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Dentistry

Full set of adult teeth:

87654321	12345678
87654321	12345678

Full set of deciduous teeth:

EDCBA	ABCDE
EDCBA	ABCDE

Quadrant labelling:

Upper right	Upper left
Lower right	Lower left

Sedation

- conscious sedation =
 - ▶ drugs to produce depression of CNS during which verbal contact with pt is maintained
 - ▶ must retain airway reflexes
 - ▶ understand verbal instructions
- for patients who wont tolerate LA only:
 - ▶ PO or IV sedation
 - ▶ inhalational N2O - nasal mask = relative analgesia
- pt must be monitored by trained staff other than dentist
- procedure:
 - ▶ ASA 1 & 2
 - ▶ pt escort for and after procedure
 - ▶ written instructions on driving & machinery post procedure
 - ▶ standard starvation guidelines
 - ▶ pt must be able to communicate during procedure
 - ▶ resus equip must be available
 - ▶ flumazenil available
 - ▶ 1hr for recovery
- regimes:
 - ▶ IV midaz
 - give 2mg - wait 90secs
 - give 1mg every 30sec until sedated
 - (expect 6-10mg midaz)
 - ▶ low dose propofol - only if suitable trained
 - ▶ N2O:
 - add 10% to O2 for 1min
 - 20% for 1 min
 - then ↑ in 5% increments to max 50% until sedated
 - 100% O2 at end of procedure
 - ▶ d/c when able to walk

General Anaesthesia

- indication for GA:
 - ▶ impossible to achieve LA cover ∴ risk of intra-procedure pain:
 - day case extraction of permanent molars
 - in pt extensive work
 - ▶ patients who unlikely able to allow safe completement of procedure ie young/ID
 - ▶ long term dental phobia will be induced or prolonged
- premeds useful
- complex medical problems eg Downs ⇒ need full preAx & exclusion of co-morbidities

- routine Abx for endocarditis prophylaxis is no longer done
- surgery not performed in a chair - supine
- ↑ risk of arrhythmias intraop due to stimulation of trigeminal nerve
- use LA where possible:
 - ▶ lignocaine 2% with adrenaline 1:80,000 = 90min duration & 7mg/kg max dose ~10x2.2ml cartridges
 - ▶ bupivacaine 0.25-0.5% plain - up to 8hr anaesthesia

Dental Extractions

Common post operative problems:

- (1) PONV
- (2) pain
- (3) bleeding
- (4) eye trauma
- (5) sedation

Preoperative

- focused medical history and examination
- PONV:
 - ▶ risk assessment:
 - female,
 - non-smoker,
 - previous motion sickness,
 - previous PONV
 - ▶ if high risk:
 - assessment and treatment of hydration status,
 - premedication (anxiolysis; midazolam 0,5mg/kg PO 30min before operation
 - ↳ this will ↓intraoperative anaesthetic requirement but may ↑post operative sedation
- can procedure be done under sedation or GA :
 - ↳ decreased risk of PONV with sedation
- discuss with surgeon: oral or nasal ETT or LMA required for surgical access
 - ▶ if nasal ETT required provide adequate topical anaesthesia and vasoconstriction to nasal passages prior to OT – co-phenylcaine spray to nasopharynx)
- preoperative paracetamol 1g PO and etoricoxib 120mg

Intraoperative

- propofol induction (anti-emetic properties and clear headed emergence)
- if GA required minimise opioid use
- short acting NMB
- can SV if ventilation adequate (may avoid use of neostigmine and thus decreased PONV rate)
- throat pack will ↓amount of blood entering stomach -> ↓PONV as blood in stomach can be highly emetogenic
- intubate with a warmed, lubricated nasal ETT (decreased risk of epistaxis)
- protect eyes with tapes, pads and lubrication
- minimise volatile (if @ serious risk of PONV use propofol TIVA)
- prophylactic anti-emetics if indicated (dexamethasone 0.1mg/kg)
- IVF to ensure hydration
- may or not require Abx
- avoid N2O use
- use of tramadol under GA (less risk of PONV as compared to being administered awake)
- administration of local anaesthesia (inferior alveolar block) by surgeon +/- local infiltration – use long acting LA (0.5% bupivacaine)
- ensure removal of throat pack

Post operative

- extubate in left lateral position with head down
- good analgesia (tramadol, NSAIDS, paracetamol, morphine)

- access to multiple anti-emetics
- pressure dressings applied to sockets
- discharge criteria must be met;
 - ▶ pain controlled,
 - ▶ ambulatory,
 - ▶ able to tolerate fluids,
 - ▶ person available to drive patient home and also monitor over next 24 hours, f
 - ▶ fully awake and orientated,
 - ▶ stable vital signs,
 - ▶ discharge drugs prescribed + discharge summary,
 - ▶ plan in place if patient develops troublesome symptoms (pain, bleeding, PONV)

