

Current Trends In Management Of Epistaxis

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Disclosure:

- No relevant financial relationships
- Mention of products in this presentation does not imply endorsement

How often are you able to control or treat non-self limited case of epistaxis with out cautery or packing.

- A. 10%
- B. 33%
- C. 50%
- D. 66%
- E. 90%

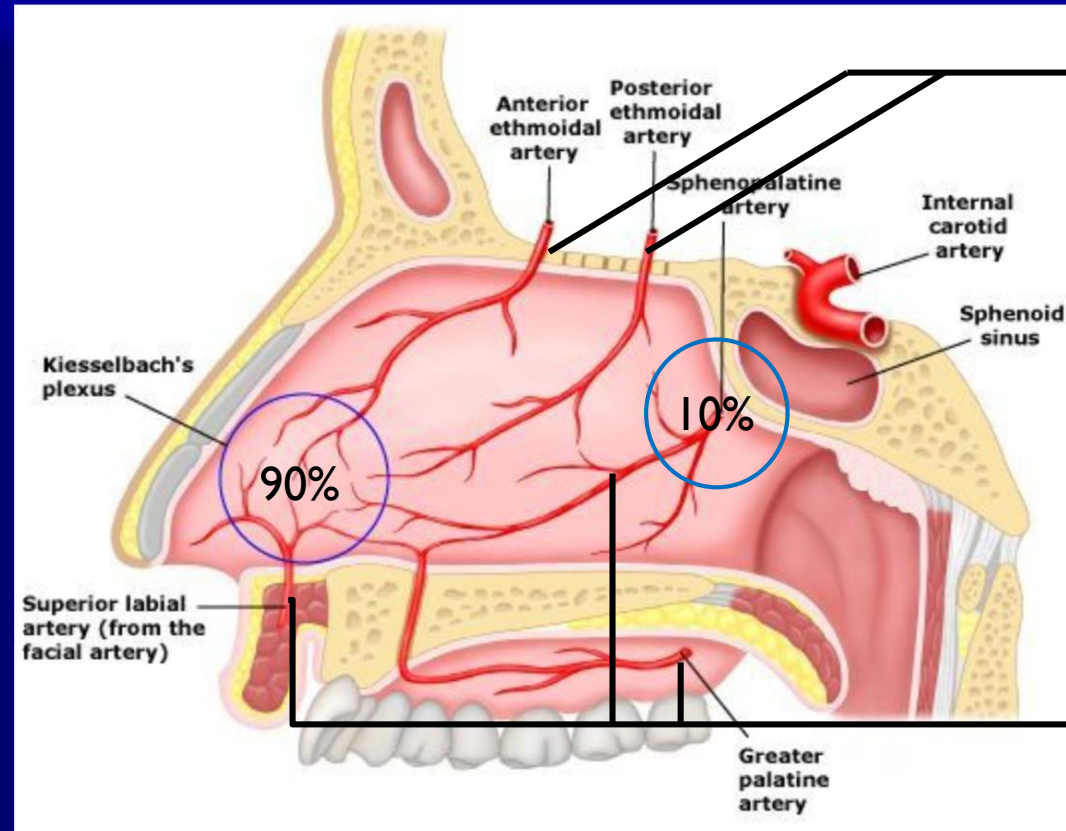
Epistaxis is very common presentation to Emergency Department

- Responsible for approximately 1 in 200 ED visits
- 60% of population experience Epistaxis
- 6% needs medical attention
- 1% admitted to hospital

The distribution of Epistaxis is largely bimodal:

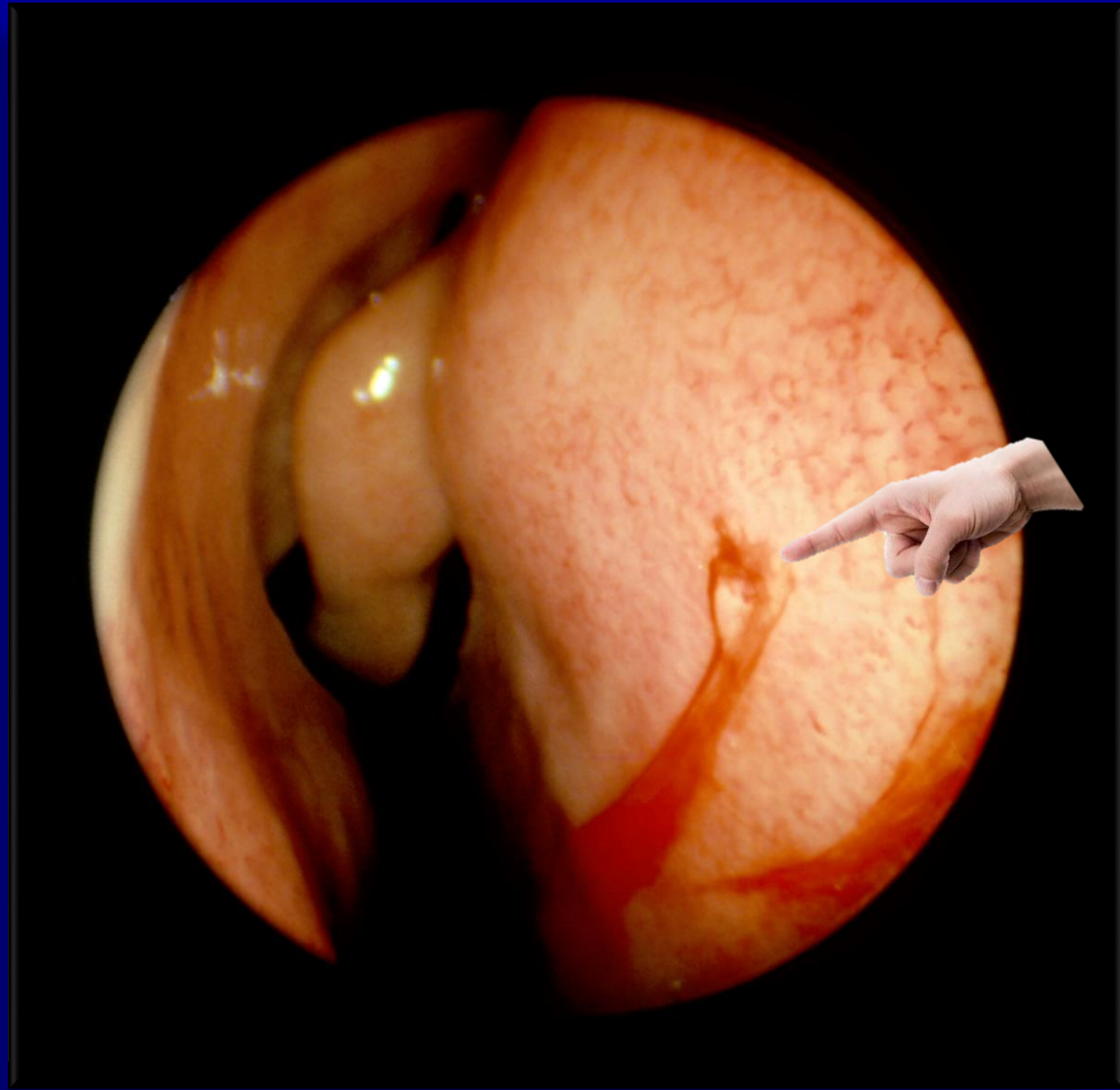
- Before 10 years
- Later between 45 and 65 years old.

