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Original Article

Comparison Of Parameters In Patients Who Underwent Nasal Packing After Septoplasty

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Abstract

To compare the effectiveness of merocel and medicated ribbon gauze used for anterior nasal packing , discomfort level of the patient with the pack insitu and during pack removal and To assess incidence of adhesions during follow up.

Background/Objectives: Nasal packing is routinely performed by many ENT surgeons following nasal surgery such as septoplasty, rhinoplasty, septorhinoplasty, turbinate surgery, endoscopic sinus surgeries ,submucosal resections anterior skull base surgeries, endoscopic endonasal CSF leak repairs and may be life saving in epistaxis, when cautery could not be done or cauterization fails to control bleeding. This has led to development of various packing materials. Nasal packing can provide hemostasis, prevent hematoma formation, support septal flap apposition, close dead spaces between cartilage and mucoperichondrial flaps and prevent displacement of the cartilage or bony grafts. It also effects wound healing in post operative period and incidence of adhesions and granulations. However, nasal packing may result in severe complications. These complications are diverse and range from a relatively simple postoperative hemorrhage to life-threatening toxic shock syndrome.The aim inpresent study is to comparing two packing materials Poly Vinyl acetate sponge (merocel) and conventional ribbon gauze packing in anterior nasal packing.

Methods : Patients included in this study undergoing anterior nasal packing during the period from September 2015 to August 2017were divided into 4 groups 1.Septoplasty 2.Endoscopic Sinus Surgery , 3. Endoscopic DCR and 4. Epistaxis. Patients in each group were packed alternately with merocele and conventional medicated ribbon gauze to compare the effectiveness in terms of degree of discomfort to the patient with pack in situ, pain during removal of packing and amount of bleeding after pack removal were assessed by VAS scores and bleeding scale and significance between two packing materials was evaluated by chi-square test .incidence of adhesions in follow up were expressed in percentages.

Results: VAS scores and bleeding score of patients with merocele were less compared to that of merocele and difference was statistically significant in Septoplasty and ESS and partly in Endoscopic DCR and Epistaxis group.

Conclusion: duration with nasal pack in-situ is more comfortable with merocel and causes less discomfort and bleeding while removal compared to ribbon gauze

Key words: nasal packing materials, Merocel, Ribbon gauze, Medicated ribbon gauze.

INTRODUCTION

Anterior packing is more commonly done to control bleeding in epistaxis and following operative procedures to the nose like surgical procedures to septum, turbinates, para nasal sinuses which commonly includes septoplasty, turbinoplasty, turbinectomy , endoscopic sinus surgery(ESS), endoscopic Dacrocystorhinostomy (Endoscopic DCR) etc. It is also used to prevent middle turbinate lateralization ,adhesions and restenosis in ESS surgeries and has been reported to stabilize the remaining cartilaginous septum internally, prevent complications such as septal hematoma and formation of synechae and to minimize the persistence or recurrence of septal deviation after septoplasty.[1]
Although packing can prevent postoperative complications ,some times pack itself can be the source of problems,[2] pain during introduction , discomfort during nasal pack in-situ and removal of pack and bleeding during during the process of removal of packing material are common among them.[3]
Currently used packing materials can be classified into nonbiodegradable (e.g., vaselinized gauze, telfapads, cotton-stuffed latex finger cots, silastic sheeting, merocele sponges) and biodegradable types(e.g., gel film, merogel, hyaluronic acid gels, floseal, cellulose gels, nasopore).[4]

Various modifications in the design and type of nasal packing have been suggested to improve patient comfort. Present study is a prospective study done in the view to compare two commonly used nasal packing materials which are merocel (polyvinyl alcohol sponge) and medicated ribbon gauze.

Nasal packing:

Nasal packing is indicated in patients with epistaxis. It is also useful following surgeries involving nasal septum, sinuses, CSF leak repair, endoscopic dacrocystorhinostomy, etc. It can be classified as , anterior nasal packing and posterior nasal packing. Anterior nasal packing involves packing of the nasal cavity upto choanae. posterior nasal packing involves packing of nasopharynx (usually done in cases of posterior epistaxis).

Anterior nasal packing with ribbon gauze is routinely done as it is commonly available material in any hospital or clinical setup. Ribbon gauze is placed in layers either horizontally or vertically in the nasal cavity till it is filled, taking care that both ends of ribbon gauze are placed anteriorly to avoid displacement of these ends into oropharynx causing dysphagia and worsening of patients' discomfort.

