



# ITI Diploma in Implant Dentistry: Oral Examination Sample Case



## ITI DIPLOMA ORAL EXAMINATION

Candidates for the ITI Diploma who have submitted their 8 cases for evaluation to the examination board and had them approved will be invited to an oral examination. Directly before the examination, candidates will have an hour to prepare 4 unseen cases for presentation based on information similar to the sample case below.

Candidates should note that for the exam equal attention must be paid to all 4 cases so that they are able to summarize the findings, make a diagnosis, outline initial and long-term treatment planning for each case as well as a prognosis. It is possible, however, that candidates will be asked to comment on different aspects of each case: for example, the findings in regard to case 1, treatment planning for case 2, diagnosis for case 3, etc., as it will not be possible to go into detail with all four cases.

Below you will find all the information for a sample unseen case and all that can be deduced from this information. Clearly it will not be possible during the oral examination to go into such detail for all four cases.

## ITI DIPLOMA SAMPLE CASE

### Patient information supplied to candidate

- Single 52-year-old female
- Occupation – gardener
- Non-smoker
- No significant medical findings
- Regular dental attender
- Low lip line
- Low esthetic expectations
- Fracture of the upper right and left lateral due to caries
- The upper right and left lateral and the upper left central cannot be preserved
- The existing four-unit metal ceramic fixed prosthesis cannot be preserved
- Extraoral – no abnormalities detected
- Intraoral soft tissue – loss of tissue in the area of the missing upper right central
- Intraoral dental status – several fixed dental prostheses in the upper jaw, several implants in the lower jaw



Fig. 1



Fig. 2



Fig. 3



Fig. 4

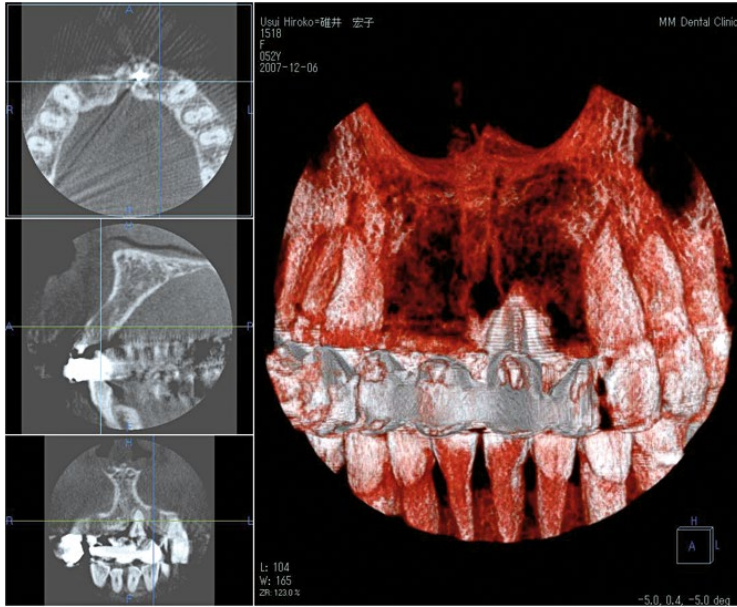


Fig. 5



## Findings based on patient information provided

The data that can be collected from the above visuals and written information is listed below. Candidates are expected to be able to summarize the findings, define the additional information necessary, make a diagnosis, outline initial and long-term treatment planning and also make a prognosis.

### Summary of intraoral findings

Dentition:

- Fig. 1: According to frontal bidimensional view of previous prosthesis: normal overbite (but unknown overjet). Old restorations showed central incisor crown width/length ratio: about 78% (acceptable esthetic ratio). Tooth 12 is wider than tooth 22. (Concern about dental midline)
- Fig. 2: 11 missing tooth, 12, 22 retained roots
- Fig. 2: 21 discolored tooth structure and compromised remaining tooth structure, metal post and core with dental caries near marginal gingiva
- Fig. 3: 12, 11, 22 missing teeth; 21 discolored tooth structure and compromised remaining tooth structure, metal post and core with dental caries near marginal gingiva; 13 porcelain-fused-to-metal (PFM) crown with gingival recession and margin display

Soft tissue:

- In general: gingival line parallel to incisal curve, thick periodontal phenotype, satisfactory amount of keratinized soft tissue
- resorption, volume of vertical bone resorption is unknown, soft tissue is completely healed
- Fig 1: Loss of interdental papillae and loss of tissue in the area of the missing tooth 11
- Figs 1 and 2: 13 gingival recession and displaying restoration margin, 23 unprepared virgin tooth
- Fig. 3: 12, 11, 22 edentulous ridge post-extraction change: occlusal view shows horizontal bone

