***PART 2***

***how to manage intra-operative hemorrhage ?***

1-pressure , we determine the location of bleeding that will stop the blood flow in the severed vessel , 2-and then put a suture distal to the bleeding area

sometimes if we have excessive bleeding froma surgical wound,and you know there are no main arteries here , so it might be a site of a capillary plexus

so if we have minor areas of **exessive bleeding** sometimes we need to apply cold pressure and not only pressure such as putting the gauze in iced water and keep it there for several minutes .

and theres another problem which is , **slow constant blood flow** , which the bone sometimes bleed and the problem here that we cant suture the bone

and it might include also soft tissue .

sometimes during the surgey while doing simple graft ,the area might show constand bleeding but not pulsating ( pulsating :the same as the heart , sometimes it shoots blood ) and it might ooze blood , so in ***that case we can use hemostatic agents such as :***

1-epinephrine

2-surgicel which is its trade name .

(oxidative cellulose) its component .

its looks like a gauze and its sticky(its packed at the wound site , and you can put a suture above it in order to stabilize it ) we use it in

**surgeries ,**

 **exrtraction of wisdoms when theres still bleeding ,**

 **perio ,**

**donor site ,**

 **harvest site**

3-anesthesia , but what its problem ?

its initial action is vasoconstriction , and then it causes vasodilation .. so we use it only to clear the area and make it visible so we can see clearly

**(INTRA\_OPERATIVELY ONLY )** .. but if you have finished the surgery and still theres bleeding and you want to dismiss the pt , you cant use it

because as sooon as the pt gets home , there will be bleeding again.

**4-collagen plugs .**

its either of a square shape , or as the shape of the socket and the good thing about them that they are resorbable and they are easy to use , although they are a bit expensive but they do the job

all these four types mentioned above are used in 1-capillaries 2- small blood vessels 3- deep wounds

but they have certain problems ,

1- if we have deep wound they might prevent the sterilization

2-some types it might get infected due to food impaction

what about thrombin ?

its a clotting agent , its good and it works , but you have to make sure that it wont cause allergy to the pts . and we have to make sure that we didnt give it into a vessel , as it causes strokes and eventually death .

**so what are the predisposing factors for bleeding ?**

***1-medical conditions***

A) hypertention , which the blood has more tendency to be profound ( not likely to be factor in perio surgery )

B) blood dyscrasias: hemophillia ,thrombocytopenia , myeloproliferative disorders . all these causes clot formation problems

c) medications ,warfarrin, heparin , aspirin , alcohol is a vasodilator , some antibiotics too .

if youre pt drinks alcohol, you have to tell him not to drink 2-3 days after surgery cause it increases bleeding tendency

**what we do if the pt is under warfarrin ?**

we have to measure the INR for him

consult with his physician to know his theraputic level . becasue the normal value differs from case to another

some pts they have to have it 3.5 , others are good with 2-3 INR ( most cardiac conditions are between 2-3)

in perio they are ok to do the surgery under 3

you always have to do the procedures in the morning , not at weekends in cases of emergency because people are not approchable at that time

so our local measure are

**pressure ,**

 **LA with epinephrine ,**

 **electrocautery you can cautarize the area with electrosurgery**

**oxidized cellulose**

**collagen plugs**

**bone wax** :its good for bone bleeding , its actually a wax you put on bone that stops the bleeding

**bone crush** . you crush the area of bleeding by appplying pressure using the bone itself

**acrylic stent** . some areas orally , we cant stop the bleeding by pressure or suture , where theres no enough tissues to approximate

and it will heal by secondary intention , such as the palate . when you take a graft from the palate , it will stay opened

you can put a plug or cellulose but it will delay healing and it becomes painful .

so you take the impression , and at the day of surgery the stent will be ready to be delivered . the stent acts as the hawleys retainer, with adams clasp but without the bow

you put perio pack or gauze to numb the area then deliver the stent at the site of surgery

[perio pack is ZOE , and it modified to be ZO non EUGENOL , due to its allergy ,

its a rubber material , you apply it on the area inter-proximally for retention and usually it stays there until you take it off .

PHARMACOLOGICAL MANAGEMENT.

in cases when we need to give drugs , such in hemophillic pts we give them certain factors , and their platelet has to be of a minimum of 50,000 in order to go for a surgery . and its favorable to do it in the hospital .

most common deficiencies

**hemophillia A and B , are factor 8 and 9 deficiency and**

 **von willi brand disease** :platelet adhesion and factor VIII deficiencies

you either give factor 8 as it is or you give cryoprecipitate which is obtainable from whole blood , ½ the activity of fresh frozen plasma , but 1/10 of the volume

according to factor 8 you should maintain it above 50% for 10-14 days

DESMOPRESSIN , it actually stimulates the release of VWF factor and factor 8

**Its given**

1- orally

2-nasally

3-parentally

Its usually for mild cases , minor procedures

Fresh dried concentrate plasma which contains various concentration of factor 9

**Fibronytic inhibitors** it inhibits plasminogen activation

***#tranexamic acid***

As we remember the clotting cascade , as plasminogen transfers into plasmin, and eventually fibrin clots is formed ..

