using silk sutures, Polypropylene, Polyglactin 910, and Polyglactin 910 Antibacterial.[4] Suture materials are foreign materials that elicit a foreign body reaction. This is the end-stage response from macrophages and foreign body giant cells following the inflammatory and wound-healing process to suture materials. [5]
Following the surgical procedures, adequate follow up is necessary. Failure to remove the suture material in the designated time may cause the foreign body reaction. In the present case report, delayed suture removal at 15th postoperative day following lower labial frenectomy and vestibuloplasty had produced an uncommon complication; Suture granuloma.

CASE REPORT

A 32 years female patient reported to the Department of Periodontics and implantology, Shree Balaji dental college and hospital, Chennai with the chief complaint of gingival recession in lower anterior teeth for the past 4 months and wants to be treated. Patient presents a history of bleeding on brushing in lower anteriors. Patient's medical history was good with no systemic diseases.
On clinical examination grade I mobility seen in 31, and 41 associated with gingival recession, shallow vestibule and high frenal attachment (Tension Test:+Ve). The type of recession is determined as Miller Class II recession in 31,41. Radiographic examination in relation to lower anteriors reveals vertical bone loss in relation to 31,41. (Fig 1a) Oral prophylaxis and the elimination of the cause is the first line of management. The reason for the mobility and recession

in lower anterior is suspected to be due to the high labial frenal attachment and shallow labial vestibule. Hence, lower labial frenectomy and vestibuloplasty were planned.
The treatment options, its advantages and disadvantages were clearly explained to the patient before starting of the procedure and informed consent was obtained. Complete ultrasonic scaling done and oral hygiene instruction given (modified stillman brushing technique is employed in lower anteriors because of gingival recession). Patient was called two weeks later for lower labial frenectomy and vestibuloplasty.

Surgical phase:
Before starting the procedure the frenum width is measured (fig 1b) and the attachment is reassured. After 0.2% Chlorhexidine mouthwash gargling, local anesthesia is administered by bilateral mental nerve block. Narrow elliptical incision is placed around the labial frenal area up to the periosteum and this labial frenectomy was performed with a single hemostat technique. After frenectomy vestibular deepening was done. Vestibular extension was performed by giving semilunar incision 2 mm below the marginal gingiva of 41 and 31, and extending up to the lower canines bilaterally. Muscle fibers attached to the periosteum were removed. (Fig 1c) Active bleeding was stopped with the application of a pressure pack and sutured. (Fig 1d) Patient was recalled at the fifth postoperative day for review and the seventh day for suture removal.

Figure 1; a) Pre-op Intraoral picture; b) Measurement of frenal width; c) Surgical site following frenectomy and vestibuloplasty; and d) Sutured surgical site

Follow up visits:
Patient failed to visit on advised post-op days but visited on the fifteenth day. Intraoral examination revealed a pedunculated soft tissue growth above the sutured surgical site in the alveolar mucosa in relation to mandibular central incisor (31,41) was discovered. The dimensions of the growth were measured as approximately 1.5 x 0.75 centimeters. The lesion was roughly oval with a raised and smooth surface, displaying partial erythematous coloring and well-

defined margins. Upon palpation, the lesion was found soft, non-tender, and attached by a pedunculated base and no bleeding from the lesion was noted.(Fig 2)

Figure 2; Growth present at 15th postoperative day

Considering the amalgamated history and clinical findings, irritational fibroma, gingival fibroma, pyogenic granuloma and peripheral ossifying fibroma were included as differential diagnosis. The case was planned for surgical excision under local anesthesia. Following all aseptic protocols, under local anesthesia (2% lidocaine with 1/100,000 epinephrine), the surgical excision of the lesion was performed from its base and including removal of the periosteal layer of bone and the old suture material is removed.

After excising the complete lesion, (fig 3a) the surgical site is evaluated for any left over suture material, the bleeding points were cauterized, and a thorough wash with normal saline was given. The surgical site was sutured after hemostasis was achieved. Patient was given postoperative instructions and recalled after the fifth day for follow-up. During this time, the patient was kept under antibiotic and analgesic coverage. The excised tissue was sent to the Department of Oral Pathology for histopathological study. (fig 3b)

Figure 3; a) excision of the growth, old suture material visualized; b) Excised tissue; c) histopathological picture; d) sutured surgical site

The histopathological examination of the excised soft tissue showed granulation tissue underlying squamous epithelium. Extensive vascular clefts and concentrated clusters of fibroblasts and endothelial cells, are noted. (Fig 3c) The final diagnosis based on histopathological examination was suture granuloma. Suture removal was done on the seventh day. (Fig 4) The present case was followed up for six months with no recurrence.

Figure 4; Follow up on seventh post-op day

DISCUSSION

Suture materials are used for primary wound closure. In the present case, foreign body reaction was elicited due to inadequate follow up and failure to remove the suture. However, an uncommon complication like sutural granuloma is rarely reported in the literature. Suture materials are recognized as a foreign body by the immune system, the tissue hyperactivity progresses to a foreign body reaction and assumes a granuloma formation. The severity and duration of the reaction depend on the type, amount, and in situ longevity of the suture material. [10] Debridement of the foreign material is the gold standard treatment for the foreign body reaction.

The primary triggering factor of suture granulomas is unclear, the reasons for these delayed foreign body reactions may be due to accumulation of the large number of neutrophilic polymorphonuclear leukocytes around the suture material and increased tendency of adherence of the bacteria to the suture material surface. These form the baseline for initiating tissue reactions.[7,8] These hypotheses have been established by the studies performed by Katz et al. [8], Banche et al. [9], and Abi et al [7]. Katz et al. [8] reported that microbial colonization on braided silk sutures were three fold to eight fold higher than nylon.

Though silk sutures are highly investigated suture materials, tissue hyperactivities noted in all all suture materials but at varying degrees. Apart from Intraoral surgical procedures, while reviewing literature suture granuloma cases were reported in other surgeries; Following gastrectomy and lymphadenectomy operation [12], abdominal surgery [13], neurosurgery [15].

As pointed out above, suture granulomas arise as a result of inadequate suture removal. In the present case report, granuloma formation occurred within 15 days, however it can occur in varying time period from 4 months to 7 years in the literature.[14,15] Interestingly, in a case report by Ergin et al, suture granuloma was noted in the area of repair of Achilles Tendon Rupture after a long follow up of 30 Years . [5] Hence with the inference from the present study and studies in literature, duration of the irritation cannot be directly correlated with the occurrence of the granuloma.

CONCLUSION

Only a very few reports have been published about these uncommon complications, especially no reports that had sutural granuloma within 15 days postoperative period. Though these complications are rare, it is a possible complication. It is not a completely inevitable one, advising the patient for adequate and proper follow up and making sure of complete suture removal can avoid these.

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