

Surgical management and dental rehabilitation of a Browns tumour in the anterior maxilla

NHS
St George's University Hospitals
NHS Foundation Trust

Contact: Bethany.revert@nhs.net

Revert B, Elias S, Haq J

Affiliations: St George's University Hospitals, Restorative dentistry department, Oral and Maxillofacial Surgery

Patient Information: 21-year-old female patient

Presenting Complaint Facial disfiguration, Movement/displacement of teeth, Pain

Medical history: Right renal transplant age 3, Hypertension, Renal transplant failure (Three weekly dialysis treatment)

Social history: Non-smoker, <14 units ETOH. **Dental history:** No routine dental attendance

Examination

Extra-oral: Right sided facial disfiguration

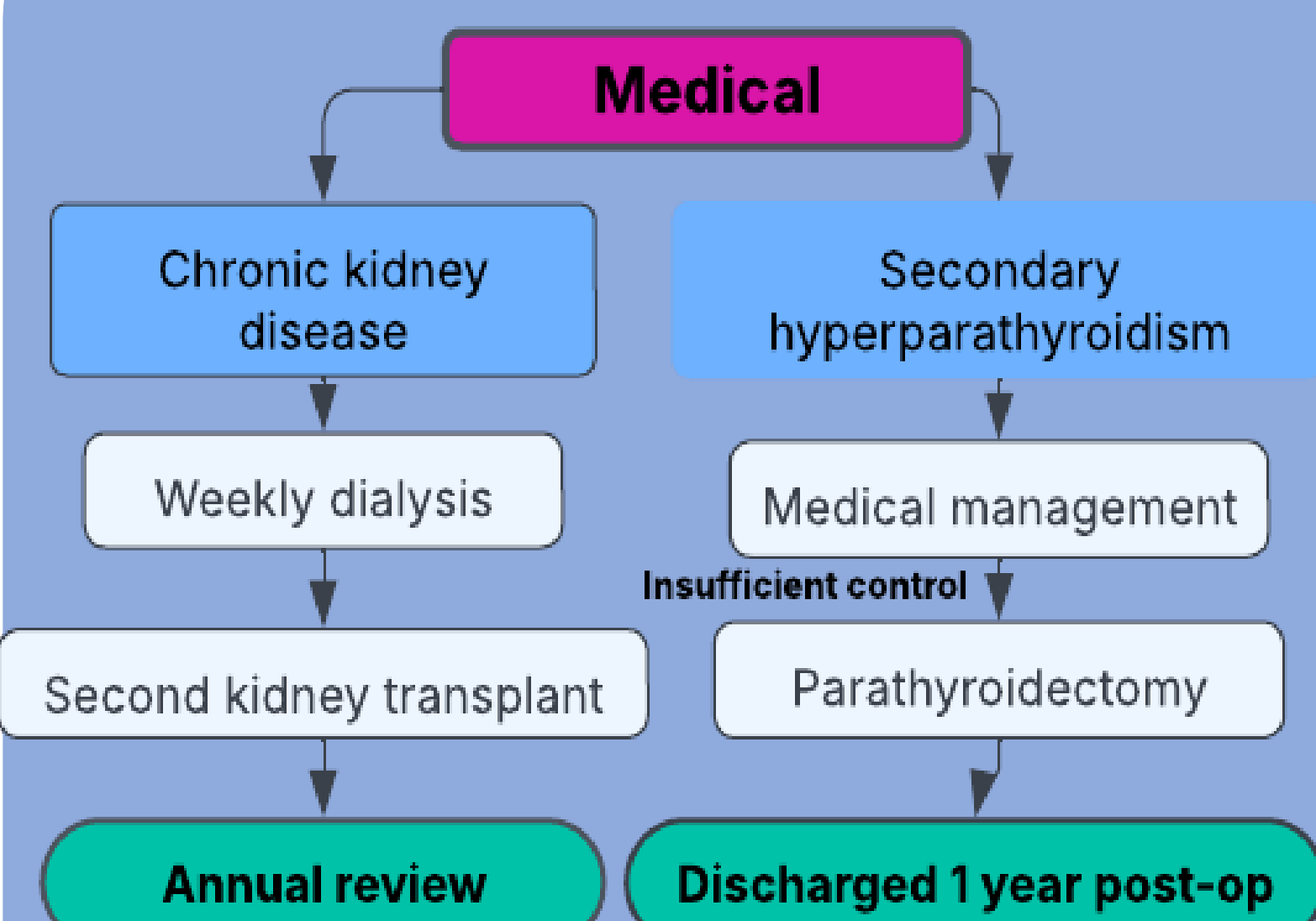
Intra oral:

