Post-operative complications

Cambridge Academy of Implant Dentistry

YEAR COURSE

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Post-operative complications

- Haemorrhage – during surgery or after
- Pain
- Swelling
- Nerve damage or sensory change
- Infection and wound breakdown and other surgical problems
- Implant failure
- Peri-implantitis
- Restorative complications
  - aesthetic
  - components

Post-operative complications

- Haemorrhage – during surgery
  - bony or soft tissue?
  - pressure
  - vasoconstrictor containing la
  - diathermy
  - bony bleed
    - burnishing the site (bone)
    - bone wax?
    - put the implant in (unless severe!)

Post-operative complications

- Haemorrhage – during surgery
  - soft tissue
    - ligation (gripping with artery clip +/- suturing)
    - suturing flap back & pressure
  - tranexamic acid rinse (antifibrinolytic)
  - pressure applied to flap with damp sterile gauze after suturing for 3-5 minutes

Post-operative complications

- Haemorrhage – during surgery
  - remember medical history and warfarinised patients
  - INR < 3-3.5 and checked within past 48 hours
  - remember drug interactions with coumarins/ warfarin
    - BNF states avoid metronidazole, erythromycin, tetracyclines, corticosteroids

Post-operative complications

- Haemorrhage – after pt has left surgery
  - bring back in
  - pressure 10 -15 minutes
  - remove sutures and find the source?
  - patient needs your personal emergency contact details, not the rota number
  - talk to patient before they leave, explain possible oozing of blood stained saliva, etc

Post-operative complications

- Pain
  - intra-operative – more local!
    - remember regional blocks: NP, IO, ID, PSA, GP
  - post-operative
    - proactive management
      - provide analgesia immediately prior to, or after procedure at the practice
      - advise 4-6 hourly analgesia for 24-48 hours

Post-operative complications

- Pain
  - proactive management
    - discussion of pain in the consent documents
    - advise patients to have analgesics ready

Post-operative complications

- Pain
  - NSIADs
    - ibuprofen 400mg 4-6 hourly as needed
    - dexketoprofen (Keral) 25mg every 8 hours
  - paracetamol 500mg-1g every 4-6 hours
  - co-codamol (codeine phosphate 8-30mg & paracetamol 500mg)

Post-operative complications

- Pain
  - talk to patient, polite reminder that they have had a surgical procedure, etc
  - advise patient to have a quiet few days, no gym, swimming, gardening, etc
  - sensible recovery time
  - refer them back to the written consent form and section on post-op management

Post-operative complications

- Pain – Case history
  - be aware of unusual presentations/history
  - pt had single lower jaw implant, uncomplicated
  - pt contacted GDP later same day c/o severe jaw pain L side - advised analgesics
  - pt contacted next day, severe jaw pain L side, spreading down neck and L shoulder/arm

Post-operative complications

- Pain
  - pt later collapsed at home
  - pt died
  - the severe jaw pain was later thought to have been referred pain from a developing myocardial infarction, possibly precipitated by the stress of having the implant

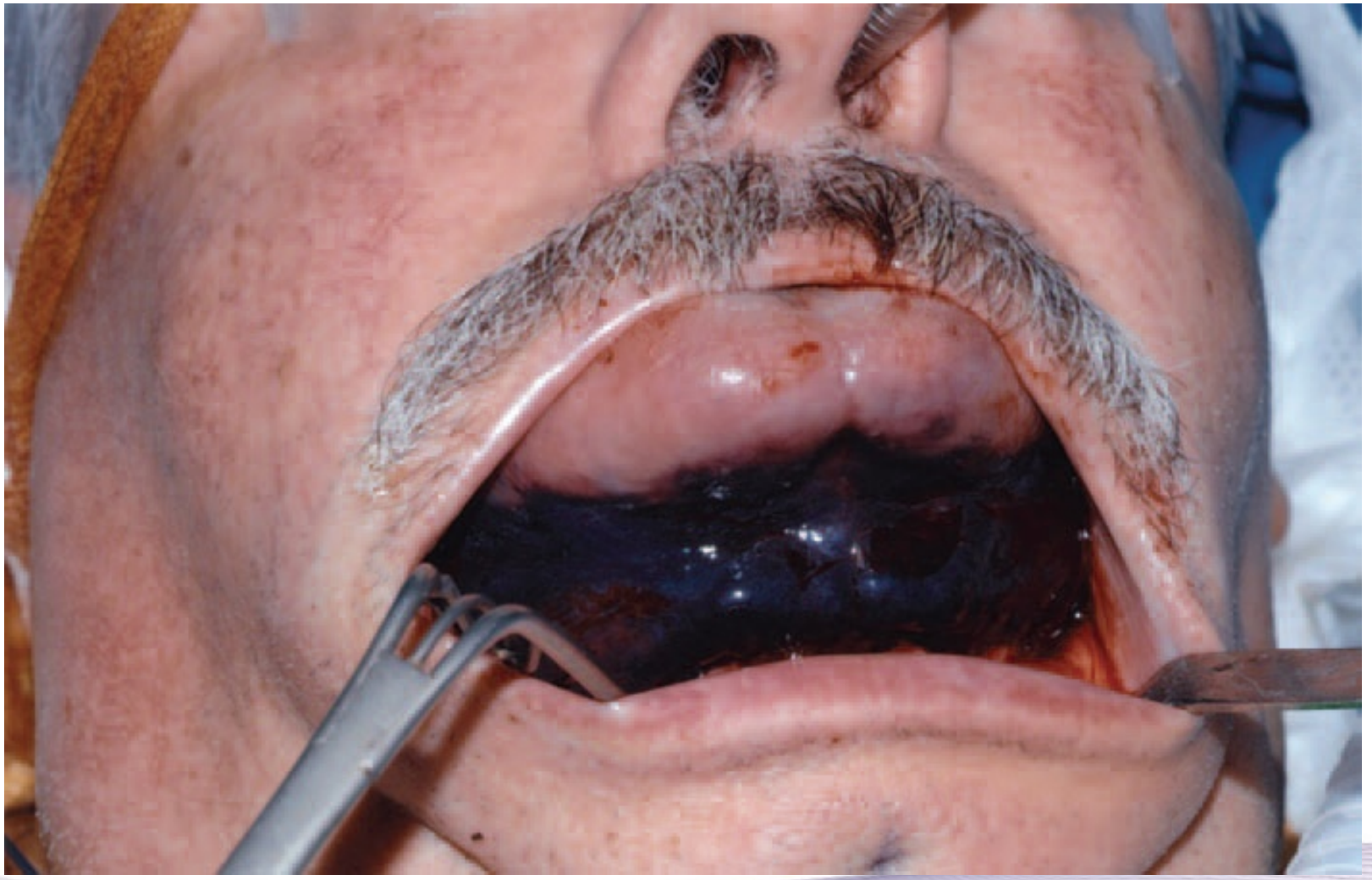
Post-operative complications

- Swelling
  - relatively uncommon for 1-2 unit cases
  - should be reduced by correct flap handling and closure techniques
  - ice packs, “Implant Ice”
  - avoid lying flat in bed/sitting in the sun
  - steroids
    - dexamethasone 8mg on day of surgery, 8mg on day 2, 4mg day 3, 2mg day 4

Post-operative complications

- Swelling
  - if patient describes it as severe or more than expected, take care not to dismiss and bring them back in

