A Case Report of Two Genetically Linked Siblings: Implant Rehabilitation of Hypocalcified Amelogenesis Imperfecta with Pre-Eruptive Coronal Resorption

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Introduction

Amelogenesis imperfecta (AI) is a genetically determined and rare dysplasia of enamel formation. It has been classified into several groups and its mode of inheritance can be autosomal recessive, autosomal dominant or X-linked. Two otherwise healthy male patients (siblings) with AI were referred to the Restorative Department at Royal London Hospital. Clinical and radiographic examination of the patients confirmed the diagnosis of 'thin and smooth pattern'

Aim

The intent of our case report is to highlight a rare co-occurrence of AI with multiple morphologic alterations in two siblings. Clinical features such as tooth impaction, delayed eruption, supernumerary teeth, odontomes, cysts and abscesses made extractions and bone management challenging.

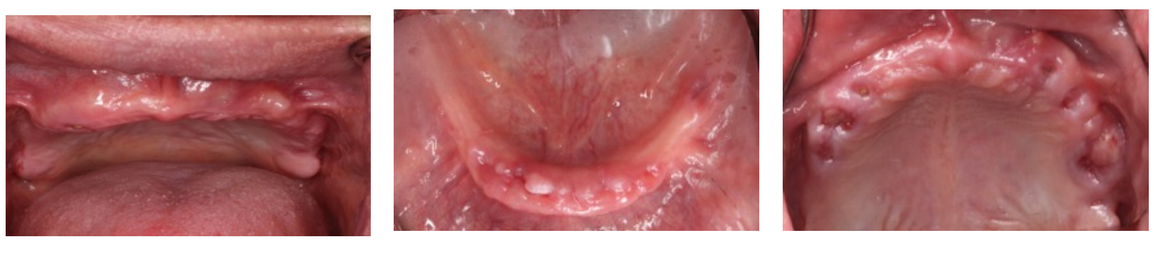
The two cases illustrate the challenging but successful prosthodontic rehabilitation with maxillary and mandibular fixed implant prostheses.

Case 1

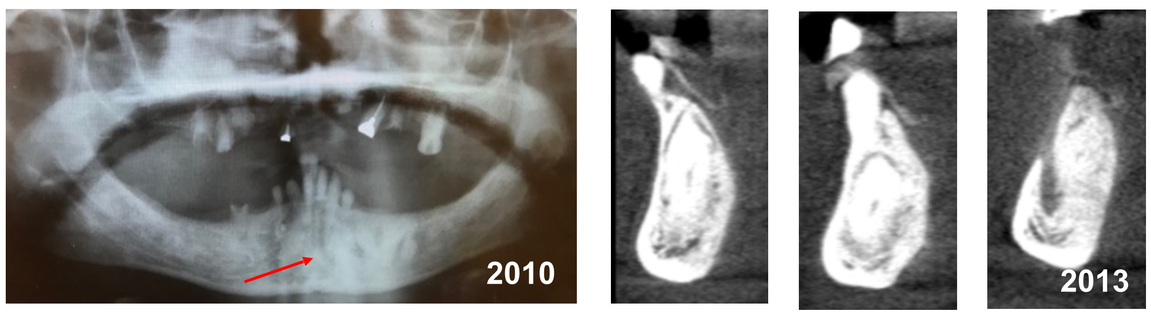
Treatment

42y old male with multiple impacted and ankylosed teeth required space for implant in the LL3, LL4 region. The vertically impacted LL3 was decoronated after access through a buccal bone window and six implants were placed. In the maxilla, seven implants were placed and both arches rehabilitated with hybrid prostheses.