Displacement of UR1, UR2, UR3, Maxillary centre line shift
Poor oral hygiene, No caries, Unrestored dentition

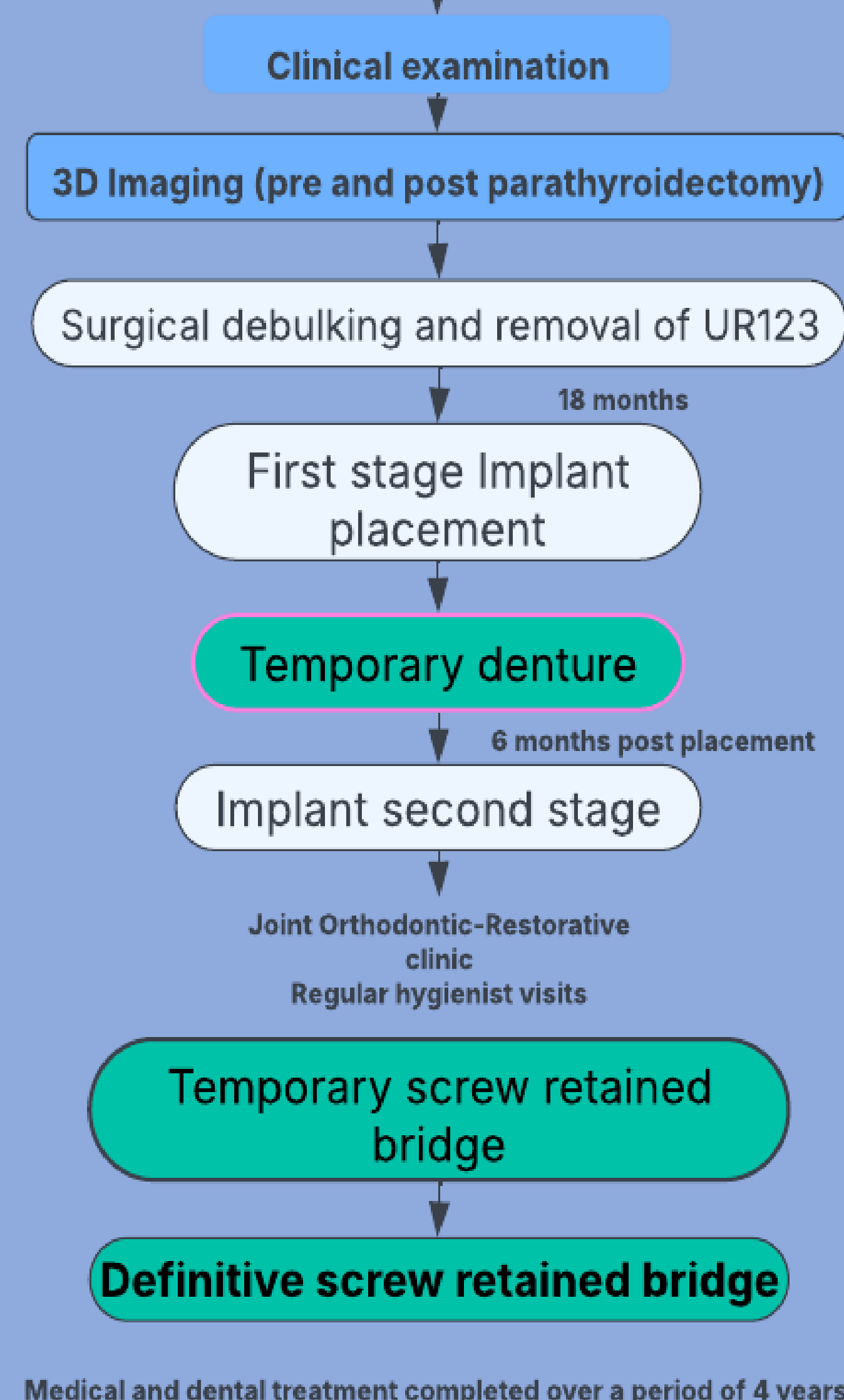
Diagnoses

1. Secondary hyperparathyroidism due to CKD
2. Brown's tumour with displaced UR123
3. Hypertension
4. Gingivitis

Medical



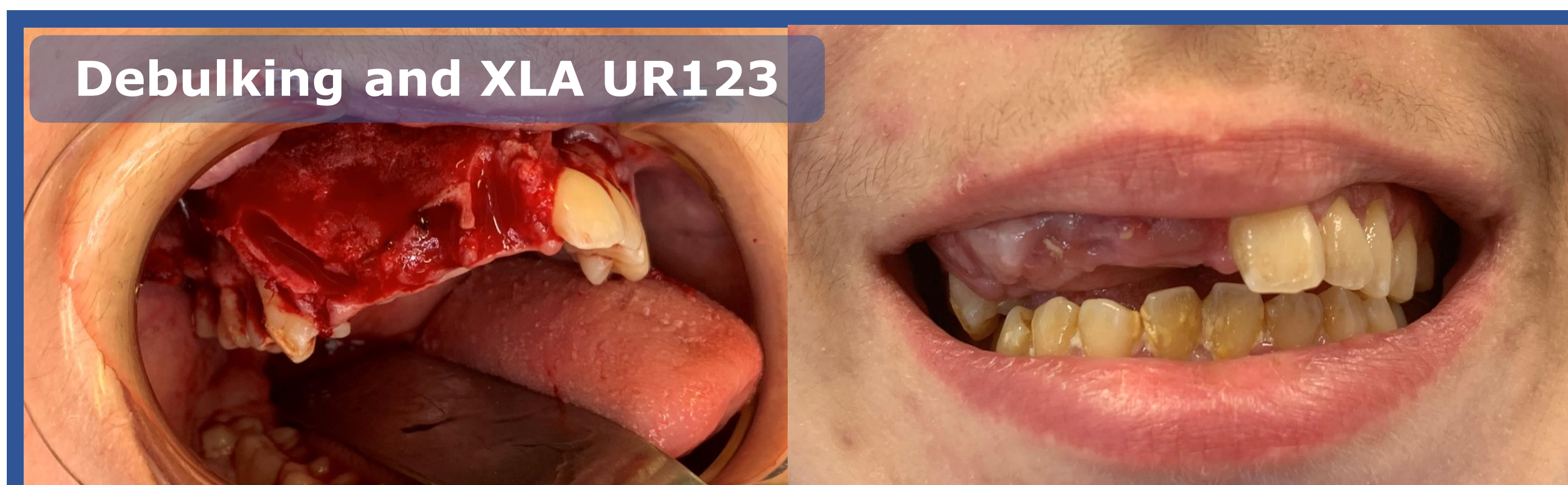
Dental



