Clinical Case Prize Category

C1

Cost effective management of traumatised teeth using magnification to optimise endodontic success

G. ABOU AMEIRA & R. PORTER
Maxillo-facial Unit, St Georges Hospital, London, UK

Background: Adolescents requiring root canal treatment are often anxious patients who would benefit from being treated by a paediatric dentist. Evidence clearly suggests that endodontic treatment should be carried out to the highest standards from the first attempt as re-treatment has a lower success rate.
Presenting problem: A 14-year-old boy attended the A&E department at St Georges Hospital after being hit in the face with a brick. He presented with a history of loss of consciousness, various facial injuries and three avulsed teeth (UR3, LR4, LR5). The LR4 had also sustained a root fracture and UR3 a crown fracture. Following patient stabilisation, UR3 and LR5 were re-implanted and splinted.
Clinical management: The UR3 and LR5 were extirpated and dressed with $Ca(OH)_2$ in the paediatric dental department, following loss of vitality. Radiographic examination revealed periapical radiolucency associated with UR3, UR4 and progressive root resorption of UR3 and LR5. All endodontic treatment was undertaken using a microscope. The UR3 was root filled with MTA and the crown was restored with composite. Although the prognosis of LR5 was poor, the decision was made to restore it with MTA to retain it for as long as possible. The UR4 was root treated using Protaper system and filled with Obtura.
Discussion: This case demonstrates that expertise in microscope use, for both single and multi-rooted traumatised teeth, is imperative in providing good quality endodontics. This results in speedy completion and reduction of the overall cost of complex treatments to both the patient and the NHS.

C2

Hypophosphataemic rickets: an interesting case of diagnosis by dental examination

U. CHAUDHRY, C. L. PATCHETT & C. A. HOOD
Paediatric Dental Department, Central Manchester University Hospitals, NHS Foundation Trust, Manchester, UK

Background: Hypophosphataemic rickets is a rare metabolic disorder characterised by osseous and dental defects. An acute dental abscess with no apparent cause may be the first presenting complaint, thus highlighting the role of the dentist in the diagnosis and management of this patient group.
Presenting problem: A 2-year-old boy attended the paediatric dental department on an emergency basis complaining of poorly located pain in the upper right quadrant. He was reported to be medically fit and well, however questioning elicited a history of delayed walking, necessitating physiotherapy at the age of 14 months. Examination revealed a large, firm swelling located buccally to teeth 55 and 54. The swelling was progressive and extended to involve the lower eyelid. There was no evidence of any carious teeth.
Clinical management: Radiographic findings indicated abnormal dental morphology with loss of lamina dura and osteopenia suggestive of possible metabolic/endocrine disease. These findings were confirmed by a radiology consultant and an urgent referral to a consultant paediatrician was made. Antibiotics were prescribed to manage the acute swelling. Comprehensive dental care, including extractions and stainless steel crowns was provided under general anaesthetic.
Discussion: A diagnosis of hypophosphataemic rickets with craniosynostosis was made. This case highlights the importance of a multidisciplinary approach; keen diagnostic skills and being open minded with treatment options when no clear guidelines are available.

C3

Treatment of a complicated crown–root fracture: a novel approach

D. P. HAND, B. O. COLE & L. BURBRIDGE
Department of Paediatric Dentistry, Newcastle Dental Hospital, UK

Background: Complicated crown-root fractures involve enamel, dentine, cementum and the pulp tissue. Quite frequently they start at the midportion of the crown labially and extend below the gingival margin palatally to the cemento-enamel junction. Often these types of traumatised teeth can be managed successfully with prompt and appropriate treatment.
Presenting problem: A 12-year-old male presented following a traumatic injury to his permanent maxillary central incisor. Clinical and radiographic examination revealed that he had sustained a complicated crown-root fracture to tooth 21 that was circumferential in nature and subgingival both labially and palatally.
Clinical management: Initial management was to stabilise the tooth using a sectional fixed appliance along with pulp extirpation. Root canal obturation subsequently followed with the extraction of the coronal portion of the tooth. A fibre post was then bonded into the canal and used to internally secure the extracted coronal portion of the fractured tooth back into place. Orthodontic extrusion was then carried out to bring the fracture margin supragingivally to ensure adequate restoration of the fractured interface had been achieved. Tooth 21 was then successfully reintruded to its original position in the dentition.
Discussion: A significantly traumatised tooth underwent treatment which was acceptable to the patient. This involved a joint paediatric-orthodontic approach to facilitate restoration and to reposition the tooth. It is anticipated that this traumatised tooth will be maintained for the foreseeable future with the obvious benefits to the developing child.

