GUIDED TISSUE REGENERATION IN ENDODONTIC – PERIODONTAL LESION: A CASE REPORT

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Clinicians often have difficulty in the diagnosis and treatment of the combined endodontal and periodontal lesion in private practice. This case report demonstrates that proper diagnosis followed by etiological factors and utilizing the guided tissue regeneration technique combined with osseous grafting, will restore health and function to a tooth with severe attachment loss caused by an endo-perio lesion. This case report demonstrates a case of an endodontic –periodontal combined lesion on a maxillary left central incisor was first treated with conventional endodontic therapy. Periodontal surgery was then completed which include scaling and root planning and apical curettage on the tooth. The facial bony defect was then filled with a alloplastic graft material which was later covered by resorbable GTR membrane and periodontal flap sutured over this. This combined treatment resulted in minimunm probing depth (3mm),maximal clinical attachment gain (8mm),as well as radiographic evidence of alveolar bone gain.



FIG 1 - Showed generalized calculus, gingival recession around 3mm in 11 and 12.



FIG2- Periapical radiograph showed large periapical lesion along with severe bone loss.

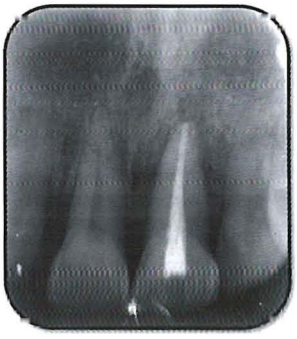


FIG 3- Photograph showed post obturation IOPA.



FIG4- photograph showing deep periodontal pocket depth more than 10 mm even after 3 months post Endodontic follow up.

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FIG 5 - Photograph showing placement of graft material.

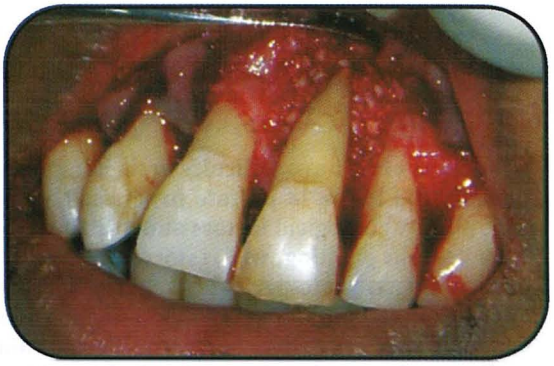


FIG 6 -Photograph showing placement of GTR membrane.

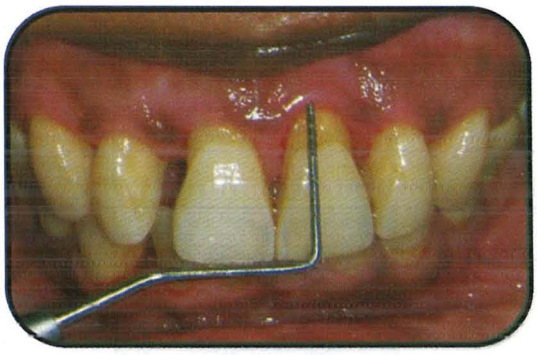


FIG 7- Photograph after 1 year showed periodontal probing depth improved around 5 mm, clinical attachment level improved.



FIG 8 -- photograph showed after 1 year IOPA showed bone filling upto coronal third of the root surface.

Preservation of natural dentition is the ultimate goal of dental therapy. Endodontic-periodontal lesion is a clinical manifestation of the pathologic /inflammatory intercommunication between pulpal and periodontal tissues via open structures such as Apical foramina, lateral & accessory canals and dentinal tubules.Onthe basis of pathologic origin ,Simon et al. classified endodontic-periodontal lesion into primary endodontic lesion, primary endodontic lesion with secondary periodontal involvement ,Primary periodontal lesion,primary periodontal lesion with secondary involvement and true combined lesion.(1)Formulating a differential diagnosis among true combined lesion has been challenging to dentist .so diagnostic steps should include through patient reported history, visual inspection for presence of sinus tract, and severe inflammation in association with large restoration, anatomic anomalies such as palatal grooves ,radiographic confirmation through results of sinus tract, results of clinical findings including percussion and palpation, testing for coronal cracks, and pulp testing. (2,3)

