**Journal of Neonatal Surgery**
***ISSN(Online): 2226-0439***
***Vol. 14, Issue 32s (2025)***
*https://www.jneonatalsurg.com*

OPEN ACCESS

# Challenging Recurrence of Pyogenic Granuloma: A Case Report and Review of Evolving Therapeutic Strategies

**Anjali[1], Dr. Sapna Tandon[2], Dr. Chhavi Sharma[3], Dr. Himanshu Chauhan[4], Dr. Hemant Mehra[5], Dr. Ibtisam Sahin[6]**

[1]Intern, Saraswati Dental College and Hospital, Tiwari Ganj, 233, Faizabad Rd, Uattardhona, Uttar Pradesh, 226028
Email ID: anjali2.002125@gmail.com

[2]Reader, Saraswati Dental College and Hospital, Tiwari Ganj, 233, Faizabad Rd, Uattardhona, Uttar Pradesh, 226028

[3]Junior Resident, Saraswati Dental College and Hospital, Tiwari Ganj, 233, Faizabad Rd, Uattardhona, Uttar Pradesh, 226028
Email ID: schhavi564@gmagmail.com

[4]Reader, Saraswati Dental College and Hospital, Tiwari Ganj, 233, Faizabad Rd, Uattardhona, Uttar Pradesh, 226028
Email ID: drhimanshu7988@gmail.com

[5]Professor and H.O.D., Saraswati Dental College and Hospital, Tiwari Ganj, 233, Faizabad Rd, Uattardhona, Uttar Pradesh, 226028
Email ID: hemantmehra121@gmail.com

[6]Junior Resident, Saraswati Dental College and Hospital, Tiwari Ganj, 233, Faizabad Rd, Uattardhona, Uttar Pradesh, 226028
Email ID: ibtisam0818@gmail.com

**Corresponding Author**
Dr. Sapna Tandon
Email ID: drsapnatandon@gmail.com

Cite this paper as: Anjali, Dr. Sapna Tandon, Dr. Chhavi Sharma, Dr. Himanshu Chauhan, Dr. Hemant Mehra, Dr. Ibtisam Sahin, (2025) Challenging Recurrence of Pyogenic Granuloma: A Case Report and Review of Evolving Therapeutic Strategies. *Journal of Neonatal Surgery*, 14 (32s), 7985-7989.

**ABSTRACT**

**Background**: Pyogenic granuloma is a common benign reactive lesion of the gingiva that may develop due to local irritants, trauma, or hormonal factors. Despite being non-neoplastic, it has a high recurrence rate, particularly when incompletely excised or inadequately managed.

**Case Presentation:** A female patient reported with a chief complaint of pain and soft tissue overgrowth in the upper right anterior maxillary region. She had a prior history of similar gingival swelling in the same area, treated at a private clinic months earlier. Clinical examination revealed a pedunculated, erythematous lesion involving the interdental papilla between teeth 14 and 15. There was no relevant medical history, family history, or pregnancy. Radiographic evaluation (orthopantomogram) revealed no bone involvement. A provisional diagnosis of pyogenic granuloma was made. Hormonal profiling was also conducted and found to be normal. Surgical excision was performed under local anesthesia using infraorbital, nasopalatine, and greater palatine nerve blocks. A marginal incision was placed 1 mm from the gingival margin, and the lesion along with adjacent papilla was excised. Thorough curettage and root planing were performed in the 14–15 region, followed by irrigation with povidone-iodine and saline. A Coe-Pak periodontal dressing was placed. The patient was followed up at 2 days, 1 week, 2 weeks, 1 month, 3 months, and 5 months, with additional debridement and reinforcement of oral hygiene. Healing progressed uneventfully.

**Conclusion:** At 1-year follow-up, the surgical site showed complete healing with no signs of recurrence. Proper surgical technique, elimination of local irritants, and diligent follow-up were key to successful long-term management in this case of recurrent pyogenic granuloma.