Vascular Supply Of Nasal Cavity

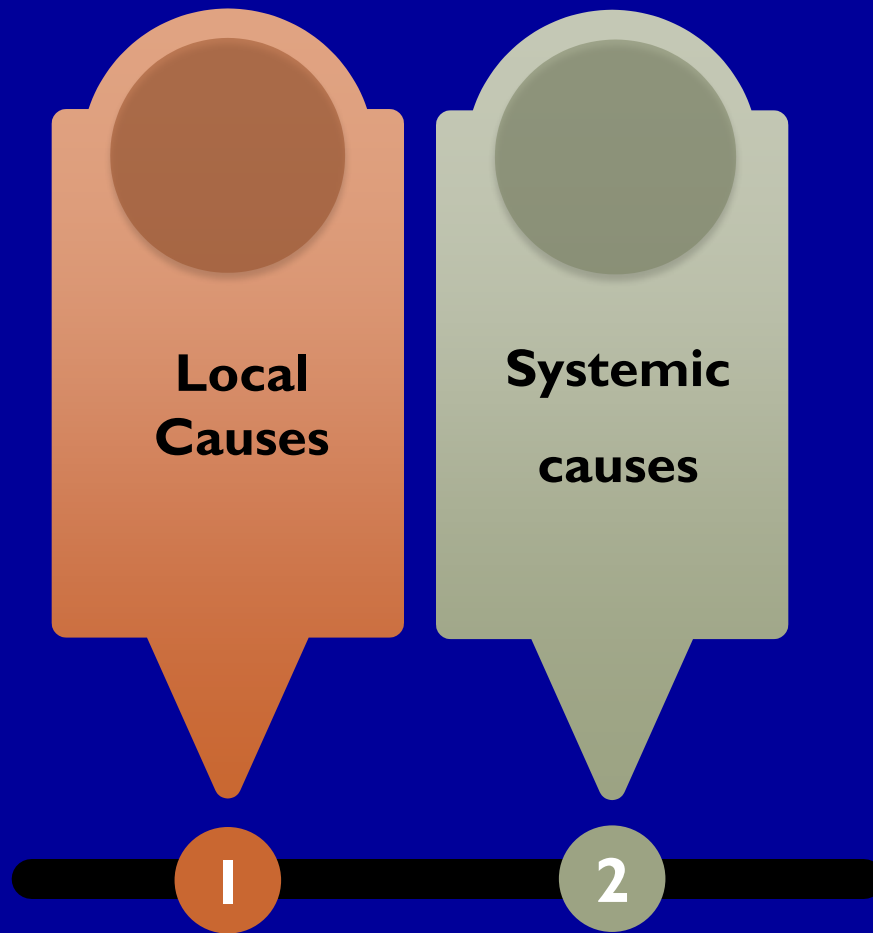


Internal Carotid Artery

External Carotid Artery



What are the causes of Epistaxis?



Idiopathic

85%

1

Local Factors

- Nose Picking
- Nose Blowing
- Nasal Fracture
- DNS
- Nasogastric
- # Skull

2

Systemic Factors

Vascular Anomalies

- AVM
- HHT

Bleeding Diathesis

- Hemophilia
- VWD
- Leukemia

3

Medical Conditions

- Hepatic Failure
- Renal Failure
- Platelet Disorder
- HIV

4

Medications

- Warfarin
- NOACS
- Aspirin
- Plavix
- Illicit Drugs

5

Post Operative

- Sinus surgery
- Septoplasty

6

Medications

- Warfarin
- NOACS
- Aspirin
- Plavix



Australian Government
Department of Health
Therapeutic Goods Administration

Database of Adverse Event Notifications (DAEN)

Drug Class	Reaction term	Number of cases	Single Suspected medicine	Death as out come
Dabigatran	Epistaxis	47	43	3
Apixaban	Epistaxis	25	21	2
Rivaroxaban	Epistaxis	94	84	3

TGA Report between 01/01/2010 - 18/07/2018

Aetiology and Age

- Children - FB, Nose Picking
- Adult - Trauma and Idiopathic
- Middle Age - Tumour
- Old Age - Hypertension



What key historical items are necessary to
obtain for Epistaxis Management

1

Side of the bleeding

- Right or left side or both nostrils
- Unilateral or bilateral
- Which side is heavier ?

Posterior bleeding consider:
Copious amount of bleeding
and hematemesis

Anterior Vs Posterior Bleeding

2

3

Duration and amount of bleeding and previous history

Precipitating events? Trauma?
Intranasal medications.

Medications?

Aspirin, Warfarin, NOACs, Illicit drugs

Medical History.

Coagulopathy, renal & liver failure
Hemophilia, HHT, Recent Surgery?
Any cardiovascular collapse?

4

What Setup items

Do we Need ?



Adult Epistaxis Management

Step I Assessment / Resuscitation (ABC's)

- Monitor
- Protect airway – Sit up and lean forward, clear blood from nose
- Obtain IV access, send bloods if required
- Consider fluid resuscitation if needed
- Personal protective equipment (mask, gown and glasses)
- Organise ENT equipment's / Good light source / Local anaesthetic spray

Step II First Aid / Preparation / Examination

- Digital Compression / Head tilt forward for 10 -15 minutes - Bleeding stopped / Home
- Continue to bleed – Remove clot from the nose /Nose blowing /suction/Forceps
- Apply co-phenylcaine spray 2-3 times in to both nostril or apply soaked cotton ball
- Re-examination of nose for source of bleeding

Step III Able to visualise bleeding spot

- Application of Tranexamic Acid (or)
- Cauterise with Silver nitrate
- Cauterize only if you can see the bleeding spot

Step IV Unable to visualise bleeding spot

Anterior or Posterior Nasal Bleeding

- Application of Merocele (or)
- Application of Balloon (Rapid Rhino) (or)
- Packing with BIPP gauze

- Bleeding stopped
- Observation 1-2 Hours
- Home with instructions if Merocele is applied
- Admit SSW, all patient's with Rapid Rhino / Packed with gauze

Step V Still bleeding Anterior / Posterior Bleeding

- ? Pack failure or Posterior bleeding
- Application of Anterior and Posterior Rapid Rhino Balloon.
- Urgent ENT referral

- Bleeding stopped
- Observe for an hour
- Home with instructions

A stepwise approach to epistaxis management

Step – 1. Initial management of Epistaxis

- ABC Assessment and resuscitation
- Sitting upright, and encourage to lean forward
- Clear clot from pharynx
- An assessment of blood loss and degree of hypovolemic shock
- Venous access and fluid resuscitation (were indicated)
- Gloves, Gowns and Goggles are essential to protect both clinician and patient.
- Organisation of equipment's
- Investigations



Step – 2 Direct therapy

- Topical Vasoconstrictor
- Chemical cautery
- Electrocautery and Electrocoagulation's
- Tranexamic Acid
- Surgicel
- Kaltostat.
- Topical Thrombin Spray / FloSeal

Topical Vasoconstrictors

- Cophenylcaine Forte Nasal spray (Lignocaine HCL 5% and Phenylephrine 0.5%)
- Adrenaline 1:1000 or 1: 100,000 dilution
- Oxymetazoline 0.05% solution
- 4% Cocaine

Chemical Cautery



- Silver Nitrate / Acetic Acid / Chromic Acid
- Silver Nitrate available in 75% and 95% preparations.



- Silver Nitrate (AgNO_3) + Sodium Chloride (NaCl)

Sliver Chloride (AgCl) + Sodium Nitrate (NaNO_3)

↓
Water Soluble



An outcomes analysis of anterior epistaxis management in the emergency department

E. Newton, A. Lasso, W. Petrich, and S. J. Kilty

J Otolaryngol Head Neck Surg. 2016; 45: 24.

A retrospective review of ED visits from Jan 2012 -2014, Tertiary care centre.

Anterior epistaxis – 353 patients

Treatment outcomes for management of anterior epistaxis

Treatment	N (%)	Failure N (%)
Silver nitrate	122 (35)	24 (20)
Merocel	92 (26)	24 (26)
No treatment	54 (15)	11 (20)
Other packing ^a	45 (13)	19 (42)
Other ^b	23 (6)	3 (13)
Nasal clip	17 (5)	10 (59)