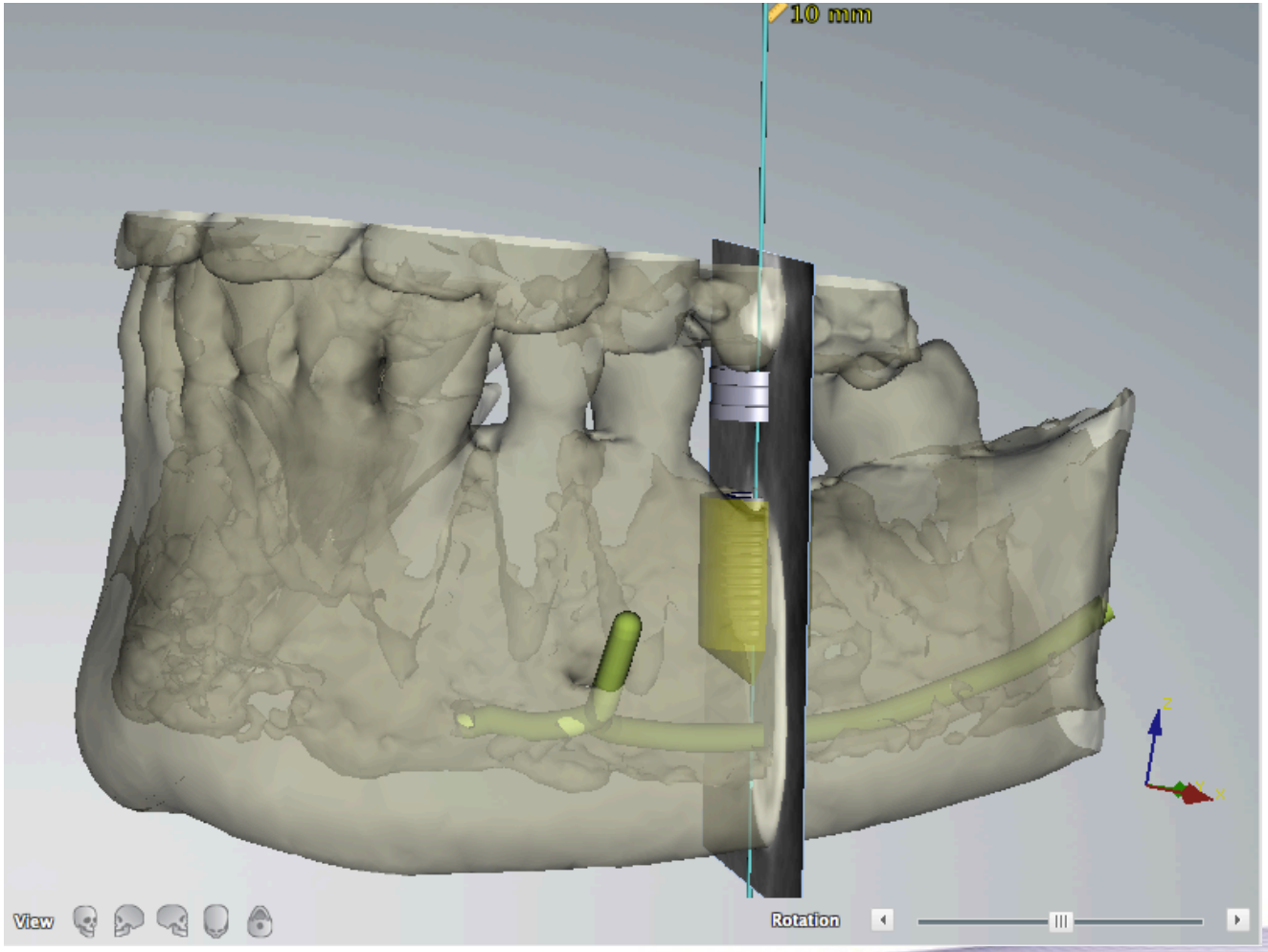
Post-operative complications



Post-operative complications

- Numbness and altered sensation
  - damage to ID nerve (lower 4s distally, often continues as a significant branch up to incisor region)
  - damage to lingual nerve (3-11% from retraction alone), lingual ridge perforation
  - damage to nasopalatine

Post-operative complications



Post-operative complications

- Inferior Alveolar Nerve Neuropathy (numbness)
  - anaesthesia – total numbness
  - paraesthesia – tingling, pricking
  - dysaesthesia – burning, itching, pain

Post-operative complications

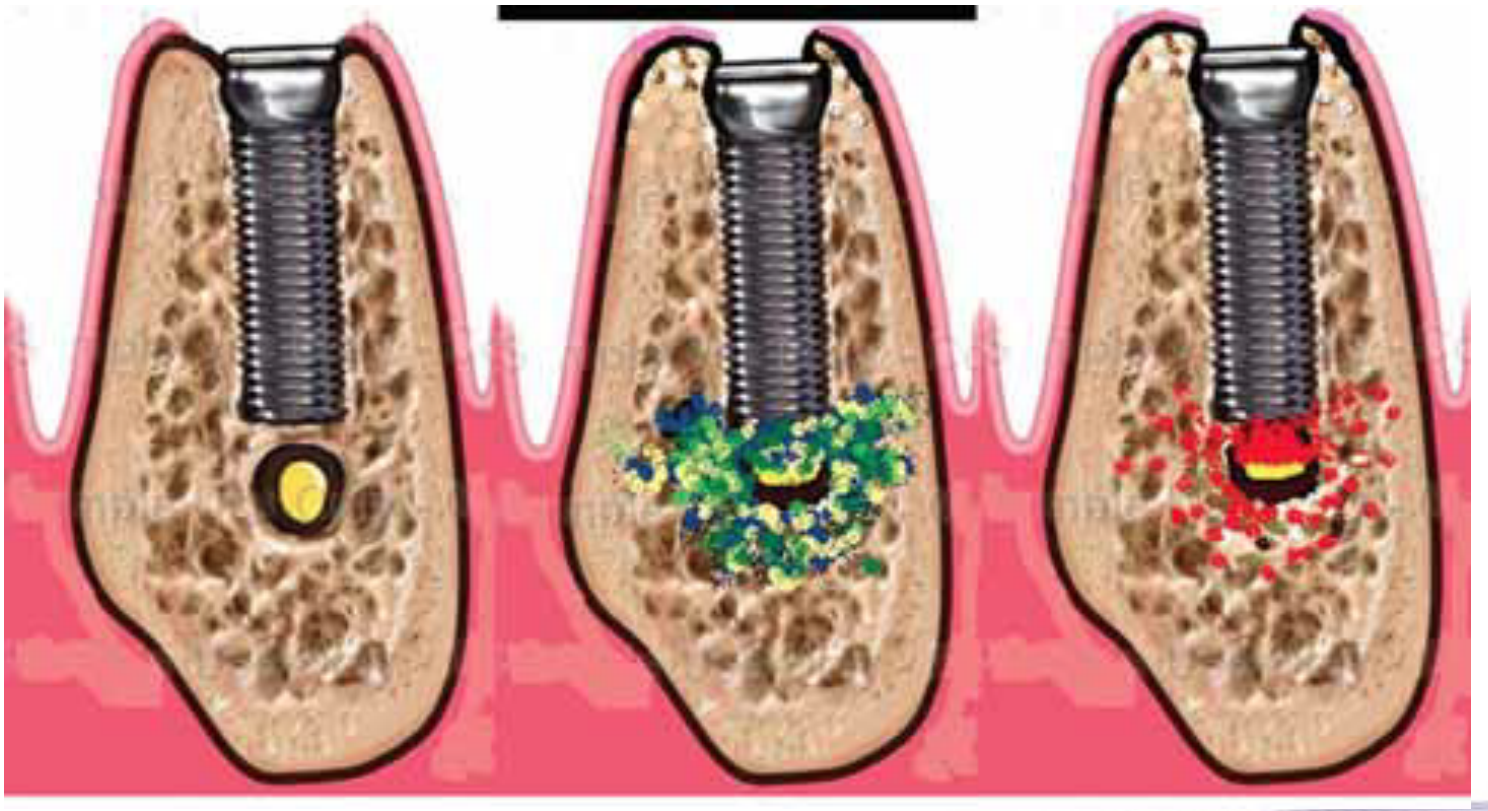
- IAN neuropathy – causes
  - **severed** the nerve
    - IDN with implant, or mental nerve when raising flap
  - **compressed**: implant placed close to (within 2mm) of the nerve
    - **hydrostatic pressure** from implant insertion, driving blood/fluid through the bone causing compression

