جامعة الشارقة
UNIVERSITY OF SHARJAH

UDHS | UNIVERSITY DENTAL HOSPITAL SHARJAH
مستشفى الأسنان الجامعي بالشارقة

Complications of Exodontia

Lecture 1
DHS-4

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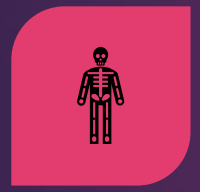
Things to keep in mind my dear students



THE MOST IMPORTANT PERSON IN THE UNIVERSITY IS YOU.

IMPORTANT POINTS I MENTION ARE NOT IN THE SLIDE SOMETIMES.

ALWAYS PAY ATTENTION TO THE PATIENTS YOU TREAT.

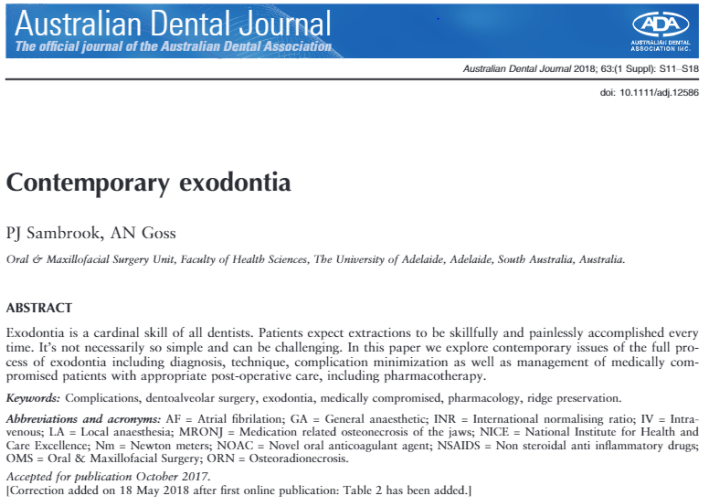
PROPER INSTRUCTIONS, REPEAT AND FOLLOW UP.

DO NOT RELY ON ONE AUTHOR, ALWAYS UPDATE YOUR KNOWLEDGE.

LISTEN TO YOUR SUPERVISOR AND FOLLOW HIS INSTRUCTIONS.

References

- Contemporary Oral and Maxillofacial Surgery by James Hupp. Sixth edition 2014
- Textbook of Oral & Maxillofacial Surgery 2nd Edition 2014
- C:\Users\101731\Desktop\complication of exodontia.pdf
- C:\Users\101731\Desktop\Sambrook_et_al-2018-Australian_Dental_Journal (1).pdf
- C:\Users\101731\Desktop\nerve injuries.pdf



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Contemporary exodontia

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ABSTRACT

Exodontia is a cardinal skill of all dentists. Patients expect extractions to be skillfully and painlessly accomplished every time. It's not necessarily so simple and can be challenging. In this paper we explore contemporary issues of the full process of exodontia including diagnosis, technique, complication minimization as well as management of medically compromised patients with appropriate post-operative care, including pharmacotherapy.

Keywords: Complications, dentoalveolar surgery, exodontia, medically compromised, pharmacology, ridge preservation.

Abbreviations and acronyms: AF = Atrial fibrilation; GA = General anaesthetic; INR = International normalising ratio; IV = Intravenous; LA = Local anaesthesia; MRONJ = Medication related osteonecrosis of the jaws; NICE = National Institute for Health and Care Excellence; Nm = Newton meters; NOAC = Novel oral anticoagulant agent; NSAIDS = Non steroidal anti inflammatory drugs; OMS = Oral & Maxillofacial Surgery; ORN = Osteoradionecrosis.

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[Correction added on 18 May 2018 after first online publication: Table 2 has been added.]

Objectives

- Definition of exodontia
- Identify intra-operative and post-operative complications
- Causes of complication of exodontia
- Proper treatment planning & prevention
- Treatment modalities of complication of exodontia

What is Exodontia?

- A branch of dentistry that deals with the extraction of teeth.
- Exodontia or extraction is the painless removal of a tooth or a tooth root with minimal or less trauma to the surrounding (investing) structures so that wound healing process will be uneventful and no post operative complication happens.

