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Common Things are Common: A Case Series of Oral Foreign Bodies in Paediatric Patients

Abstract: Reports of foreign bodies in the oral cavity are few in number. Three cases of children of varying ages, presenting with oral foreign bodies, and their subsequent diagnosis and management, are described. The importance of considering foreign bodies, as part of a differential diagnosis in paediatric patients, where aetiology is uncertain and clinical appearance is unusual, is highlighted.

Clinical Relevance: Children often place objects in their mouths which, if they become lodged, may present to the dental practitioner as a foreign body. These can have potentially adverse effects on associated hard and soft tissues.

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Reports of young children attending accident and emergency departments with small objects that have been placed in ears and noses are relatively common.^{1,2} There are few reports documented which describe presentation and management of foreign bodies in the oral cavity. It is normal behaviour for children to place objects in their mouths as part of their development and learning whilst exploring the environment around them.³

The following cases highlight the importance of considering foreign bodies as part of a differential diagnosis in paediatric patients where aetiology is uncertain and clinical appearance unusual.

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This case series illustrates three unusual cases which presented to Birmingham Dental Hospital in the past four years following referral from general dental practitioners. Impaction of foreign bodies in the mouth is shown to have potentially damaging consequences on associated hard and soft tissues.

Case 1

An 11-year-old boy presented to the Paediatric Dentistry Department complaining of a 'lump on the gum' in the upper left quadrant of three weeks' duration. The patient reported a history of previous pain but no trauma to the area. He had completed a course of antibiotics prescribed by his general dental practitioner but his symptoms had not resolved.

The medical history and extra-oral examination were unremarkable.

Intra-oral examination revealed the UL2 to be fully erupted, with an area of well localized oedematous gingiva with an associated discharging buccal sinus. The UL3 was noted to be partially erupted. Special investigations revealed that UL2 was tender to percussion, non-vital to electric pulp testing and to be Grade I mobile. There was no periodontal pocketing or caries evident.

Radiographic examination showed UL2 to have widening of the periodontal ligament and 70% bone loss on the distal aspect (Figure 1a).

The provisional diagnoses; infected follicle of UL3, dentigerous cyst or acute apical periodontitis of UL2 were made.

It was decided that, in order to determine a definitive diagnosis, the area would need to be explored surgically. The patient was co-operative and therefore the treatment was undertaken with routine local anaesthesia and inhalation sedation. A full thickness mucoperiosteal flap was raised and curettage of the area revealed granulation tissue in the bony defect and a piece of fingernail of considerable size deeply embedded subgingivally (Figure 1b).

The area was debrided, irrigated and closed with Vicryl sutures. Following completion of the procedure, the patient confirmed a fingernail biting habit.

At review, the area had healed well and the histopathology report confirmed the clinical findings. The UL2 still responded negatively to sensibility tests. A plan was made to repeat the tests in one month and to commence root canal treatment if indicated. At follow-up, UL2 responded positively to sensibility testing, was not tender to percussion, showed no mobility and had no evidence