Post-operative complications

- IAN neuropathy – causes
  - **compressed**:
    - **“house of cards” trabeculae collapse** from drilling/insertion process or drill debris
    - **bony haemorrhage**
  - **nerve ischaemia**

Post-operative complications

- IAN neuropathy



Post-operative complications

- IAN Neuropathy - causes
  - damage from local anaesthetic/injection
    - incidence 1:26000 - 1:800000
    - 1:400000 for articaine
    - recent settlement $1.4 million
    - 81% resolve at 2 weeks

Post-operative complications

- IAN Neuropathy – what is a safe distance for implants?
  - How brave do you feel!?
    - 3mm ideal
    - 2mm increased risk
    - <2mm decline

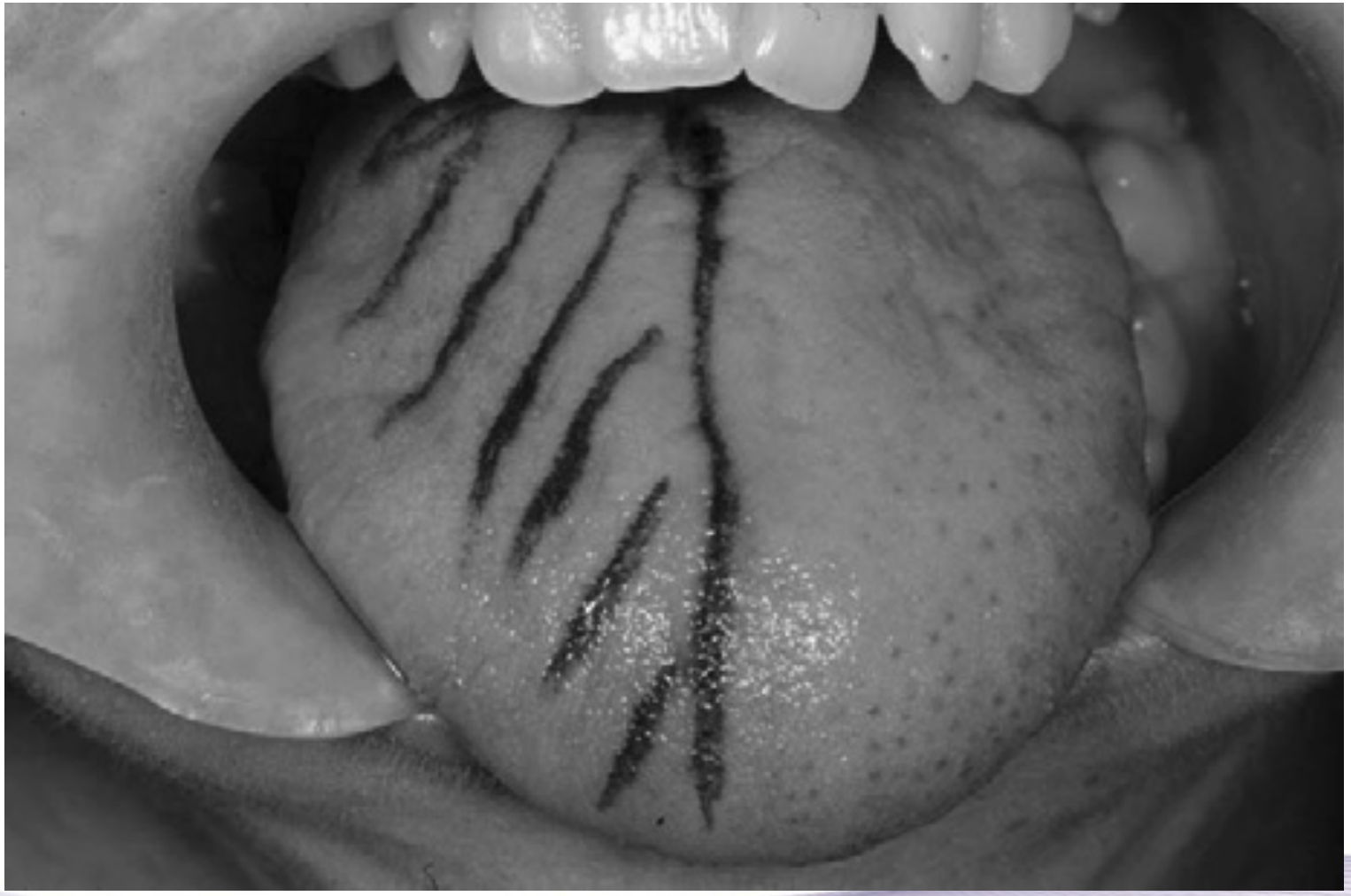
Post-operative complications

- IAN Neuropathy - management
  - bring patient in urgently
  - reassure
  - if lip numb, map out area and photograph
  - assess severity
  - review and repeat above
  - if completely numb after 24 hours remove the implant and refer to Max Fac or Neurosurgery for advice. Recent GDC hearing

Post-operative complications

- Numbness
  - phone indemnity union for advice

Post-operative complications



Post-operative complications

- Infection
  - reduced using sterile protocol
  - peri-operative antibiotics
  - pre & post-operative chlorhexidine mouthwash
  - facial cleansing with Tisept pre-op
  - post-operative maintenance of oral hygiene