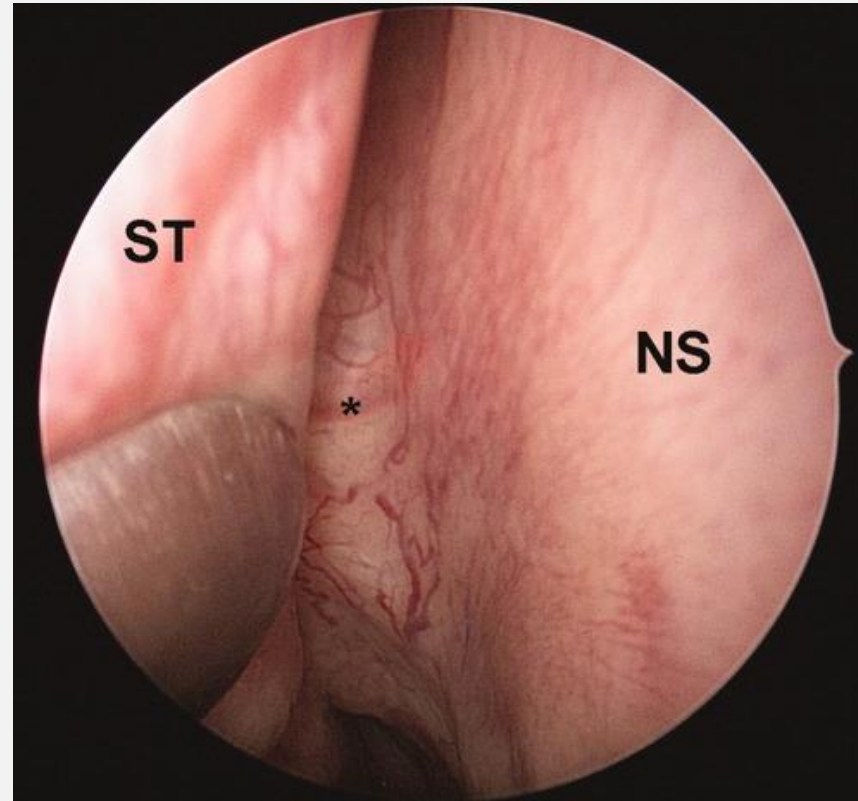
Electrocautery and Electrocoagulation



Toner JG, Walby AP. Comparison of electrocautery to chemical cautery in the treatment of anterior epistaxis

J Laryngol Otol 1990; 28: 211-6.

Direct cauterization of the nasal septal artery for epistaxis

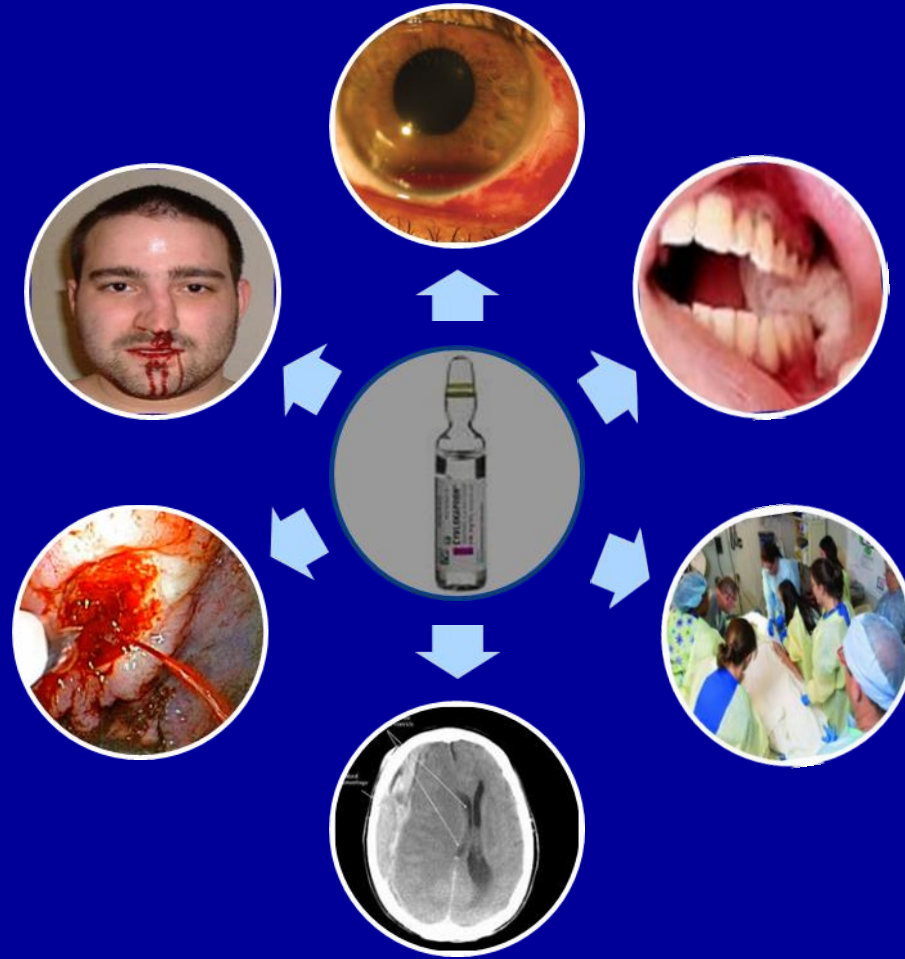


Tranexamic Acid

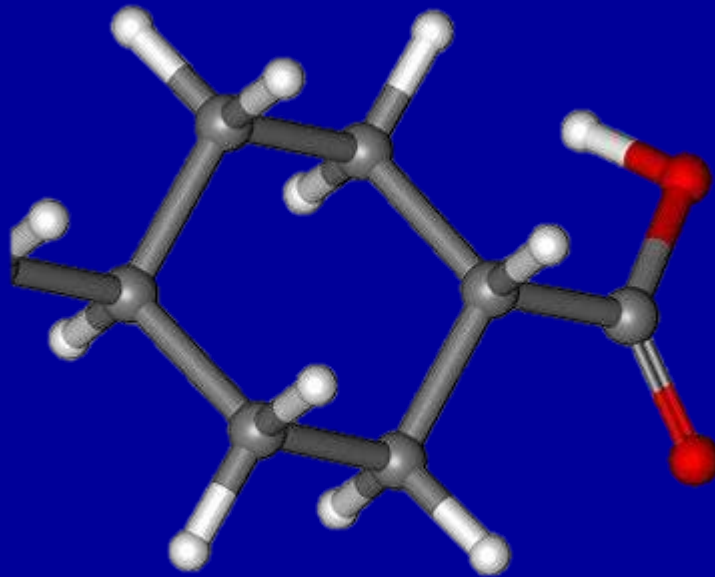
Topical Tranexamic Acid for Epistaxis

“A new use for an old drug”

Multiple application of TXA



What is Tranexamic Acid?

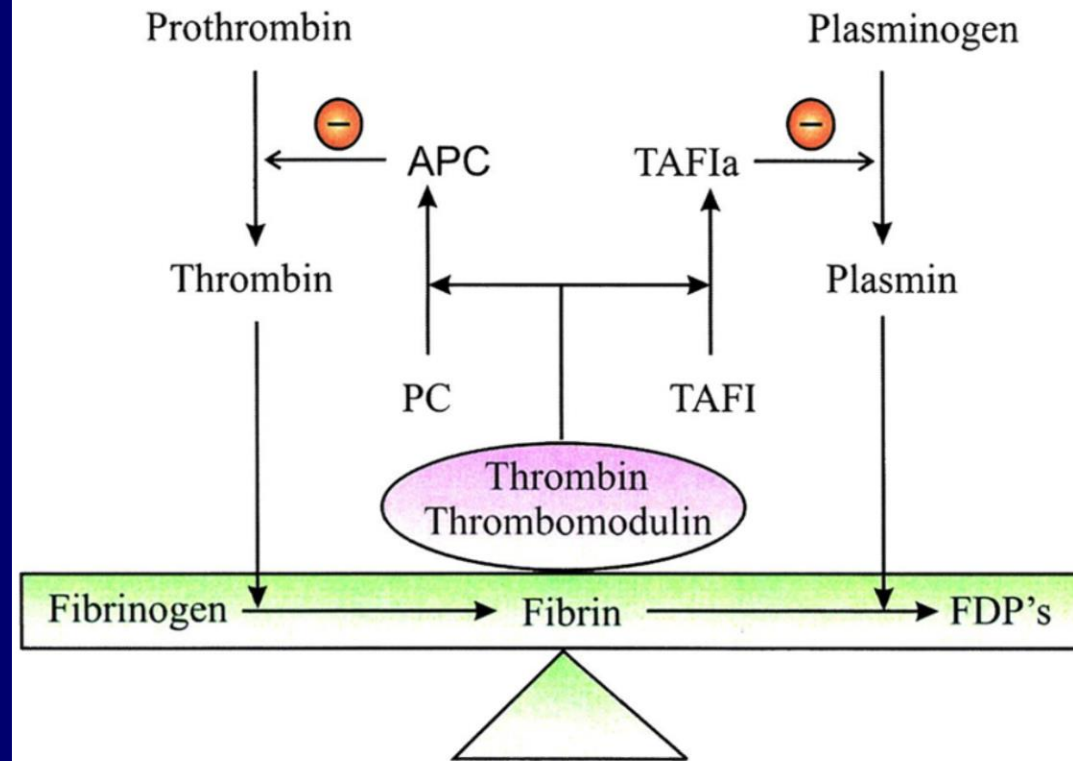


Synthetic form of Amino Acid called Lysine

How does it works?

