

Peripheral ossifying fibroma of the anterior palate associated with an impacted maxillary canine in A 13-year-old child: Case report

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Abstract

Introduction: Peripheral ossifying fibroma (POF) is a reactive fibro-osseous gingival lesion commonly affecting adolescents and young adults. It usually occurs in the anterior maxillary region, while palatal involvement in pediatric patients is uncommon.

Case Presentation: A 13-year-old child presented with a painless swelling of the anterior palate that had gradually enlarged over five months. Clinical examination revealed a pedunculated lesion extending from the palatal aspect of teeth 12 to 22. CBCT demonstrated no underlying bony involvement but revealed an impacted maxillary canine associated with tooth 23. Complete surgical excision of the lesion and extraction of the impacted canine were performed. The resultant defect was reconstructed using a pedicled buccal fat pad graft. Postoperatively, mobility of the maxillary anterior teeth was managed with composite splinting for two weeks.

Histopathological examination confirmed the diagnosis of peripheral ossifying fibroma.

Conclusion: Peripheral ossifying fibroma should be considered in the differential diagnosis of painless palatal swellings in children. Surgical excision with histopathological confirmation remains the treatment of choice. Buccal fat pad reconstruction and temporary composite splinting provided satisfactory functional and clinical outcomes in the present case.

Keywords: Peripheral ossifying fibroma, anterior palate, impacted canine, buccal fat pad, composite splinting

Introduction

Peripheral ossifying fibroma (POF) is a reactive fibro-osseous lesion of the gingiva that is believed to originate from periodontal ligament cells in response to chronic local irritation such as plaque, calculus, trauma, orthodontic appliances, or restorations [1, 2]. It commonly presents as a localized sessile or pedunculated gingival mass and predominantly affects adolescents and young adults, with a predilection for the anterior maxillary region [1, 3].

Histologically, POF is characterized by a fibrocellular connective tissue stroma containing varying amounts of mineralized material in the form of bone, cementum-like deposits, or dystrophic calcifications [3, 4]. Although POF is among the more common reactive gingival lesions, palatal involvement is uncommon, particularly in pediatric patients [2, 5].

Diagnosis is based on clinical, radiographic, and histopathological findings, as several reactive gingival lesions may exhibit similar clinical features. Complete surgical excision with elimination of local etiologic factors is the treatment of choice; however, recurrence rates of up to 20% have been reported, necessitating long-term follow-up [2, 6].

The present report describes a rare case of peripheral ossifying fibroma involving the anterior palate in a 13-year-old child associated with an impacted maxillary canine. The lesion was successfully managed by complete surgical excision, extraction of the impacted canine, reconstruction with a pedicled buccal fat pad graft and temporary composite splinting of the anterior teeth.

Patient Information

A 13-year-old child presented to the Department of Oral and Maxillofacial Surgery with a chief complaint of a painless swelling in the upper palatal region. The patient reported that the swelling had first been noticed approximately five months earlier and had gradually increased in size over time. There was no associated pain, bleeding, discharge, difficulty in mastication, speech impairment or history of trauma to the affected region. The patient's medical, surgical, family and drug histories were non-contributory, and no systemic illness or previous similar lesions were reported.

Clinical Findings

Extraoral examination revealed no facial asymmetry, swelling, skin changes or cervical lymphadenopathy. The patient's general physical examination was within normal limits (Figure 1)

Intraoral examination demonstrated a solitary pedunculated soft-tissue mass arising from the anterior hard palate and extending from the palatal aspect of teeth 12 to 22. The lesion appeared oval in shape with a smooth surface and was covered by normal-appearing mucosa. On palpation, the swelling was soft to firm in consistency and fluctuant in certain areas. It was non-tender and showed no evidence of bleeding on manipulation. No ulceration, discharge or secondary infection was observed. (Figure 2). The lesion involved a considerable portion large part of the anterior palate and slightly reduced tongue space, but caused minimal impact on chewing and speech. Adjacent teeth remained vital, with no evident periodontal disease or significant local irritants. Oral hygiene was fair.



Fig 1: Preoperative extraoral photograph showing absence of facial asymmetry or cervical swelling



Fig 2: Preoperative intraoral photograph showing a large pedunculated palatal lesion extending from the palatal aspect of teeth 12–22

Timeline

The patient first noticed a small, painless swelling in the anterior palatal region approximately five months before presentation. The lesion progressively increased in size without causing pain or other symptoms. Following clinical evaluation and radiographic assessment, a provisional diagnosis of peripheral ossifying fibroma was established. Surgical excision of the lesion along with extraction of the associated impacted maxillary canine was subsequently performed. Histopathological examination confirmed the diagnosis, and postoperative follow-up demonstrated satisfactory healing with stabilization of the anterior teeth after temporary splinting.

