Evaluation of use of polyvinyl acetate as a nasal packing after partial inferior turbinectomy

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Background: Nasal Packing is usually needed after partial inferior turbinectomy to stop bleeding; various materials have been used for this purpose; one of most widely use is polyvinyl acetate (PVA) nasal packing.

Aim of the Study: is to evaluate the efficacy of PVA packing in reducing bleeding after turbinate surgery as compared to conventional Vaseline gauze packing and to evaluate the efficacy of PVA packing in reducing pain during removal of nasal packing by proper distribution of local anesthetic agent injected in the pack 10 minutes before removal.

Patients and methods: Prospective study of 100 patient underwent bilateral partial inferior turbinectomy; In 50 patients (100 nostrils) conventional vaseline nasal packing used and in the other 50 patients (100 nostrils) PVA nasal packing used. All nasal packs of the two types were injected with xylocaine 10 minutes before removal; the amount of bleeding and the degree of pain induced during removal were assessed in both two types of nasal packs.

Results: PVA packs were associated with less bleeding after removal and less pain during removal of the conventional nasal packs; and statistically there was a highly significant deference's.

Conclusions: PVA packs give superior results over the conventional vaseline nasal packs.

Keywords: Polyvinyl acetate, turbinectomy, epistaxis

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Introduction

Nasal packing is commonly used to control bleeding following operative procedures to the nose including septoplasty and turbinectomy .It is also used to prevent middle turbinate lateralization, synechiae formation and restenosis after FESS [1] and has been reported to stabilize the remaining cartilaginous septum internally, prevent complications such as septal haematoma and formation of synechiae and minimize the persistence or recurrence of septal deviation after septoplasty. [2] however nasal packing has some inherent disadvantages such as causing pain and bleeding and contributing to nasal mucosal damage, sepal perforation, allergic reaction, sleep respiratory disturbances and decreased arterial oxygen saturation during sleep. [3] Furthermore patients often consider packing removal to be the most unpleasant experience of their operation. [4] The type of packing chosen by surgeon is usually determined by habit of inherited practice or departmental provision and the superiority of non absorbable versus dissolvable nasal packing has been widely debated. polyvinyl acetate pack (PVA pack) is one of the most common non absorbable nasal pack material; it is a compressed dehydrated sponge composed of hydroxylated polyvinyl acetate that can increase in size within the nasal cavity and compress a bleeding vessel throughout rehydration with normal saline or blood.

Aims of our study

1. Is to evaluate the efficacy of PVA packing in reducing bleeding after turbinate surgery as compared to conventional Vaseline gauze packing.

2. Is to evaluate the efficacy of PVA packing in reducing pain during removal of nasal packing by proper distribution of local anesthetic agent injected in the pack 10 minutes before removal.

Material and Methods

Patients

Prospective study of 100 patient underwent turbinectomy in our teaching hospital–from the period of 1st of December 2014 until 3rd of January 2016. The authors decided to choose partial inferior turbinectomy as a model in the study because of its well known high post-operative haemorrhagic risk due to the rich vascular supply of the inferior nasal turbinate. [5]

The authors included 50 patients (100 nostrils) from their cases of turbinectomy and they were using PAV packing; another 50 case (100 nostrils) of turbinectomy with vaseline gauze traditional nasal packing were selected from the same ENT word.

Selection criteria:

1. Age more than 18 years
2. Patient with bilateral turbinectomy
3. No other surgical procedure was performed in the same surgical operation like septoplasty
4. Patient with no history of bleeding tendency and with normal bleeding profile, liver function test and adequate platelet account.
5. No previous nasal surgery

Methods

For all patients included in our study according to criteria mentioned above; nasal packing kept in nostrils for 48 hours post operatively; parenteral antibiotics (cephatriaxone 1 gram daily) were given for 5 days from day zero; after 48 hours nasal packing removed from right and left nostrils of all of the patients which were divided according to study design into two groups.

Study Design groups:

Study group: PVA nasal packing was used and prior to removal 3cc of 2% xylocaine solution was injected inside each pack 10 minutes before removal.

Control group: conventional Vaseline nasal packing was used and prior to removal 3cc of 2% xylocaine solution was injected inside each pack 10 minutes before removal.

Immediately after nasal pack removal the patient asked whether the pain was slight or severe and the authors were noticing whether there was breath holding or syncope during or immediately after nasal packs removal; and accordingly the degree of pain after removal of each pack from each nostril was classified as Grading of pain sensation during removal of nasal packing

1. Grad I : Slight pain
2. Grad II: Severe pain without breath holding or syncope
3. Grad III: Severe pain that lead to breath holding
4. Grad IV: Severe pain that lead to syncope

Then the authors had noticed the amount of bleeding that occurred after nasal packing removal and classified as: Staging of bleeding after removal of nasal packing

1. No bleeding
2. Slight drops of bleeding
3. Very little amount of bleeding that stopped spontaneously and did not need to be sucked by suction apparatus
4. Bleeding that stopped after suction
5. Bleeding that did not stopped and need repacking

Results

Table 1 below shows the number of patients in each stage of bleeding in the study and the control groups

Table 1 The severity of bleeding after removal of nasal packing in the study group and the control group

Stage	PVA Packing	Conventional packing
I	14	8
II	69	24
III	12	38
IV	5	23
V	0	7

Statistical study showed that the deference in the bleeding after removal of packing between the study and the control groups was highly significant; Chi square statistics was 55.502; and The P value was < 0.00001.

Table 2 below shows the number of patients in each grad of bleeding in the study and the control groups

Table 2 The grad of pain that occurred during removal of nasal packing after injection of xylocaine in the packs in the study group and the control group

Grad	PVA Packing	Conventional packing
I	41	18
II	53	29
III	6	39
IV	0	14

Statistical study showed that the deference in the grad of pain during removal of packing between the study and the control groups was highly significant; Chi square statistics was 54.1905; and The P value was < 0.00001.

