"SEALING AND HEALING": Management of internal resorption with perforation – Case reports

Authors (Department of Conservative dentistry and Endodontics, TamilNadu Government Dental College, Chennai- 600 003):

Author: Girija. K (III yr Postgraduate student)

Co authors: Dr M. Kavitha (Professor & HOD)

Dr C.S. Shobana M.D.S (Ex PG student)

Introduction

Intraradicular internal resorption is an inflammatory condition that results in progressive destruction of intraradic-ular dentin and dentinal tubules along the middle and apical thirds of the canal walls (1)**.** It can be concluded that trauma and pulpal inflammation/infection are the major contributory factors in the initiation of internal resorption(1). For internal root resorption to occur, the outermost protective odontoblast layer and the predentin of the canal wall must be damaged, resulting in exposure of the underlying mineralized dentin to odontoclasts (5). Progressive resorption can result in external communication between the root canal and the periodontal ligament, due to perforation of the root. The gold standard treatment consists of debridement and obturation of pulp space, sealing of external communication and restoration of normal function of tooth through non surgical or surgical method.

CASE REPORT- 1

History

A 19 year old female patient reported to the Department with the chief complaints of recurrent dull aching pain in upper front tooth for past 2 weeks & discoloration with intermittent pus discharge in labial vestibule of same tooth. Past dental history revealed that she had met with trauma 5 years back ,underwent root canal treatment in a private dental clinic 1 month back.

Clinical examination

Intraoral examination showed brownish discoloration of 21,with class IV composite restoration on distal aspect (Fig.1)and 11 had class II Ellis fracture. On clinical examination , 21 was tender on percussion and 11, 22 showed normal response to vitality test.

Radiographic examination

The radiographic findings showed incomplete obturation and ballooning radiolucency of root canal wall which was confined within canal. There was also periapical radiolucency with thinned out wall on mesial aspect of root of 21.(Fig.2 a &b).

Diagnosis

Previously treated -21 associated with periapical lesion and internal resorption

Treatment plan

Rootcanal re-treatment of 21 ⟶ Periapical surgery ⟶ Root end resection till perforation ⟶ Retrograde filling with MTA ⟶ Metal ceramic crown in 21

Clinical procedure

An informed consent was taken from the patient. The root canal re-treatment was initiated under rubber dam isolation in 21. The access cavity was redefined using endo access bur and gutta percha was retrieved. Bleeding from canal was present .Calcium hydroxide dressing was given for initial 2 appointments at interval of 10 days. Then Root canal was obturated using customised gutta-percha and Endoseal MTA sealer (***Endocem MARUCHI Products***). The Periapical surgery was done where full thickness mucoperiosteal triangular flap was raised extending from 23- 12 .Gutta percha which was over-extended through communication in apical third of root in 21 was identified (Fig 3a).Curretage has been done followed by root end resection till external communication (Fig.3b) and retrograde filling given using MTA (***Angelus Soluções Odontológicas, Londrina, PR, Brazil***) (Fig3c &Fig.4)).The flap was sutured back. After 3 months, 21 was restored with metal ceramic crown (Fig.5). At 1 year follow up, the patient was completely asymptomatic and tooth was clinically and radiographically sound.(Fig.6)

Fig. 1

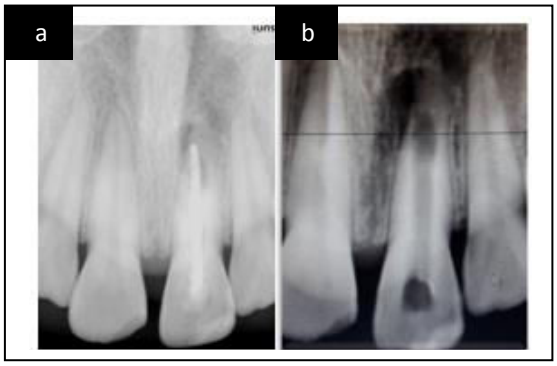

Fig. 2

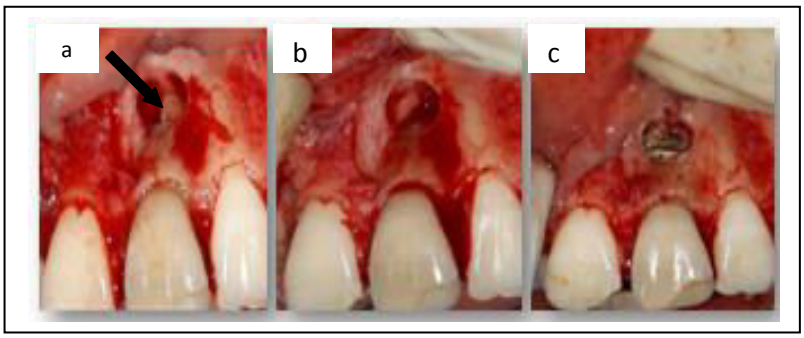

Fig.3

Fig.4

Fig. 5

Fig.6

CASE REPORT- 2

History

A 20 year old female patient reported to the Department with the chief complaints of dull aching pain and discoloration of upper front tooth. Past dental history revealed that she had met with trauma 4 years back , noticed gradual change in color of tooth ,with recurrent pus discharge in labial vestibule. She had undergone root canal treatment in a private dental clinic 1 week.

