Impacted canines – a case study

Dr Nilesh R. Parmar discusses Maxillary canines

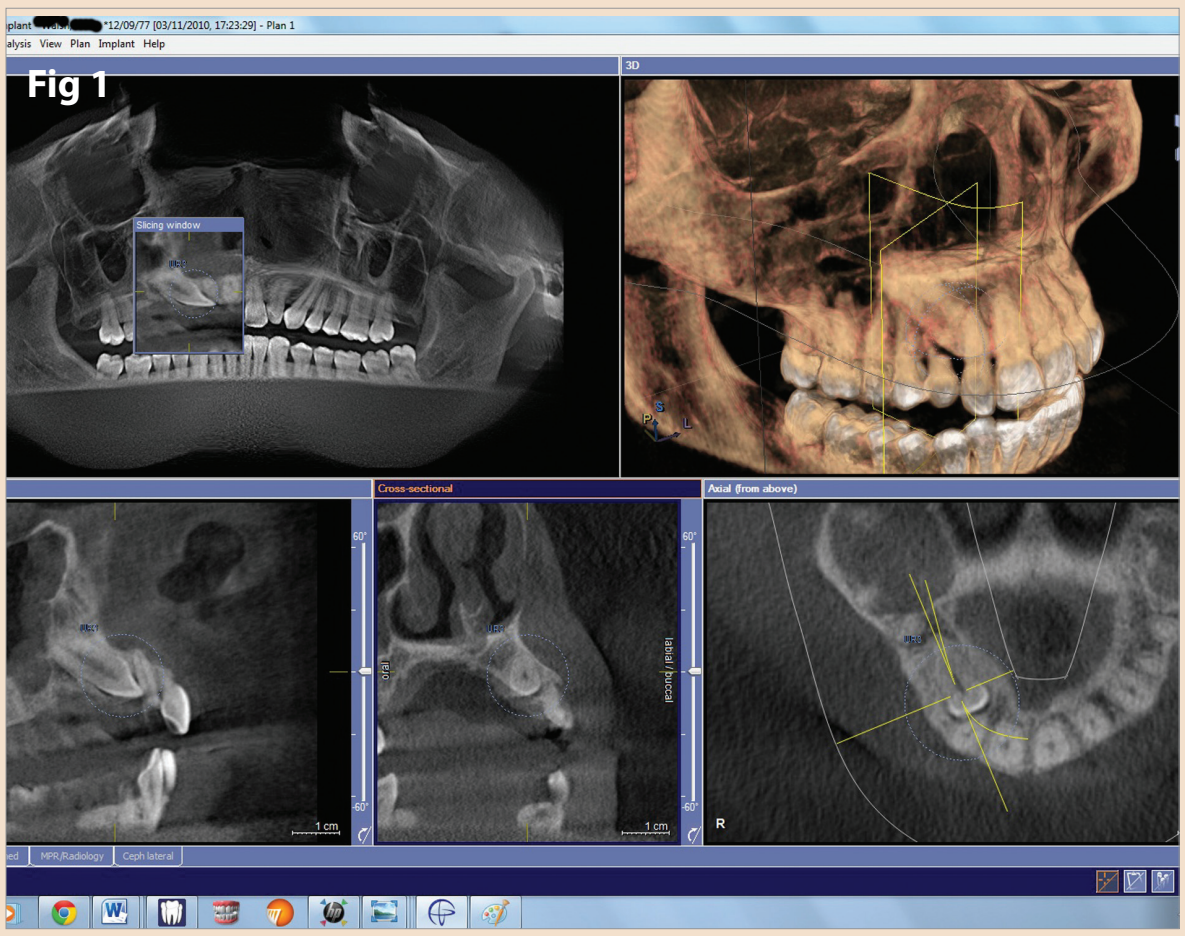

Fig 1 - Galileos CBCT scan showing the position of the UR3

The impaction of maxillary canines is a common problem. Research by Thilander and Myrberg estimated the prevalence of impaction at 2.2 per cent. Impactions are twice as common in females as in males, with up to eight per cent of cases presenting with bi-lateral impactions (Dachi et al.) In this case report I shall be describing the management of an impacted canine which was removed and replaced with an implant supported restoration.

This lovely lady presented with a retained URC and an impacted UR3. She was aware of the impaction and wanted a cosmetic solution for the URC. Clinically, the URC was gr 2 mobile with no associated pathology. The canine could not be palpable labially and a midline/palatal impaction was suspected.