***Keywords:*** *pyogenic granuloma, recurrent oral lesion, gingival overgrowth, surgical excision, local irritants, root planning.*

## 1. INTRODUCTION

Pyogenic granuloma (PYOGENIC GRANULOMA ) is a benign, reactive vascular proliferation that commonly occurs on the skin and mucous membranes, frequently affecting the oral cavity [5]. It is often triggered by minor trauma, local irritation, hormonal fluctuations, or underlying systemic factors [5]. Although typically small and easily treated with conservative surgical excision, PYOGENIC GRANULOMA has a known tendency to recur, particularly in cases where etiological factors persist or deeper tissue involvement is overlooked. Recurrence rates have been reported to range between 2% and 15%, posing a challenge for clinicians [1,5]. This introduction aims to contextualize the significance of recurrent PYOGENIC GRANULOMA and establish the rationale for exploring adjunctive and advanced treatment strategies supported by recent clinical reports [1–7].

## 2. CASE REPORT

A 23 year old female patient reported to the Department of Oral and Maxillofacial Surgery with the chief complaint of **pain and soft tissue overgrowth in the upper right anterior region**. The patient provided a history of a similar lesion at the same site a few months prior, for which she received treatment at a private clinic. The lesion had resolved temporarily but recurred. There was **no relevant medical history, family history, or history of pregnancy**.

fig. 1: clinical photograph of lesion extending from tooth 14-15

On **clinical examination**, a **pedunculated, erythematous lesion** was noted on the gingiva in the region of **teeth 14 and 15** (fig.1), extending to the interdental papilla. The lesion was non-ulcerated, tender on palpation, and bled on provocation. Oral hygiene was fair, and local irritants such as calculus were found in the adjacent region, specifically in interdental region of tooth 14-15.

A **provisional diagnosis of pyogenic granuloma** was made based on the clinical appearance. To rule out any systemic hormonal contribution, a **hormonal profile** was conducted and was within normal limits. An **orthopantomogram (OPYOGENIC GRANULOMA )** was performed and revealed no evidence of underlying bone involvement or pathology.

fig. 2
Incision Placed

fig. 3
Surgical Excision With Adjacent Margin

Under **aseptic conditions**, local anesthesia was administered via **infraorbital nerve block** and **nasopalatine and greater palatine nerve blocks**. A **marginal incision** (fig.2) was placed approximately **1 mm away from the gingival margin**,

including the **interdental papilla between 14 and 15**, using a No. 10 blade.

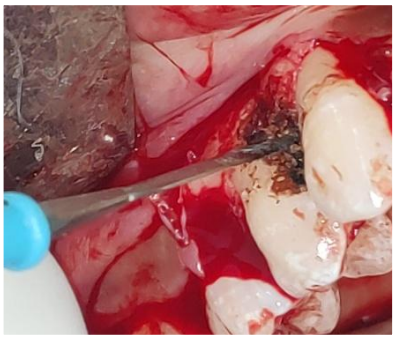

fig. 4
cauterization of interdental area

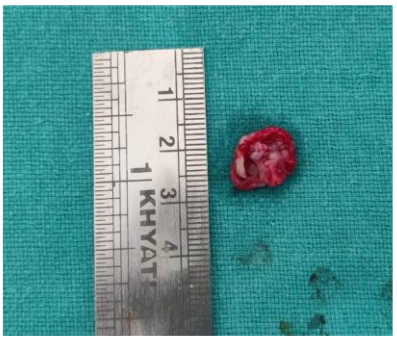


fig. 5
surgically excised granuloma

The lesion was excised in total (fig.3), including adjacent granulation tissue and involved papilla. **Thorough curettage** of the site was carried out to eliminate any remnants of the lesion. **Root planning** of teeth 14 and 15 was performed to remove local irritants and provide a clean root surface. The interdental area was cauterized for any capillary bleeding (fig.4) and the excised lesion (fig. 5) was sent for biopsy which confirmed the diagnosis to be **pyogenic granuloma**. The area was irrigated with **0.2% povidone-iodine and sterile normal saline**.

fig. 6
Coe-pack Dressing Place

A **Coe-Pak periodontal dressing** (fig. 6) was applied to the site and allowed to set. The patient was discharged with postoperative instructions and analgesics. She was advised to avoid brushing in the surgical area and to use chlorhexidine mouth rinse.

fig. 7
post op 3rd day

fig. 8
post op 15th day

- On the **second postoperative day**, the dressing was removed, and the site was irrigated. Further **root planning** was performed on 3rd post operative day (fig. 7). **Initial epithelialization** and reduced inflammation were observed.
- On the **seventh postoperative day**, **additional curettage and root planning** were performed to promote healing and prevent recurrence. The surgical site showed continued signs of improvement. Fifteenth Postoperative day showed epithelialization(fig.8).
- The patient was recalled at **2 weeks**, **1 month**, **3 months**, and **5 months**. At each visit, oral hygiene was assessed, and minor debridement was done as necessary.
- At **1-year follow-up**, **complete healing** was observed with **no signs of recurrence**, inflammation, or gingival overgrowth. The gingival contour appeared healthy and well-adapted.