Diagnostic Assessment

Based on the patient's age, clinical presentation, and lesion location, a provisional diagnosis of peripheral ossifying

fibroma was considered. Orthopantomogram (OPG) and Cone-beam computed tomography (CBCT) was performed to assess the extent of the lesion and its relationship to the underlying structures (Figure 3, 4)



Fig 3: OPG showing impacted canine



Fig 4: CBCT

CBCT examination revealed a soft-tissue mass involving the anterior palatal region without evidence of cortical perforation, bony destruction, or significant involvement of the underlying maxillary bone. An incidental finding of an impacted maxillary canine associated with tooth 23 was observed. The radiographic findings supported the clinical impression of a peripheral soft-tissue lesion and aided in surgical treatment planning.

The differential diagnosis included pyogenic granuloma, peripheral giant cell granuloma, irritation fibroma, and peripheral odontogenic fibroma. Because these lesions often exhibit overlapping clinical characteristics, definitive diagnosis required histopathological evaluation.

Following surgical excision, the specimen was submitted for microscopic examination. Histopathological analysis revealed hyperplastic stratified squamous epithelium

overlying a highly cellular fibroblastic connective tissue stroma containing multiple foci of mineralized material in the form of woven bone and cementum-like calcifications. Areas of chronic inflammatory cell infiltration were also noted. These findings were consistent with a diagnosis of peripheral ossifying fibroma.

Therapeutic Intervention

Considering the progressive enlargement of the lesion and the need for definitive diagnosis, complete surgical excision was planned. Under general anesthesia, the lesion was excised in toto, extending to the periosteal layer to minimize the risk of recurrence. (Figure 5,6) During the same surgical procedure, the impacted maxillary canine associated with tooth 23 was extracted because of its proximity to the lesion and to eliminate any potential contributing pathology. (Figure 7,8)



Fig 5: Intraoperative exposure of the impacted maxillary canine after flap elevation



Fig 6: Surgical retrieval/extraction of the impacted maxillary canine

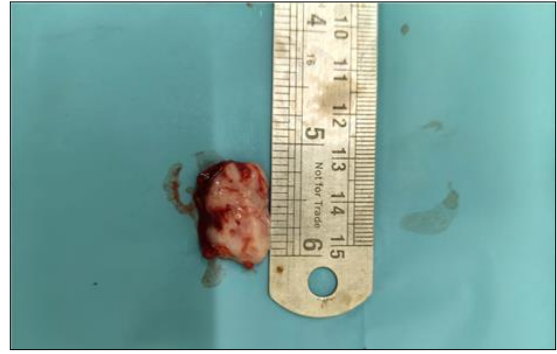


Fig 7: Gross specimen of the excised peripheral ossifying fibroma with measuring scale



Fig 8: Extracted impacted maxillary canine specimen

Excision of the lesion resulted in a significant palatal soft-tissue defect. Reconstruction was therefore performed using a pedicled buccal fat pad graft. The buccal fat pad was carefully mobilized and advanced into the defect, providing well-vascularized tissue coverage and tension-free closure of the surgical site (Figure 9).



Fig 9: Intraoperative photograph demonstrating mobilization of the pedicled buccal fat pad for reconstruction of the palatal soft-tissue defect

Follow-Up and Outcomes

Postoperative healing was uneventful, and the patient reported minimal discomfort during the recovery period. Clinical examination at follow-up visits demonstrated satisfactory healing of the palatal surgical site with successful integration and progressive epithelialization of the buccal fat pad graft at 3 weeks (Figure 10).



Fig 10: Three-week postoperative follow-up showing satisfactory granulation tissue formation and progressive epithelialization of the buccal fat pad graft at the recipient site

In the postoperative period, increased mobility (grade II) of the maxillary anterior teeth was observed, likely due to the extent of palatal soft-tissue and periosteal dissection performed during lesion removal. To ensure stabilization of the dentition and facilitate periodontal healing, composite-bonded ligature wire splint was placed extending from canine to canine. The splint was maintained for a period of two weeks. The patient was prescribed appropriate medications, advised regarding oral hygiene maintenance, and scheduled for regular follow-up visits (Figure 11).



Fig 11: Postoperative stabilization of maxillary anterior teeth using composite bonded ligature wire splint

At the two-week postoperative review, the composite splint was removed. Examination revealed marked improvement in the stability of the maxillary anterior teeth, with no clinically significant residual mobility. The surgical site exhibited healthy healing without evidence of infection, wound dehiscence, or graft failure (Figure 12).



