# MANAGEMENT OF PALATORADICULAR GROOVE- CASE REPORTS

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Introduction:

Palatoradicular Groove (PRG) is an anatomical and diagnostic enigma that often causes pulpo-periodontal lesions and affects the prognostic outcome of teeth adversely. The prevalence of PRG according to Kogan[1] is 3.4% in maxillary central incisors, 5.6% in maxillary lateral incisors with 56% of the cases exhibiting radicular involvement.

Goon[2] et al has mentioned about complex PRG in which the defects are deeply invaginated forming an accessory root, possibly with a root canal. The diagnosis of such complex cases of PRG require supplemental imaging techniques like spiral computed tomography or cone beam computed tomography apart from routine clinical and radiographic examination.

Case 1: Mrs Sulochana, 38 year old female patient reported to our department with the chief complaint of pain and swelling in upper left front tooth region.

History: Pain and swelling for the past 8 months. Patient underwent treatment 3 months back in a private clinic but the symptoms did not subside. Patient is a diabetic and under medication.

Clinical examination: Intra oral swelling in relation to the alveolar mucosa of 22 (fig 1.a) , periodontal probing depth of 5mm on the palatal aspect of 22 in the middle sextant and a distinct notching on the palatal aspect of 22 (fig 1. b).

Radiographic examination:

Endodontically treated 22 with obturation 6mm short of the apex and an accessory root on the mesial aspect of 22 was localised with multiple angled radiographs and a diffuse radiolucency circumscribing the roots of 22 (fig 2. a & b).

Diagnosis:

Palatoradicular groove in 22 with periapical pathology and localized periodontitis.

Treatment plan:

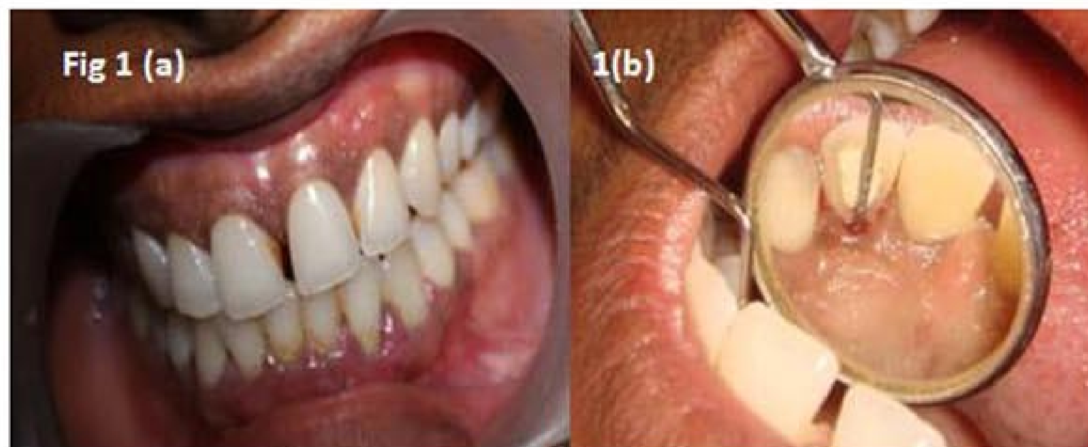
- Endodontic re-treatment in 22
- Interdisciplinary endodontic periodontal management
- Repair of the palatoradicular groove.

