Principles of Surgery

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Prior to Surgery, Develop A Diagnosis

Obtain accurate history and collect relevant data.

Physical Exam

Consultation when needed

Generating Provisional Diagnosis and/or Differential Diagnosis

- Spot Diagnosis
- Pattern Recognition
- Self Labeling - Pt tells us what they think is going on. May or may not be correct.

Testing the Diagnosis - is it the most concise diagnosis?

Make a Final Diagnosis - Proceed with the best treatment for the diagnosis.

- Diagnosis by Exclusion = Ruling out the diagnosis of other diseases.

Developing A Diagnosis

Accurate History and Physical Exam

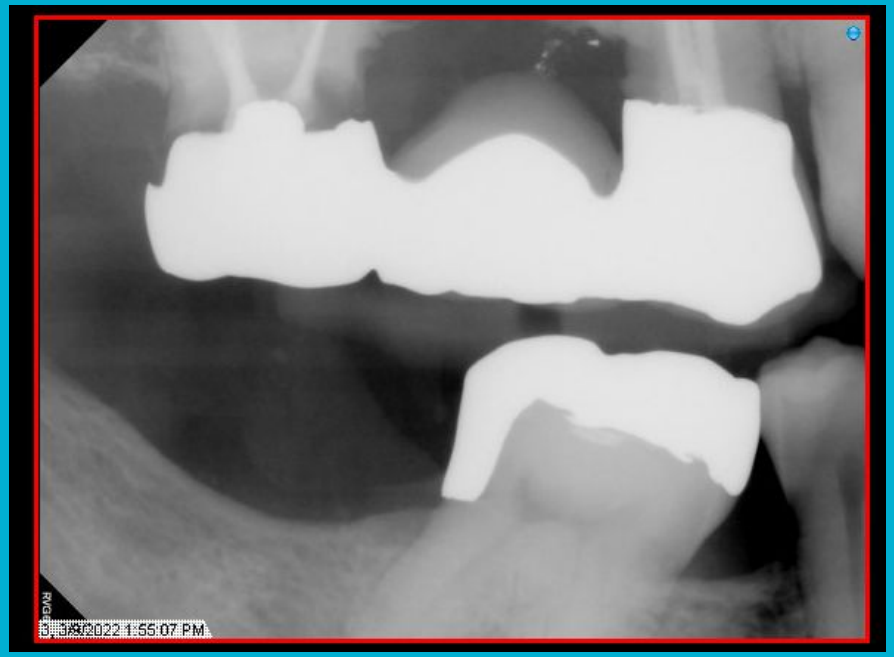
It's not complete till you review it with the patient yourself.

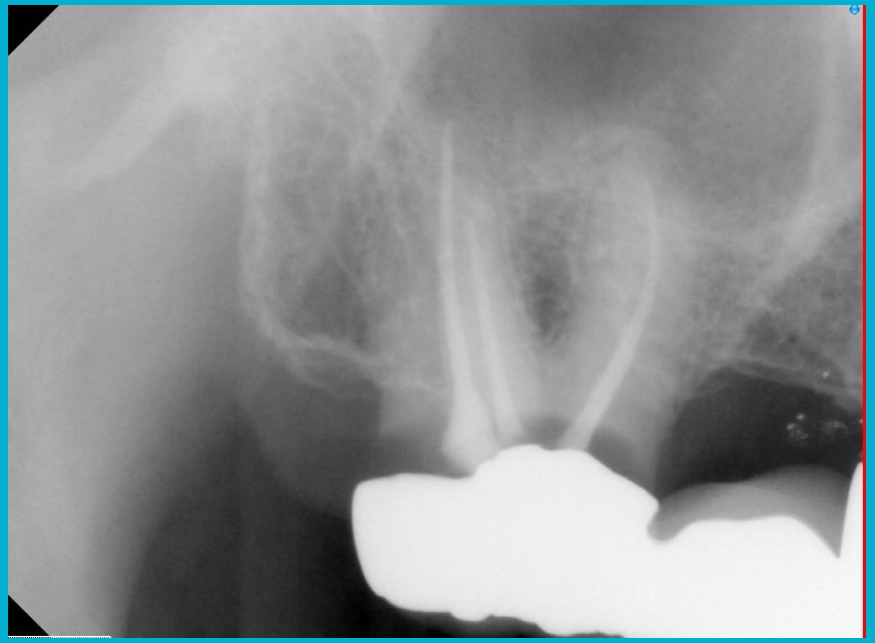
Ask Yourself:

"What's Important" in the history and exam?