Pre-op Photographs

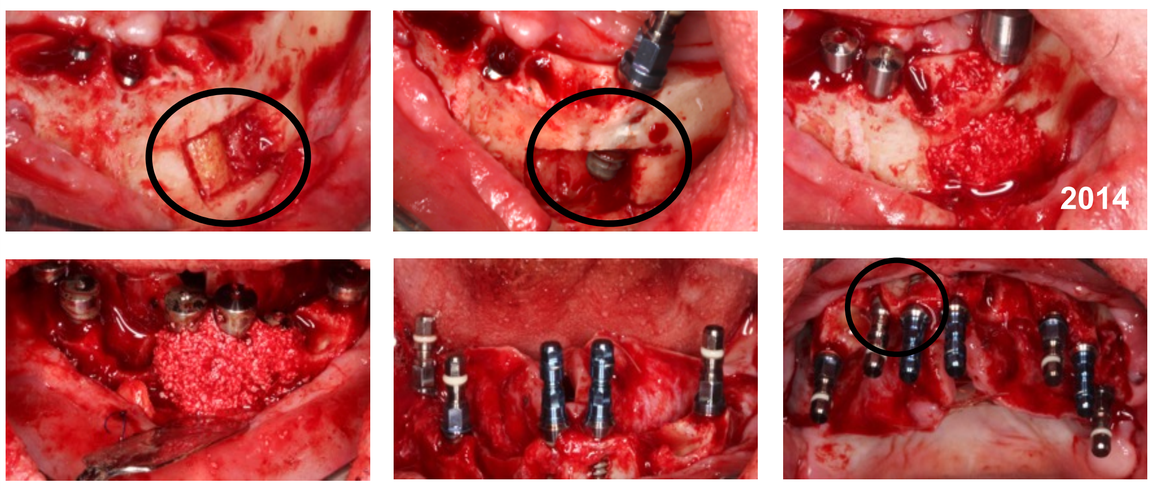


Pre-op Radiographs



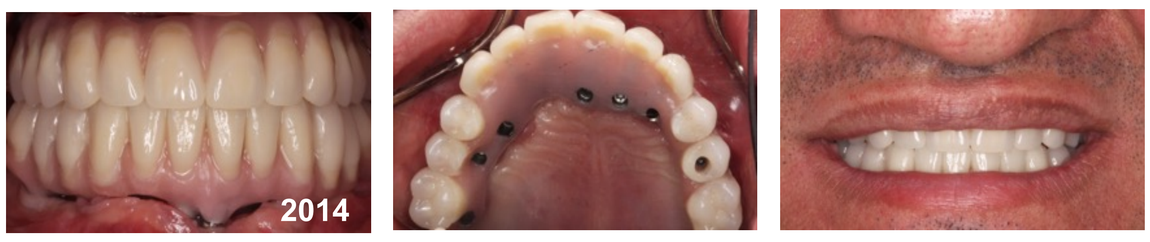
- Multiple impacted teeth are noted in the mandible.
- The anterior ones are associated with supernumerary / odontomes.
- The retained root in the right mandible is associated with periapical radiolucency

Implant surgery



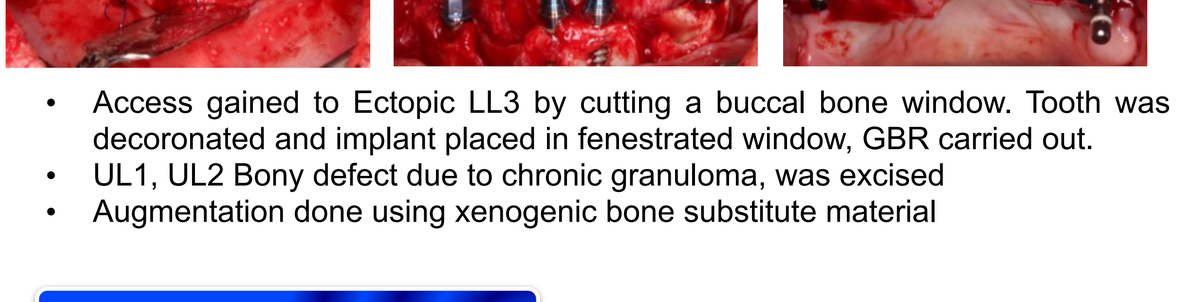
- Access gained to Ectopic LL3 by cutting a buccal bone window. Tooth was decoronated and implant placed in fenestrated window, GBR carried out.
- UL1, UL2 Bony defect due to chronic granuloma, was excised
- Augmentation done using xenogenic bone substitute material

