Alphabets To Reduce Bleeding In Sac Surgery

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Surgery on Lacrimal Sac like Dacryocystorhinostomy (DCR), Dcayocystectomy (DCT), Canalicular tear, canaliculodacryocystorhinostomy, etc are associated with severe hemorrhage during operation often displeasing to almost all the surgeons. Hence to reduce bleeding intra-operatively the following Alphabets can be remembered!

A- Adrenaline, 1: 80,000 in local infiltration anesthesia helps to reduce hemorrhage by constricting blood vessels. Adrenaline with 4% Lignocaine in nasal pack also helps reduce the hemorrhage from nasal mucosa.

B- Bleeding time must be tested pre-operatively and if prolonged must be treated by hematologist prior to surgery to avoid intra-operative hemorrhage.

C- Clotting time is equally essential as it determines clot formation and closure of bleeder by it.

D- Do not operate in presence of active inflammation because hyperemic and dilated vessels bleed more. Also tissue PH changes secondary to inflammation may hamper with the action of anesthetic agents.e.g. Anesthesia may be inadequate or it may wear off rapidly before completion of surgery.

E- Ethmoid air cells if accidentally opened while creating a bony window can cause hemorrhage, as mucosa is not blanched by vasoconstriction or due to damage to anterior ethmoid vessels. Must suspect if mucosa is red and highly vascularised instead of pink due to blanching with adrenaline.

F- False plane of dissection may cause entry in Para nasal sinuses like frontal, maxillary or ethmoid. If mucosa appears red and vascularised it should be suspected and can be confirmed by removing nasal pack and introducing nasal forceps. If the tip can be seen causing movement of nasal mucosa and can be felt with forceps or swab. If Para nasal mucosa is opened the tip cannot cause movement or cannot be felt with swab.

G- Good nasal pack reaching middle meatus soaked in 4% lignocaine with adrenaline is essential for vasoconstriction and minimizing bleeding.

H- Half hour must pass after nasal pack for proper vasoconstriction and hence reducing bleeding.

I- Incision should be done properly, 3 mm to the nasal side (medial) to the inner canthus, 2 mm above medial palpebral ligament, vertical for 4 mm and then outward and downward along anterior lacrimal crest to a spot 2 mm below inferior orbital margin.

J- 'J'shaped incision is undermined along temporal edge but not nasal edge for risk of damaging angular vessels. Gel foam may help to reduce bleeding by promoting formation of clot. It can be cut in small pieces and applied over the site of bleeding.

K- Keep a watch on angular vein and if present in the field of dissecton, avoid sharp instruments and previous injury.

L- Ligation of angular vein can be done to avoid bleeding by accidental injury with instrument during dissection.

M- Muller's self-retaining lacrimal sac retractor help to avoid bleeding from wound edges caught within it.

N- Nasal pathology should be treated before DCR because a polyp or hemangioma in nose may cause profuse bleeding. ENT check up prior to DCR should always be done.

O- Observation of blood pressure prior to and during surgery is essential as adrenaline can precipitate hypertension, which can cause profuse bleeding.

P- Pressure with swab helps to stop capillary bleed.

Q- Questionable anatomy in recurrent surgery and vascularised scar tissue tends to bleed more, particularly if sharp dissection is required to separate firm adhesions.

R- Restrict bone window to area between anterior and posterior lacrimal crest i.e., lacrimal fossa as going beyond it may cause opening in PNS.

S- Sac protector can be helpful for retracting friable wound edges and when angular vessels are very close to the edges. Other instruments used like teeth of Muller's retractor or Cat's paw may

puncture angular vessel leading to severe profuse hemorrhage.

T- Time spent in surgery is important as initial vasoconstriction induced by adrenaline passes away and vessels return back to original diameter within 1 and ½ to 2 hours. Hence to avoid bleeding try to complete surgery within 1 to1and ½ hour.

U- Usually try to do blunt dissection as it separates tissue without cutting open a blood vessel and hence prevents bleeding. If need be then prior to cutting, the tissues should be crushed by small artery forceps (mosquitoes) to reduce hemorrhage.

V- Very frequent sinusitis with sanguineous discharge, in old patients must be investigated for carcinoma of maxillary sinus. It can mimic chronic dacryocystitis by invading the nasolacrimal duct and attempted DCR can cause profuse bleeding.

W- Wax for bone may help to reduce hemorrhage from Bony window. It can be applied over the edges of cut bone.

X- X-Ray preferably dacryocystography should be done in elderly patients with stony hard swelling as it may be a tumor and attempted DCT or DCR can cause hemorrhage.

Y- Young patient with fistulae may bleed more due to inflamed hypertrophic tissue. Pre-operative anti-inflammatory drugs, calcium, Vit.K, Vit.C helps to reduce bleeding.

Z- Zenith of bleeding if angular vessel is damaged and so must prevent it from getting injured. If it is injured must catch and ligate it quickly .If seen in operative field, it can be ligated before proceeding for dissection to avoid injury leading to hemorrhage.

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