How does it affect anesthesia, surgery, post op?

Diagnostic Radiographs - The teeth in question and surrounding anatomy.

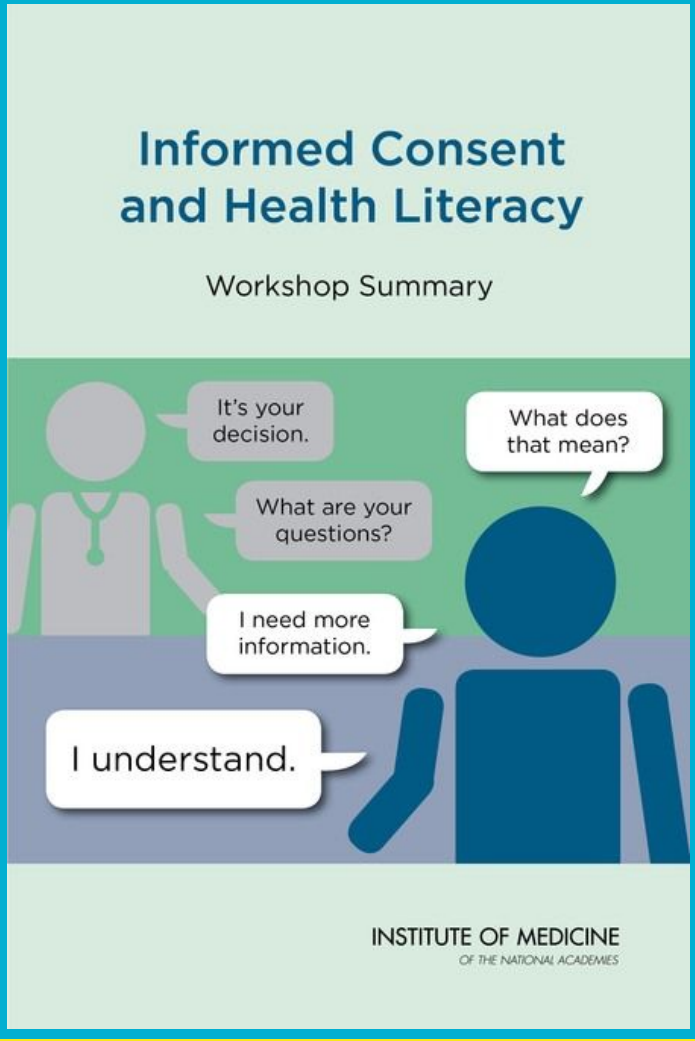




Informed Consent

PARQ

- Problem
- Alternatives
- Risks
- Questions



Basic Necessities for Surgery

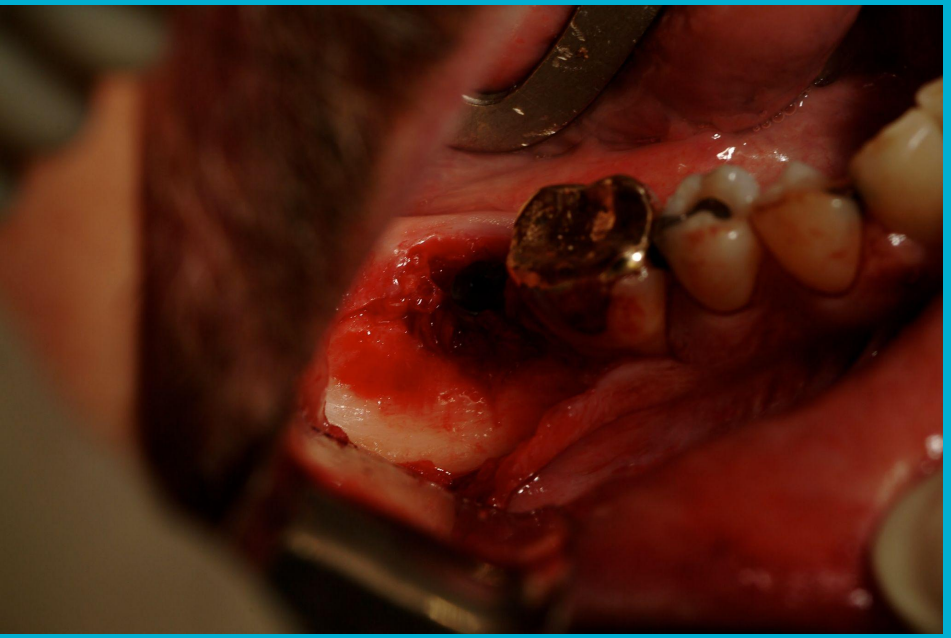
Adequate Visibility - Loupes.