### Summary of radiographic findings

Panoramic radiography shows:

- 17, 16, 15, 14, 13, 12x21-22, 26, 27, 35, fixed dental prostheses (FDP); 17, 16, 21, 31 root canal treatment (RCT)
- 16, 13, 35 apical radiolucent lesions
- 36, 37 46, 47 implant crowns with bone level close to the polished/rough junction level (no obvious peri-implant bone resorption around those implants is noted)
- 34, 45 dental restorations (radiopaque)
- Bilateral condyle head: symmetry, no other obvious radiographic pathology
- 16, 17, 26, 27 mild horizontal bone loss resulting in radiographic furcation involvement

CBCT shows:

- Moderate to advanced buccal horizontal ridge resorption and encroachment of the nasopalatine duct in the region near the missing tooth 11



- Mild horizontal ridge resorption at tooth 12, 22
- Sagittal view of alveolar bone at tooth 22 shows bone axis following the crown axis. There is a layer of thin cortex at buccal side of tooth 22 edentulous area, but the cancellous density appears low

#### **Additional information still needing to be determined**

- Occlusion
  - Are the static occlusal contacts stable and adequate?
  - Which teeth are guiding mandibular movement during lateral excursion or protrusion?
  - Are there occlusal interferences?
  - Should the occlusion be modified or rebuilt?
  - Are there TMJ-related signs and/or symptoms?
  - Is there parafunction/bruxism?
- The intraoral and extraoral views of diagnostic wax-up and interim prosthesis
- Smile analysis for facially oriented smile design
- CBCT data with the imaging guide and the image show distance between the top of alveolar bone height and planned cemento-enamel junction (CEJ) position (gingival margin) of incisors for evaluation of ridge resorption and virtual planning of implant position
- More sagittal views of the region of interest are needed (CBCT scans)
- Are there any symptoms related to 16, 13, 35 apical lesions?
- Periapical radiographs to evaluate the marginal bone loss
- Full mouth periodontal charting data

#### **Diagnosis**

- Missing teeth: 12, 11, 22, 18, 28, 38, 48, 36, 37, 46, 47. (36, 37, 46, 47 were replaced with dental implants)
- 21 dental caries, unrestorable
- 13, 16, 35 apical periodontitis
- Upper bilateral posterior teeth – periodontitis is suspected but more information is necessary for staging/grading

#### **Prognosis for existing dentition**

- Overall good
- 13 – fair if root canal treatment could be performed
- 21 – poor due to caries involving metal post, inadequate tooth structure, and discolored root
- 16 – endo-retreatment is questionable due to complicated canal system and cast metal post
- 35 – fair if root canal retreatment can be performed successfully
- Anterior edentulous area restored with implant prostheses – fair if the bone & soft tissue volume are restored with meticulous clinical skills



### **Risk assessment**

- Esthetic risk assessment (ERA): Low esthetic risk – due to low esthetic expectations, low lip line but anterior wide edentulous span, soft/hard tissue defect
- SAC – Advanced
- Challenges – interim prosthesis if ridge augmentation/soft tissue grafting is necessary

### **Treatment options**

*NOTA BENE:* Before the final treatment was decided, the upper right and left lateral were extracted.

#### Option 1:

- If 12, 22 bone width is adequate – 12, 22 dental implant, 12-11-21-22 four-unit implant-supported bridge, removal of 13 crown and access pulp vitality, 13xx21x as a temporary bridge while waiting for osseointegration. Ridge augmentation (bone graft & soft tissue graft) may be necessary

#### Option 2:

- Alternative implant positions in the case of severe bone resorption in the regions 12, 22; 11, 21 implants and 12, 22 as cantilevered pontics. In this scenario, an interim removable partial denture (RPD) for 12-22 edentulous area is required while waiting for osseointegration
- Placement of more than 2 implants is not indicated as this results in tissue anatomy challenges i.e., due concern about loss of interdental papillae between two adjacent implants which is often caused by inadequate inter-implant spacing, especially in thin phenotypes