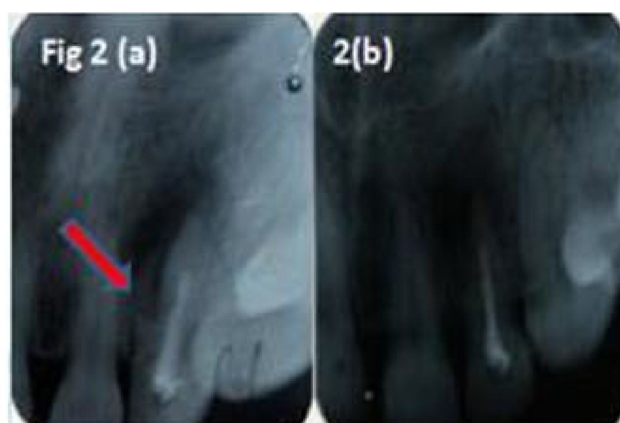
Procedure:

Under local anaesthesia and rubber dam isolation , endodontic retreatment was done in 22 using H files and main canal instrumented with K3 6% 25. Attempt to locate the canal in the accessory root proved to be futile. Patient reported back in 2 weeks with recurrent symptoms of pain and swelling. Second attempt to locate the canal of the accessory root resulted in an iatrogenic perforation. Spiral CT of 22 was taken which confirmed the presence of palatoradicular groove, accessory root in the mesial aspect of 22 and most importantly the accessory root failed to demonstrate a root canal as seen in various planes of the spiral CT.( fig 3 a through d)

Under local anesthesia, a full thickness labial mucoperiosteal flap was elevated from distal of 11 to distal of 23 and periapical curettage was done followed by, apicoectomy with no 702 bur , retrograde filling with Fuji IX Glass Ionomer Cement (GC, Tokyo, Japan) ( fig 4 a). Saucerisation of the PRG was done with no 4 round bur and repaired with Fuji IX GIC (GC, Tokyo, Japan) (fig 4 c & d). Osseograft ( Advanced Biotech Products, India) , freeze dried demineralised xenograft was used for bone regeneration ( fig 4 b).

18 months post operative radiograph showed good healing ( fig 5 a & b).



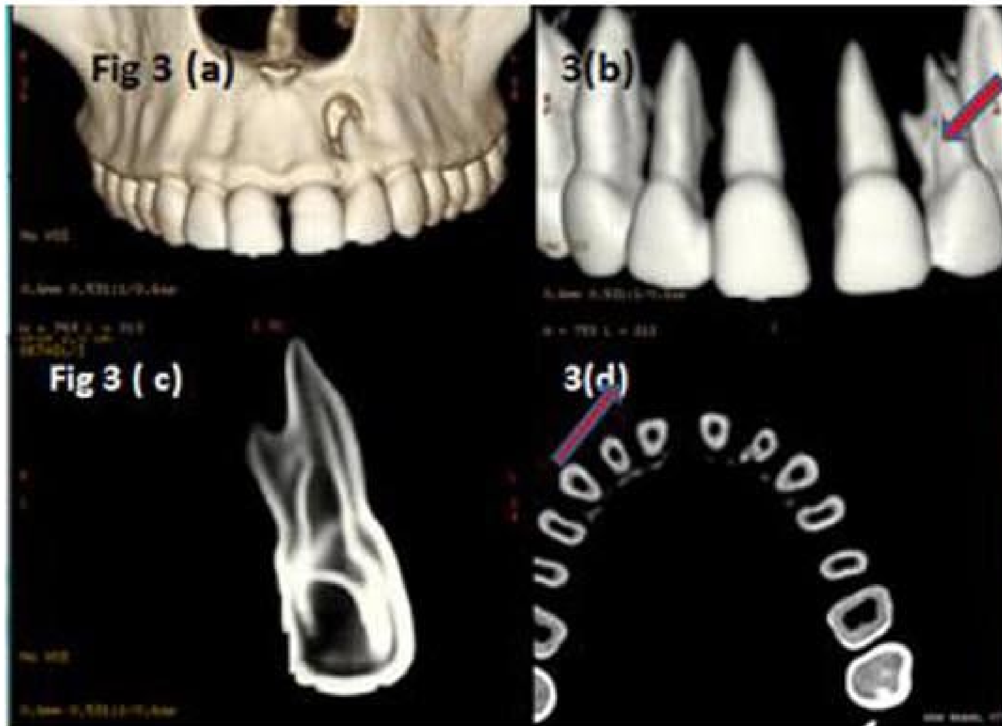


Fig 3 (a)
3(b)
Fig 3 ( c)
3(d)