Screw-retained prostheses



- Maxillary and mandibular fixed hybrid prosthesis was provided

Post-op Radiographs and follow-up

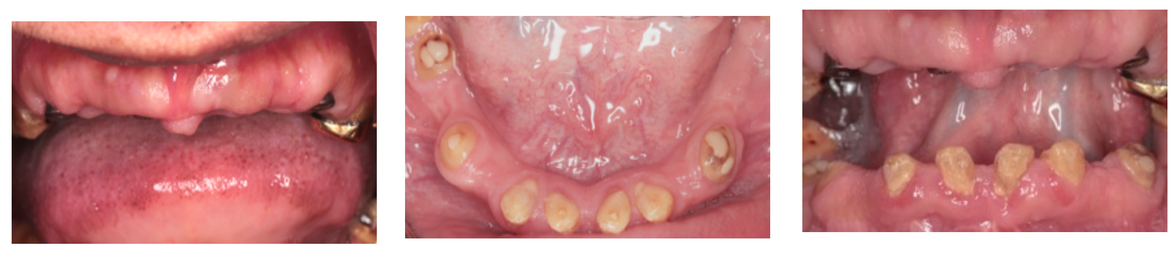


Case 2

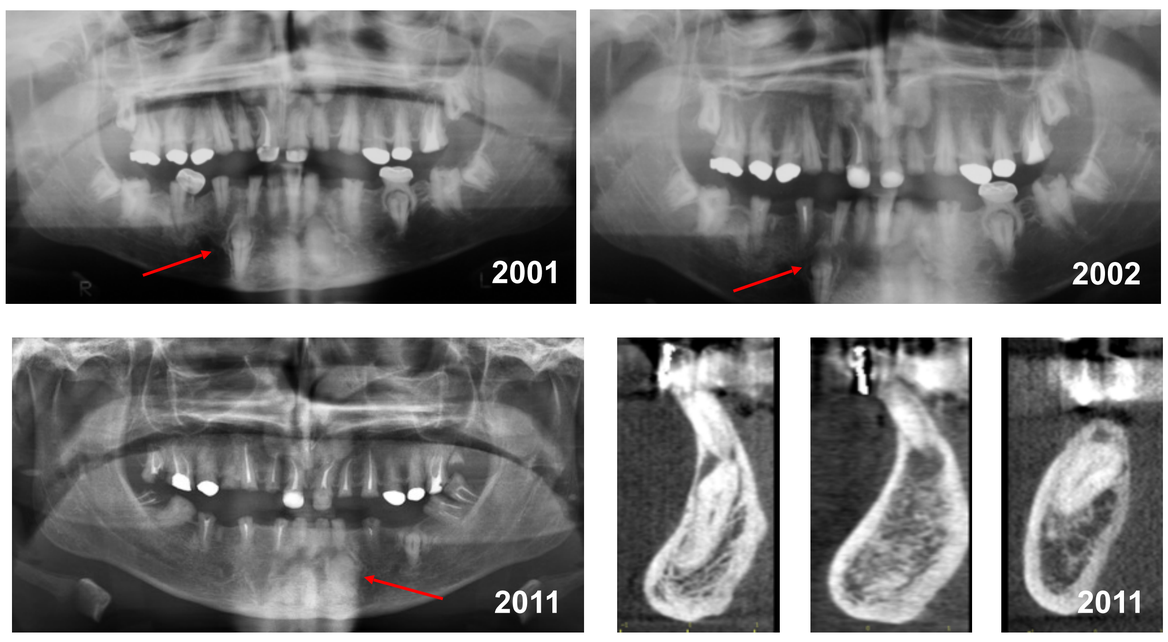
Treatment

32y old younger male sibling was treated in the maxilla with a combination of indirect restorations on the remaining posterior teeth and immediate implant to support a fixed prosthesis anteriorly. The mandibular arch was treated with immediate implants and a fixed implant prosthesis.