Preferred treatment: Option 1

### **Treatment plan**

- Extraction of tooth 21, refabrication of 13 crown, 12-x-x-21 implant supported bridge
- Address chief concerns/patient expectations – clarify problems related to previous restorations. Confirm patient's satisfaction with diagnostic wax-up and interim bridge for shape, color, and occlusion. Fabrication of an imaging guide according to diagnostic wax-up & accepted interim bridge
- Manage pre-existing disease in preparation for implant treatment
- Comprehensive periodontal treatment & oral hygiene instruction (patient education)
- Impressions or scans to produce study models. Transfer facebow & mount casts in articulator. Transfer facial midline and ideal incisal curve to the casts. Diagnostic wax-up to determine the ideal form of missing teeth. Fabrication of interim bridge shell
- Removal of 13 porcelain-fused-to-metal (PFM) crown to evaluate pulp condition and residual tooth structure. Delivery 13-22 interim bridge (abutment 13, 21). Adjustment of the interim bridge to satisfy patient's needs. Check occlusion and guidance of the interim bridge
- Careful extraction of tooth 12, 22. Reline the interim bridge and adjust the ovate pontic in



sites 12, 22

- CBCT scan and intraoral scan to evaluate the ridge architecture in the edentulous area
- Management of teeth to be extracted – careful extraction, relines the interim bridge to form ovate pontics and develop the tissue architecture on those sites

### **Timing of implant placement**

- Early placement after soft tissue healing (4-8 weeks post-extraction)
- Delayed placement is also an option in this case

### **Surgical protocol**

- Surgical guide fabrication (either conventional or computer-assisted milled or 3D printed guide)
- Implant placement & buccal bone augmentation (including 11 area) if mild horizontal & vertical bone defects are confirmed with the CBCT. Implant collars are placed 3 mm to 4 mm apical to the desired facial free gingival margins based on the virtual design. Implants may be submerged for healing or brought through the tissues with healing abutments. If wearing interim bridge is necessary, then the better to submerge implants. Adjust interim bridge. Implant diameters: 3.3~4 mm
- 3 months healing
- Implant 2<sup>nd</sup> stage: expose 12, 22 implants, connect low profile & straight healing abutments. Soft tissue graft (connective tissue or tuberosity) at tooth 11 area may be indicated for contour enhancement. In this case, restoration procedure will be delayed

### **Implant and material selection**

- Tapered implants with internal connection & platform switching design, diameter 3.3-4 mm with angulated screw channel design
- Prosthesis: titanium abutment, provisional bridge made of polymethyl methacrylate (PMMA) or composite resin, final restoration made of monolithic zirconia bridge with or without facial cutbacks for porcelain
- Tooth 13 monolithic zirconia with or without facial cutbacks for porcelain, or monolithic lithium disilicate
- Timing of restorations – 2-3 months after implant placement

### **Restorative protocol**

- Connect impression copings on the implants, make implant level impression, connect the implant analogs to the impression coping, fabricate artificial gingiva, pour stone casts, mount casts in the articulator, design provisional bridge according to initial tooth-supported interim bridge, fabrication of tooth 13 temporary crown
- Extraction of tooth 21 and connection of a provisional screw-retained bridge 12-22, and tooth 13 provisional crown. Periapical radiographs to confirm seating of the prosthesis. Ovate pontics in the regions are designed in the 11, 21 area. Occlusion scheme – bilateral anterior & lateral canine guidance. Instruct patient to clean the prosthesis with superfloss and appropriately sized interdental brushes





- Observe & mold the soft tissue profile by adjustment of interim bridge
- Allow soft tissue healing in region 21 for approximately 8-12 weeks
- Confirm that the contour, occlusion, and hygiene maintenance satisfy patient's expectations. Verify the accuracy of the master cast. Place the provisional bridge on the master cast, use vinyl polysiloxane (VPS) material to duplicate the tissue (intaglio) surface of provisional bridge, and scan the external surface or alginate impression to duplicate external surface of provisional bridge. Fabricate definitive restoration according to the shape of provisional bridge. Screw-retained restoration with angulated screw channel and monolithic zirconia bridge or titanium base and cemented all-ceramic bridge are fabricated
- Delivery of definitive prosthesis – screw-retained bridge, apply preload on screws according to manufacturer's recommendation, delivery of 13 all-ceramic crown. Occlusal adjustment, if required. Polish any adjusted surfaces. Screw holes sealed with Teflon tape and resin. If a cementation approach is required, the bridge is cemented. The methods to minimize subgingival cement retention should be applied, e.g., using a die replica to minimize amount of cement in the copings before seating the restoration, or placing retraction cords in the peri-implant soft tissue
- Fabrication and delivery of night guard

#### **Expected outcomes and prognosis of treatment proposed**

- Prognosis good if patient practices good oral hygiene and wears the night guard

#### **Maintenance protocols**

- 1 month after prosthesis delivery, then every 6 months if oral hygiene is effective, but increased to 3-4 months if necessary to assist with biofilm management. Monitor soft tissue health and occlusion. Occlusal adjustment is indicated if guidance on the implant restoration is heavy