Clinical examination

Intraoral examination showed tenderness of buccal vestibule on palpation and sinus formation in relation to 21 with yellowish brown discoloration (Fig.8)

Radiographic examination

Patient reported with preoperative and postoperative IOPA , taken in private dental clinic. The pre-operative IOPA showed ballooning radiolucency of root canal toward middle third of root canal with obliteration of canal in apical third of 21. Post- operative IOPA revealed an over extended obturation of 21(Fig.7a&b)

Diagnosis

Previously root canal treated 21 and internal resorption with perforation.

Treatment plan

Retrieval of Guta-percha of 21 ⟶ Surgical repair of perforating resorption site with biodentine
Re-obturation of 21 ⟶ Indirect- composite veneer in 21

Clinical procedure

The root canal treatment was initiated under rubber dam isolation in 21 after taking informed consent from patient . The access cavity was redefined using endo access bur and gutta percha was retrieved. Bleeding was present from canal. Calcium hydroxide dressing was given and recalled after 10 days. Full thickness mucoperiosteal flap was raised in relation to 21, perforation site identified towards cervical third of root(Fig.9a&b). The granulation tissue was curetted from perforation site and repaired using Biodentine(***septodont***) (Fig9c). Apical third of canal was obturated with 60 size 2% gutta percha, and remaining canal was obturated with thermoplasticized gutta percha (Fig.10). After 1month tooth was restored with indirect composite veneer(Fig.11a&b). At 2 year follow up tooth was completely clinically and radiographically sound.

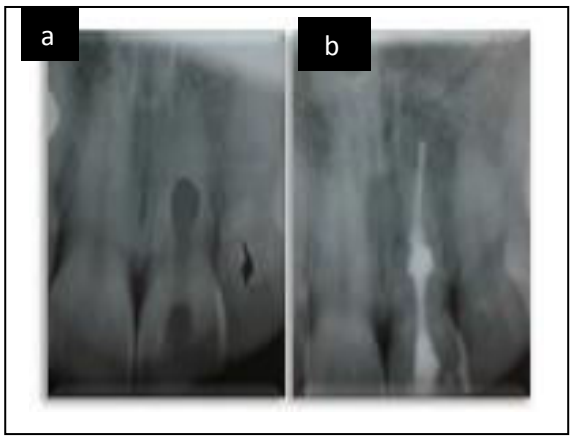

Fig.7

Fig.8

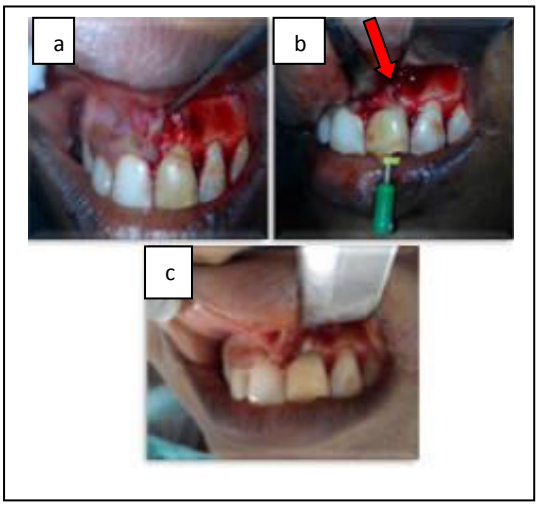

Fig. 9

Fig.10

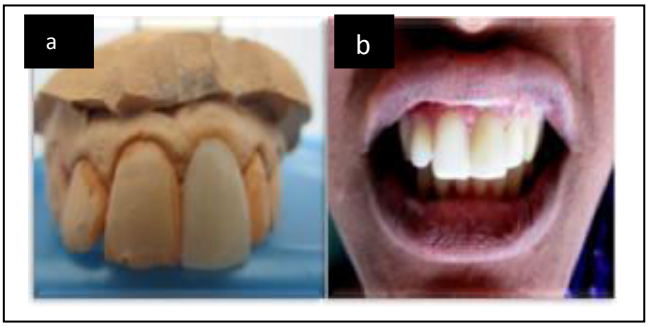

Fig.11

DISCUSSION

The treatment of internal resorption is quite challenging because of the irregular confines of the resorption cavity, presence of granulation tissue and inaccessiblity to direct mechanical instrumentation.(1)Root perforation can be managed either surgically or non surgically and the choice depends upon the accessibility and visibility of the perforation area, duration and size , patient's oral hygiene and periodontal condition.(4) In both the cases perforation site was managed surgically.In case1, since defect was in non esthetic area, MTA was used as repair material results in new cementum formation and periodontal regeneration, despite its extrusion into periradicular tissues.(2)Set MTA can acquire its optimal strength and produce excellent sealability in the inherently wet environment of the perforation.(2) In case2 since defect was more towards esthetic area biodentine was preferred to use as repair material, and has short setting time

Conclusion

Early detection and a correct differential diagnosis are essential for successful management of internal resorption to prevent overweakening of the remaining root structures and root perforation. Thus, the clinician's ability to detect this pathologic entity must rely heavily on the use of radiographs in routine oral examination **.**

References

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