Types of exodontia

- Simple extraction (Intra-alveolar)
- Surgical extraction (Trans-alveolar)

Types of complications of exodontia

- Intra-operative
- Post-operative

Intra operative complications

- Failure to luxate the tooth
- Complications with a tooth being extracted
- Soft tissue injuries, Injuries to adjacent teeth, to osseous structures, to adjacent structures and to regional nerves
- Extraction of a wrong tooth
- Oroantral communication
- Intraoperative bleeding
- Broken instrument
- Fracture of the mandible
- Emphysema
- TMJ dislocation
- Extraction of the permanent tooth germ along with a deciduous tooth

Post operative complications

- Dry socket (alveolar osteitis)
- Delayed healing and infection
- Wound dehiscence
- Post operative bleeding
- Pain
- Edema
- Trismus
- Sharp bony spicules
- Eccymosis
- Oroantral Fistula
- Cavernous Sinus Thrombosis

Failure to luxate the tooth

Failure to remove tooth after applying mild to moderate force make it indicated for surgical extraction

Surgical extraction (raising a flap and bone cutting and the use of elevators)

Causes of failure of tooth luxation and removal

- Medical condition (pagets disease, multiple scelerosis, hypercemetosis, ankylosis)
- Tooth location and root morphology (abnormal tooth anatomy)
- Point of application (extensive caries unable to grap the tooth by forceps)
- Root canal treated tooth (brittle tooth)
- Angulation of the instrument
- Race and ethnic group

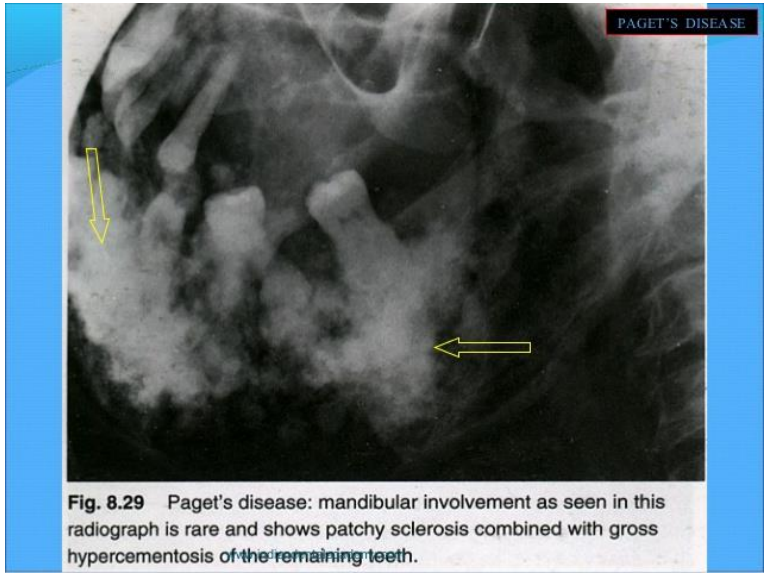
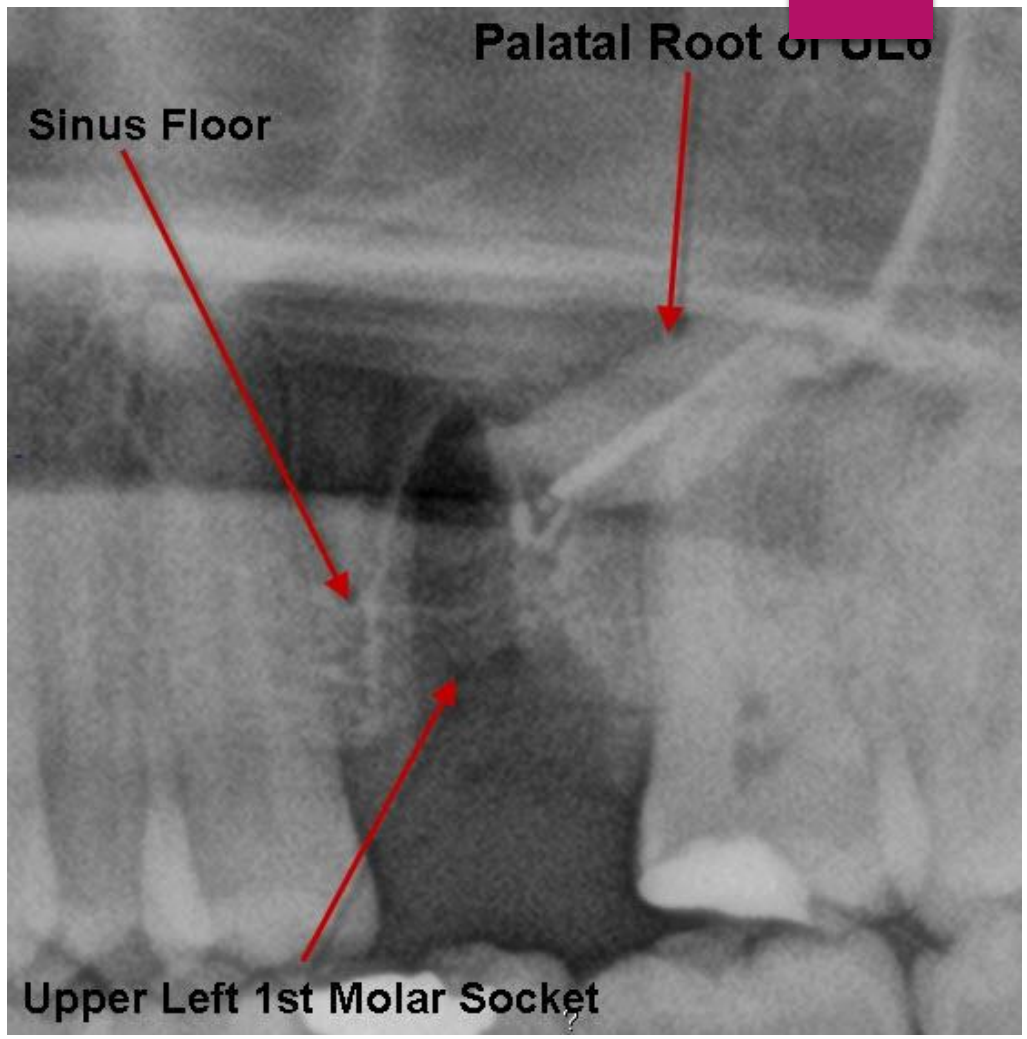