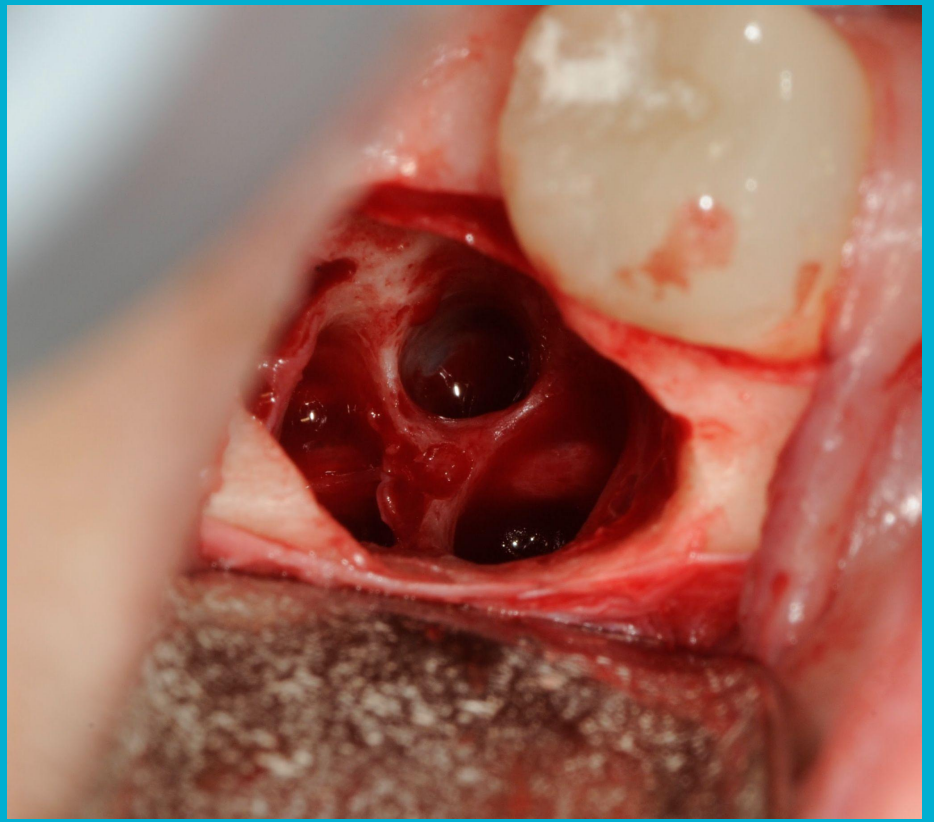
- Access - Adequate retraction.
- Light - Bring your headlight.
- Surgical Field Free of Blood, Fluid and Excess Debris. - Use the surgical suction tip.

Good Assistance

Patient Position and Mouth properly open.

- Upper teeth - Upper plane of occlusion perpendicular to floor.
- Lower teeth - Lower plane of occlusion 30 degrees to floor.





Aseptic Vs Sterile Technique

Aseptic Technique - Using practices and procedures to prevent contamination of pathogens.

> You are living it :-) Head covers, gowns, mask, shields, gloves , clean instruments (often sterile), patient prep/mouthwash.

Sterile Technique

> Betadyne scrub to render surface free of pathogens, sterile operating field with sterile towels and/or drapes to set it apart, only personnel properly scrubbed in sterile garb involved, sterile instruments.

Incisions

Start with a sharp blade.

- The blade dulls the more you use it or the greater the resistance of the tissues it encounters.
- This includes pushing the sharp end of the scalpel blade against the instrument tray to seat the blade in the handle.

A single firm continuous motion with the scalpel.

- Repeated, tentative strokes of the scalpel increases the amount of damaged tissue in the wound.

Incisions

Incisions should be made in healthy tissue.

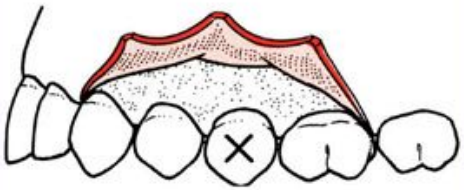
Where possible make incisions in keratinized tissue.

When making incisions around teeth, place the incision in the gingival sulcus when possible.

