

teeth led to BPE scores of 111/121. There was plaque-induced gingivitis. Left and right bitewing radiographs confirmed diagnoses of caries into dentine in the 17, 18, 25 and 27 teeth. Alongside improved cleaning and dietary changes, the patient was encouraged to change her toothpaste from the fluoride-free brand, to one that contained at least 1,350 ppm fluoride.<sup>1</sup>

This patient's irregular dental attendance could have contributed to the extent of

dental caries found. A competent clinician would have diagnosed active lesions earlier and instituted preventative strategies.<sup>3</sup>

Dental students should regularly check their own cleaning, diet and fluoride content of the toothpaste they use. This interesting case brought to light a potential lack of self-awareness amongst dental students.

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## References

1. Walsh T, Worthington H V, Glenny A M *et al*. Fluoride toothpastes of different concentrations for preventing dental caries in children and adolescents. *Cochrane Database Syst Rev* 2019; **3**: CD007868.
2. Public Health England. *Delivering better oral health: an evidence-based toolkit*. pp 22-28. 22 March 2017. Available at: <https://www.gov.uk/government/publications/delivering-better-oral-health-an-evidence-based-toolkit-for-prevention> (accessed July 2019).
3. Ismail A I, Pitts N B, Tellez M *et al*. The International Caries Classification and Management System (ICCMS™) an example of a caries management pathway. *BMC Oral Health* 2015; **15 Suppl 1**: S9.

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## CASE REPORT

### Dental radiography

#### Deceptive radiographs

Sir, a 29-year-old gentleman was referred to our oral surgery department complaining of food packing between the lower left second and third molar teeth (37, 38). The 38 was horizontally impacted and 37 had been restored with a metal-ceramic crown. A sectional panoramic radiograph (Fig. 1), taken to assess the relationship between 38 and the inferior alveolar canal, showed radiolucencies suggestive of caries occlusally in 38 and beneath the crown on 37.

Clinically, a defect was noted at the mesial margin of the metal-ceramic

crown on 37; however, the distal margin could not be accessed with a probe due to the position of 38. There was some doubt over the long-term prognosis of the second molar.

Following discussion of treatment options with the patient, he consented for surgical removal of 38 under local anaesthetic with intravenous sedation. A supplemental bitewing radiograph (Fig. 2) was taken to better appreciate the extent of any caries in 37, in case extraction was required. To our surprise this showed the distal surface of 37 to be intact and the tooth to be caries free. The mesial margin of the restoration was defective, however, and the patient and referring GDP were informed.

While it is well established in guidelines that bitewing radiographs are optimal for caries detection,<sup>1</sup> they do not show the root morphology or periradicular structures. In oral surgery, imaging of these structures is often desirable, and so panoramic radiographs are commonly used. Owing to their reduced sensitivity and specificity,<sup>2</sup> caution should be exercised when attempting to diagnose caries from these radiographs, particularly in relation to extra-coronal restorations. This case highlights the limitations of panoramic radiography, and the potential utility of supplemental bitewing radiographs for treatment planning, particularly in the oral surgery environment where such imaging may not be routinely used.

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## References

1. Pitts N, Ricketts D. Radiographs in dental caries diagnosis. In Horner K, Eaton K (eds) *Selection criteria for dental radiography*. 3<sup>rd</sup> ed. Faculty of General Dental Practice (UK), 2018. Available at: <https://www.fgdp.org.uk/guidance-standards/selection-criteria-dental-radiography> (accessed July 2019).

uk/guidance-standards/selection-criteria-dental-radiography (accessed July 2019).

2. Kamburoglu K, Kolsuz E, Murat S, Yüksel S, Özen T. Proximal caries detection accuracy using intraoral bitewing radiography, extraoral bitewing radiography and panoramic radiography. *Dentomaxillofac Radiol* 2012; **41**: 450-459.

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### Unusual supernumerary

Sir, a 23-year-old male patient presented to our clinic for removal of the left mandibular third molar after several episodes of acute pericoronitis. Intraorally the tooth appeared to be of normal morphology and was partially erupted. However, a panoramic radiograph showed what appeared to be a supernumerary tooth superimposed over the left mandibular third molar (Fig. 1). A surgical extraction was performed and the tooth was removed completely intact. Inspection of the specimen extra orally found that there



Fig. 1 A sectional panoramic radiograph showing radiolucencies suggestive of caries occlusally in 38 and beneath the crown on 37



Fig. 2 A supplemental bitewing showing the distal surface of 37 to be intact and the tooth to be caries free



Fig. 1 Cropped panoramic radiograph showing as if supernumerary tooth superimposed over the left mandibular third molar

were two crowns and four roots which we diagnosed as fusion of a supernumerary tooth to the left mandibular third molar. The tooth was fused at the dentine and the pulp chambers were connected, suggesting that fusion occurred early in development.