Fig. 8.29 Paget's disease: mandibular involvement as seen in this radiograph is rare and shows patchy sclerosis combined with gross hypercementosis of the remaining teeth.

Complications with a tooth being extracted

1. Root fracture
2. Root displacement
3. Tooth displacement into the infratemporal fossa and maxillary sinus, pterygomandibular space, sublingual and submandibular space



Prevention of root fracture and displacement

- Always consider the possibility of root fracture
- Use surgical extraction (not usually) if high probabilities of fracture exist
- Do not use excessive force on a broken root (point of application and proper angulation of the instrument and support of the other hand)
- Avoid very sharp instruments.
- Consult with Oral & Maxillofacial surgeon
- Refer

Tooth/Root Displacement

- Pterygomandibular space
- Sublingual space
- Submandibular space

Tooth/Root Displacement

Fracture of the root of a tooth

Causes:

1- Long root

2- Curved root

3- Divergent/ fine roots that lie in dense bone

4- Bulbous or ankylosed root

5- Root canal treated tooth

Decision to remove or keep the fractured part of a root depends on:

- 1- Size of the root fragment should be within 2-3 mm.
- 2- Whether it is infected or not.
- 3- An attempt to remove the tooth fragment may end up with serious injury to vital structures and excessive bone removal and trauma.
- 4- How close it is to major anatomical structures such as the maxillary antrum or inferior dental canal.
- 5- Supported by bone
- 6- Patient cooperation/ general health.
- 7- Full documentation and patient should be informed

Soft tissue injuries

- The less trauma the less complication → better wound healing
- Soft tissue injuries which include tearing of mucosal flap, puncture wound, stretching or abrasion
- (pay strict attention to soft tissue injuries)