Dental Abscess Surgery

Preoperative

- indicators of potential airway compromise:
 - ▶ altered speech
 - ▶odynophagia
 - ▶ rapid worsening swelling
 - ▶ severe **trismus**
 - ▶ **change in voice with poor cough** ⇒ tracheal intubation recommended
 - ▶ **late signs (AFOI):**
 - stridor (may be absent at rest)
 - dysphagia
 - orthopnoea
- careful airway exam:
 - ▶ check tongue protrusion - sensitive indicator of sublingual involvement
 - ▶ mouth opening
- Investigations:
 - ▶ CT
 - ▶ flexible nasendoscopy

Perioperative

Induction

- all types of anaesthetic technique are ok with justification
- trismus:
 - ▶ Mouth opening likely will not improve markedly with NMBs
 - ▶ **low threshold for AFOI**
- any concern than all cases should be done in main theatre will all equipment ready

Maintenance

- use throat packs to soak up pus
- steroids & antibiotics
- standard

Extubation

- extubation based on case by case basis
 - ↳ any of concerning signs above then keep extubated ⇒ ICU
- NSAIDs
- some pts likely to develop further post op swelling esp Ludwigs angina or parapharyngeal involvement

Special Points

- Ludwig's Angina:
 - ▶ = life threatening cellulitis of floor of mouth involving submandibular & sublingual spaces bilaterally
 - ▶ predictor of sublingual involvement is inability to protrude tongue:
 - genioglossus is C shaped concave muscle
 - when concave is filled with pus ⇒ unable to ofld over self
 - ▶ surg trachy:
 - difficult due to involvement of neck & pre-tracheal tissues
 - risk of seeding infection into mediastinum

Oral/Maxillofacial Surgery

General Principles

Issues:

1. shared airway (nasal intubation)
2. eye protection
3. throat pack
4. bleeding airway
5. cardiac arrhythmias
6. free-flap surgery
7. infections - airway obstruction, mediastinal spread, cavernous sinus thrombosis

Intubation

- nasal often required (nostril patency, epistaxis, anticoagulation, co-phenylcaine)
- use north facing nasal tubes - prewarmed
- avoid pressure on ant nares \Rightarrow necrosis
- can use reinforced LMA for short procedures
- previous surgery may \Rightarrow poorly compliant soft tissue & \downarrow neck mobility
 - \hookrightarrow \therefore prepare for DI

Extubation

- examine airway under direct vision
- head down, lateral position or in 30-45deg upright (\downarrow s venous pressure)
- deep, awake extubation, or deep switch to LMA
- can pull NETT and then cut @15cm mark and put safety pin in it -> create a nasopharyngeal airway

Cardiac Arrhythmias

- common c/o stimulation
- worsened by; halothane, hypercarbia, hypoxia, light anaesthesia
- LA prevents

Extraction of Impacted Teeth

Preoperative

- careful assessment of airway (may have severe trismus or facial swelling)
- nostril patency
- discuss with surgeon length of OT (sometimes can be very short)

Intraoperative

- supine, head ring, shoulder bolster
- nasal ETT or LMA
- may need AFOI
- eye protection
- LA blocks to trigeminal nerve by surgeon:
 - \triangleright maxillary division: infraorbital, greater palatine, nasopalatine
 - \triangleright mandibular division: inf alveolar, lingual, buccal, mental
- antibiotics prophylaxis - often augmentin for gram -ve coverage
- dexamethasone
- extubate light or deep (left lateral position with head down)

Postoperative

- simple to opioid analgesia

Orbito-Zygomatic Complex Fracture

= elevation of fractured zygomatic complex +/- fixation

Preoperative

- may have limited mouth opening
- discuss with surgeon regarding approach (temporal (most common), intraoral, percutaneous, transantral)
- carefully assess for associated injuries - these #'s best fixed 5-7d post acute injury
- careful airway assessment

Intraoperative

- ETT PO RAE or flexible LMA
- eye protection
- antibiotics
- extubate in lateral position with # up
- potential bradycardia as zygoma # lifted (Gillies lift)
 - ↳ very stimulating
- extubate
 - ▶ ensure SV
 - ▶ avoid pressure over zygoma with FM

Postoperative

- IV opioids
- eye observations - watch for retrobulbar haemorrhage ⇒ require emergency return to theatre

Mandibular Fracture

= reduction and fixation of a fractured mandible

Preoperative

- discuss with surgeon approach:
 - ▶ closed reduction and indirect fixation -> interdental wires or splints +/- jaws wired together
 - ▶ open reduction and direct skeletal fixation using bone plates
- associated injuries
- thorough airway assessment
- nostril patency
- NETT contraindicated in coagulopathy and CSF leak

Intraoperative

- trismus makes intubation look difficult -> tends to relax following induction
- acuity of injury is imp - any superimposed infection ⇒ failure of view to improve on relaxation
- bilateral #:
 - ▶ 1ed ant mandibular displacement
 - ▶ but more difficult BMV
- RSI with nasal intubation usually appropriate
- AFOI may be required if v swollen/infected
- gas induction often difficult c/o pain

Postoperative

- standard care

Maxillary/Mandibular Osteotomy

= realignment of the facial skeleton

Preoperative

- may have major craniofacial abnormalities -> careful airway assessment
- x-match blood - bleeding can be heavy
- VTE prophylaxis