Types of Flaps

Fig. 1

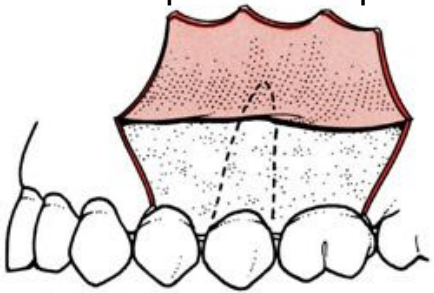
Envelope Flap



The basic incision for exodontia is a sulcular incision that is sufficiently extended to allow access to the surgical site, while avoiding excess tension that can tear the flap.

Fig. 2

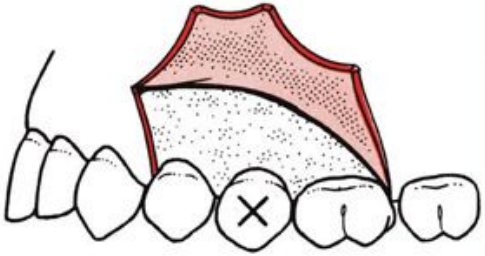
Trapezoidal Flap



A properly designed surgical flap is wider at its base to ensure adequate blood supply to the margins of the incisions.

Fig. 3

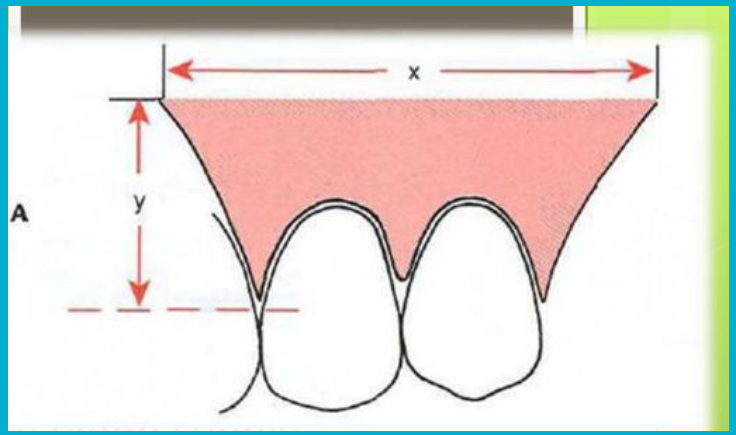
Triangle Flap



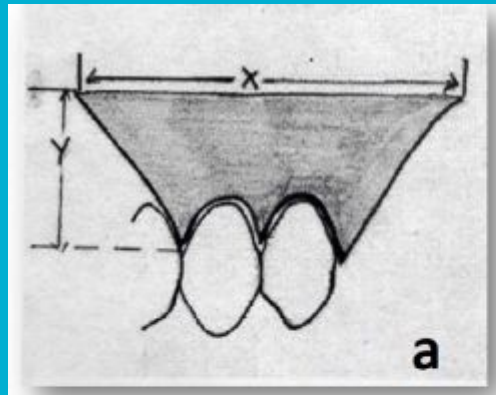
When access to the more apical region of the alveolus is needed, a vertical releasing incision can be made. The direction of the vertical release is made in consideration of ensuring adequate blood supply.

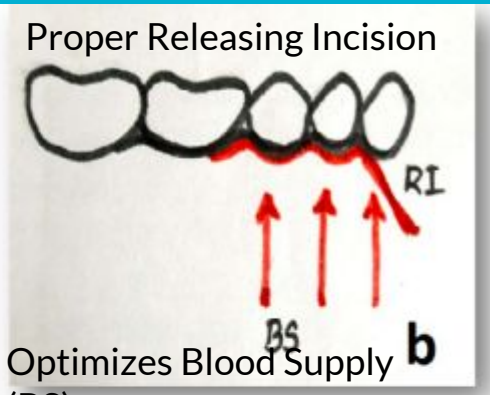
Blood Supply Comes from the Base of the flap

Flap Design



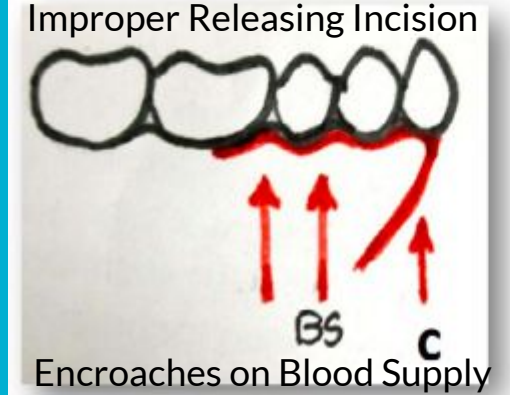
Base (x) , should be 2 times as wide as height (y).