Prevention of soft tissue injuries during extraction

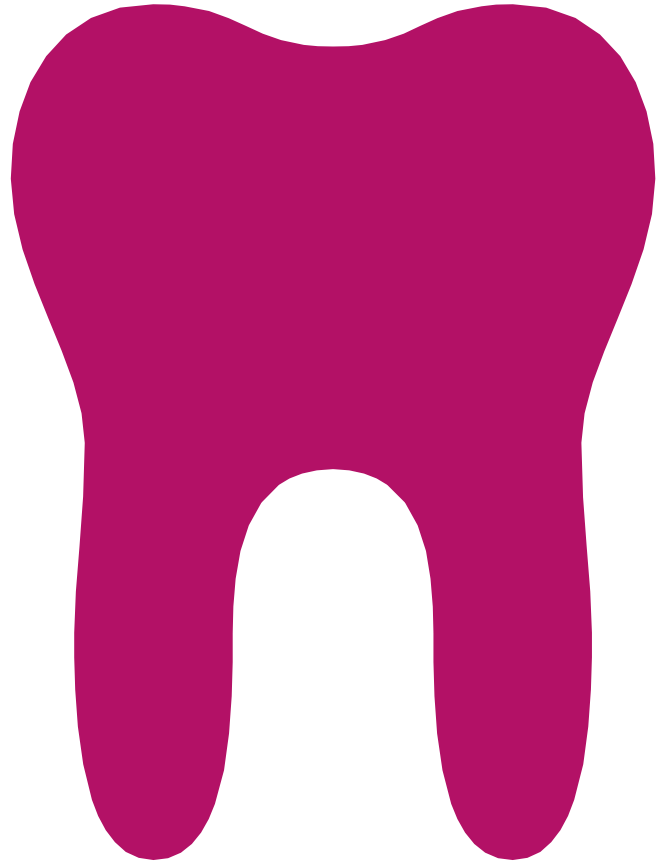
Develop	• Develop adequate size flaps
Use	• Use minimal force for retraction of soft tissue
Use	• Use a blunt instruments (retractors for reflection)
Avoid	• Avoid application of surgical instruments from the palatal/lingual side
Avoid	• Avoid using a very hot instruments after autoclaving.
Avoid	• Avoid overheating of the turbine while drilling.
Avoid	• Avoid touching soft tissues with burs while drilling.
Avoid	• Avoid impinging of the lips while extraction posterior teeth with elevators or forceps.

Injuries to adjacent teeth, to osseous structures, to adjacent structures and to regional nerves

- Fracture or dislodgment of an adjacent restoration or crown
- Recognize the potential to fracture a large restoration
- Warn the patient preoperative in case of dislodged restoration or crown
- Use elevators gently
- The assistant should warn the surgeon of pressure on adjacent teeth

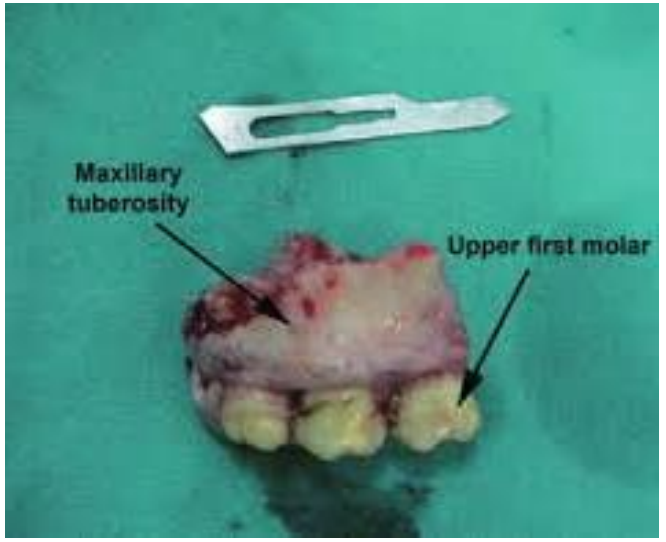
Fracture or dislodgment of an adjacent restoration or crown

- Point of application of an instrument
- Avoid adjacent structures
- If it happens, the patient should be informed:
- Fracture of the crown or restoration of an adjacent tooth that has extensive caries or a large restoration is a common complication.
- Teeth/Restoration in the opposite arch may also be injured as a result of uncontrolled (excessive) forces.
- Luxation or dislocation of an adjacent tooth occurs when a great force is exerted during the extraction, particularly when the adjacent tooth is used as a fulcrum.