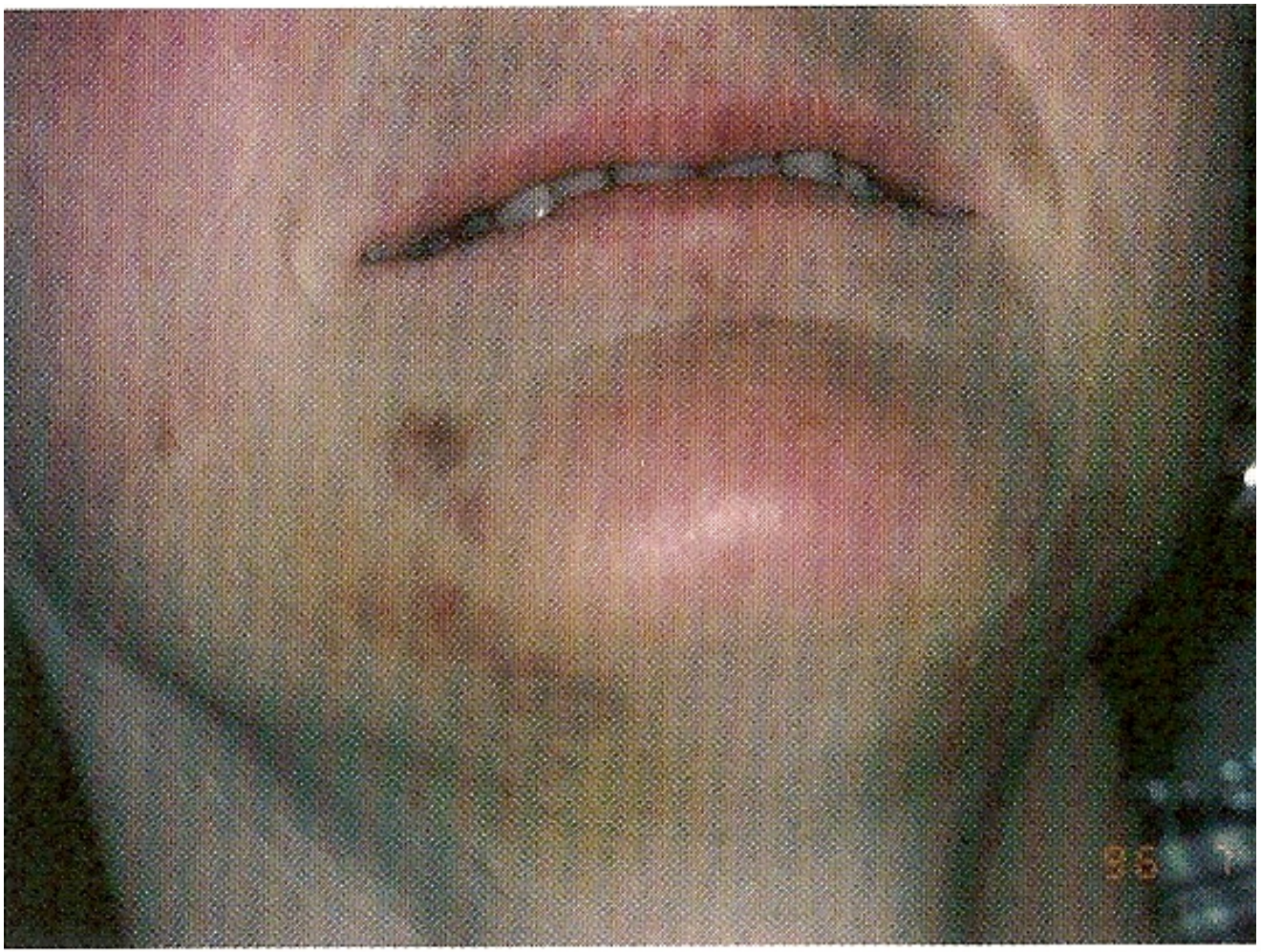
Post-operative complications

- Infection prophylaxis
  - weak evidence that the use of antibiotics may reduce the incidence of post-operative infections – Cochrane
  - no scientific consensus of what regime is used
  - 2g or 3g pre-operatively?
  - 250mg amoxicillin three times daily for 7 days, starting 2 days before the surgery
  - 250mg erythromycin four times daily for 7 days, starting 2 days before the surgery for penicillin-allergic patients

Post-operative complications

- Bruising
  - uncommon for smaller cases
  - common for big flaps in maxilla
  - worse if increased intra-op haemorrhage
  - reassurance
  - pro-active “you may get a bruise”
  - pt having your emerg contact details for reassurance

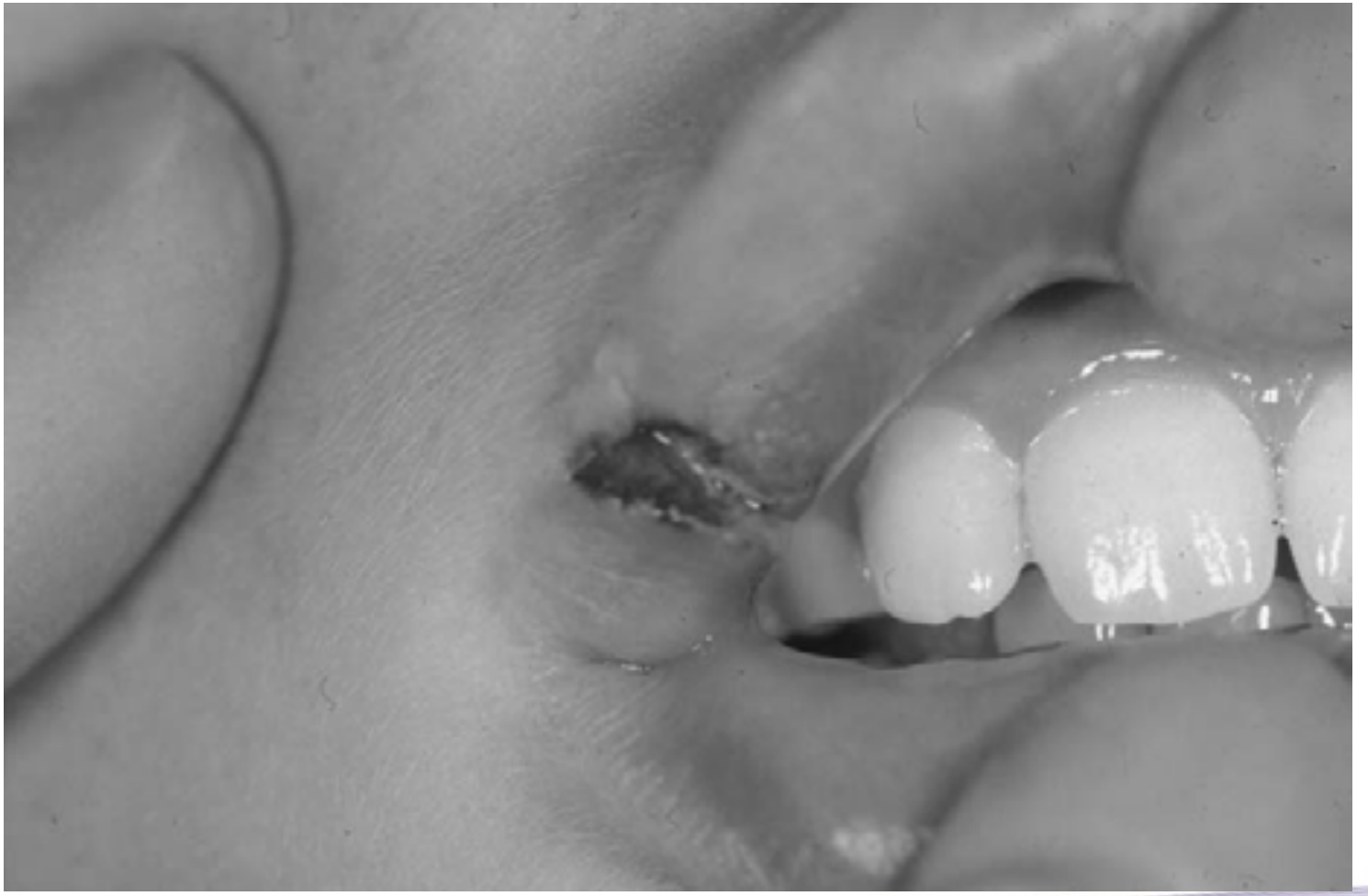
Post-operative complications



Post-operative complications

- Instrument slips
  - care using luxators/forceps/periosteal elevators/ drills
  - can slip and cause soft tissue injuries
    - lacerations
    - gingival damage
    - mucoceles

Post-operative complications



Post-operative complications

- Wound dehiscence
  - causes
    - incision lines over prominent roots
    - tension on flap
    - poor suturing or flap management
    - denture rubbing
    - poor oral hygiene
    - infection
    - smokers

Post-operative complications

- Wound dehiscence
  - treatment
    - if immediately post op – re suture
    - if picked up later stages, may have to observe and accept/deal with later soft tissue problems
      - connective tissue grafting

Post-operative complications

- Wound dehiscence
  - ?cover screw becomes visible
    - leave and maintain OH, chlorhexidine m'wash
    - irritate/make area bleed, gauze to get a clot
    - change cover screw for healing abutment?