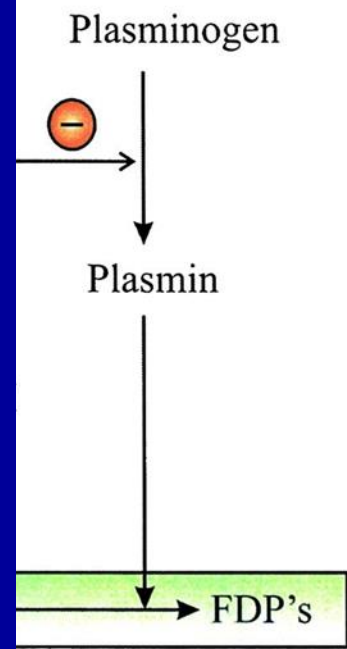
Coagulation Cascade

Fibrinolytic Cascade

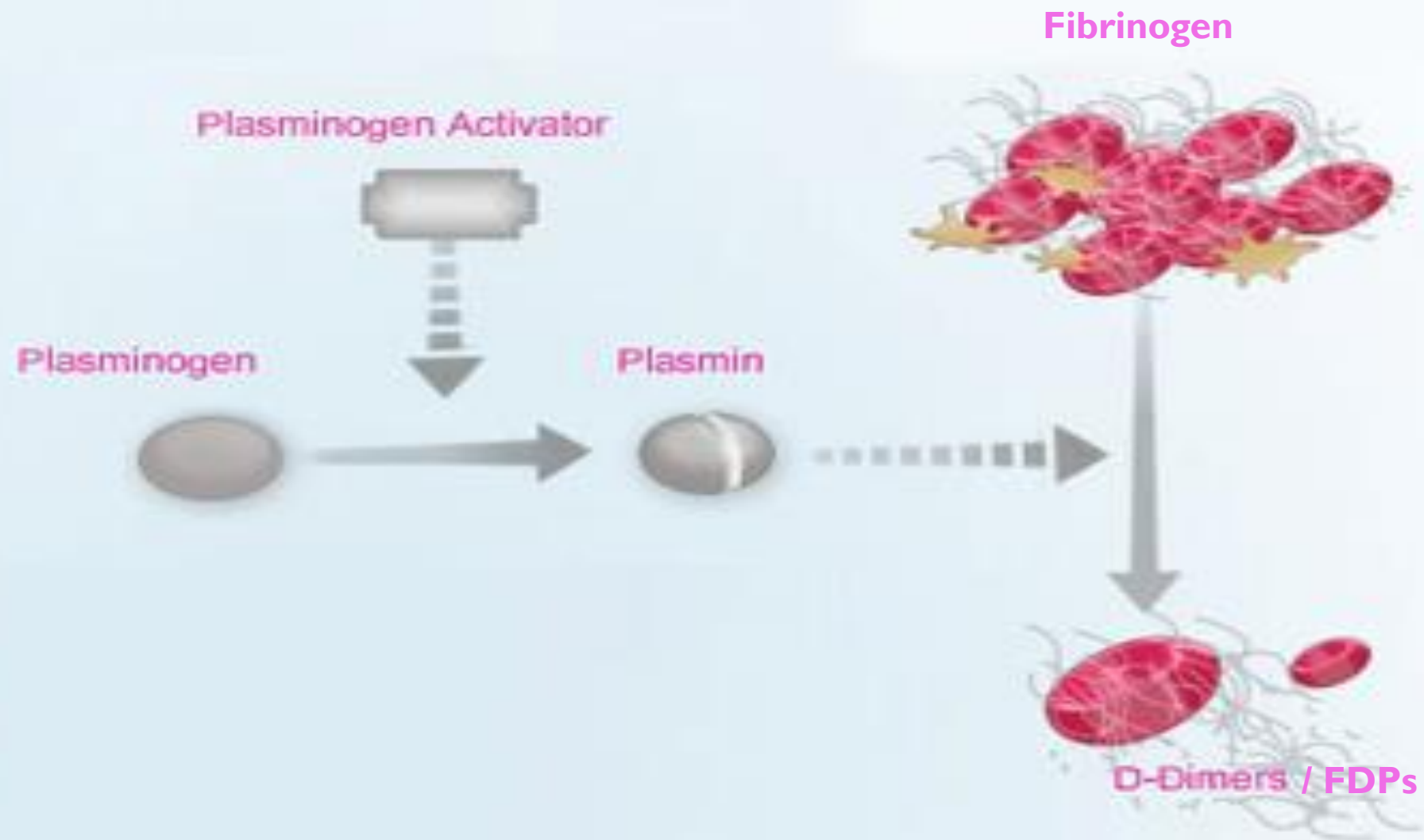




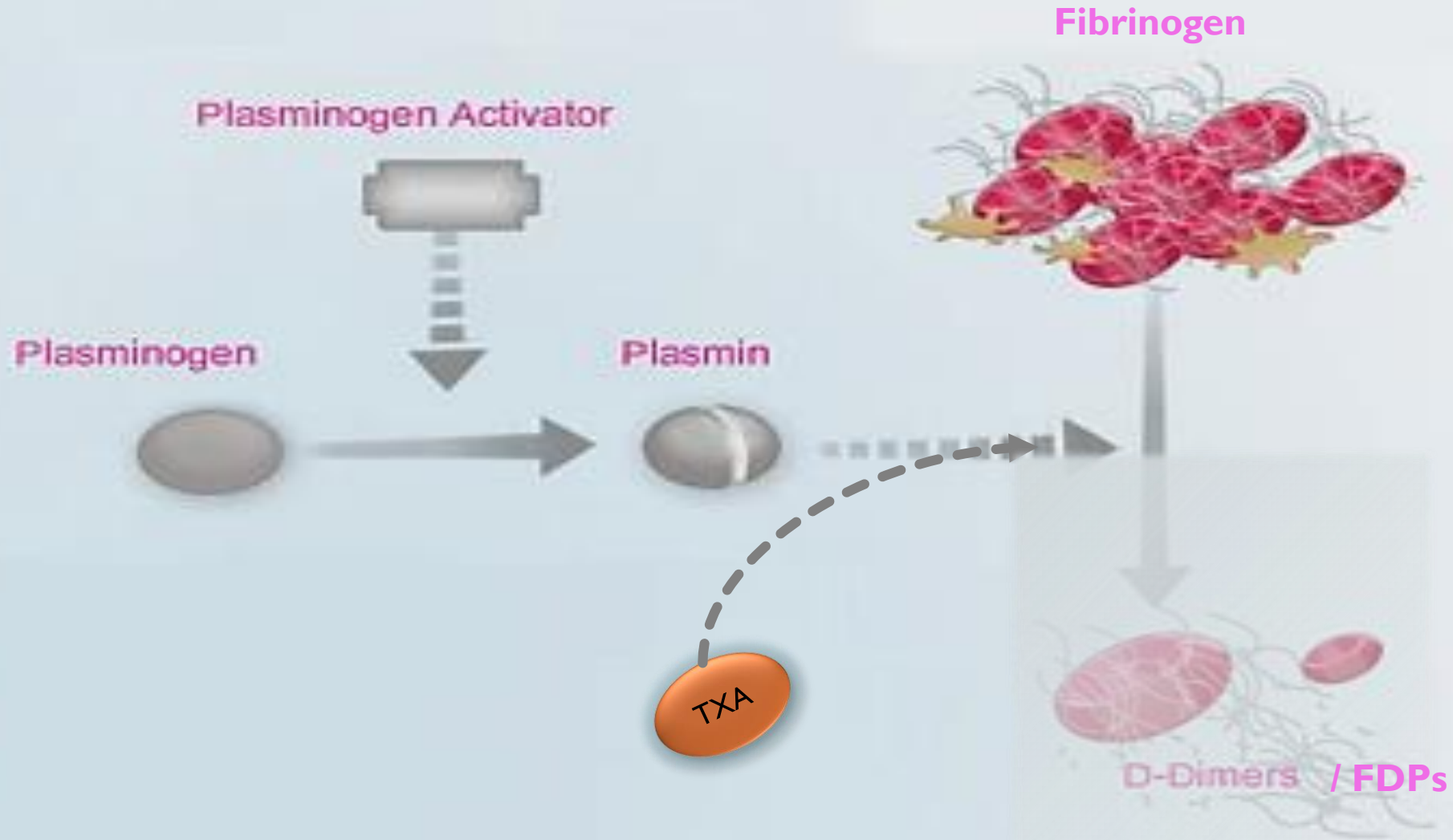
Fibrinolytic Cascade

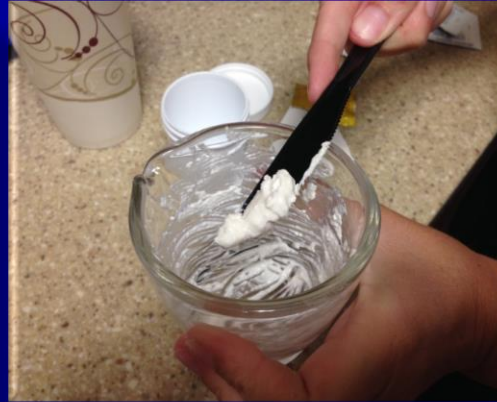


FIBRINOLYSIS

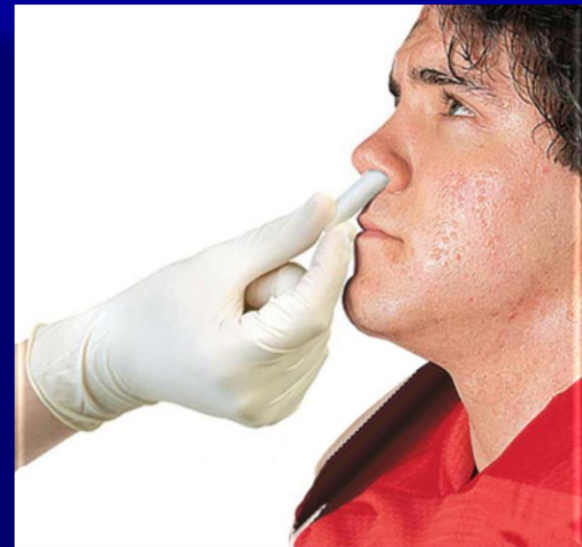
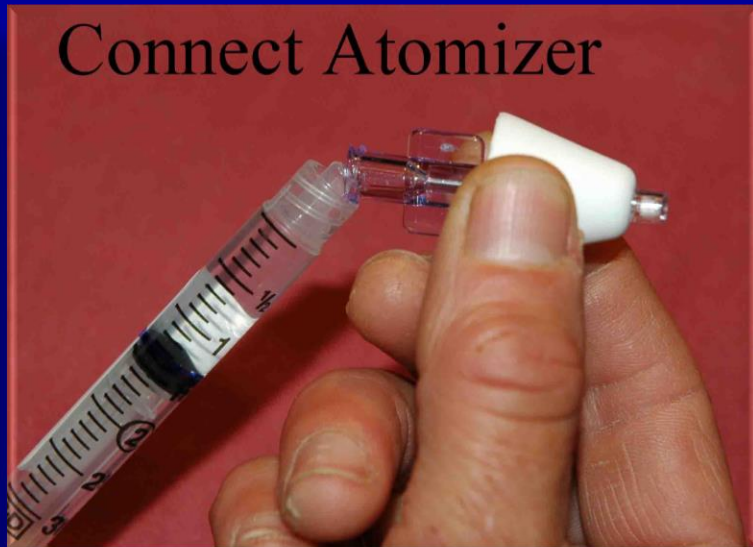


FIBRINOLYSIS





Connect Atomizer





Effect of local tranexamic acid gel in the treatment of epistaxis