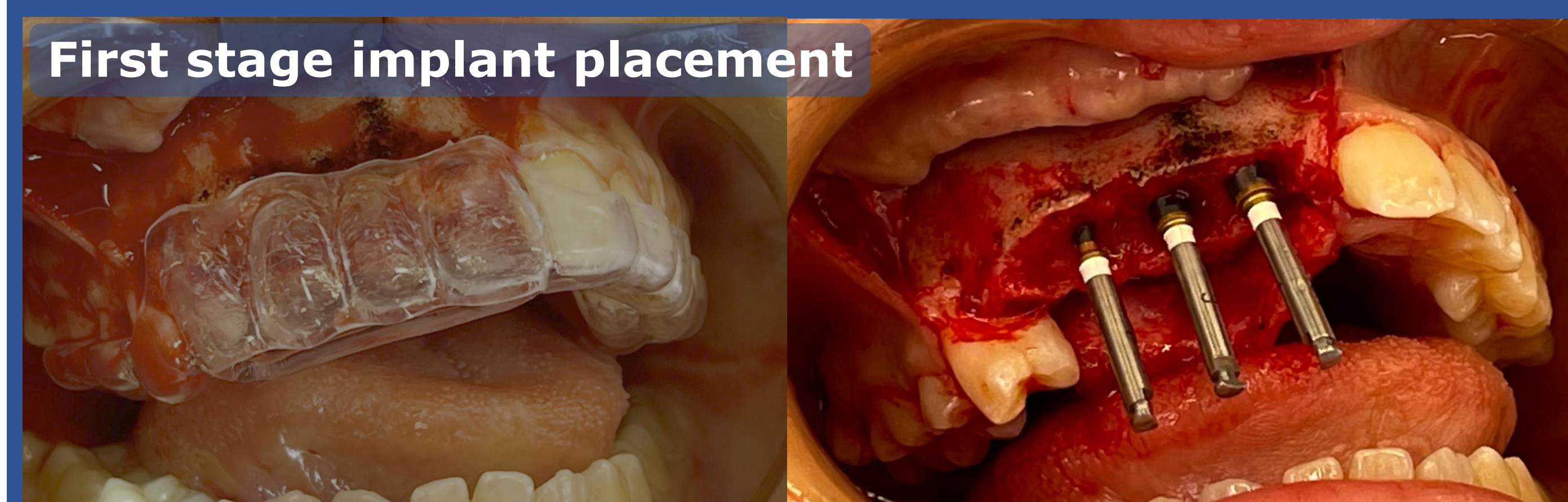
Medical and dental treatment completed over a period of 4 years



Debulking and XLA UR123



First stage implant placement



Dental treatment phases

Phase 1:

- Full clinical examination, CBCT
- Prevention, OHI, PMPR

Phase 2:

- Debulking of Brown's Tumour and removal of UR123
 - Temporary denture
- Continued prevention, OHI, PMPR

Phase 3:

- **1 year review**

Delayed implant placement – Two stage approach

First stage

1. Reduction of alveolar bone height, surgical stent used for placement of 3x AstraEV 4.2mm x 11mm implants (bone level, internal hex), placement of cover screws
2. Temporary denture adjusted