Post-operative complications

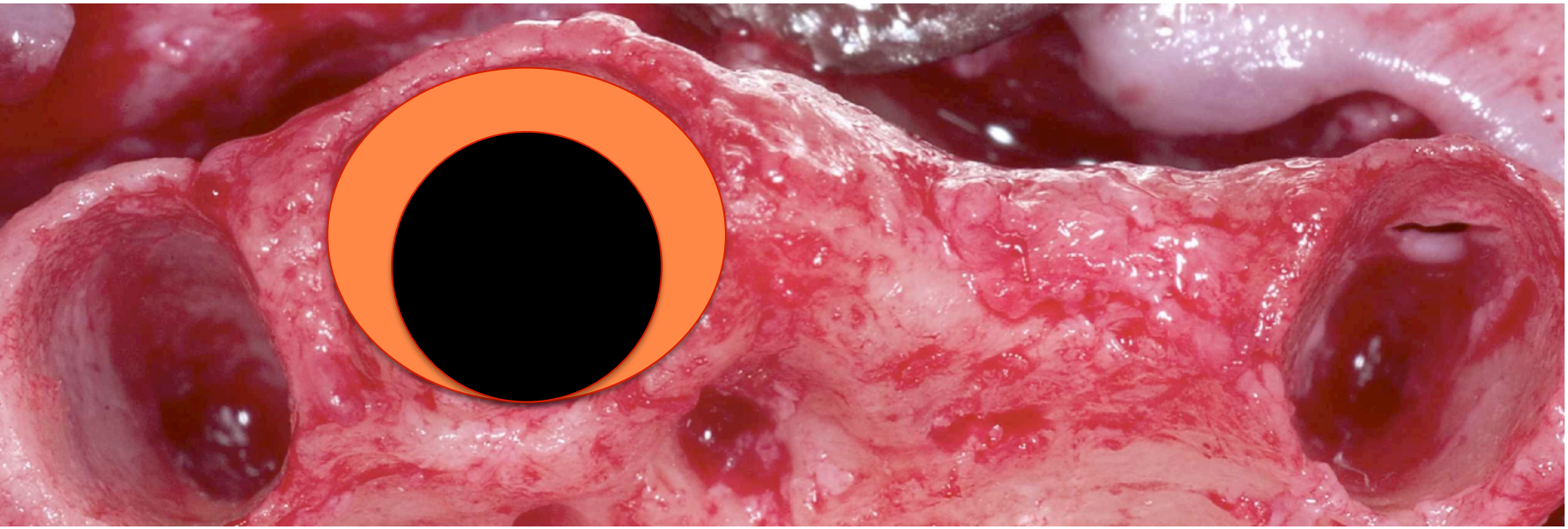
- Wound dehiscence
  - more critical in grafting cases
    - if membrane or graft becomes exposed, likely to loose graft vitality
    - may result in recession and reduced aesthetics

Post-operative complications

- Sutures coming out
  - often reflects technique ☹
    - not tightening knots properly
    - too much tension on flap
    - poor flap handling

Post-operative complications

- Bony gap around implant at time of placement
  - common in immediate placement cases
  - judge the extent
  - if small <1-1.5mm, just suture over?
  - if larger consider grafting
    - Fortoss Vital
    - Bio-Oss
  - best to avoid immediate placement on multi-rooted teeth



Post-operative complications

- Implant loose at placement
  - place a wider fixture, if restorative space allows
    - (dispose of the used implant!!)
  - place a cover screw if <15NCm insertion torque and gain 1y closure of the soft tissues. Leave for 6 months to integrate
  - use of osteotomes in low density bone instead of drills?

Post-operative complications

- Early implant failure – “immediate”
  - reports of implants falling out within days/weeks of placement
  - ?poor surgical technique?
  - placement of implant into bone with poor density
  - too large a hole drilled
  - placement of implant into very hard bone, inadequate cooling of the drill, excessive insertion forces

Post-operative complications

- Early implant failure – “immediate”
  - remove the implant
  - curettage and place a wider implant
  - curettage and leave to heal +/- graft and revisit site 3/12 later

Post-operative complications

- Early implant failure – “prior to impressions”
  - all seems fine but then suspect implant is mobile
  - periapical radiograph to check bone levels
  - if visibly mobile remove implant, curette, +/- graft and revisit
  - reflect on cause

Post-operative complications

- Early implant failure – testing
  - Resonance frequency analysis (RFA)
    - measures Implant Stability Quotient

Post-operative complications

- Peri-implantitis and peri-implant mucositis
  - bone loss
  - cause or effect?
  - no definitive treatment, look at Cochrane review
  - monitor pocketing, if > 5mm and bone loss consider regenerative surgery, systemic antibiotics?
  - maintain OH, scaling, graft to support soft tissues?

Post-operative complications

- Recession - causes
  - poor surgical technique or bad luck?
  - flap handling technique and flap design?
  - infection – existing or post-operative
  - pre-existing recession
  - implant angulation, too proclined, especially in immediate placement cases

Post-operative complications

- Recession - causes
  - implant placed too close to the thin buccal plate
  - implant placed too close to adj teeth/implants
    - ideally at least 1.5 mm between tooth-implant
    - ideally 3mm between implants
  - existing ridge defects
  - oral hygiene and exposed rough surface of implant

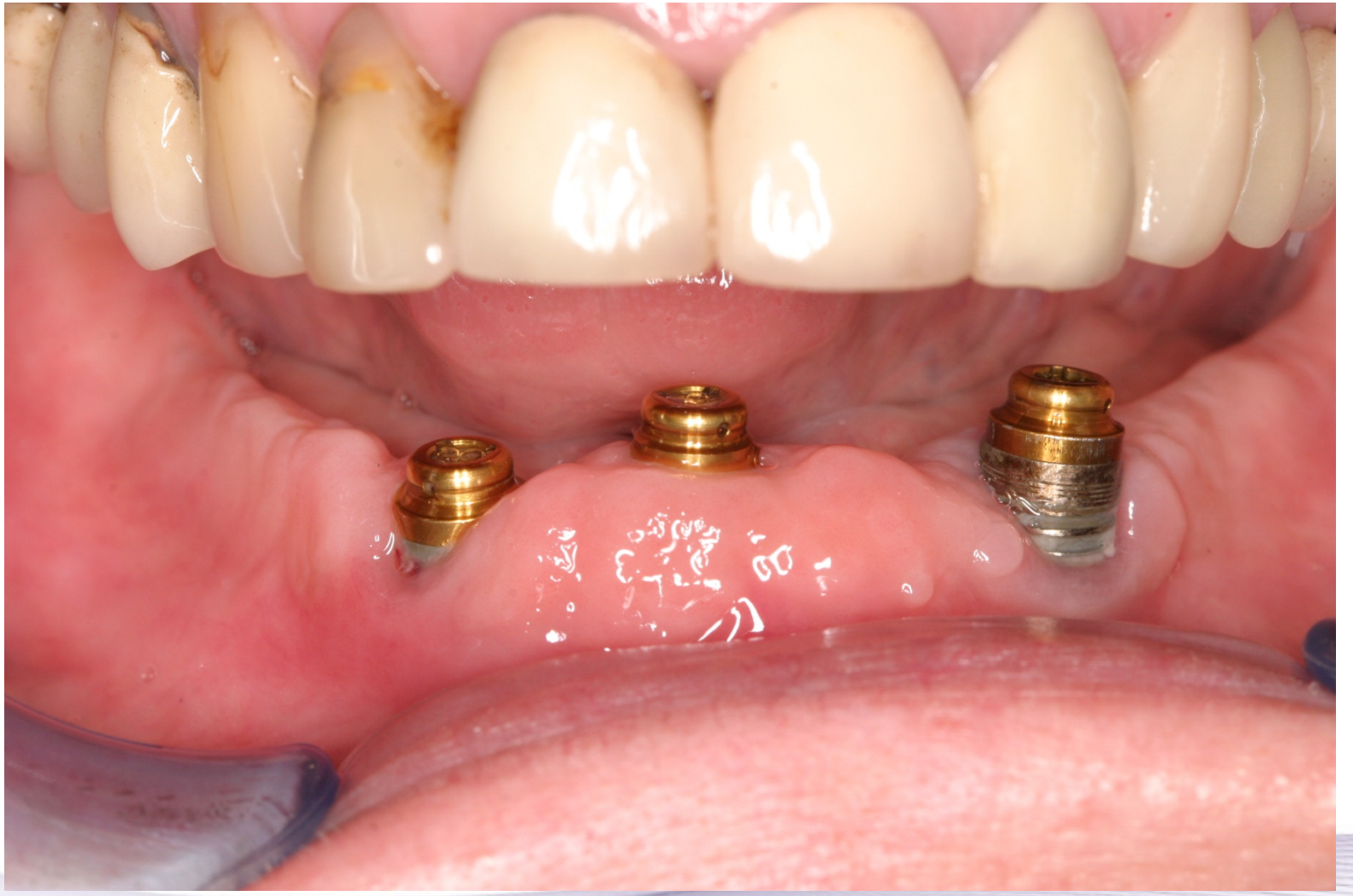
Post-operative complications

- Recession
  - prevention better than cure!
  - risks outlined in consent
  - care at placement
  - if overly-proclined implant, take impression at surgery, fit cover screw and then fit provisional crown instead of a healing abutment
  - can consider periodontal plastic surgery