Clinical examination revealed a minimally restored dentition with good oral hygiene. She was medically fit and well and wasn't taking any medication. To further assess the position of the UR3 a Sirona Galileos collimated CBCT was taken. This showed the UR3 to be almost horizontally impacted, with the crown tip in close proximity to the root apex of the UR2.

The treatment options available were:

1 Extraction of the URC and orthodontic alignment of the UR3 Due to the position of the UR3 orthodontic extrusion would be difficult and may take up to two years to complete. There is also a risk of resorption around the UR2.

2 Extraction of the URC with provision of a restorative replacement. **This could be:** A single tooth denture
A resin retained bridge
An implant retained crown

After careful consultation the patient opted for extraction of the UR3 under GA with an implant retained crown. Once the UR3/URC were extracted the patient was provided with a temporary partial denture. Two months after the extractions an Astra Tech 5.0 x 13mm implant was placed. Due to the canine impaction, there was a very thin ridge of bone present with a pronounced concavity. A Astra Tech osteotome was used to widen the alveolar ridge in order to place the implant. The buccal aspect of the implant was grafted with a bovine bone graft material (Gen-Oss) and covered with a porcine membrane. A 2 stage surgical approach was adopted and the implant buried.

Despite the buccal fenestration of the implant, a primary stability of 35Ncm was obtained. It was decided to wait a full three months before exposing the implant and placing a healing abutment. At the second stage surgery a palatally positioned incision was made and the soft tissue pushed towards the buccal aspect. This was done in order to produce a canine eminence and improve the emergence of the

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implant crown. A wide neck healing abutment was placed to support the new position of the gingivae.

A fixture level impression in impregum was taken and an Astra Tech shaded Atlantis Zirconia Abutment ordered. The Virtual Abutment design system supplied by the Atlantis system allows for the technician to liase directly with the dentist to ensure that the soft tissue emergence of the abutment is correct.

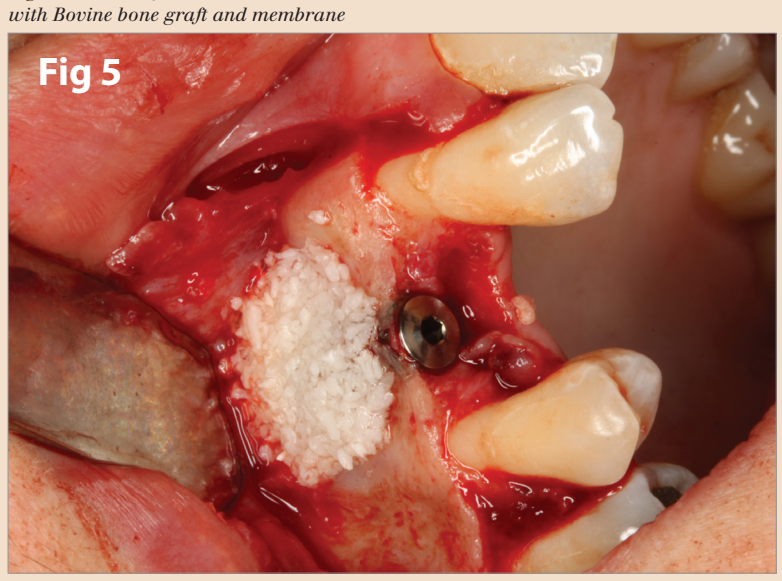
A shaded A2 Zirconia abutment was used to ensure the E-max crown didn't appear to bright when fitted.

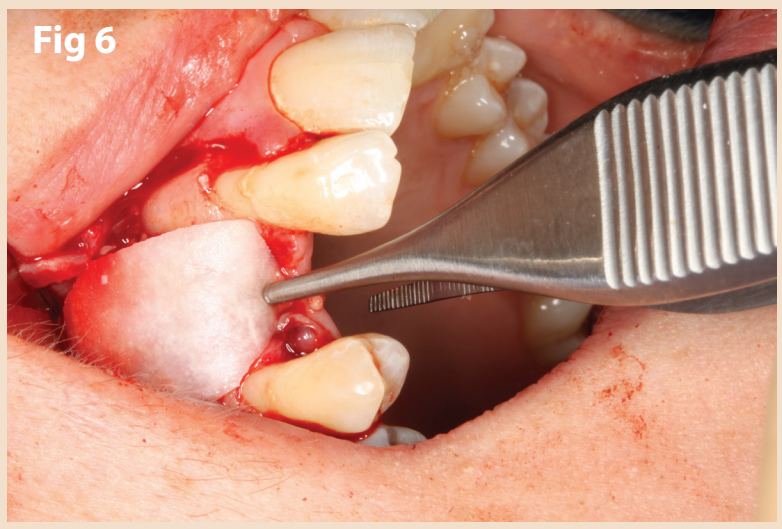
The abutment was torqued to 25Ncm and the crown cemented with temp bond. The excess cement was removed and a baseline LCPA was taken. The patient was very happy with the final result and the work has a very good long-term prognosis. DT