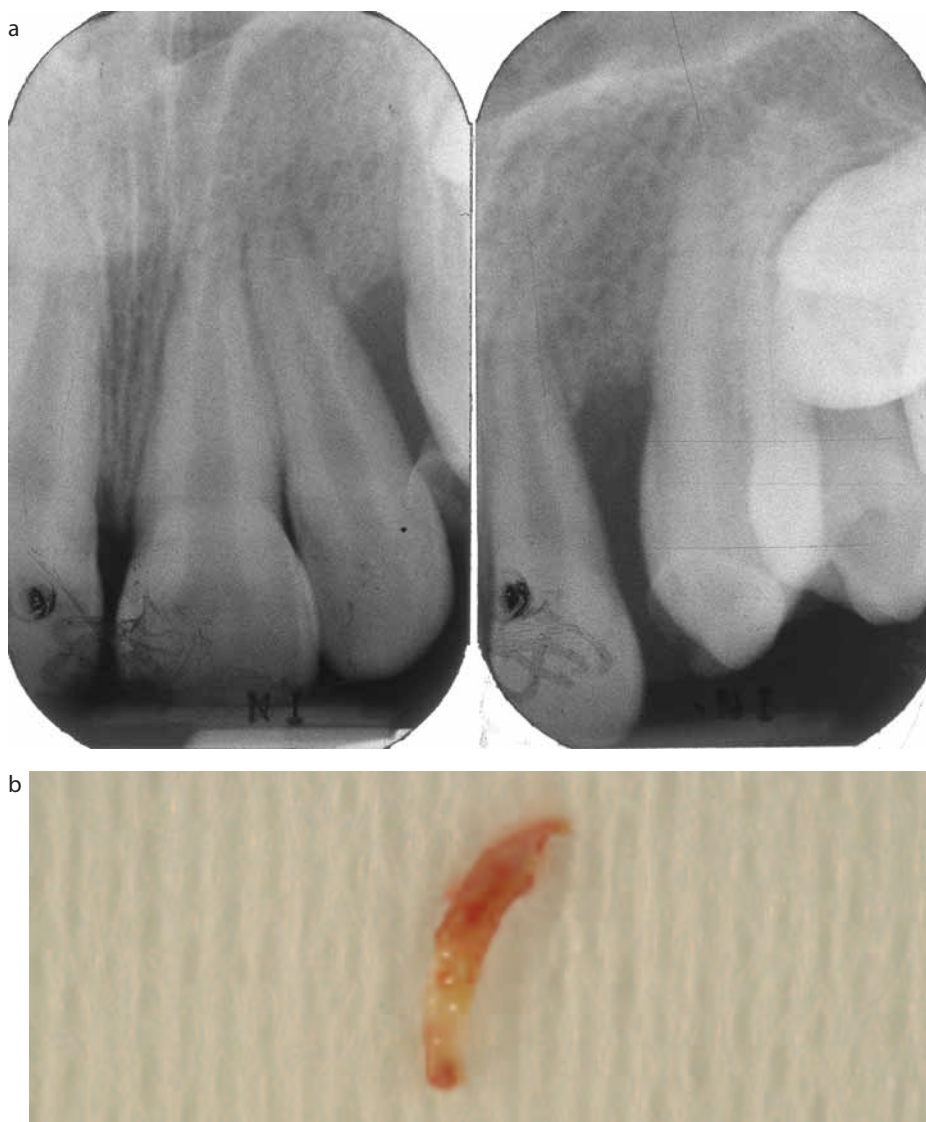


Figure 1. (a) Periapical radiographs of UL123 taken at initial examination pre-treatment. **(b)** Fragment of finger nail following removal.

of discoloration or an associated sinus. Radiographic follow-up was to be undertaken in one year to monitor bony healing.

Case 2

An 8-year-old girl attended a new patient consultant clinic in the Paediatric Department at Birmingham Dental Hospital following referral from her GDP. The referral requested that the patient be seen and treated regarding gross localized gingival recession associated with increased width and mobility of the LR6.

At consultation, the patient had no presenting complaint. The patient was

accompanied by her mother, who reported that her GDP had noticed a gum problem at a routine check up.

The patient had no history of symptoms or previous periodontal problems. The patient confirmed that she brushed her teeth twice daily.

There was no relevant medical history.

Extra-oral examination revealed nothing abnormal. Intra-oral examination showed the patient to be in the early mixed dentition and caries free.

Oral hygiene was good, apart from a localized area of gingivitis related to increased plaque deposits around LR6.

A Basic Periodontal Examination revealed all sextants to have a score of zero, apart from the lower right sextant where the LR6 scored two. White hard tissue was noted sitting cervically around LR6 (Figure 2a and b). The provisional diagnoses of cementum, calculus or a foreign body were made.

Radiographic examination with an OPG and periapical radiograph of LR6 was undertaken to assess general dental development and periodontal bone levels. The radiographs revealed an ectopic UR3, missing UR5 and LL5. Otherwise, nothing abnormal was detected.

The patient showed good co-operation and hence further investigation with an excavator revealed the 'white hard tissue' to extend a few millimetres subgingivally and to be movable coronally with firm pressure. At this stage, it became apparent that the excess hard tissue was a foreign body; a toy plastic ring. This was removed with a diamond bur in a high-speed handpiece (Figure 2c, d and e).

Oral hygiene was reinforced in this region and a review appointment made for one month's time to monitor gingival healing before discharge back to the GDP. The patient admitted to her mother following the appointment that the plastic ring was a bracelet off one of her 'Bratz Dolls' (Figure 2c).

Case 3

A 4-year-old girl was referred to the department by her GDP following identification of a foreign body embedded in the gingival tissues surrounding LLE.

At consultation, the patient had no presenting complaint. The patient attended with her mother, who had first identified the problem. There was no history of how the foreign body came to be present in the mouth.

The patient was medically fit and well.