Intraoperative

- supine, head up, head tilt
- airway:
 - ▶ nasal ETT with IPPV
 - ▶ if severe malocclusion than consider AFOI
 - ▶ oral intubation with tube passed out retromolar or through floor of mouth percutaneously
 - ▶ tracheostomy
- risk of damage to ETT during surgery which may need to be replaced
- art line
- TIVA -
 - ▶ ↓s bleeding risk & remi allows intraop rapidly titratable analgesia
 - ↳ has been assoc with higher post op pain scores
 - ▶ ↓ed PONV - **vital** to avoid post op
- large doses of LA & adrenaline may be instilled to control pain & bleeding:
 - ▶ dental mix of LA & adrenaline = 1:80,000 adrenaline
 - ▶ should give max 300mcg adrenaline/hour
 - ▶ can see tachy & ↑MAP 2nd to adrenaline injections
- eye protection
- induced hypotension - see notes in ENT section
- isovolaemic haemodilution = now not performed:
 - ▶ suggested benefit= ↓need for allogenic blood
 - ▶ evidence = no benefit & may have actually showed ↓quality of surgical field
- IV A/B + Dex
- hypothermia cares
- PONV cares - 7-40% chance of PONV
- extubate once patient fully awake and co-operative (can cut nasal tube to create a N/P airway)
- mandibular or maxillary nerve blocks by surgeon

Postoperative

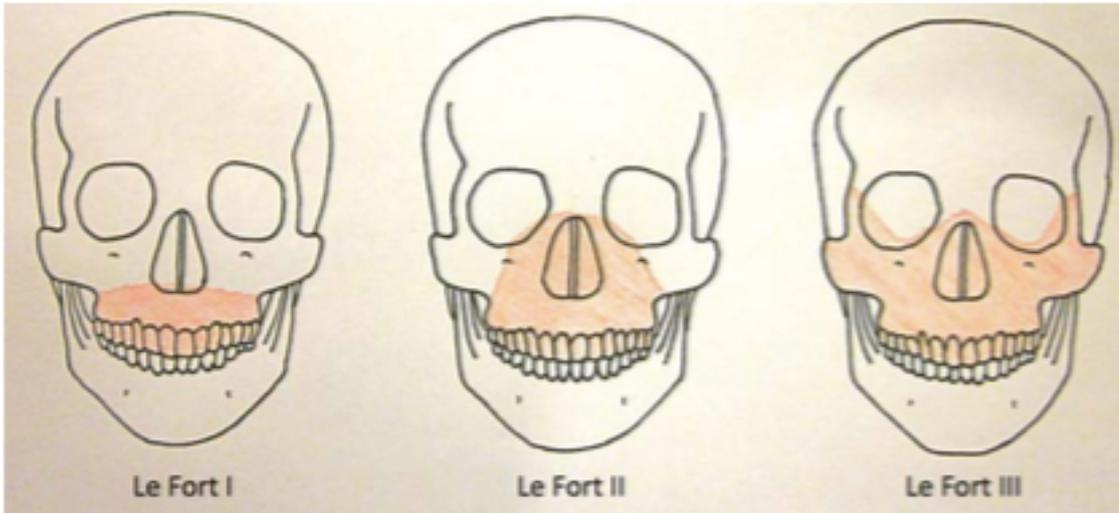
- fixation of mandible and maxilla can take place -> if airway obstruction (eg vomiting) occurs this needs to be removed quickly - need wire cutters
- PONV and monitoring for bleeding to prevent airway obstruction
- small doses of IV opioid
- HDU
- humidified O2
- IV or IM medications
- encourage oral intake as soon as possible

Facial Trauma

Classifications

- # lower 1/3:
 - ▶ ring formed by mandible, TMJ & base of skull
 - ▶ # on one side of mandible often create # on another
 - ▶ not a problem for airway unless:
 - delayed injury with coninfection
 - gross displacement ⇒ large sublingual haematoma ⇒ similar to Ludwig's angina

- bilat anterior #s
 - ▶ common to lose teeth
- # mid 1/3:
 - ▶ complex #s can result in life threatening problems:
 - airway compromise
 - massive epistaxis
 - ▶ Use bite blocks to tamponade bleeding
 - ▶ Le Fort # classification seen here
- # upper 1/3:
 - ▶ nose & base of skull involvement mean extreme care when placing tubes in nose



▶

Preoperative

- standard careful airway assessment done in discussion with surgeon

Intraoperative

- Pain should ↓ after # fixation
- Dex to minimise swelling
- Correct antibiotics:
 - ▶ grossly contaminated wounds
 - ▶ penetrating wounds
 - ▶ exposed cartilage
 - ▶ devascularised wounds
- reflex brady during lifting of zygomatic #
- G&H

Extubation

- plan carefully
- Le Fort II & III oedema can worsen for 48hrs post op

Post OP

- watch for haematoma:
 - ▶ have rescue plan ie removing sutures clips
 - ▶ documented plan for re-intubation