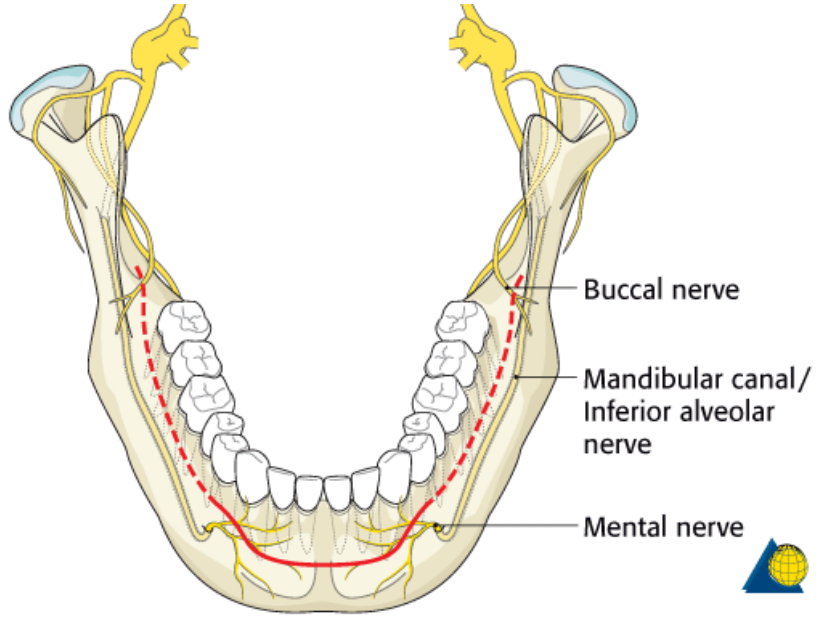
Injuries to osseous structures

- Fracture of the alveolar process
- Fracture of the maxillary tuberosity
- 1. Prevention by use surgical extraction (not usually) if high probabilities of fracture exist
- 2. Do not use excessive force (point of application and proper angulation of the instrument).
- 3. Proper preoperative clinical and radiographical examination of the surgical site of the extraction socket