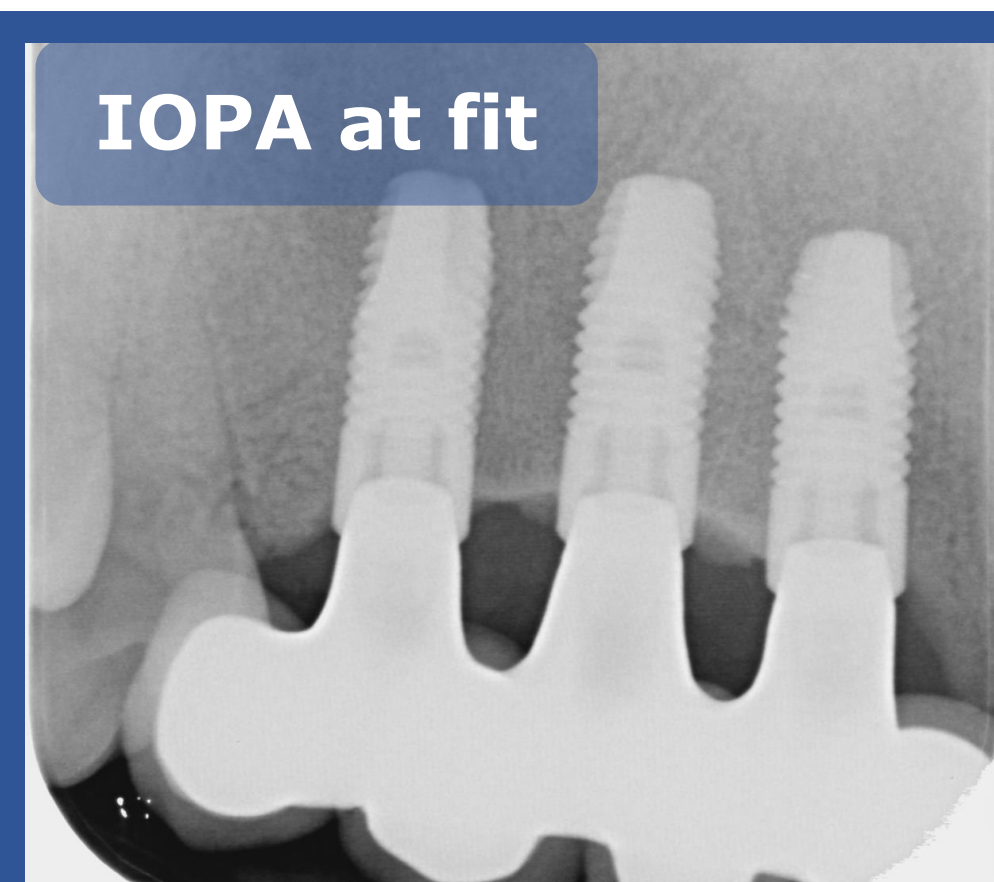
Second stage

1. Healing abutments
2. Joint Orthodontic-Restorative review of centre line options – (decision made for no orthodontic treatment)
3. Temporary screw retained bridge, soft tissue adaptation
4. Definitive screw retained bridge
5. Continued prevention and periodontal review

Temporary bridge



IOPA at fit



Final prosthesis



Discussion

Brown tumours can lead to permanent alteration in the facial skeleton, and appropriate medical management is the first course of action. They represent a reparative process rather than a true neoplasm.¹ Understanding the pathophysiology of hyperparathyroidism was key, ensuring normal bone profile and parathyroid hormone levels before resection and implant placement is crucial to ensure no further growth. This case highlights the successful osseointegration of the implants into the surgical site. The decision of placing implants in this scenario was not just surgically complex, but the patient's oral hygiene practices, motivation and ability to maintain the prosthesis all needed to be considered. The decision-making process had to consider her overall quality of life. The temporary prosthesis allowed an extended period of periodontal treatment, oral hygiene instruction and patient education prior to placing the definitive bridge. Both hard and soft tissue understanding was required, ensuring adequate keratinised tissue around the implants is needed for both aesthetic and functional outcomes.² Maintenance of bone mesial to the UR1 allowed maintenance of the interdental papilla in this region, ensuring maintained aesthetics.³ Implant depth and position was planned pre-operatively, which highlights the importance of prosthodontic planning prior to implant placement. This also emphasised the need for maxillary bone reduction prior to placement to allow sufficient prosthetic space.

References: 1. Chew, Felix & Huang-Hellinger, F. (1993). Brown tumor. AJR. American journal of roentgenology. 160. 752. 10.2214/ajr.160.4.8456657. 2. Ramanauskaitė A, Schwarz F, Sader R. Influence of width of keratinized tissue on the prevalence of peri-implant diseases: A systematic review and meta-analysis. Clin Oral Implants Res. 2022 Jun;33 Suppl 23:8-31. doi: 10.1111/clr.13766. PMID: 35763022. 3. Choquet V, Hermans M, Adriaenssens P, Daelemans P, Tarnow DP, Malevez C. Clinical and radiographic evaluation of the papilla level adjacent to single-tooth dental implants. A retrospective study in the maxillary anterior region. J Periodontol. 2001 Oct;72(10):1364-71. doi: 10.1902/jop.2001.72.10.1364. PMID: 11699478.