Optimizes Blood Supply (BS)

Improper Releasing Incision



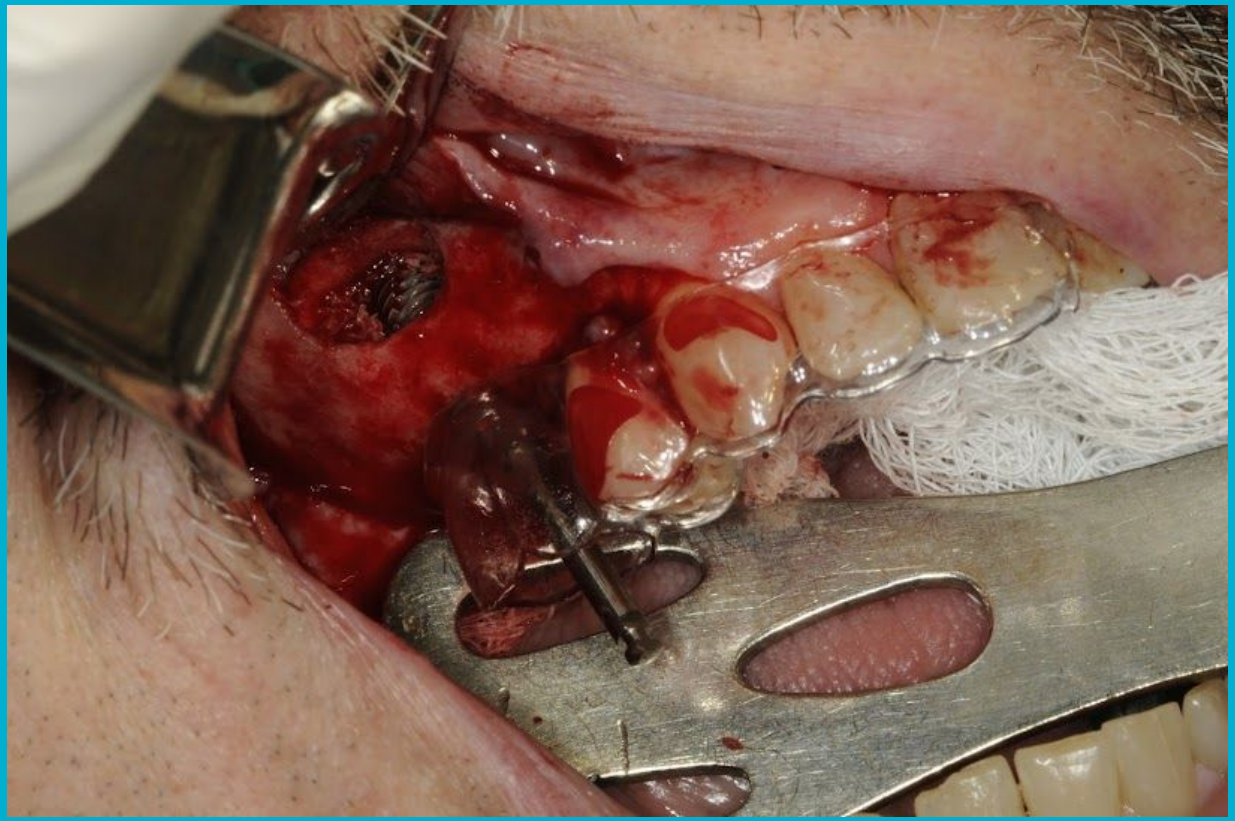
Encroaches on Blood Supply (BS)

Tissue Handling

Handle tissues carefully

- excessive pulling or crushing of tissues leads to more surgical trauma/post op pain and swelling.

- Over-retraction inhibits the blood supply, compromising good healing.