Available : 1- orally (its good because in the saliva we have agents that break the fibrin , so it actually reduces clotting )

2-parentally

5g during first hour of surgery followed by 1g/h for 8 hours or until hemostasis

**Again to tranexamic acid , its easy to buy its available** as

1-mouthwash ( 1 prior to surgery and 2-8 post op ) BUT , we always tell pts not to swish their mouth post op ?? we tell them to use the mouth wash , put it in their mouth and lean to the side of the surgery only without swishing .

2-tablets (given few days before surgery )

**LA Toxicity ,** as we all know LA has a maximum dose , and u know that vasoconstrictor has another maximum dose . usually the effect of the LA on Cardio vascular system

**\_CVS effect**

Bradycardia ,hypotension , circulatory collapse .

**\_CNS effect**

Initial effect ( same as alcohol )

Stimulation , agitated ,anxious , tremors and they get uncomfortable

As the dose keeps increasing , cns depression will eventually take place

WHats the ultimate problem in Anesthesia,sedation and GA ?

Its breathing , it might cause respiratory depression with overdose .

LA toxicity can also happen if we inject the needle **intravascular ,**

Its characteristics : rapid onset , high intensity of symptoms and of short duration

But **overdose** toxicity : slow onset , the severty increases with time with a long duration

Another problem that we might face , even though we gave the LA with a proper dose and an exact location but the pt himself has absorption problems and problems in kidneys such as rapid resorption , slow biotransformation or elimination .

**So whats the management of LA toxicity**

1-prevention

2-always aspirate

3- always give injection slowly 60/cartdige

4-thourough medical history

And we manage it accord to the severity and how it did happen

**In most cases it mild and brief .. if it happened**

1-terminate procedure

2-reassure pt , position him comfortably

3-abc

4-activate emergency IF needed

**LA allergy**

Its very **rare ,** it happens in esters more than amides , and due to the preservative component of the LA

So if you suspect allergy use a preservative free solution

**Epinephrine overdose ,**

It’s a vasoconstrictor , sympatho-mimic agent ,,it raises the blood pressure and heart rate

**How do we manage it ?**

1-prevention

2-medical history of the pt

3-monitor the blood pressure of the pt and make sure that the heart rate and blood pressure are back to normal before you dismiss the pt .

Other complications are the NERVE INJURIES

Mental , lingual , ID , infra-orbital

The problem is in the mental and lingual nerves as they are not protected by bone

If you raise a full thickness flap , these nerves will be included with the tissues , so its not really a big deal but if you’re doing a partial thickness flap you might injure the nerve

And in **atrophic redges** the mental nerve will be close to the surface (more occlusal ) it usually has 3 branches and sometimes 5 , even if youre doing a **surgery to the lip** , you can easily cut it away , if you plan to do an **implant** , you have to take a cone beam to know exactly where the nerve or before you do ur implant you open surgically and see the exact location of the nerve .

**Because the lingual nerve might be close to the third molars roots , its hard to do crown lengthening to the 8s**

**You have to be very careful lingually**

**Whats the most common complication that the pt comes complaining from after perio surgery ?**

**its recession** , so if youre doing a surgery anteriorly , go palately and don’t do a labial flap to avoid recession , and if youre treating a young pt with aggressive periodontitis , you must inform him abt this complication before you start

S**ensitivity** also is a common complication

**Post op. care**

**Wound care and oral hygiene**

\*Chx is given post op ( because the pt is allowed to brush all his teeth 1 day post op except the area with the surgery site ) 2 twice a day , 30 second for 1-2 weeks maximum , because of its **staining side effect** if the pt has rough surfaces , the pt might come with staining only within 2 weeks

\*If the bleeding persists , tell the pt to put tea bag with pressure

\* not to east crumzy food , coffe , hot drinks or food

**\***avoid smoking

**Infection**

if edema was immediately after the surgery , ( developed within 24 hour after the surgery ) then its post op edema , but if edema developed 3-4 after the surgery then you suspect infection

so we might need to give a stronger antibiotic , and you have to check for other signs

 fever , malaise , systemic involvement and lymph node involvement

**MEDICATIONS**

**Usually pain killers such as**

Ibuprofen ,

 paracetamol if the pt has asthma allery or bleeding problems or peptic ulcers

narcotics .. not usually given in perio

antibiotics , some of them might cause GI upset such as :clindamycin , amoclan , metronidazole especially in combination with amoxicillin .

voltaren and mefenamic acid are stronger than ibuprofen and very effective , lose doses and very effective

again to the common complications ,

**pain**

**recession MOST**

**infection**

**bleeding**

**hematoma**

**flap necrosis :** which we cant do anything about it just keep it clean until it goes away and then you can do reconstructive surgery and that’s nevery easy

**mobility , if recession is 30% or more its irreversible**

**sensitivity :**

**sequence of treatment**

1-topical fluoride ( but it doesn’t have a permanent effect )tooth paste

2-varnishes

2-bond

3-GI

4RCT

5\_graft

The dr asked about whats the special component of sensodyne that makes it used for sensitivity ?

Potassium nitrate

Sorry for being late .

please refer to the slides while you’re the sheet

Aya abd al-azeez