Post-operative complications

- Recession
  - reduced subgingival buccal contour of the abutment and effects on crown emergence profile

Post-operative complications



Post-operative complications

- Loss of papillae
  - are they there to start with!?
  - expectation management
  - pre-op clinical indictors
    - contact point to bone crest distances (5mm or less) – Tarnow, Choquet, Zetu
  - soft tissue techniques – Palacci flap

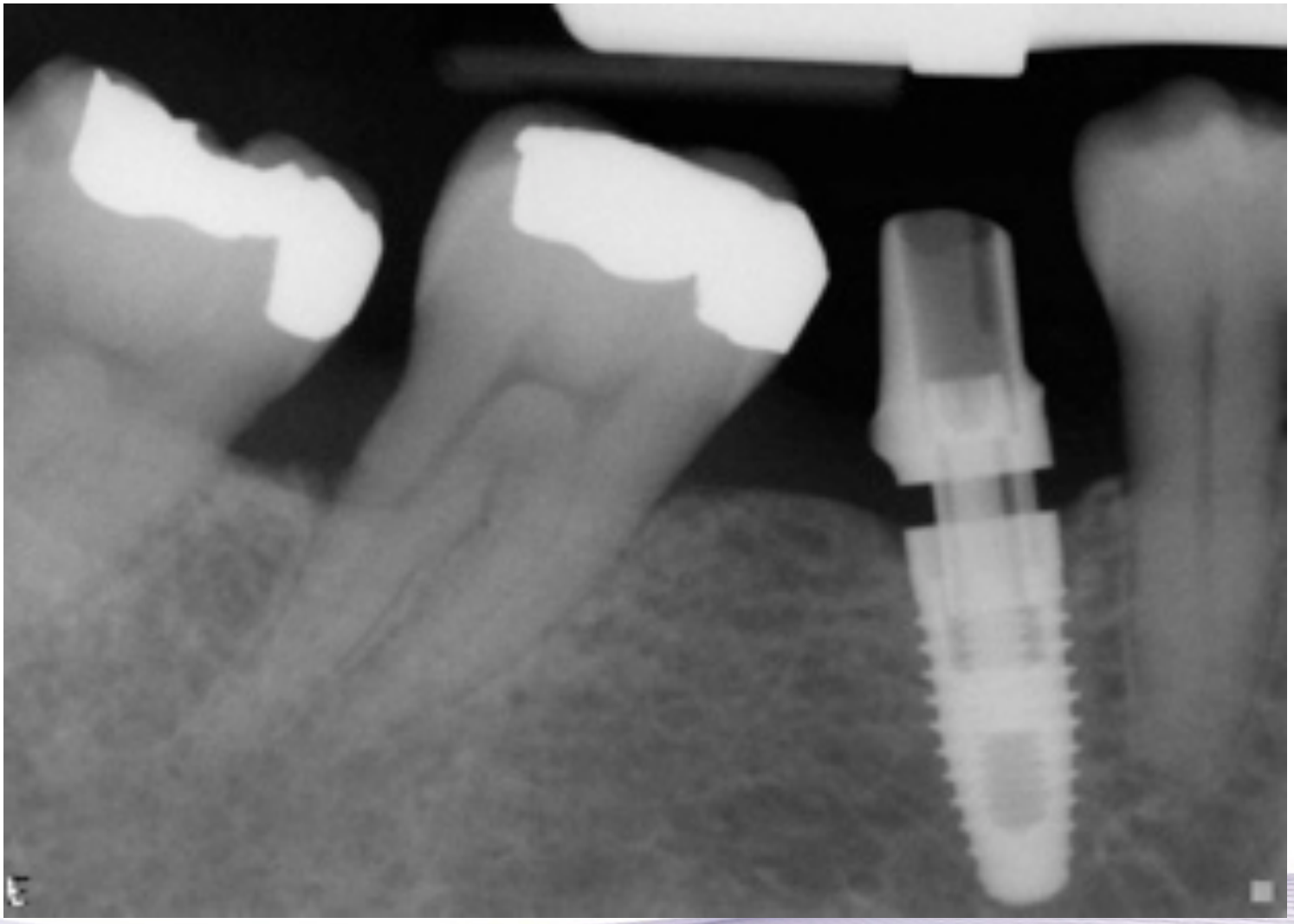
Post-operative complications

- Healing abutment loosening
  - not uncommon, especially in denture wearers
  - check at each review
  - be suspicious of reported bad odour/taste
  - soft tissues can grow into the gap quickly and complicate replacement
  - see patient same day if possible
  - may need local and a flap to re-site if left longer