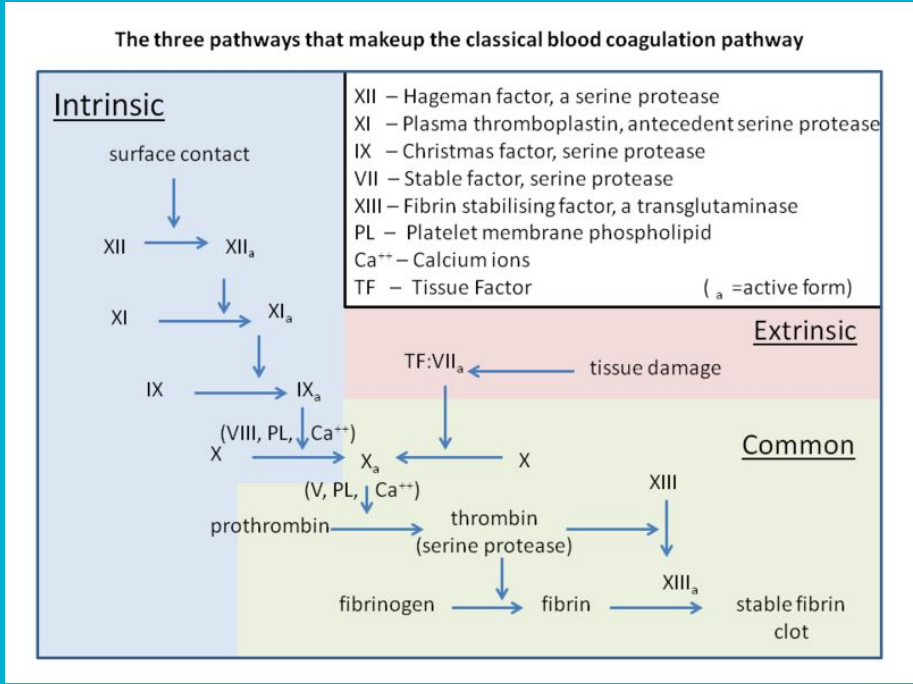


Hemostasis

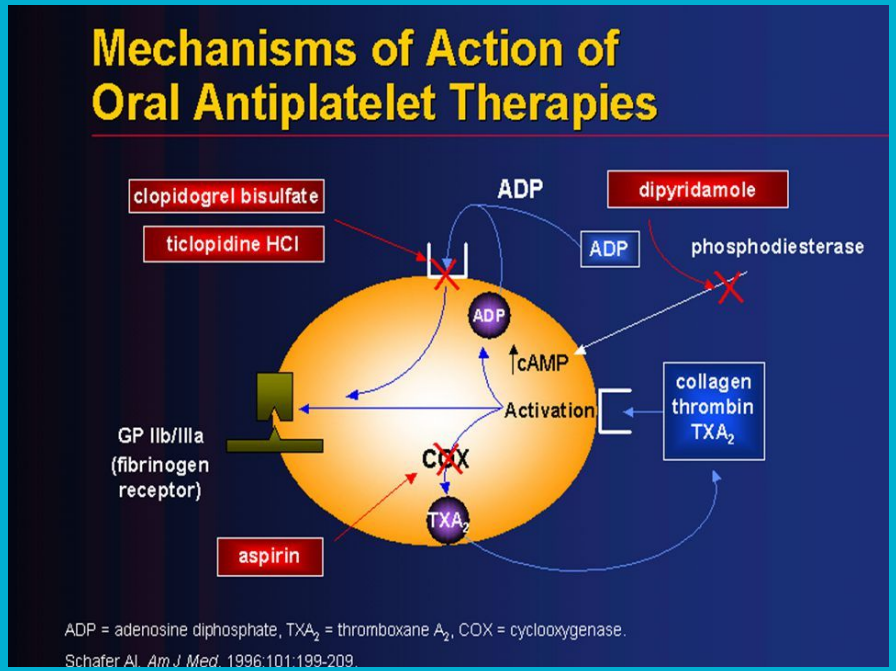
How to Achieve Hemostasis.

- Injecting Vasoconstrictor - Epinephrine.
  - Helps with visibility through decreasing bleeding. Injecting liquid between bone and periosteum helps with the dissection.
- Pressure on the Wound - Manual Pressure or Biting on Gauze.
- Suture ligation - Tying off vessels directly or indirectly.
- Heat/Coagulation - Cauterizes and seals bleeding ends of tissue.
- Hemostatic Agents like Gelfoam or Surgicel.

“Blood Thinners” - Examples: Warfarin or Eliquis
Works on this pathway.



Antiplatelet Therapy



“Blood Thinners” vs Antiplatelet (Aggregator) Therapy.