On examination, there was noted to be a complete and caries free primary dentition. Oral hygiene was good, except mild gingival inflammation around the disto-buccal aspect of LLE. A metal looking foreign body, ring-like in nature with no sharp edges, was just visible around the buccal, mesial and lingual surfaces of LLE (Figures 3a and b).

Radiographic examination with an OPG and a periapical radiograph of LLE were taken to assess general dental

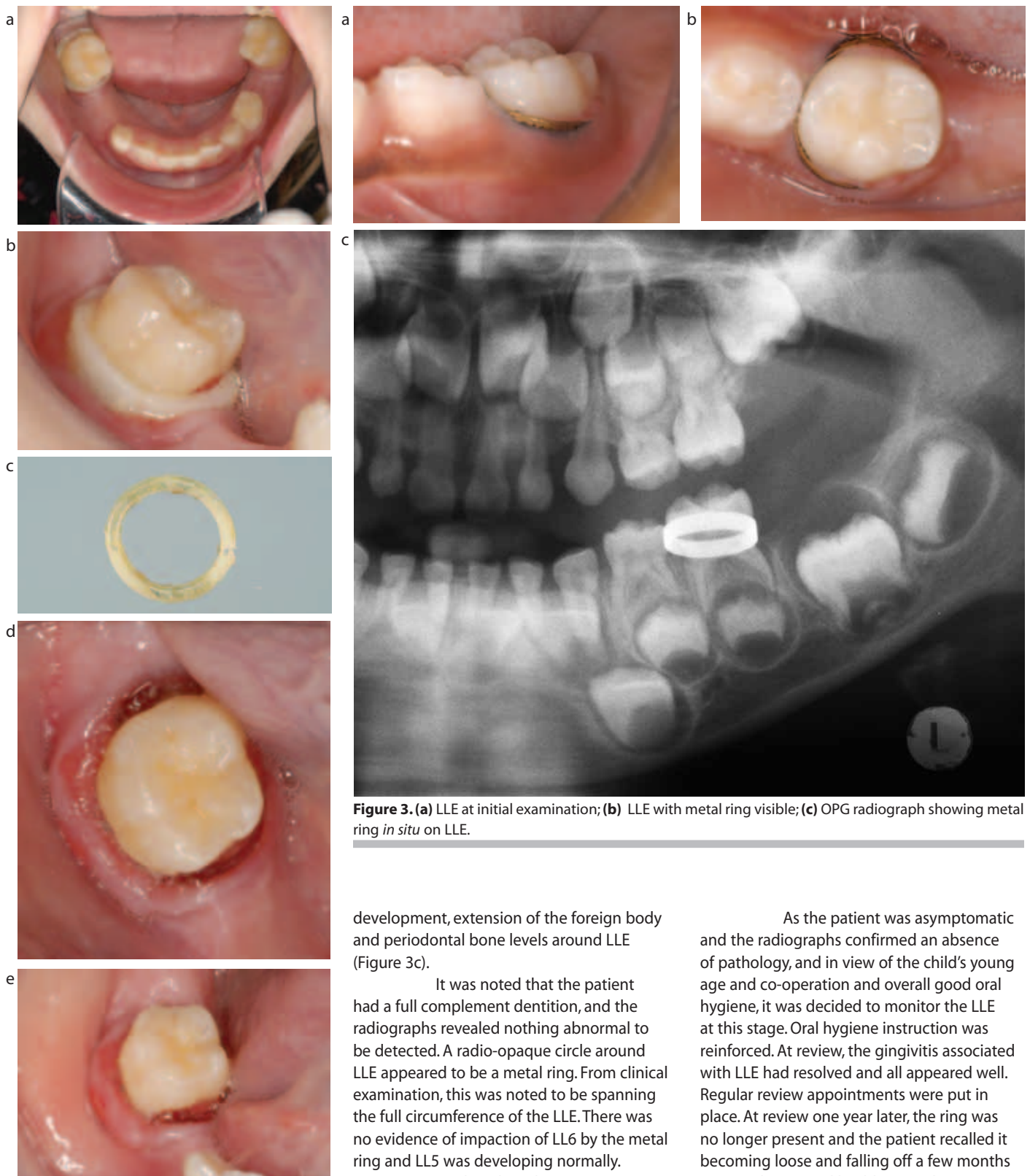


Figure 3. (a) LLE at initial examination; (b) LLE with metal ring visible; (c) OPG radiograph showing metal ring *in situ* on LLE.

development, extension of the foreign body and periodontal bone levels around LLE (Figure 3c).