Tibbelin et.al. *ORL J Otorhinolaryngol*, vol, 1995, 207 - 209

Multicentre, randomised, double-blind, parallel-group study.

68 adult with epistaxis	Tranexamic acid gel	Placebo
Stopped bleeding in 30 minutes	76%	53%
Re-bleeding in 8 and 30 days	11% and 44%	31% and 66%



Contents lists available at ScienceDirect

American Journal of Emergency Medicine

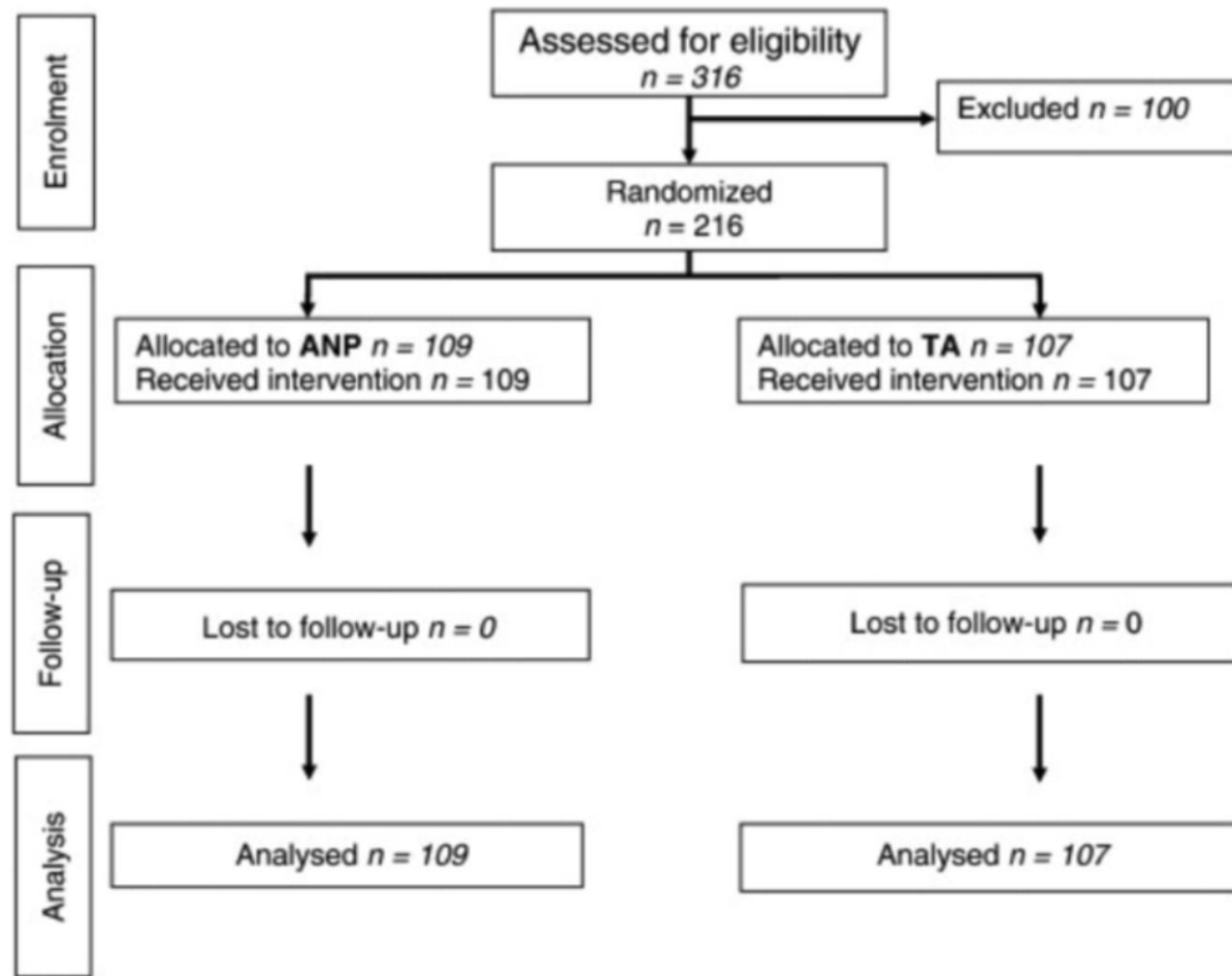
journal homepage: www.elsevier.com/locate/ajem