Fig 2 - Presentation 2 months after the URC & UR3 were extracted

Figs 4-6 - Buccal fenestration covered with Bovine bone graft and membrane

Fig 3 - Implant Stage 1: note the thin alveolar ridge





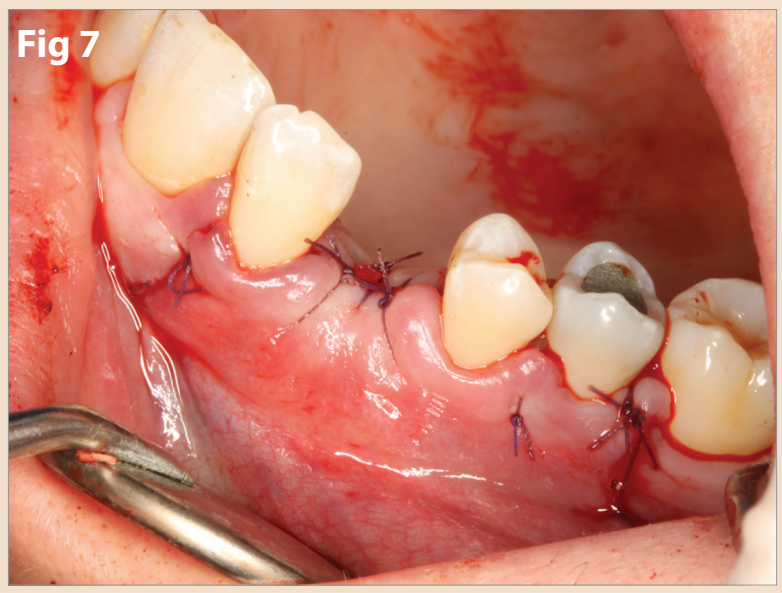


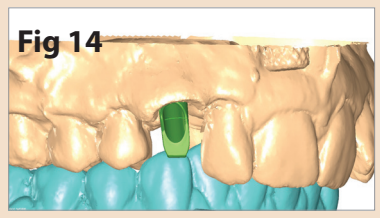
Fig 7 - Closure with 5,0 PGA

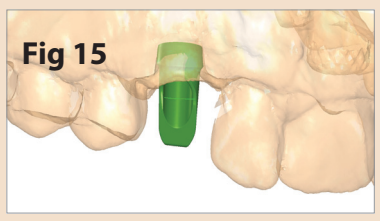
Figs 8 -9 - Second stage: Note the healing abutment supporting the excess tissue pushed over from the palatal to the buccal side

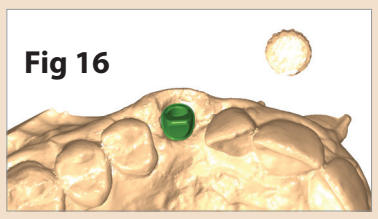
Figs 11-12 - Appearance after second stage surgery

Fig 13 - Shade taking using mulitple tabs for comparison

Fig 10 - The pontic on the denture was adjusted to further support the tissues







Figs 14-16 - Atlantis Virtual Abutment Design proposals

Fig 18 - E-max try-in

Fig 17- Atlantis Shaded Zirconia abutment in-situ

Fig 19 - Final appearance

References

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Dachi SF, Howell FV. A survey of 3,874 routine full mouth radiographs. Oral Surg Oral Med Oral Path 1961;14:1165-9.

About the author

Dr Nilesh R. Parmar BDS (Lond) MSc (ProsthDent) MSc (Imp Dent) Was voted Best Young Dentist in the East of England in 2009 and runner up in 2010. He was short-listed at the Private Dentistry Awards in the category of Outstanding Individual 2011. Nilesh is one of the few dentists in the UK to have a degree from all three London Dental Schools and is currently studying for his 3rd MSc in Orthodontics. Nilesh is an Astra Tech Clinical Coach and has his own practice in Southend on Sea, Essex. He also works as a Visiting Implantologist at Sparkly Smiles in Blackheath.
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