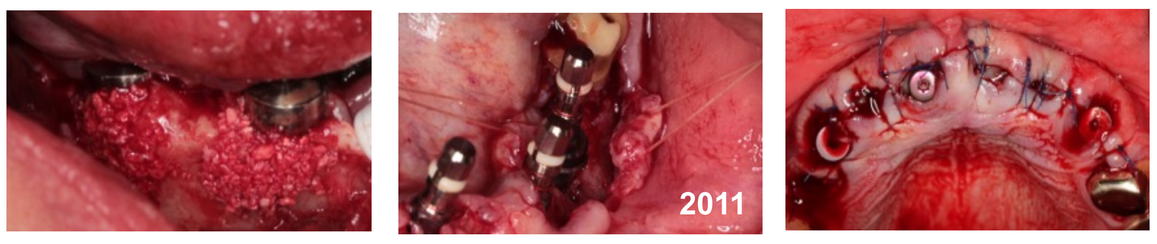
Pre-op Photographs



Pre-op Radiographs

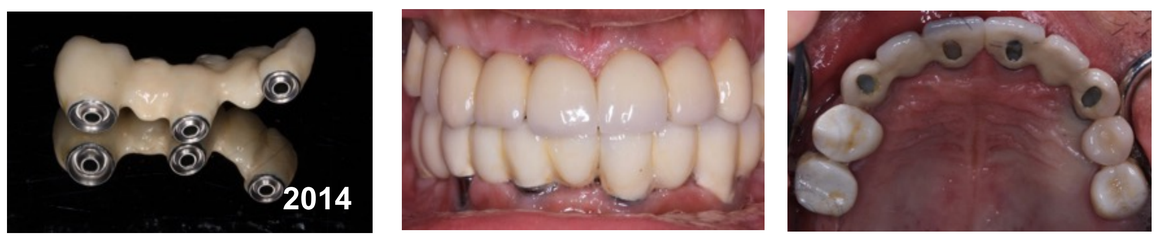


Implant surgery

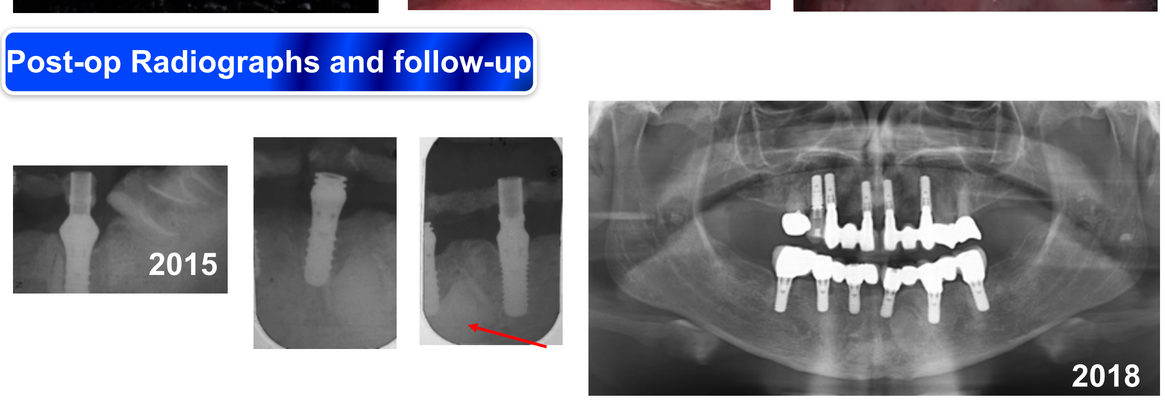


Implant prostheses

- Mechanical failure of zirconia cemented prosthesis 2 years later which was then replaced with a screw-retained metal-ceramic prosthesis.



Post-op Radiographs and follow-up



Conclusions

AI is a serious problem that can result in reduced quality of life and cause psychosocial problems. People with AI need extensive treatment with a multidisciplinary approach. While planning the treatment, the age and the socioeconomic status of the patient, type and the severity of the disorder should be taken into consideration.

References

Patel, M., McDonnell, S. T., Iram, S. & Chan, M. F. 2013. Amelogenesis imperfecta - lifelong management. Restorative management of the adult patient. Br Dent J, 215, 449-57.

Wipkop, C. J., JR. 1988. Amelogenesis imperfecta, dentinogenesis imperfecta and dentin dysplasia revisited: problems in classification. J Oral Pathol, 17, 547-53.