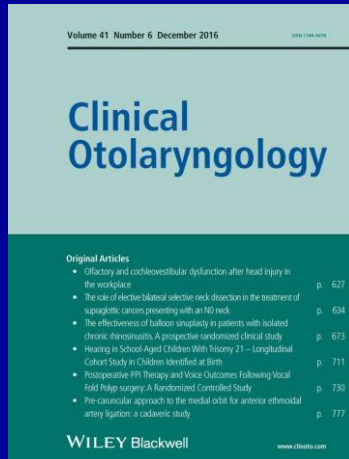
Original Contribution

A new and rapid method for epistaxis treatment using injectable form of tranexamic acid topically: a randomized controlled trial[☆]

Reza Zahed MD^a, Payman Moharamzadeh MD^b, Saeid AlizadehArasi MD^b,
Asghar Ghasemi PhD^c, Morteza Saeedi MD^{d,*}



	TXA	Control	Odds Ratio	P
Bleeding stopped <10min	71%	31.2%	2.28 (95%CI 1.68-3.09)	<0.001
Discharged <2hrs	95.3%	6.4%	14.8 (95%CI 7.2-30.4)	<0.001
Complications	4.7%	11%	0.42 (95%CI 0.16-1.16)	0.128
Re-bleed 24hrs	4.7	12.8%	0.36 (95%CI 0.14-0.98)	0.034
Re-bleed 1 week	2.8	11%	0.26 (95%CI 0.07-0.88)	0.018
Patient Satisfaction	85%	44%		<0.001



Tranexamic acid in epistaxis: a systematic review

Kamhieh, Y. & Fox, H.

ENT Department, Royal Glamorgan Hospital, Llantrisant, Wales, UK

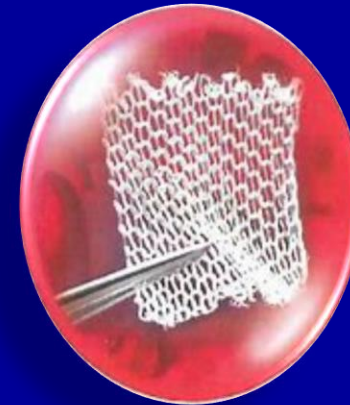
Clin. Otolaryngol. 2016, 41, 771

Results:

Three RCTS pertained to spontaneous epistaxis; of these, one trial found no benefit of oral tranexamic acid in acute epistaxis, one trial found no significant benefit of topical tranexamic acid, but the largest of the trials showed significant benefit of topical tranexamic acid in acute epistaxis management.

Two RCTs examined oral tranexamic acid for prophylaxis of recurrent epistaxis in patients with hereditary haemorrhagic telangiectasia; both showed significant reduction in severity and frequency.

Surgicel



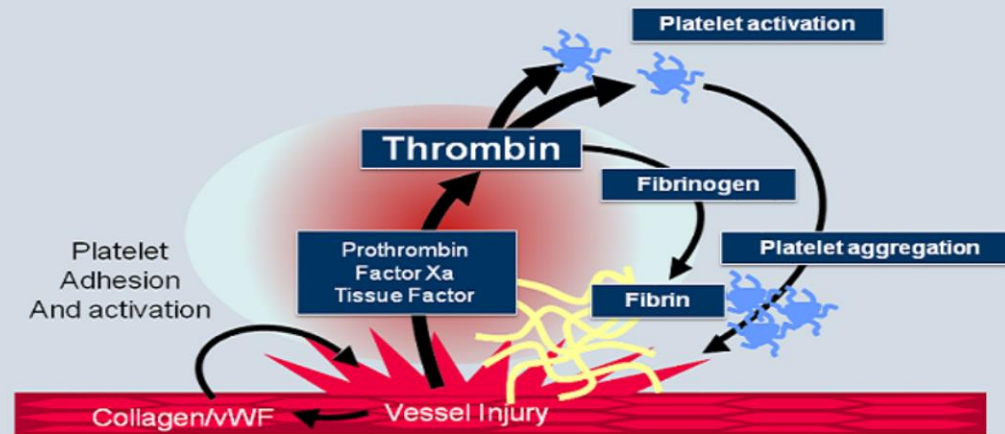
Kaltostat



Tropical Thrombin Spray

Critical Role of Thrombin

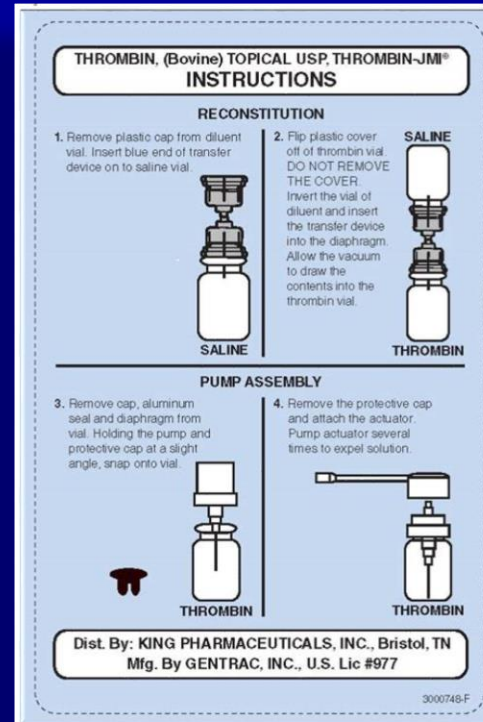
Thrombin is the link between vascular injury, coagulation, and platelet activation



Coughlin SR. *Nature*. 2000;407:256-64; Monroe DM et al. *ATVB* 2002;22:1381-9.

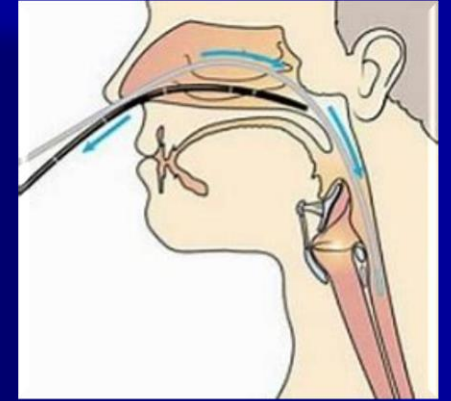
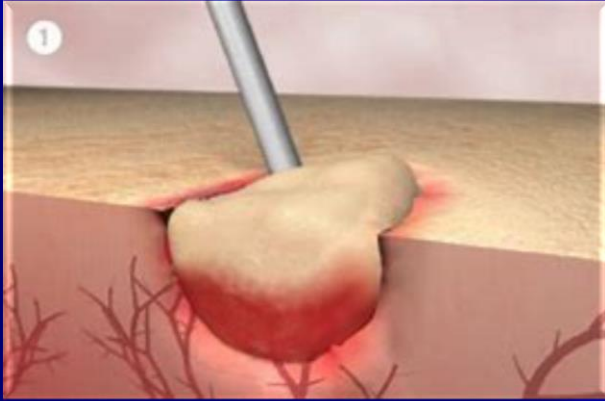
Thrombin converts soluble fibrinogen into insoluble strands of fibrin

Thrombin-JMI® EPISTAXIS KIT



- THROMBIN-JMI is available as 5,000 IU vial with 5 mL diluent and 20,000 IU vial with 20 mL diluent. (3)
- THROMBIN –JMI Pump Spray Kit is available as 20,000 IU vial with 20 mL diluent, spray pump and actuator. (3)

FloSeal Haemostatic Sealant



FLOSEAL Hemostatic Matrix consists of a unique combination of patented gelatin granules and human thrombin to provide fast, effective haemostasis (Oz MC, et al. *J Card Surg.* 2003;18:486-493.)

FloSeal Haemostatic Sealant

- Associated with an absolute 26% lower re-bleeding rate compared with nasal packing.
- Easier to Insert: Satisfactory for patients and doctors.
- Controlled bleeding in 8/10 patients. Whose haemostatic pack failed.