A rare fusion variant of this kind is of interest to a general dentist because of its clinical implications. Although a majority of fused teeth are asymptomatic and require no treatment, some may cause issues such as crowding, impaction, and periodontal conditions. Accurate diagnosis and careful radiographic evaluation are important to achieve a successful clinical outcome.

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## Dental trauma

### Nail gun injury

Sir, a 30-year-old carpenter attended the A&E department complaining of a laceration to his cheek and an altered bite following a nail gun misfiring at work. On clinical examination, he had a 1 cm linear laceration to his right cheek and was unable to occlude his teeth. Radiographs (Fig. 1) revealed an 8 cm nail traversing the maxilla.

It is estimated that nail gun injuries are responsible for 37,000 A&E attendances each year and reports state that the number of injuries are increasing.<sup>1</sup> A number of these cases resulted in significant morbidities and could have been prevented by improved personal protective equipment. Current guidelines recommend wearing hard hats and eye protection only, when operating a nail gun.<sup>2</sup> We would suggest that these guidelines could be revised to include full-face protection due to the severity of related injuries.

The nail was removed under general anaesthetic via a second incision in the right cheek. The patient was reviewed two weeks post operatively and had no long term complications from his injury.

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### References

1. Lipscomb H, Jackson L. Nail-gun injuries treated in emergency departments – United States, 2001-2005. *MMWR Morb Mortal Wkly Rep* 2007; **56**: 329-332.
2. Department of Health and Human Services; Centers for Disease Control and Prevention; National Institute for Occupational Safety and Health; Department of Labor; Occupational Safety and Health Administration. Nail gun safety: a guide for construction contractors. 2011. Available at: [https://www.osha.gov/Publications/NailgunFinal\\_508\\_02\\_optimized.pdf](https://www.osha.gov/Publications/NailgunFinal_508_02_optimized.pdf) (accessed July 2019).

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## OMFS

### Accidental bite injury

Sir, we wish to report an unusual accidental bite injury of the lower lip following administration of local anaesthetic. A 21-year-old gentleman presented to the Accident and Emergency department having bitten the left lower lip. This occurred shortly after leaving his dental practice where he had several dental restorations completed in the lower left quadrant under local anaesthesia. Difficulties achieving oral competency were reported. Medically the patient was managing Type 1 Diabetes.

On examination there was an approximately 2 cm defect extending to the left commissure, affecting the vermilion of the lip, the labial mucosa but not the vermilion border (Fig. 1). It was not possible to close the defect primarily and so the patient was subsequently admitted by Oral and Maxillofacial Surgery for repair with advancement of a musculo-vermillion flap. The patient was regularly reviewed within the department and was still concerned with the residual swelling in this area at the three-year review. Further debulking of this area was subsequently completed in theatre.

This case highlights the potentially serious consequences of self-inflicted trauma following local anaesthetic administration. While the vast majority of patients do not sustain this severity of injury we, as dental practitioners, should be routinely giving post-operative instructions to all patients following administration of local anaesthetic.

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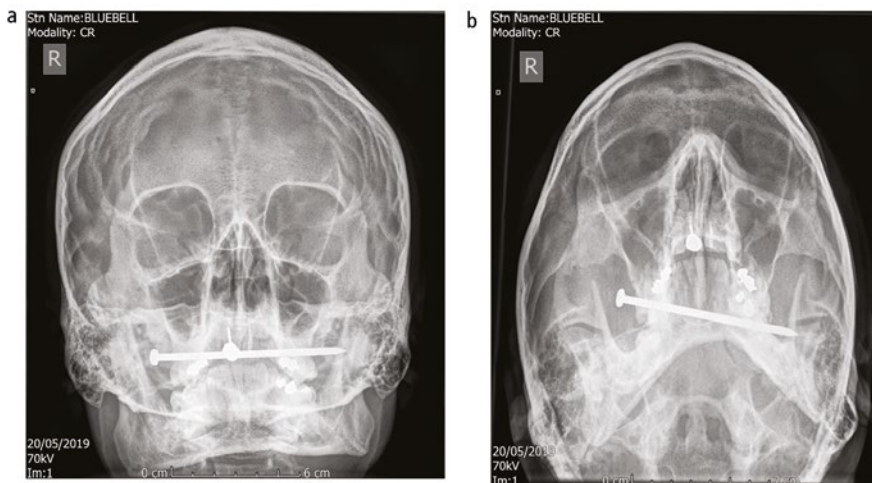


Fig. 1 Occipitontental 0 and 30 degree radiographs showing 8 cm nail across maxilla



Fig. 1 The patient with an accidental bite injury