Fig 12: Follow-up photograph showing satisfactory healing and stabilization after splint removal

Subsequent follow-up appointments demonstrated continued maturation of the reconstructed palatal tissue and restoration of normal oral function. The patient reported improvement in oral comfort and was satisfied with the treatment outcome. No signs of recurrence were observed during the follow-up period; however, long-term surveillance was recommended because peripheral ossifying fibroma has a recognized tendency for recurrence.

Discussion

Peripheral ossifying fibroma (POF) is a non-neoplastic reactive gingival growth that is thought to originate from the periodontal ligament following chronic local irritation or minor trauma. Neville *et al.* suggested that the lesion's exclusive occurrence on gingival tissues and the occasional identification of oxytalan fibers support its periodontal ligament origin [3].

POF is predominantly observed in children, adolescents, and young adults, with a greater frequency in the anterior maxillary region. According to Rallan *et al.*, nearly two-thirds of reported cases involve the incisor-canine area of the maxilla and usually present as slow-growing, painless enlargements [1]. The present case corresponded to this demographic pattern, occurring in a 13-year-old patient; however, its extensive palatal involvement and relatively large size represented an uncommon clinical presentation.

The clinical appearance of POF often overlaps with other localized gingival lesions, including pyogenic granuloma, peripheral giant cell granuloma, irritation fibroma, peripheral odontogenic fibroma, and reactive gingival fibromas [2, 8, 9]. Ganji *et al.* emphasized that clinical examination alone is insufficient for a definitive diagnosis because of these similarities [2]. Consequently, histopathological evaluation remains the cornerstone for accurate diagnosis.

Microscopically, POF consists of a highly cellular fibrous connective tissue stroma containing varying amounts of mineralized material. Mohiuddin *et al.* reported that these calcified components may appear as woven bone, lamellar bone, cementum-like deposits, or dystrophic calcifications [4]. Comparable histological features were identified in the present case, confirming the diagnosis of POF.

Radiographic changes associated with POF are generally minimal because the lesion is confined to soft tissue. Bhasin *et al.* reported that most lesions do not exhibit significant bone involvement, although superficial cortical erosion or focal calcifications may occasionally be detected [5]. Likewise, Moon *et al.* described limited radiographic findings on advanced imaging modalities [12]. In the present case, CBCT demonstrated the absence of cortical destruction while revealing an impacted maxillary canine that influenced treatment planning.

The coexistence of POF with impacted teeth is infrequently reported. Although a direct etiological association remains uncertain, chronic tissue irritation resulting from the impacted canine may have contributed to lesion development. Kumar *et al.* have also highlighted the diverse clinical presentations that POF may exhibit [10].

Complete surgical excision extending to the periosteum is widely accepted as the treatment of choice. Cundiff's review of 365 cases demonstrated that recurrence is often associated with incomplete removal and persistence of local irritants [6]. Reported recurrence rates range from approximately 8% to 20%, underscoring the need for

meticulous surgical management and long-term follow-up [1, 2, 6]. In the present case, complete excision was performed along with extraction of the impacted canine to minimize the likelihood of recurrence.

Reconstruction of the postoperative palatal defect was achieved using a pedicled buccal fat pad graft. Rapidis *et al.* demonstrated that the buccal fat pad is a reliable reconstructive option because of its rich vascularity, ease of harvesting, low donor-site morbidity, and predictable epithelialization [7]. Successful graft integration and satisfactory healing were observed in the present patient.

An additional postoperative finding was transient mobility of the maxillary anterior teeth, which was managed with short-term fiber-reinforced composite splinting. Although splinting is rarely discussed in the literature on POF, it may be beneficial when extensive soft-tissue and periosteal dissection temporarily compromises periodontal support.

Patient Perspective

The patient and parents expressed satisfaction with the treatment outcome. They reported improvement in oral comfort, speech and function following surgery and were pleased with the healing of the surgical site.

Conclusion

Peripheral ossifying fibroma should be included in the differential diagnosis of painless palatal swellings in children and adolescents. Comprehensive evaluation using clinical examination, CBCT imaging and histopathological analysis is essential for accurate diagnosis. Complete surgical excision, management of associated pathology, and long-term follow-up are critical for minimizing recurrence. Reconstruction with a pedicled buccal fat pad graft and temporary composite splinting of mobile anterior teeth can contribute significantly to favorable functional and esthetic outcomes.

Informed Consent

Written informed consent for treatment, clinical photography and publication of this case report was obtained from the patient's parent/legal guardian.

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