Discussion

Following surgery even with meticulous nasal preparation and surgical technique some bleeding might occur from the nose. To achieve good control of bleeding and improve the patient experience, packs are being developed that are more comfortable and cause less pain and less bleeding on removal; An ideal nasal pack should provide good control of bleeding when it is in place with less pain and less bleeding when removed. [4]

RR Joshi et. al. in prospective single-blinded randomized trial, compared neomycin impregnated ribbon gauze pack with merocel Neosporin Impregnated ribbon gauze pack.

The first group was associated with the more pain while the pack was in situ, and decreased significantly after the removal, but for merocel pack group, the pain when it was in situ, was comparatively less and the pain was even lesser when the pack was removed but there was more pain during removal of the pack. The haemostasis was adequately maintained by the pack when it was in situ but due to the adhesive nature of the merocel pack there were slight more tendencies to bleed immediately after the removal of the merocel pack. [6] To overcome these complications mentioned, we injected local anesthetic agent to decrease the pain on removal of PVA packs; so that the adhesions of PVA packs with nasal mucosa was decreased.

In converse to our results Garth RJN and Brightwell AP [7] in non-randomized prospective trial found that Telfa and Paraffin packing caused less discomfort and bleeding than both Merocel (PVA) and BIPP packs. However, the Paraffin Gauze caused a paraffin granuloma in one patient.

Shinkwin et. al. [8] did a randomized control trial comparing Surgicel Nu-knit Merocel (which is PVA packs) and Vaseline gauze packs and found that while the Surgicel Nu-knit resulted in less pain and bleeding, 12% of them fragmented on removal and one patient required a general anesthesia to remove it; no one of our PVA packing was fragmented during removal and general anesthesia was not necessary to remove nasal packings in all of our patients included in this study.

Arya et. al. [9] did study with Merocel (PVA nasal packs) and Rapid Rhino packs and while Rapid Rhino pack was associated with less pain, three of 17 fell out inadvertently; while Cruise et. al. [10] also looked at Rhino Rapid pack and did not report any events of packs falling out. They found that Rapid Rhino pack caused significantly less pain than PVA nasal packs on removal.

There was, however, a question of an allergic reaction to Rapid Rhino pack in one patient out of 45. Badran et. al. [11] compared Merocel (PVA packs) and an inflatable Rapid Rhino pack and found lower pain scores with the latter.

While Rapid Rhino studied by this group was different from Arya et al. [9] in that it was an inflatable pack. They also expressed concerns about the Rapid Rhino packs' propensity for slipping forward or prolapsing backwards which required deflating and repositioning the pack. All of our patients included in the study did not got any nasal packing fall or allergic reaction.

Llium et. al. [12] found three septal perforations with merocel(PVA nasal packs) in 26 patients; no septal perforation was identified in our patients included in the study as this group of patients was selected to have turbinate surgeries rather than septal surgeries. Effects of PVA nasal packing on the nasal septum after nasal surgeries need to be assessed and kept in mind in the future studies.

Conclution

1. Injecting local anesthesia immediately before removal of nasal packing is very important step to decrease pain and discomfort of the procedure.

2. PAV packing injected with local anesthesia is better than vaseline packing injected with local anesthesia in term of less pain and discomfort.

3. PVA packing leads to less post removal bleeding than vaseline packing.

References

1. Weber R, Keer IR, Hochapfel, Draf W, Toffel PH. Packing in endonasal surgery Am J Otolaryngol 22 :306-320.doi: 10.105/ajot.2001.26499.

2. Dubin MR, PletcherSD. Postoperative packing after septoplasty is it necessary? Otolaryngol Clinic North Am42:279-285,viii-ix.doi:10.1016/j.oct.2009.01.015.

3. Ardehali MM, Bastaninejad S. Use of nasal packs and intranasal splints following septoplasty. Int J Oral Maxillofac Surg 38:1022-1024.doi: 10.1016/j.iijom.2009.05.012.

4. Samad I, Stevens H E, Maloney A.The efficacy of nasal septal surgery J Otolaryngol. 1992;21:88-91.

5. El-Silimy O (1993) Inferior turbinate resection: the need for a nasal pack. J Laryngol Otol 107: 906-907.

6. RR Joshi, A Nepal, S Thapa Chhetri et. al. , An evaluation of merocel and neosporin impregnated ribbon gauze packs in patients following nasal surgery: a prospective randomised trial, Health Renaissance. 2012;10:30-34.

7. Garth RJN and Brightwell AP.: A comparison of packing materials used in nasal sugery. J Laryngol Otol. 1994;108:564-566.

8. Shinkwin C A, Beasley N, Simo R.et. al.: Evaluation of Surgicel Nu-Knit, Merocel and Vasolene gauze nasal packs a randomized trial. Rhinology. 199;34:41-43.

9. Arya AK, Butt O, Nigam A.: Double-blind randomized controlled trail comparing Merocel and Rapid Rhino nasal packs after routine nasal surgery. Rhinology. 2003;41:241-243.

10. Cruise AS, Amonoo-Kuofi K, Srouji I et.al.:.A randomized trial of Rapid Rhino Riemann and Telfa nasal packs following endoscopic sinus. Clin Otolaryngol. 2006;31:25-32.

11. Badran K, Malik T H, Belloso A et al.: Randomized controlled trial comparing Merocel and Rapid Rhino packing in the management of anterior epistaxis. Clin Otolaryngol. 2005;30:333-337/

12. Ilium P, Grymer L, Hilberg O.: Nasal packing after septoplasty. Clin Otolaryngol. 1992;17:158:162.