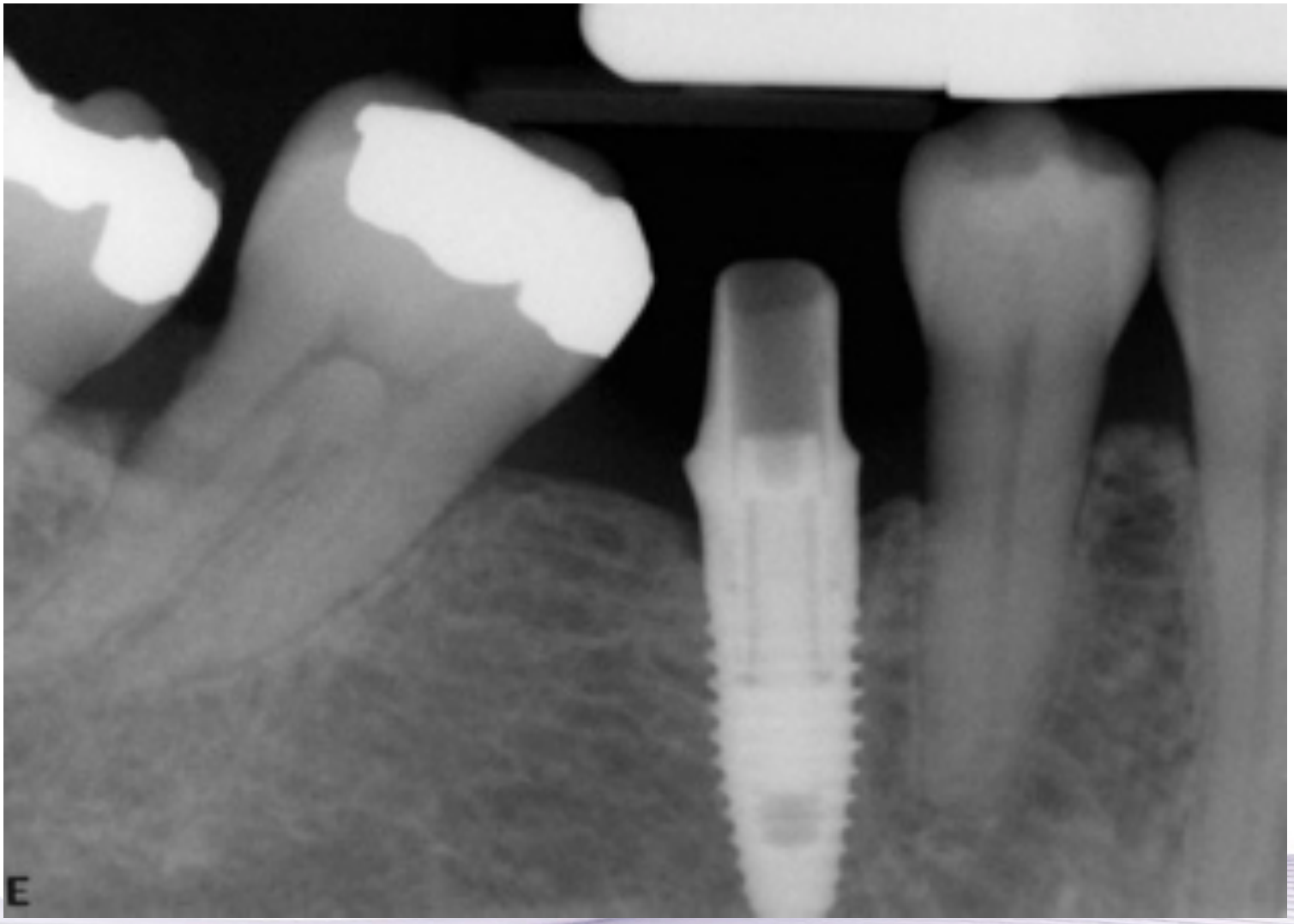
Post-operative complications

- Components not fitting
  - abutment will not seat
    - is the abutment the correct platform and implant system (Replace/Branemark/Active)
    - was the impression coping correctly seated clinically or at the lab?
    - tell lab diameter of impression coping used
    - was the abutment too heavily contoured, emergence profile too great?