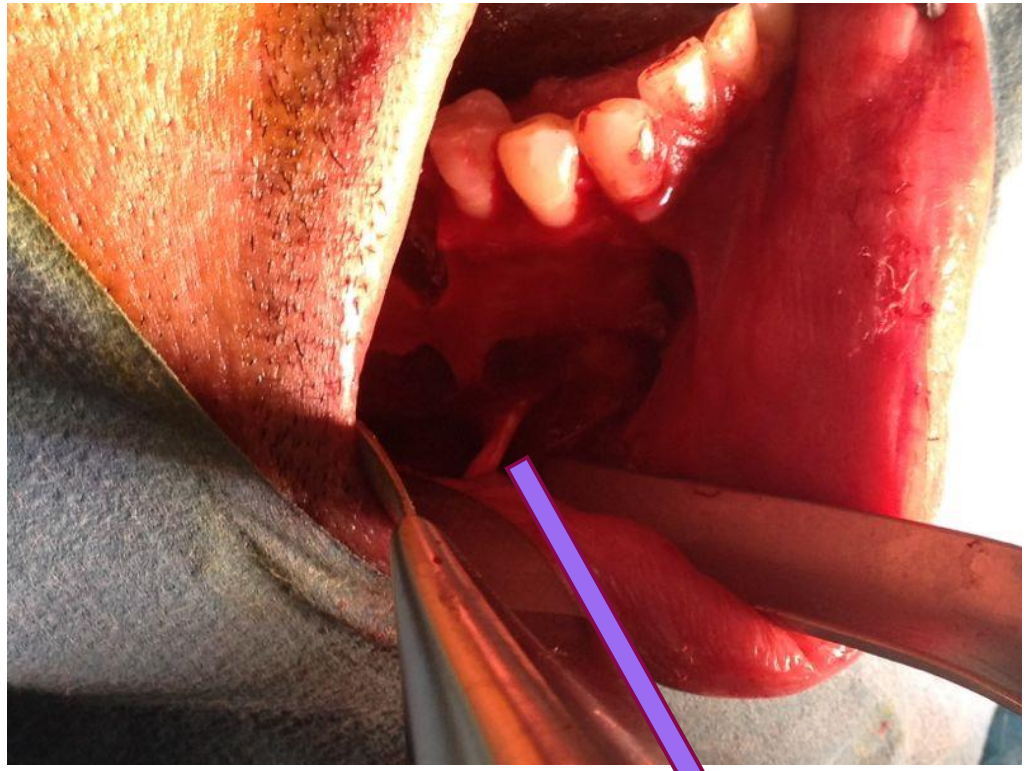
Injury to regional nerves

- Prevention:
- 1. Awareness of the anatomy of the face and neck
- 2. Avoid making incisions or stretching the periosteum in the nerve area



Nerve Injuries

- **Injury to regional nerves during surgery in the mandibular premolar, lower 3rd molars, maxillary teeth. (extraction, flap reflection or implant placement)**
- Branches of the maxillary nerve of the trigeminal.
- Branches of the mandibular nerve of the trigeminal.
- Attention to the anterior looping of the mental nerve

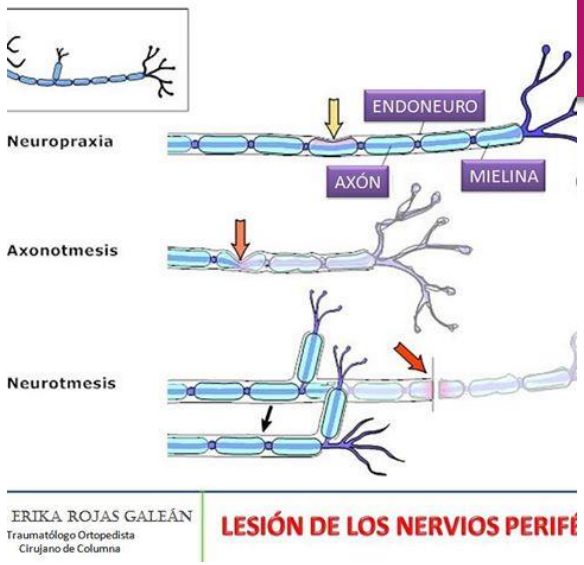


Nerve injuries

- Classification of Nerve Injuries
- Seddon Classification: Described 3 types of nerve injuries –based upon the severity of tissue injury, prognosis for recovery and the time frame for recovery. Neuropraxia, Axonotmesis and Neurotmesis
- Neuropraxia is a common block resulting from a mild insult to the nerve trunk (hours to several days)
- Axonotmesis is a more severe injury than neuropraxia. Afferent fibers undergo degeneration but the nerve trunk is grossly intact with variable degrees of tissue injury. There is rupture of nerve fibers in an intact sheath The time course for sensory recovery is dependent on the rate of axonal regeneration; it is usually several months.
- Neurotmesis is a severance of the nerve and is the most severe injury of the nerve (complete cut)

Nerve Injuries

- Peripheral nerves of the face that have undergone neuropraxia or axonotmesis generally spontaneously recover, however there are nerve injuries for which treatment by an oral maxillofacial surgeon trained in micro vascular surgery is warranted.



Extraction of a wrong tooth

Extraction of a wrong tooth!! : how to prevent it ?

Focus on the procedure, check with the patient and the assistant to ensure that the correct tooth going to be removed

Check then recheck, images and record to confirm the correct tooth number

What to do if it happens? Treatment and medico-legal issues

Extraction of a wrong tooth

- Tooth should be replaced back (re-implantation) into its socket and should be splinted
- Tooth should be kept under-occlusion and patient instructed to have soft diet
- Medication
- Follow up(vitality testing)

Other intraoperative complications of exodontia to be continued in lecture 2

- Thank you