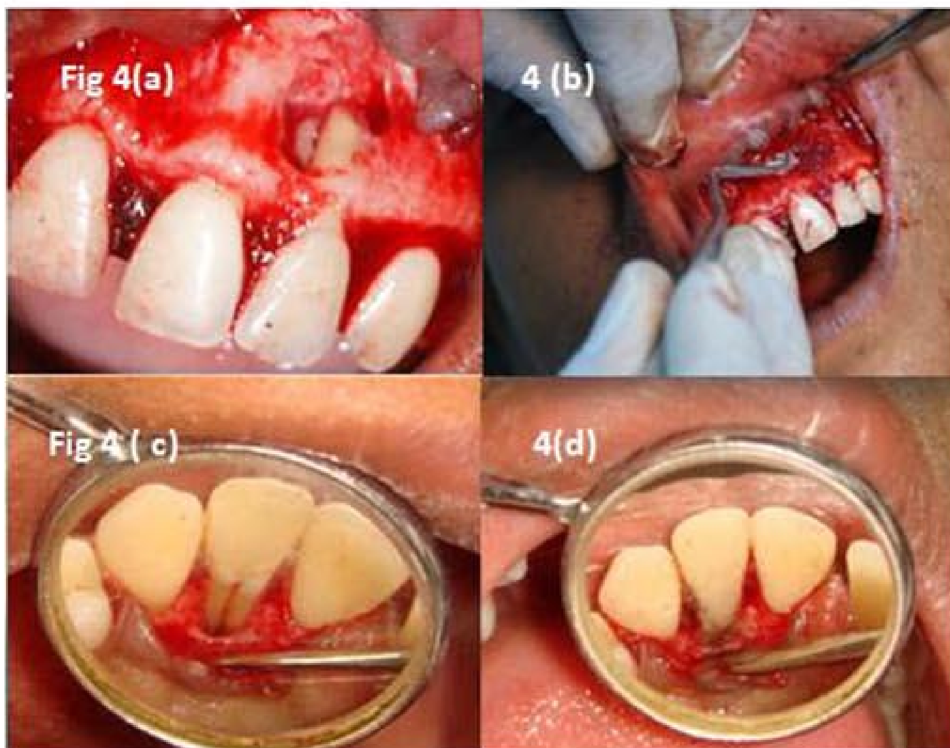


Fig 4(a)
4 (b)
Fig 4 ( c)
4(d)

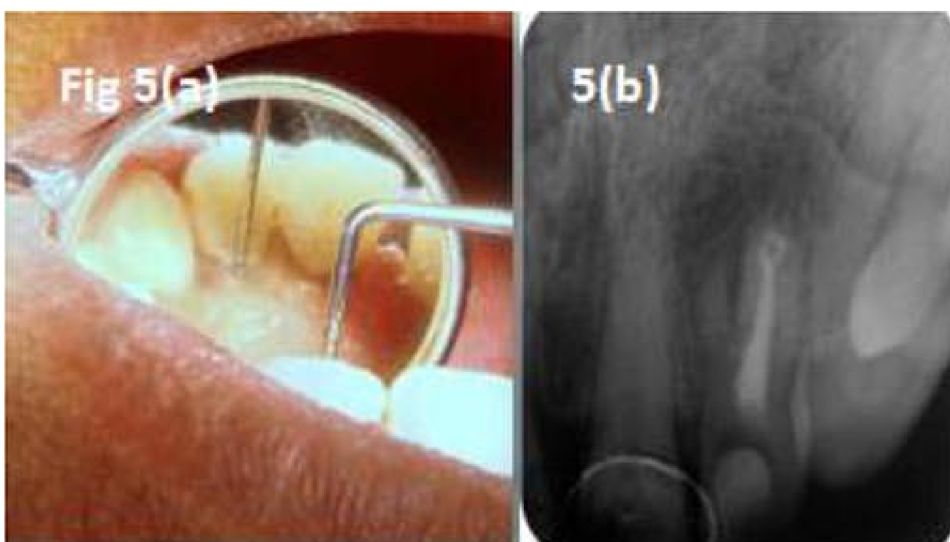


Fig 5(a)
5(b)

Case 2: A 44 year old female patient, Mrs Amudha reported to our with the chief complaint of pain and swelling in upper left front tooth region.