Post-operative complications



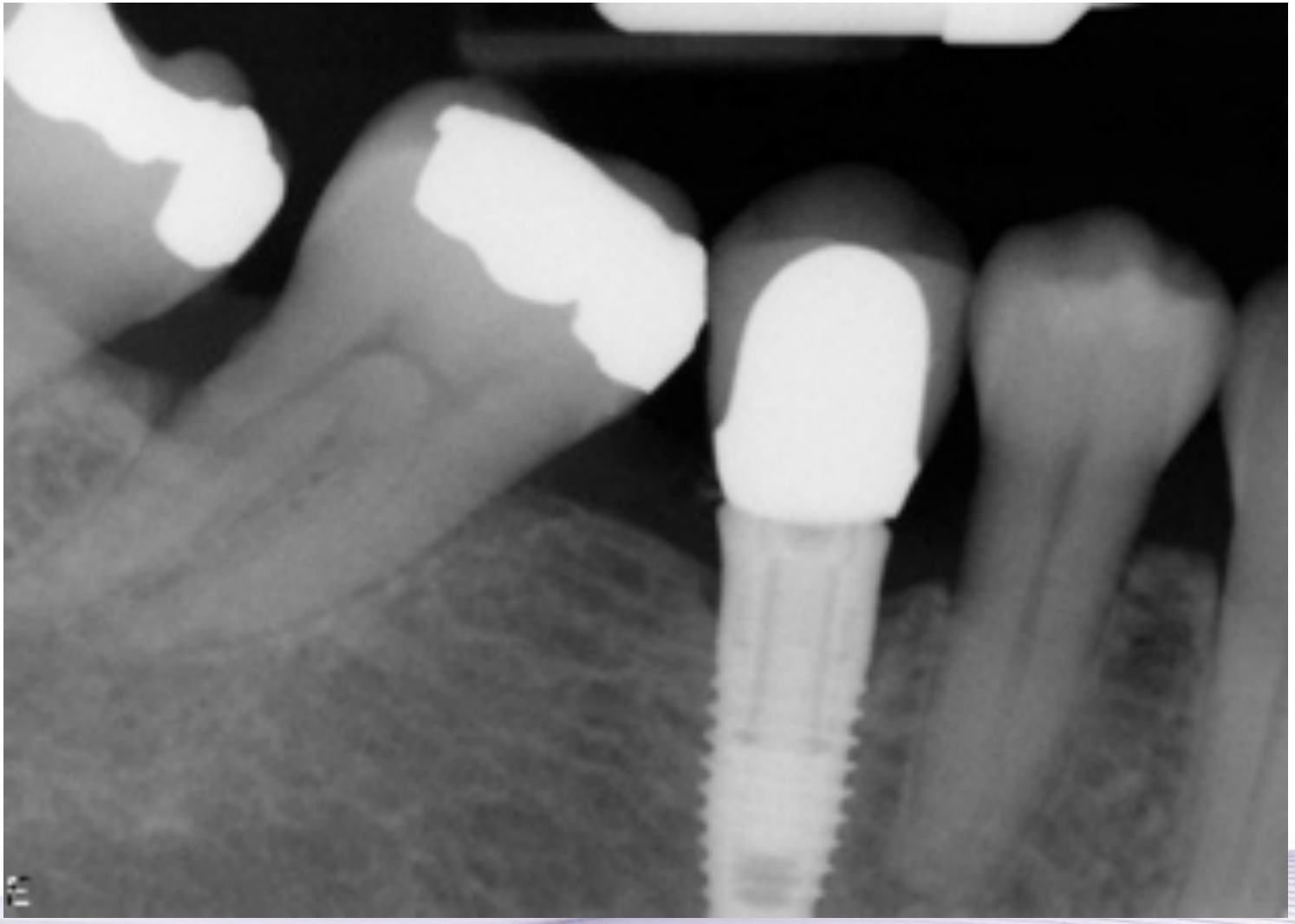
Post-operative complications



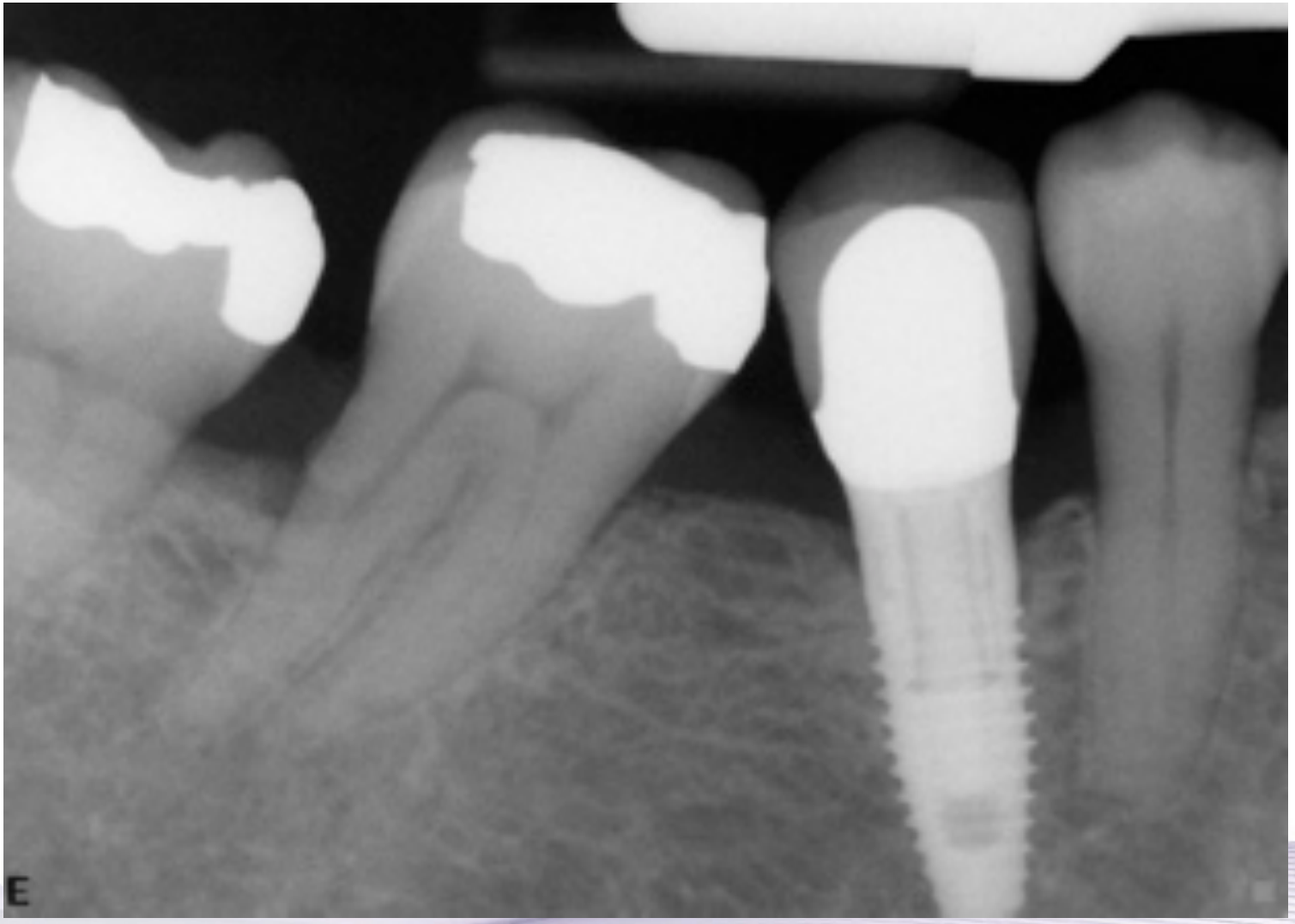
Post-operative complications

- Components not fitting
  - crown will not seat
    - is the crown-abutment margin too far subgingival?
    - is the emergence profile too great?
    - was the impression accurate?
      - open tray technique for multi-unit cases
      - linked imp copings and verification jigs
    - preference for custom abutments

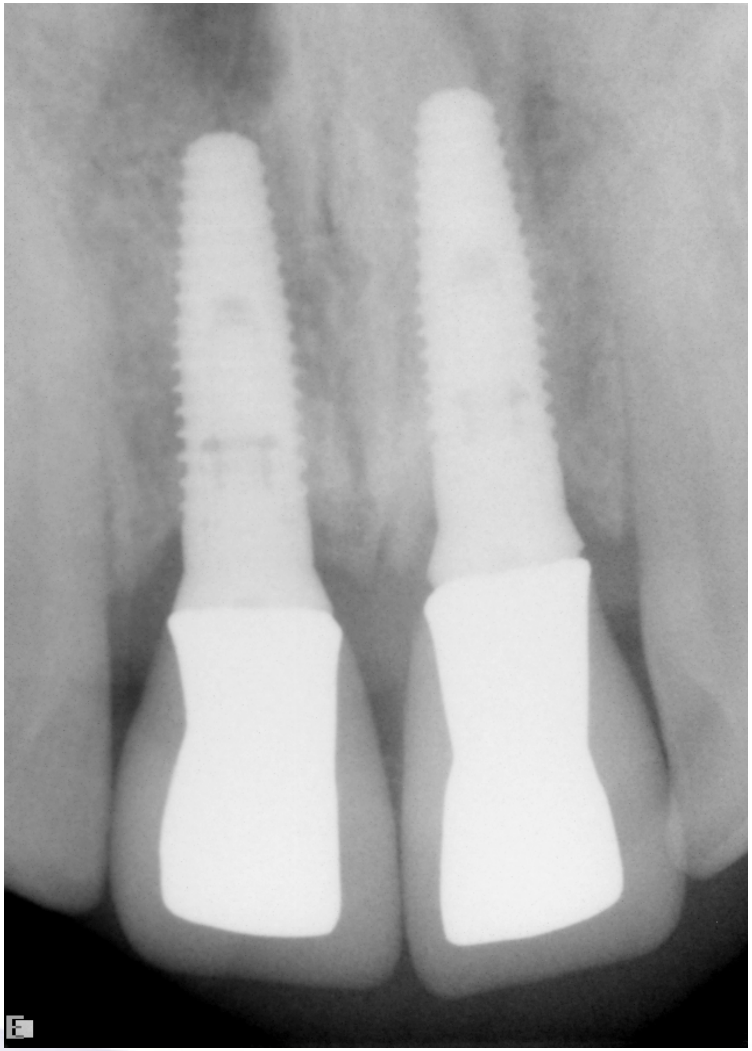
Post-operative complications

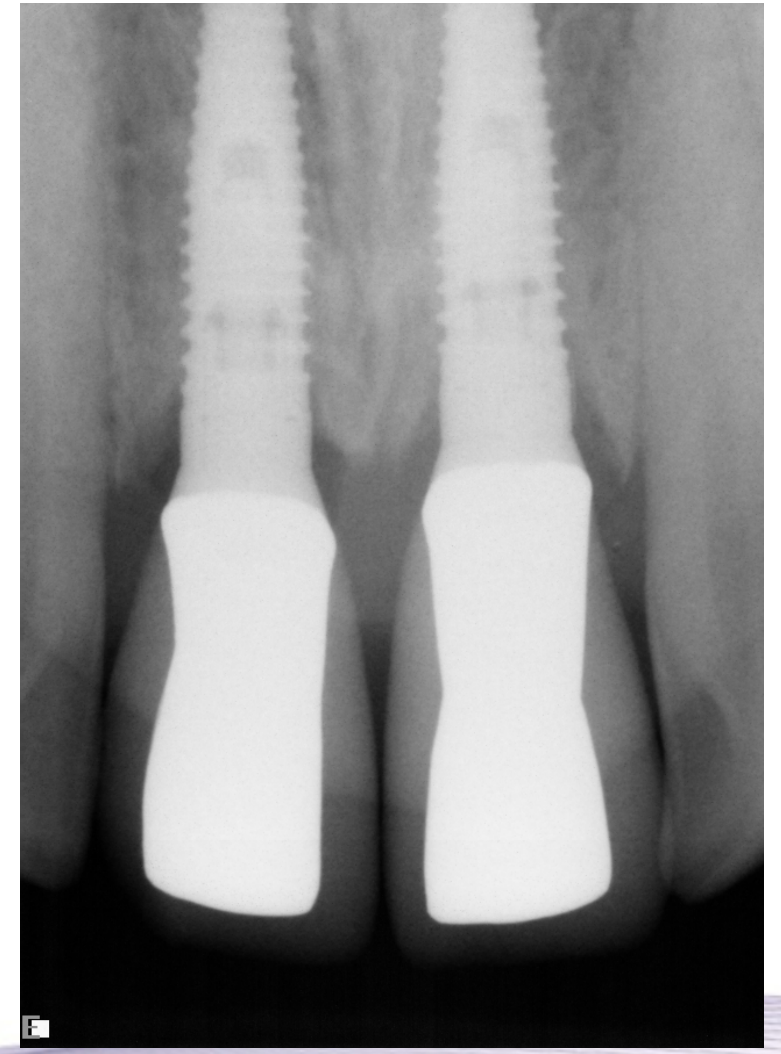


Post-operative complications



Post-operative complications





Post-operative complications

- Crown debonds
  - not infrequent as commonly use soft implant-specific cements
  - unless obvious cause be suspicious of occlusal loading
  - recheck occlusion each time you see patient (3 sheets shimstock clearance in light ICP)
  - consider occlusal nightguard for serial debonders

Post-operative complications

- Abutment screw loosening
  - same as crown debonds
  - retighten
  - consider new screw if need to retighten more than a few times

Post-operative complications

- Porcelain fractures
  - occlusion
  - framework too bulky
    - veneering too thin and insufficiently supported
  - repair with Gradia direct or re-make?
  - ?use Gradia or similar for full arch veneering

Post-operative complications

- Abutment screw fracture
  - screw should have lost its torque
    - ultrasonic 10-20 minutes on visible portion of fractured screw
    - care not to damage implant screw thread on internal surface
    - manufacturer’s screw-removal kits
    - re-tapping kits for internal implant surface

Questions?