## 3. DISCUSSION

Recurrent forms of Pyogenic Granuloma represent a therapeutic challenge due to their aggressive regrowth patterns and resistance to conventional excision. The recurrence is often associated with incomplete excision, ongoing irritation, or deeper tissue involvement. This discussion explores various management strategies for recurrent pyogenic granuloma based on published case reports and emerging adjunctive therapies.

Conventional surgical excision remains the primary treatment modality for pyogenic granuloma . However, its efficacy diminishes significantly in recurrent cases where simple excision may fail to eliminate the lesion completely. Rathore et al. (2014) documented a case where inadequate primary management of a gingival pyogenic granuloma led to its progression into a calcifying fibroblastic granuloma. Only after wide excision with periosteal and osseous curettage was long-term remission achieved [1]. This emphasizes the necessity of addressing not only the visible lesion but also its base and potential deeper vascular supply to reduce recurrence.

The role of local irritants—such as dental plaque, calculus, trauma from restorations, or prosthetic appliances—has been widely recognized in promoting recurrence. Kamal et al. (2012) highlighted the need for meticulous oral hygiene and removal of local etiological factors as part of comprehensive management [5]. In patients with poor plaque control or persistent irritation, even well-executed excision is unlikely to yield sustained results.

Laser-assisted techniques have gained momentum as viable alternatives to scalpel excision, particularly in esthetically sensitive regions. Anitha et al. (2020) demonstrated the efficacy of a diode laser-assisted papilla preservation flap technique in a patient with a recurrent anterior maxillary pyogenic granuloma . This method minimized trauma, preserved soft tissue architecture, and prevented recurrence over 18 months of follow-up [2]. Lasers offer hemostatic and bactericidal benefits, with precise ablation and reduced postoperative discomfort, making them suitable in cases requiring minimally invasive intervention.

The use of platelet-rich fibrin (PRF) as a regenerative adjunct in pyogenic granuloma excision is another novel approach with promising results. Chatterjee et al. (2015) reported a case where PRF application following conventional excision led to complete healing without recurrence over a 12-month period [7]. PRF enhances wound healing and modulates inflammatory responses, thereby reducing the likelihood of reactive tissue proliferation.

Recurrent pyogenic granuloma associated with implants or surgical trauma presents a unique subset of cases. Raju et al. (2020) discussed a patient with pyogenic granuloma around mandibular implants that recurred seven times before the implants were eventually removed. Persistent mechanical irritation and the micro-gap around the implant collar were suspected to contribute to the repeated failures of conservative treatment [4]. Similarly, Kalinowski et al. (2001) documented a case of nasal pyogenic granuloma following rhinoplasty that recurred despite cryotherapy and chemical cautery, eventually requiring combined surgical excision and decontamination [3]. These cases highlight the importance of eliminating all potential triggers, including prosthetic and surgical elements, to prevent recurrence.

Satellite lesions and multifocal recurrences represent another diagnostic and therapeutic hurdle. Yih et al. (2000) described satellitosis in a case of recurrent cutaneous pyogenic granuloma , necessitating aggressive debridement and close postoperative monitoring [6]. These findings underline the need for thorough clinical evaluation and extended follow-up protocols, especially in patients with high recurrence risk.

In summary, recurrent Pyogenic Granuloma requires a multifactorial treatment strategy tailored to the individual patient's lesion characteristics and contributing factors. Surgical excision should be augmented by the removal of irritants, use of adjunctive modalities such as laser or PRF, and patient education regarding oral hygiene and follow-up. A paradigm shift toward integrative, evidence-based management can substantially improve clinical outcomes and minimize recurrence in patients with Pyogenic Granuloma.

**Acknowledgements**

The authors would like to thank Principal for his unwavering support and the non-teaching staff for their dedication and

seamless support in ensuring smooth patient care and departmental functioning.

**Conflicts Of Interest**

None

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