It was noted that the patient had a full complement dentition, and the radiographs revealed nothing abnormal to be detected. A radio-opaque circle around LLE appeared to be a metal ring. From clinical examination, this was noted to be spanning the full circumference of the LLE. There was no evidence of impaction of LL6 by the metal ring and LL5 was developing normally.

Further clinical investigation confirmed the presence of the metal ring around LLE, completely embedded gingivally around the distal aspect.

As the patient was asymptomatic and the radiographs confirmed an absence of pathology, and in view of the child's young age and co-operation and overall good oral hygiene, it was decided to monitor the LLE at this stage. Oral hygiene instruction was reinforced. At review, the gingivitis associated with LLE had resolved and all appeared well. Regular review appointments were put in place. At review one year later, the ring was no longer present and the patient recalled it becoming loose and falling off a few months previously. Gingival health around LLE was good and LL6 had erupted in place, hence no intervention was required and the patient was discharged.

Discussion

It is uncommon to find foreign bodies embedded in a tooth or in the oral cavity.⁴

The above case series illustrates how differing foreign bodies may present in the oral cavity. In Case 1, the foreign body was located subgingivally. This caused the patient to experience symptoms of pain and visible swelling, which persuaded the patient to seek treatment. In Cases 2 and 3, the foreign bodies were at the gingival margin and, although asymptomatic, were visible, pre-empting the patient/GDP to seek advice to rule out pathology.

Case 1 highlights the impact that a foreign body may have on the surrounding tissues, with severe bone loss affecting the distal aspect of the upper left lateral incisor. If left undiagnosed and untreated, it is possible that this fingernail may have caused further adverse sequelae to the area and compromised the adjacent teeth. Fingernail biting in the general population has been shown to range widely, from 6 to 60%, and can be linked to dental attrition, root resorption, microfractures of the anterior teeth, gingival trauma, spread of dermatological infections and associated localized malocclusions.⁵

In Case 2, although asymptomatic, the plastic ring was causing localized soft tissue inflammation and, if left untreated, was likely to have continued to affect surrounding gingival tissues and would have eventually compromised the periodontal tissues, with associated recession, attachment loss and bone loss.

In Case 3, regular reviews were required to monitor the eruption of the associated first permanent molar, as the metal ring may have resulted in its possible impaction owing to the increased width of the LLE. As the metal ring appeared to be a relatively inert material, there was little impact on hard or soft tissues and hence no treatment was indicated.

It is common for children to place objects into the oral cavity and any object placed into the oral cavity has the potential to become lodged within the oral hard or soft tissues.^{4,6} They may remain completely asymptomatic, discovered only by chance, or may give rise to a number of symptoms, including pain, inflammation and ulceration.⁷ Most children, as part of normal

development, may start to hold an object and lift it up to suck it between ages five to eight months.³ In older children, a cross-sectional study of 6–11 year-olds found that 33% had some form of oral habit. The most common habit was nail biting, and with other habits including object sucking or biting, there is a potential for the nail or object to become lodged in the teeth or the soft tissues.⁸ Previously isolated foreign bodies have included pins,^{9,10} staples,⁴ a gold chain,¹¹ wood,¹² food items, such as nuts and seeds, jewellery, screws, magnets and plastic tubing.¹³

When unusual clinical presentations are encountered, it is important to consider foreign body impactions within the differential diagnoses.

Upon initial presentation, it is vital to take an in-depth history, with particular reference to any habits, or previous history of trauma. This must then be followed by a thorough examination and investigations as appropriate. Not all foreign bodies will be radio-opaque and therefore not all are amenable to imaging techniques. Occasional use of ultrasound has been documented, where embedded foreign bodies in soft tissues have induced granuloma formation as a part of the reparative process, making detection by the naked eye difficult.¹⁴

Management will ultimately depend on symptoms, clinical findings and diagnosis, taking into account patient age and co-operation.

Conclusion

The general dental practitioner should be aware of, and consider, the presence of a foreign body as part of the differential diagnosis for children presenting in a primary care setting with unexplained pain and swelling or with an altered or unusual clinical picture.

The above case series highlights the importance of thorough examination by clinicians, especially in children and adolescents in order to exclude foreign bodies in the oral cavity. The treatment modality for each case has to be evaluated individually, which may be conservative with regular monitoring or removal of the foreign body, to ensure that there are no unwanted sequelae to the developing dentition and surrounding tissues.

It was evident with all three cases reported 'common things are common'.

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