Wound Repair

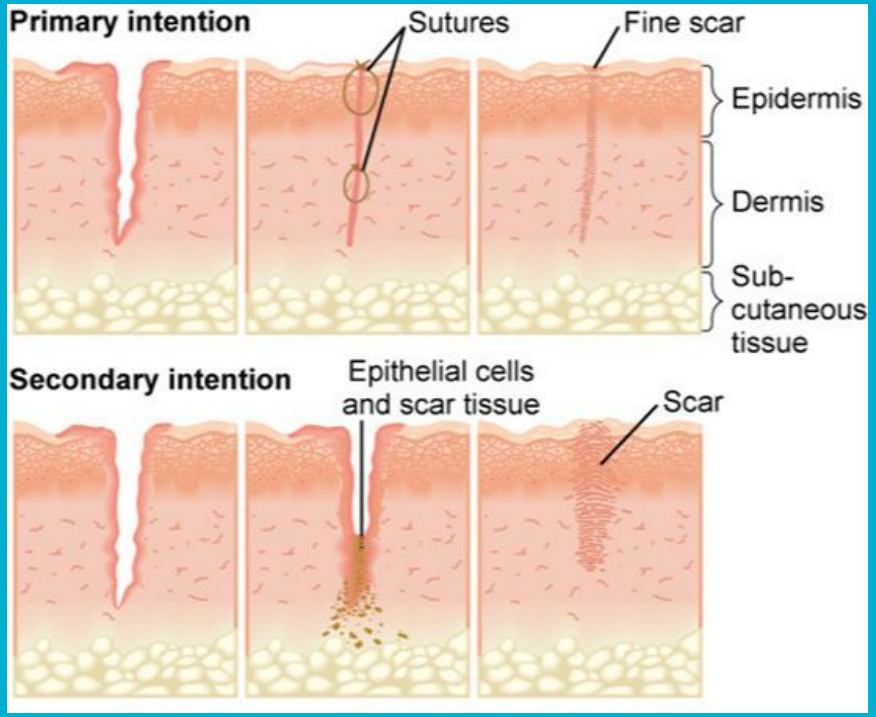
Normal Wound Healing Process

Phase	Cellular and Biologic Events
Hemostasis	1. Vascular Constriction 2. Platelet Aggregatin/Degranulation, and Fibrin Formation (Thrombus/Blood Clot)
Inflammation	1. Neutrophil Infiltration 2. Monocyte Inflammation and Differentiation to Macrophage 3. Lymphocyte Infiltration
Proliferation	1. Re-epithilialization 2. Angiogenisis 3. Collagen Synthesis
Remodeling	1 Collagen Remodeling 2 Vascular Maturation and Regression

Timing of Wound Healing

Hemostasis and Inflammation	Proliferation	Remodeling
Platelets Neutrophils Macrophages Lymphocytes	Endothelial Cells Epithelial Cells Fibroblasts	Fibroblasts
1. Platelet Aggregation and Degranulation 2. Chemotaxis of Inflammatory Cells	1. Angiogenisis 2. Formation of Epithelial Layer 3. Collagen Synthesis 4. Granulation into the Wound 5. Contraction of the Wound	1. Scar Formation 2. Collagen Crosslinking
Injury to Day 3 to 5	Day 7 to 21	After 21 days to Months

Primary Vs Secondary Repair/Intention



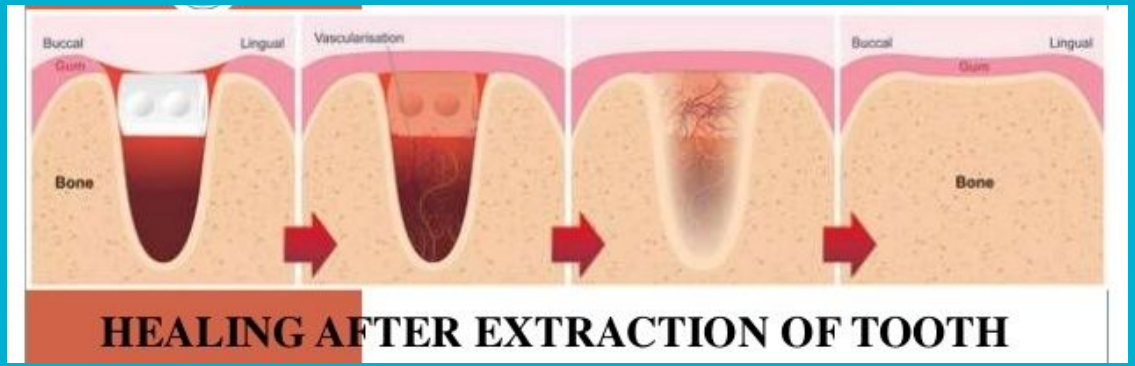
Immediately After Extraction (Hemostasis): Socket Fills with Blood and Clot Forms.

During week One (Inflammation):

> Inflammatory Phase to remove contaminating bacteria and break down debris in socket. Fibroplasia begins with ingrowth of fibroblasts and capillaries. Epithelium Migrates down socket wall to encounter epithelium on other side or bed newly forming bed of granulation tissue (tissue filled with immature capillaries and fibroblasts).