The treatment of endodontic-periodontal combined lesion requires both endodontic therapy and periodontal regenerative procedure. The success rate of endodontic-periodontal lesion without concomitant regenerative procedure has been reported to range from 27-37%. A long junctional

epithelium formed over the dehisced root surface has been suggested to be a contributing factor for therapeutic prognosis.(4)Therefore case selection and the appropriate treatment modalities are essential for successful treatment outcome. Guided Tissue Regeneration (GTR) therapy introduced in 1980 has been widely used to regenerate lost periodontium from periodontal disease. It works on the principle of cell separation. It works on the principle of cell separation. Basically it prevents apical migration of epithelial and connective tissue cells from occupying the defect and provide opportunity for osteoblast and periodontal ligament cells, fibroblast to proliferate.(4)

This article presents successful management of an endodontic –periodontal combined lesion affecting maxillary left cental incisor.

Case Report

A 24 Year old nonsmoker female patient presented with a chief complaint of pain and mobility with maxillary left incisor tooth. Overall generalized plaque, calculus seen. There was a deep periodontal probing depth of 10mm and clinical attachment loss, gingival recession was around 3mm, grade I mobility .(fig1)It responded neither to electric pulp test (EPT) nor the cold test.(EndoIce).There was no pain on percussion test.periapical radiograph showed a deep vertical bony defect extending to root apex of tooth. Diagnosis was pulp necrosis and asymptomatic apical Periodontitis.(Fig2)

Root canal treatment and initial scaling and root planning simultaneously performed during first phase. Under rubber dam application ,access cavity preparation was carried out .The canal was cleaned and shaped by using 2% stainless steel files using step back technique. Irrigation was done with 2% chlorhexidine.The canal was obturated with gutta percha and AH Plus sealer.(Densply Maillefer Tulsa).(Fig 3)After 3 month, clinical examination was carried out ,still there was deep periodontal pocket depth more than 10 mm.(fig4) So GTR procedure along with autogeneous bone graft was planned A mucoperiosteal flap was then reflected using two vertical incision .Mesial,bucccal and distal root surfaces and apical area of tooth were planned. Granulation tissue was removed .After that alloplastic bone grafting material was placed.(fig5).Later on GTR membrane ,"periocol" was placed which is a absorbable membrane derived from fish collagen(fig 6) .Flaps were then repositioned and sutured with 3-0 mersilk suture which was followed by application of periodontal dressing. Antibiotics and analgesic s were prescribed for 1 week. The patient was monitored on a weekly schedule postoperatively to ensure good oral hygiene in a surgerized area.The patient was recalled after every 3 months to re-evaluate this area and ensure good oral hygiene. After 1 months ,the mobility of tooth was reduced, periontal probing depth was reduced to 2mm,clinical attachment level is improved (fig7).Radiographic appearance showed bone fill upto coronal third of root.(fig 8).The clinical and radiographic results obtained are satisfactory.

Discussion

The success rate of endodontic surgery is 50 to70%(5,6).When the bony destruction involves the facial cortical plate, the prognosis for the success of the surgical procedure decreases to 37%.In this case ,we also removed granulation tissue around the root and apex without subsequent root resection and retrograde filling. In this case root canal debridement and granulation tissue removed without resection and retrograde filling. In it alloplastic bone material was used which bond to bone as well as soft tissue. The material undergoes a time dependent kinetic modification of the surface which results in the formation of calcium phosphate layer which is substancially equivalent in composition and structure to the hydroxyapatite in bone mineral This apatite layer provides bonding interface with bone and certain types of soft tissue.(7,8)

In this case ,resorbable collagen membrane periocol was used as a GTR membrane which has role in homeostasis ,stimulates platelet attachment ,enhances fibrin shrinkage and thereby facilitates clot stabilization and maturation It also act as chemotactic for fibroblast which has specific role in regeneration.

Conclusion

This case report demonstrates that with the stringent case selection criteria, aseptic endodontic procedure along with periodontal regenerative procedure along with bone graft material could successfully treat an endodontic –periodontal combined lesion. In this case no histological examination was performed, it is difficult to conclude unequivocally that true regeneration occurred or if repair was the result. However from clinical and radiographic findings ,the result of this combined technique was quite impressive.

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