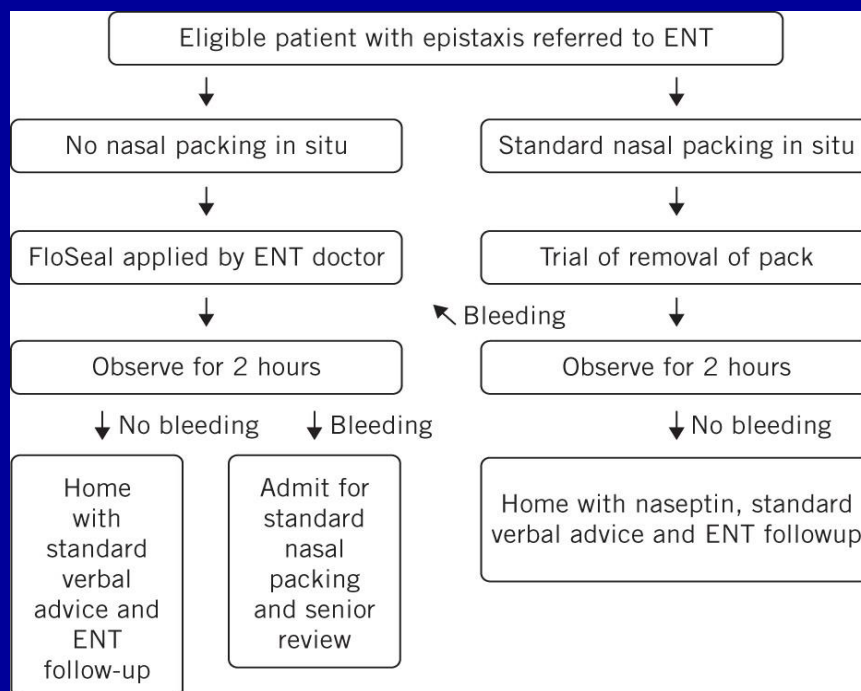
Mathieason RA, Cruz RM. Prospective study, randomised, controlled clinical trial of a novel matrix haemostatic sealant in patients with acute anterior epistaxis. Laryngoscope. 2005;115:899

Cote D. et.al. Floseal haemostatic matrix in persistent epistaxis: Prospective clinical trial. J Otolaryngol Head Neck Surg. 2010;39:304



The use of FloSeal haemostatic sealant in the management of epistaxis: a prospective clinical study and literature review

OG Waketon, PA Dimitriadis, J Stephens
Volume: 99 Issue: 1, January 2017, pp. 28-30



RESULTS

30 patients were enrolled in the study. The mean time to prepare FloSeal was 5 minutes.

The success rate of FloSeal was 90%.

The mean length of stay was 2.75 hours.

The mean patient satisfaction with FloSeal was 8.4/10.

No adverse events occurred.

CONCLUSIONS

Our data support the use of FloSeal in patients with anterior epistaxis not controlled with conservative measures or chemical cautery. It was found to be easy to use, is well tolerated by patient.

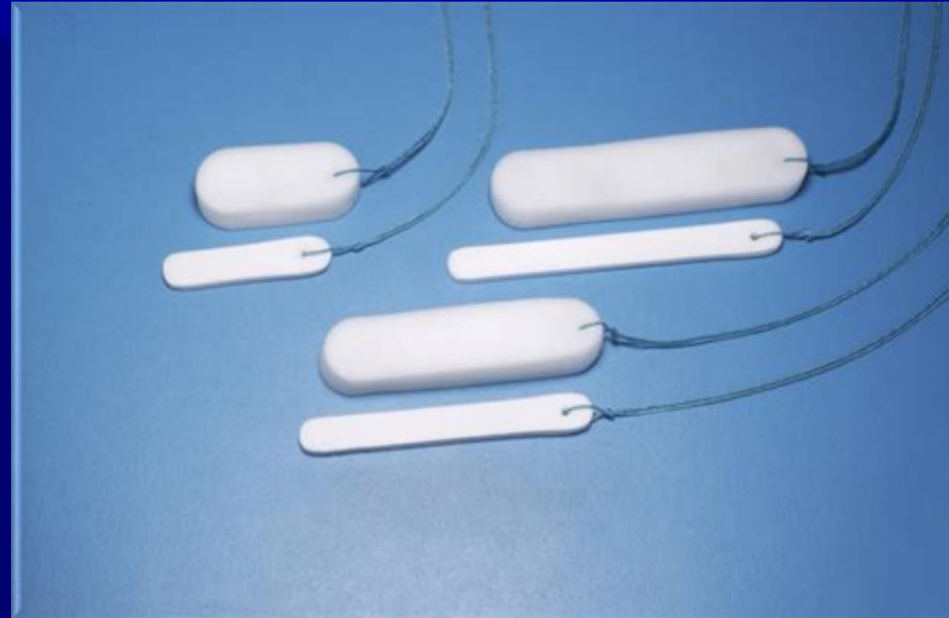
Step 3. Nasal Packs or Dressing

If the local therapy fails, the control of bleeding can be achieved by Tamponade, using variety of nasal packs or by promotion of haemostasis through nasal dressing.

- Merocel
- Nasal Balloons / Rapid Rhino
- Nasopore
- BIPP
- Petroleum jelly-coated ribbon gauze
- Kaltostat

Merocel

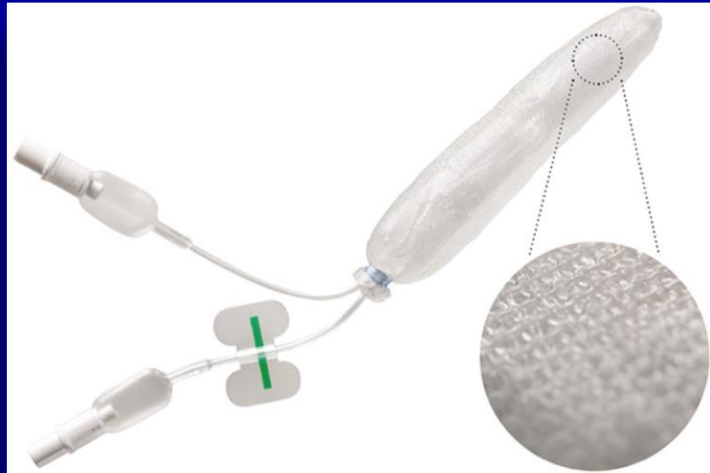
Poyvinyl Acetal Polymer Sponges





Rapid Rhino

Self-lubricating hydrocolloid fabric covering and also provides procoagulant surface