History: Pain and swelling for the past 3 months. Past dental history revealed endodontically treated 21.

Clinical examination: Revealed intraoral swelling on the palatal aspect of 22, periodontal probing depth of 13 mm along the palatal aspect of 22, pus discharge through the sulcus, and a groove on the palatal aspect of 22 ( fig 6 a).

Radiographic examination:

Endodontically treated 21 and 22 with periapical pathology (fig 6 b).

Diagnosis:

Palatoragicular Groove in 22 with periapical pathology and localized periodontitis.

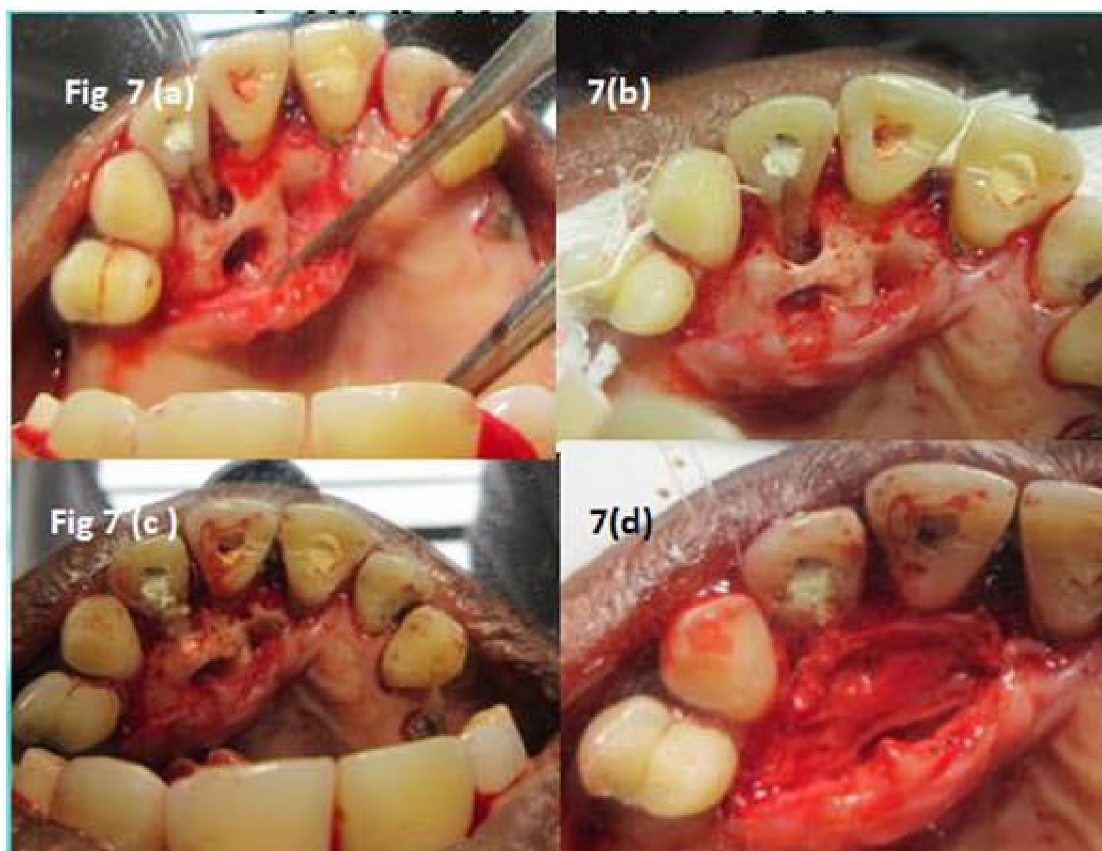
Treatment plan:

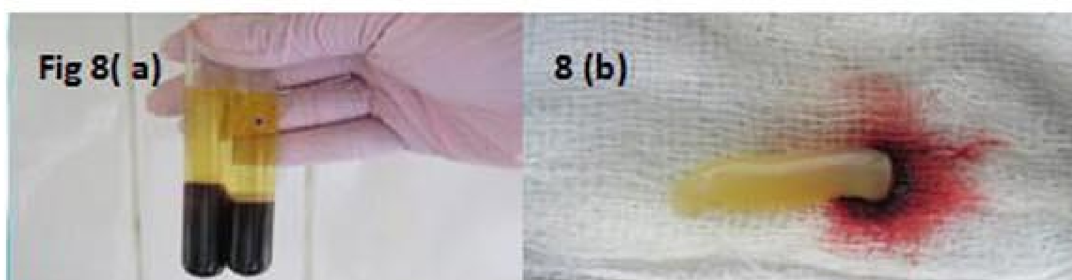
- Endodontic treatment of 22
- Periapical surgery
- Repair of the palatoradicular groove
- Periodontal regeneration.

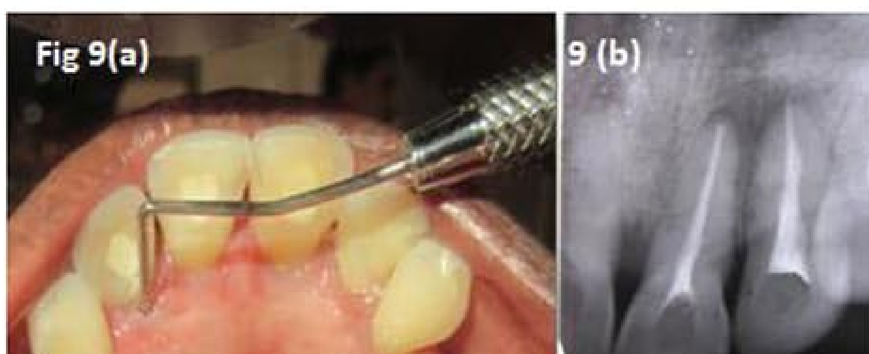
Procedure :

RCT in 22 was done using K file no 60 and cold lateral condensation. Under local anesthesia, a full thickness palatal mucoperiosteal flap was elevated in 22, followed by periapical curettage and apicoectomy using no 702 bur, and retrograde filling with Fuji IX GIC (GC, Tokyo, Japan) ( fig 7 a). The groove was saucerised with a no 4 round bur ( fig 7 b) and restored with Biodentine (Septodont, Saint Maur des Fosses, France) ( fig 7 c). Bony regeneration was attempted with autologous platelet rich fibrin (PRF) ( fig 8 a & b) and periodontal regeneration with collagen barrier membrane ( Kollagen, CLRI, Chennai, India) (fig 7 d).

9 months postoperative radiograph showed satisfactory healing (fig 9 a & b) .




Conclusion:

In case 1, the accessory root was retained because it did not possess an additional canal for it to be a cause of pathtology and resecting it warrants unnecessary removal of healthy bone. GIC was used for repair of the groove as it is biocompatible and results in good epithelial and connective tissue attachment[3] and osseograft was used which is osteoconductive in nature.In case 2, Biodentine, a novel calcium trisilicate biomaterial was used which is believed to favour periodontal regeneration by promoting fibroblast

adhesion[4]. PRF was used for bone regeneration which acts as a good source of growth factors and acts as both a scaffold and graft.[5]

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