Second Week (Proliferation): Large amount of granulation tissue fills in socket. Osteoid deposition along alveolar wall.

3rd and 4th Week (Remodeling): Epithelization usually complete. Cortical bone continues to be resorbed from crest and socket walls and new trabecular bone laid down across socket. Not until the 4th to 6th month is bone healing complete .



Dry Socket

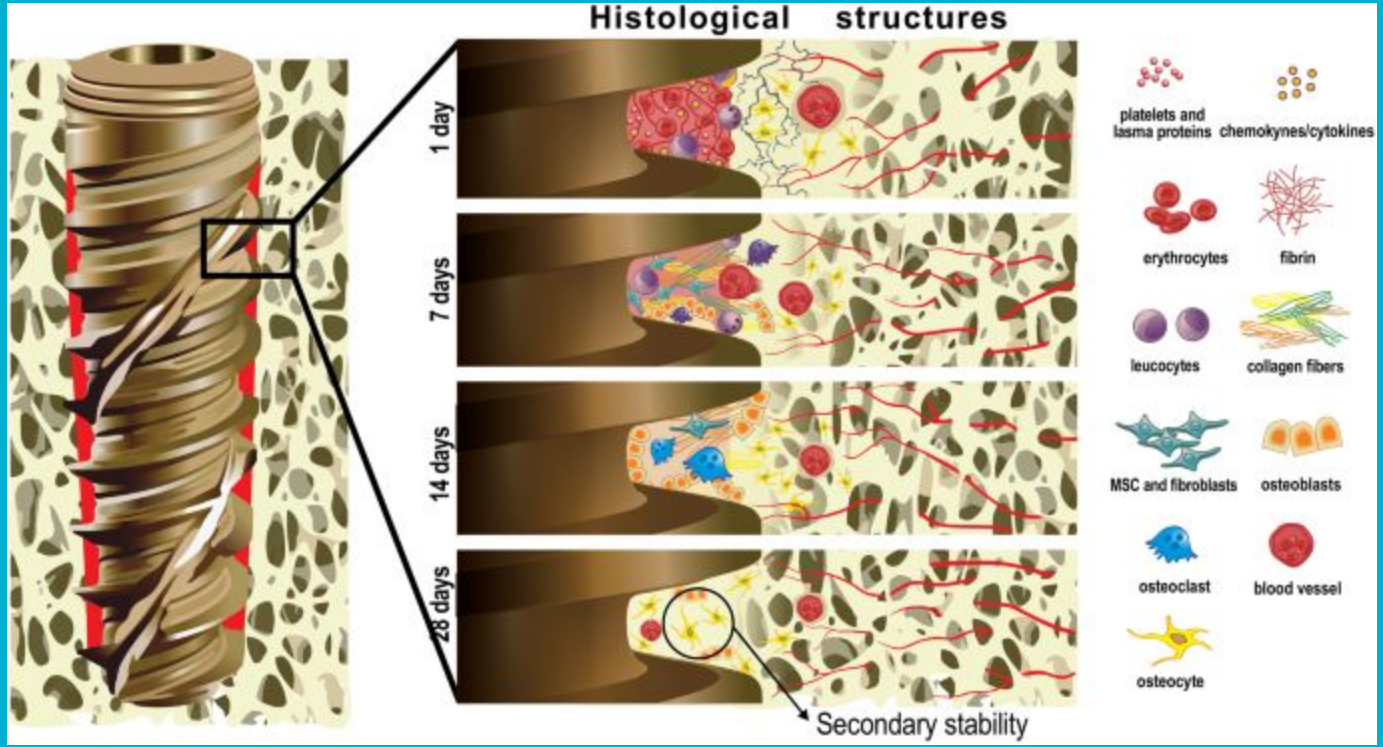
Causes

- Bacterial Contamination
- Difficult Extraction

Risk Factors

- Smoking
- Inadequate Home Care
- Older Patients
- Previous Dry Socket
- Oral Contraceptives
- Infection at time of Extraction

Osseointegration



No down growth of epithelium. Direct bone healing against the implant with no intervening scar layer.

Read Your Text for These Topics on Your Own

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Chapter 4

Nerve Healing and Repair. (pgs 52-55).

Chapter 5

Communicable Pathogenic Organisms (pgs 56-58).

Bacterial/Viral/Mycobacterial Organisms

Surgical Staff Preparation. (pgs 64-67).