A Disappearing Act? Report of an Unusual Radiographic Feature

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Abstract: **The clinical presentation of root resorption varies between patients, and occasionally may be a coincidental finding on routine radiographs. Clinical symptoms may be absent but, if present, usually indicate the presence of pulpal disease. The treatment options are determined by the type, site and extent of the resorptive lesion: in some cases, especially where there is external resorption, extraction may be the only option. This article presents a case in which a misdiagnosis of root resorption was made on the basis of persistent clinical symptoms and a diagnostic radiographic finding.**

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Clinical Relevance: **This case highlights the importance of interpreting radiographic abnormalities in the light of existing knowledge of symptoms and clinical examination.**

A 44-year-old man had been seen in the restorative department for the provision of endodontic therapy on $\overline{|5}$. His original presenting complaint was that of discomfort from the lower left region, which had been intermittent over a couple of months and had caused some loss of sleep.

The patient had a mild form of von Willebrand's disease, but was otherwise fit and healthy. Endodontic treatment was carried out uneventfully and a follow-up appointment arranged to assess periapical healing.

At the follow-up visit, the patient reported a reduction in the discomfort from the tooth, although he still had occasional discomfort from the region.

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Periapical radiographs were then requested for the $\overline{|5,6}$ region which revealed an apparent moth-eaten appearance of the distal root of $\overline{|6}$ (Figure 1). The prognosis of this tooth was deemed poor and, as the patient was still having intermittent symptoms, the decision was made to refer him to an oral surgeon for the assessment and possible extraction of $\overline{|6}$ as he would require haematological support.

Four months after this referral the patient was still experiencing low-grade intermittent discomfort, however he considered the pain to be bearable, and was keen to avoid extraction if possible. Clinical examination at this visit suggested no abnormality, but a new radiograph was taken in order to compare the previous radiograph with any recent changes (Figure 2). Surprisingly, no abnormality of the distal root of $\overline{|6}$ was observed, much to the relief of the patient and dentist.

DISCUSSION

The use of radiographs in dentistry helps to provide diagnostic information which, when used in combination with appropriate clinical details and investigations, usually assists in arriving at a definitive diagnosis. The accurate interpretation of radiographic findings is determined by the dentist's experience and ability to recognize variations from normal anatomic features.

There are three important factors in treatment planning:[1]

- observation;
- interpretation; and
- management of perceived need.

This case, bizarre as it may appear, emphasizes the fact that radiographs are not infallible and that practitioners should be very cautious in basing irreversible treatment on their interpretation.

A study that investigated the accuracy of single radiographs in diagnosing resorption and comparing

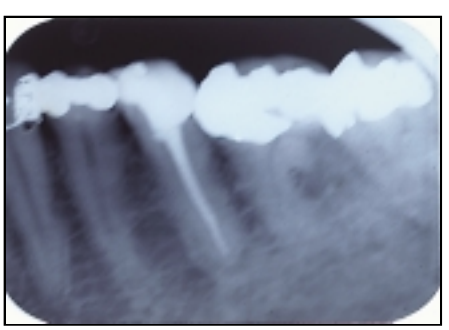


***Figure 1.** Radiograph showing apparent moth-eaten appearance of the distal root of $\overline{|6}$.*

Figure 2. *Four months later, the root morphology of* $\overline{|6}$ *is normal.*

such diagnoses with histological sections taken from the affected teeth showed that only 25% had perfect coincident results.[2] It was concluded that single routine radiographs are not sufficiently accurate or sensitive enough to diagnose apical root defects consistently.

In the case report described above both radiographs were taken by an experienced radiographer using a long cone paralleling technique and a film holder. Although the radiograph in question is technically less than perfect in that there is some degree of overlap, it is difficult to imagine that this alone accounted for the error. Factors affecting the quality and therefore diagnostic value of radiographs can be broadly divided into technical faults and processing faults, a range of possibilities for which have been described,[3–5] including:

- cone cutting;
- cone angulation, which would explain the degree of overlap of teeth in the image;
- increased exposure, which could result in loss of trabecular pattern and lamina dura definition.

The most likely reason in this case is the cone angulation, which has resulted in the overlap of $\overline{|6}$ and $\overline{|7}$.

CONCLUSION

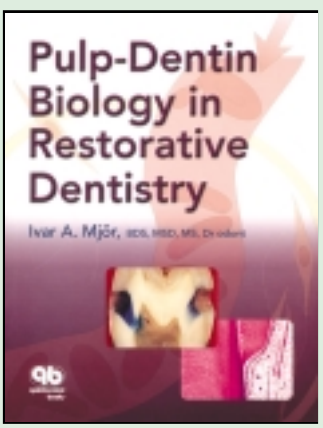
Clinicians should be aware of the possibility of radiographic irregularities that do not truly represent the clinical situation. Any clinician in doubt should seek the opinions of colleagues and, where necessary, monitor and take further radiographs to help ascertain the true situation.

References

1. Brocklebank LM. Assessment of the radiographic image: Recognition of abnormal features. *Dent Update* 1999; **26:** 51–58.
2. Laux M, Abbott PV, Pajarola G, Nair PN. Apical inflammatory root resorption: a correlative radiographic and histologic assessment. *Int Endodont J* 2000; **33:** 483–493.
3. Rushton VE, Horner K, Worthington HV. The quality of panoramic radiographs in a sample of general dental practices. *Br Dent J* 1999; **186:** 630–633.
4. Brocklebank LM. The quality of the X-ray image: Fault analysis. *Dent Update* 1998; **25:** 188–194.
5. Horner K. Quality assurance: 2. The image receptor; dark room and processing. *Dent Update* 1992; **19:** 120–126.

BOOK REVIEW

Pulp-Dentin Biology in Restorative Dentistry. Ivar A. Mjör, ed. Quintessence Publishing Co. Ltd, New Malden, Surrey, 2002 (168pp, £42.00 p/b). ISBN 0-86715-412-8.



This book represents a compilation of a series of articles published in recent months and bringing them together has provided a very authoritative treatise. The author is one of the giants of the pulp biology and restorative dentistry field and he brings a lifetime of experience to consideration of the subject.

The foreword by another giant of the field, the late Harold Stanley, provides a fitting tribute to Dr Mjör. His erudite treatment of the subject matter is to be expected, but what is particularly invigorating is the manner in which he has integrated the basic biology of restorative dentistry with its clinical practice. This emphasis on the biological basis to restorative dentistry has to be applauded and highlights the way in which the field is moving forward. No practitioner can ignore the impact of every aspect of restorative dentistry on the behaviour of the dentine-pulp complex and the clinical consequences for the survival of the tooth and any subsequent complications.

The author's treatment of all aspects of dental tissue biology and restorative dentistry emphasizes their inter-linking, but is presented in such a way as to be accessible to student, through to practitioner and researcher. The content is up-to-date and draws on the considerable experience of the author, with constructive and critical comment where appropriate. It is well illustrated and referenced for those readers wanting to go further. For the general practitioner, some may feel that certain aspects fall into the realm of academic dentistry, but they should not underestimate how much benefit to their clinical practice will accrue from exploring these areas.

Whether for training or CPD purposes, this book is essential reading for all those involved in the practice of restorative dentistry and should find a prominent position on the bookshelf. The book and its approach to the subject is timely and I am delighted that Dr Mjör has chosen to share his considerable experience.

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