

INTRODUCTION

Root resorption is the loss of dental hard tissue due to odontoclastic activity. In primary teeth, is usually physiological and desirable. In permanent teeth, may occur within the root canal or on the outer aspect of the root. In advanced cases, the may progress into the crown of the tooth. Regardless of its origins, it is irreversible and typically pathological in nature and may result in discomfort for the patient require treatment or, in some cases, the premature loss of the affected tooth.

OBJETIVE

Root resorption is often challenging to accurately diagnose and manage. The aim of this poster is to present the relevant literature on the diagnosis and management, as well as discuss the future directions of diagnosis and management of root resorption.

CLASSIFICATION OF ROOT RESORPTION

TIPO DE RESORPTION	INTERNAL ROOT RESORPTION (IRR)		EXTRENAL ROOT RESORPTION (ERR)				
	Internal inflammatory resorption	Internal replacement resorption	External surface resorption	External cervical resorption (ECR)	External inflammatory resorption	External replacement resorption	Transient apical resorption
Clinical features	Asymptomatic (early), symptoms of pulpitis and/or apical periodontitis (advanced)	Asymptomatic (early), symptoms of pulpitis and/or apical periodontitis (advanced)	None	Asymptomatic (early), symptoms of pulpitis and/or apical periodontitis (advanced), probeable periodontal defect with profuse bleeding	Symptoms of apical periodontitis	Variable, or ankylosis and/or inhibithigh-pitched metallic sound on percussion in advanced cases.	None
Clinical appearance	Healthy (vital), discoloured (necrotic), pink spot (rare)	Healthy (vital), discoloured (necrotic), pink spot (rare)	Healthy	Healthy (vital), discoloured (necrotic), pink spot (rare)	Healthy (vital), discoloured (necrotic)	Healthy	Discoloured, usually resolve within 1 year
Location on root	Anywhere	Anywhere	Adjacent to impacted tooth/cyst/tumour, apical in orthodontically treated teeth	Cervical third (early) but can extend to middle or apical third (advanced)	Anywhere	Anywhere	Apical third
Pulp sensibility testing	+ve in (partially) vital cases, -ve in necrotic cases	+ve in (partially) vital cases, -ve in necrotic cases	+ve	+ve in (partially) vital cases, -ve in necrotic cases	-ve	Usually +ve, may exhibit -ve/delayed response due to tertiary dentin formation	-ve or delayed response, usually returns to normal within 1 year
Radiographic features	Oval/round ballooning of root canal	Oval/round ballooning of root canal but with cloudy/mottled inclusions	Flattened/blunted root apex, asymmetrical loss of root, intact root canal	(A)symmetrical radiolucency in early cases, mottled radiopaque appearance in advanced cases. Perforation of root canal in advanced cases	Ragged saucer-shaped indentations along the root surface, adjacent bone loss, periapical radiolucency, Perforation of root canal in advanced cases	Asymmetrical bony replacement of root surface, absence of PDL space, root appears 'fused' to adjacent bone. Intact root canal	Widened PDL space, blurred/loss of apical lamina dura. Intact root canal

RECOMMENDATION

Several studies have confirmed that cone beam-computed tomography (CBCT) improves the diagnosis and treatment planning of root resorption when compared to radiographs (Chogle et al., 2020; Ee et al., 2014; Madani et al., 2016; Patel, Dawood, et al., 2009; Rodríguez et al., 2017). Is for this that a high-resolution, small field of view, cone beam-computed tomography is recommended to investigate the exact nature of the root resorption lesions, that will accurately distinguish internal root resorption from external root resorption, as well as confirm the nature.

EXTERNAL CERVICAL RESORPTION



(h) instrumentation via ECR cavity, (i) irrigation, (j) obturation (red arrow) and (k) bonded restoration. Potential predisposing factor in this case was dental trauma sustained 16 years ago.



(f) and nearly up to 180° around the tooth. The potential predisposing factors for this case was cricket ball injury sustained over 20 years ago.

(a) Radiography, (b-c) CBCT scans (cyan arrows) reveal nature of ECR in tooth 10 (Patel 1Ap), (d) post-treatment, (e) 2-year review, (f) envelope flap and isolation of ECR under rubber dam, (g) ECR lesion excavated,

(a) Subtle pink hue on tooth 26, (b) probing (c) resulting in copious bleeding on probing, (d) well-defined radiolucency (resorptive /destructive phase) appears to show that the ECR is confirmed to the coronal aspect of the tooth (e) CBCT reveals the ECR extends into the coronal

INTERNAL REPLACEMENT RESORPTION



(b) Internal replacement resorption. (a, b) Periapical radiographs on tooth 9 with radiographic signs of IRR; note the symmetrical nature of the defect, which remains centred with the parallax view, and the radio-opaque nature of its coronal aspect. This patient sustained a dental traumatic injury 9 years previously (c) CBCT slices through the same tooth reveals a calcified tissue in the coronal part of the lesion. (d, e) Obturated tooth and a 2 year review radiograph demonstrating the irregular borders of the defect that have been obturated with thermoplastiicized gutta percha.

CONCLUSION

Robust clinical research is required to gain a deeper knowledge of the aetiology and pathogenesis of the various types of root resorption. The prognosis of root resorption is dependent on an accurate and early diagnosis. Increasingly, CBCT is being used to confirm the diagnosis or aid management.

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