C4

Changing trends in trauma management

N. LUSH & V. SRINIVASAN
Edinburgh Dental Institute & The Royal Hospital for Sick Children, Edinburgh, Scotland, UK

Background: Traumatic injuries present one of the greatest challenges to the integrity of the developing dentition. The recent changes in delivering care to traumatised teeth, including the use of Mineral Trioxide Aggregate (MTA) have been adopted in the case presented to demonstrate how a less invasive approach can result in an optimal outcome.
Presenting problem: A healthy 8-year-old boy presented with complicated crown fractures affecting the maxillary left central (21) and partially erupted lateral incisor (22), the day after he sustained trauma. Immediate care had been provided by the

out-of-hours emergency service, in the form of a temporary coronal seal, in both teeth.

Clinical management: Clinical and radiographic examination confirmed the diagnoses and the stage of root development. Intermediate management consisted of gingivectomy and partial MTA pulpotomy in 22. A space maintainer was provided to facilitate further eruption of this tooth. The pulp in 21 was extirpated and the root canal prepared. Coronal seal in both teeth was achieved by the placement of composite resin restorations. Long-term management involved further monitoring of eruption and root maturation in 22. An MTA apical barrier was placed in 21, followed by the placement of an injectable thermoplastic gutta percha root filling. Regular follow up of the traumatised teeth was arranged.

Discussion: Adopting the changing trends in trauma management enabled the maintenance of pulp vitality, allowing normal root development and apexogenesis to occur. An optimum functional and aesthetic result was achieved with the patient retaining his natural teeth and avoided a complex multidisciplinary approach.

C5

Unusual dental features in a child with Osteogenesis Imperfecta

J. C. MITCHELL & M. AHLUWALIA

Department of Paediatric Dentistry, King's College Dental Hospital and Institute, London, UK

Background: Children with Osteogenesis Imperfecta (OI) may not present with true Dentinogenesis Imperfecta Type I (DI) but may show irregularities within dentine.

Presenting problem: A 7-year-old boy with OI was referred to the Paediatric Dental Department at Kings College Dental Institute for management of dental caries.

Clinical management: History and clinical examination revealed no DI. Radiographic examination suggested tauradontism in the first permanent molars with pulp calcification. Permanent incisors appeared invaginated. Dental extractions, endodontic and restorative treatment were carried out under local anaesthetic. The patient was reviewed 3-monthly to reinforce prevention and monitor dental development.

Discussion: OI is a genetic disorder associated with mutations in the collagen type 1 genes on chromosomes 7 (7q22.1) and 17 (17q21.3-q22). This condition can be associated with the following phenotypic features: bone fragility, lax joints, blue sclera, hearing loss and DI. DI is diagnosed in only 50% of patients with OI and it has been suggested that mild forms of DI may be underestimated. Although the patient did not suffer with true DI, he exhibited some of the characteristics associated with the condition. Studies have shown that individuals with OI have irregularities within the dentine, the dentine-enamel junction and calcification within the pulp chamber without the phenotypical features of DI. It was therefore important to carefully monitor this patient's permanent dentition for dental caries or signs of tooth wear.

C6

Treatment considerations for a girl with Dentinogenesis Imperfecta during the educational transition

H. WONG, H. D. RODD & Z. MARSHMAN

Department of Oral Health and Development, University of Sheffield, UK

Background: Dentinogenesis Imperfecta is an inherited condition resulting in discoloured teeth that are prone to tooth tissue loss. The condition may cause appearance-related distress and have a negative effect on everyday social interactions.

Presenting problem: Our patient, EM, is a 12-year-old girl with Dentinogenesis Imperfecta, who had been cared for by the paediatric dentistry clinic, Sheffield Dental Hospital, from the age of 3-years. EM's twin sister and her mother had the same condition. The transition to secondary school prompted EM to request restorative treatment to improve her dental appearance, as her anterior teeth were discoloured and worn. Completion of an oral health-related quality of life questionnaire revealed that EM's dental status had a significantly greater impact on her life than was the case for her twin sister or peer group.

Clinical management: Direct composite crowns were placed on all 12 permanent anterior teeth using opaquers to mask the underlying brown/grey hue. These provided a marked improvement in aesthetics. To prevent future tooth tissue loss, gold onlays were placed on the second permanent molars and a combination of direct and indirect composite restorations were placed on the premolar teeth.

Discussion: This case highlights the considerable psychosocial impact of visible dental anomalies in some individuals. It is important that clinicians consider this aspect in the overall management of their young patients, and be aware of the potential for increased concerns prior to the transition to secondary school, which may be a significant life event.