Product Usage



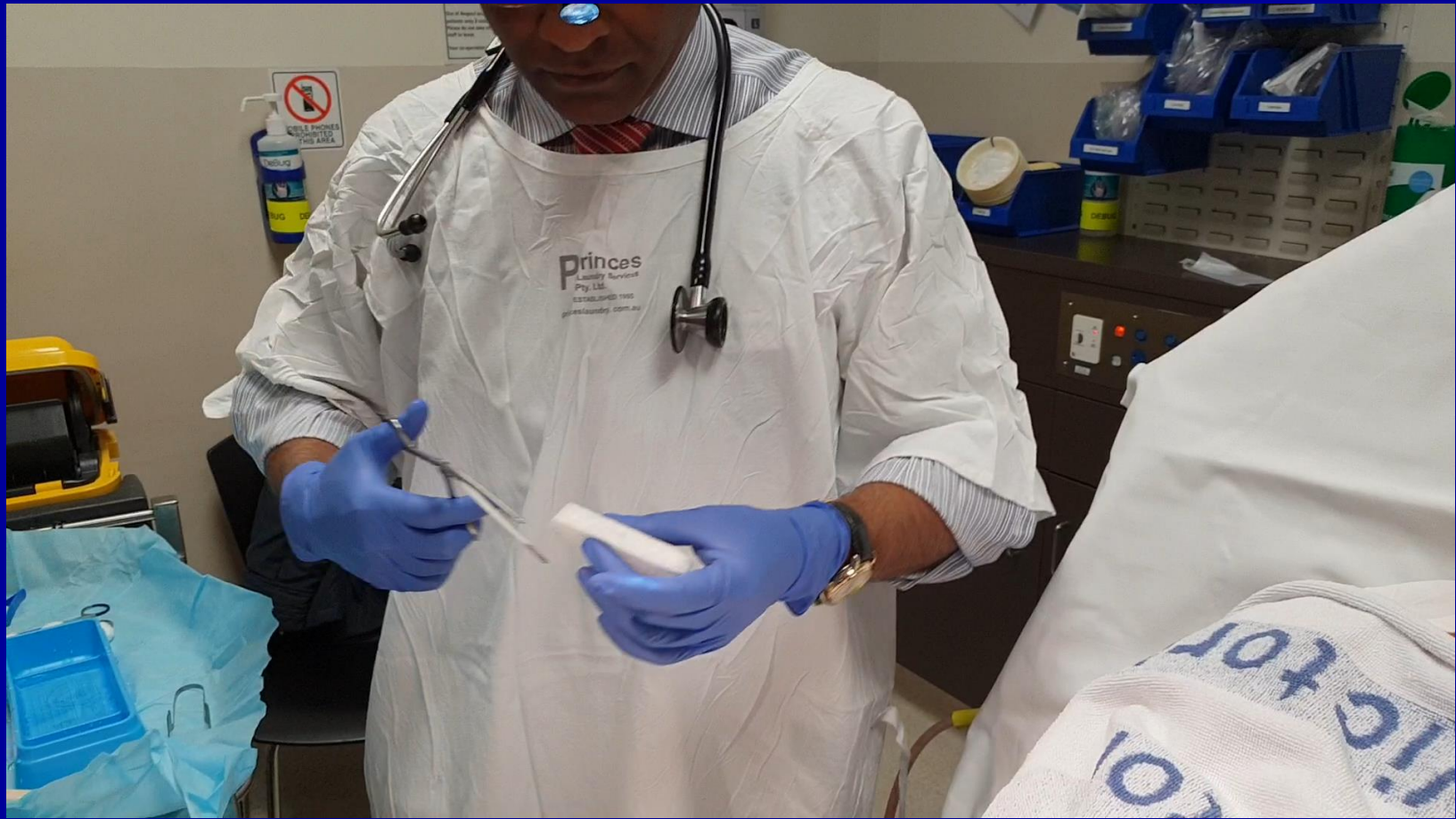


Nasopore

- Most Commonly used dissolvable material.
- Fully synthetic biodegradable fragmenting foam
- Absorbs water while supporting the surrounding tissue
- Starts to dissolve within days.



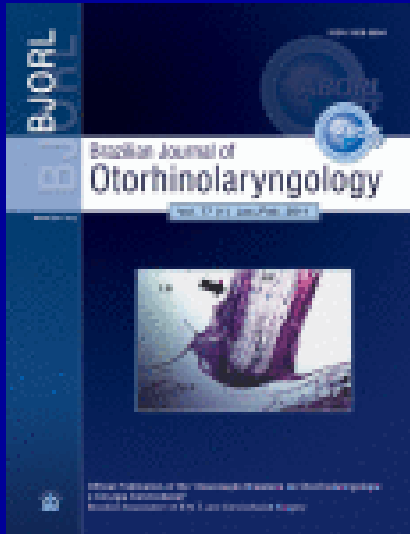




- Nasopore significantly reduced patients subjective symptoms.
- Pain while packing in place
- Nasal pressure
- Reduced pain and bleeding while removing
- General satisfaction with nasal packing

Merocel versus Nasopore for nasal packing: A Metanalysis of Randomised Controlled Trial

Jianzhang et.al. Plosone.org April 2014; Vol 9; Issue 4 .



Clinical out come and patient satisfaction using biodegradable (Nasopore)

And non-biodegradable packing, a double blind, prospective, randomized Study.

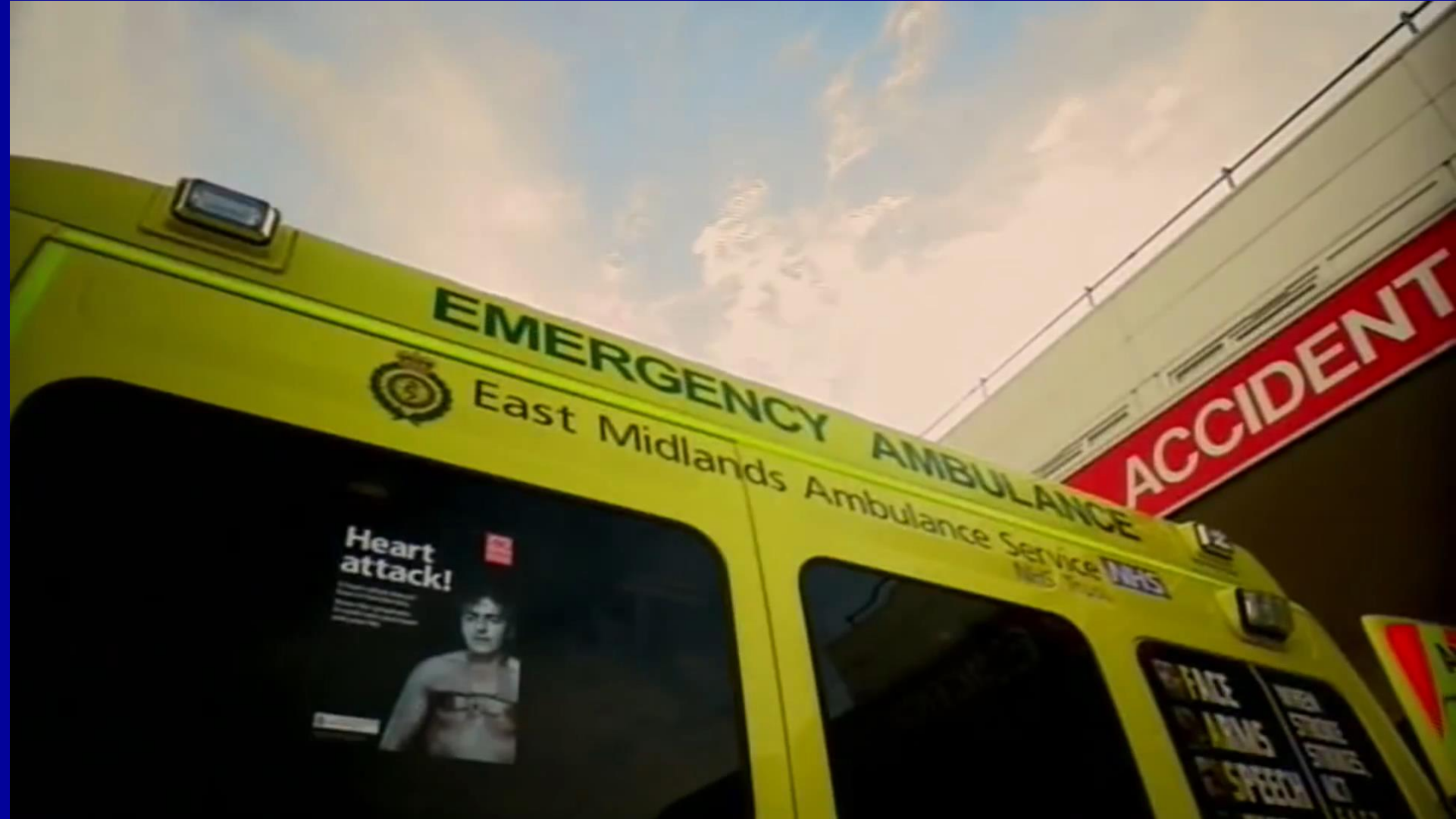
Pawel K. Et. al. 50 Patients nasal pack, following FESS procedure

- Lower bleeding rate
- Lower scores with block
- Mucosal healing was good



Step 4. Arterial Ligation / Embolization

What about Post Operative severe
Epistaxis?





Use of Desmopressin for Unremitting Epistaxis following Septorhinoplasty and Turbinectomy

Faber, Carey B.A.; Larson, Kelsey B.A.; Amirlak, Bardia M.D.; Guyuron, Bahman M.D.

Plastic and Reconstructive Surgery: [December 2011 - Volume 128 - Issue 6 - p 728e–732e](#)

Desmopressin / DDAVP for Epistaxis

- Retrospective chart review 268 consented patients
- 9 Unremitting post-operative epistaxis patients
- Patient received 0.3µg/kg IV DDAVP over 30 minutes
- Bleeding stopped completely in 8 patients
- Significant slowdown of bleeding in 1 patient and alter discharged home.
- No significant complications

Thank You