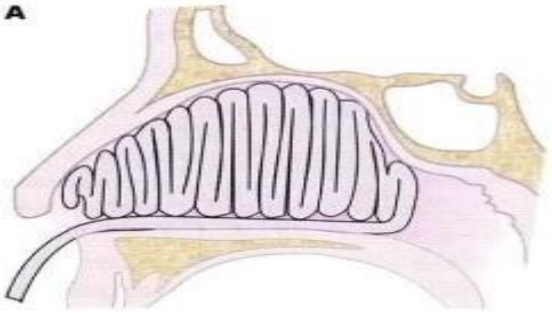
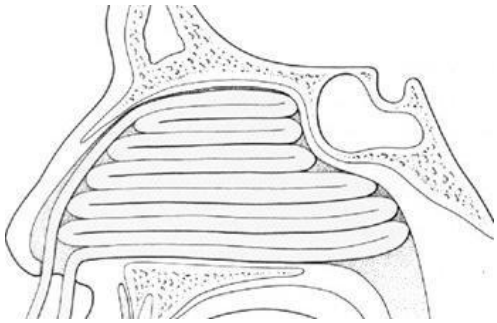


figure 2.1



Figures 2.1 and 2.2 showing vertical and horizontal packing with ribbon gauze The ideal nasal packing should fulfill following criteria.

1. It should be easy to introduce and remove.
2. Contour to the nasal cavity to exert a tamponade effect
3. Should not prolapsed
4. Should not react unfavorably with the mucous membrane of the nose.

NASAL PACKS:

History of nasal packing after septal surgery falls back to 1847 in the time of Gustay killian of Germany and Otto Tiger Freer of USA. Thesystematic submucosal resection and nasal packing was started in 1882 by Ephraim in Chicago and Peterson in Germany.[24]
Placing a pack in the nasal cavity is customary as a part of nasal surgery to stop bleeding, enhance apposition of mucosal flap, prevent the formation of septal heamatoma postoperatively, and to splint the septal cartilages and nasal bones. While the first indication namely controlling intra operative bleeding in universally accepted, the other indications to pack the nose are highly debatable. Several studies looked at various nasal packs, their ease of placement and removal, patient. [25-31]
Conventional nasal packings include those commonly used removable materials like gauze, cotton, and sponge, whether they are coated by glove fingers or any chemicals. Merocel, made from inflatable polyvinyl acetate sponge, is a typical conventional removable nasal packing. These packings have several advantages like cheap price, easy manipulation, and sufficient supporting ability. However, conventional packings are criticized for their multiple defects. These include nasal airway obstruction, headache/pressure, and painful mouth and pharynx dryness due to prolonged oral breathing. Prolonged packing time may incur infection. Removal of the packing usually causes tremendous discomfort- some patients consider it the most objectionable part of the whole procedure. Additionally, pack removal can cause extra mucosal disturbances resulting in bleeding.[32]
There is no recognized standard for which types of materials should be used,how long packs should placed or when placement is indicated.[33-34]

Nasal packs are designed to:

- Provides hemostasis after epistaxis or surgery
- Provides support to nasal septum and conchae
- Prevent adhesions or stenosis especially following sinus surgery ,if packs are kept in place for a longer period of time.[35,36]

Nasal packs in addition also apply pressure, fill preformed spaces,create moist environment to facilitate physiological process(i.e. by occlusion), function as a barrier , induce physiological hemost Nasal packing materials currently in use can be classified into biodegradable and nonbiodegradable types.

1) non biodegradable materials

1.1) rubber coated sponge packs:

These are sponges with latex coverings that are impenetrable for bacterialand viruses.

- Firmness, texture of thread anchors and quality of latex depend uponmanufacturing differences.
- They are easy to place and remove, cause little trauma, bleeding anddiscomfort.[36]

1.2 expandable packs:

1.2.1. sugomed:

- It is an expandable material available in strips or plates which expands upon fluid absorption, although less than PVA-NT.
- It consists of cellulose(31.3%) and viscose (68.7).
- The pores are smaller than classic merocel, so pack removal is more comfortable than merocel, but still leads to more trauma than smooth surface packs.
- The main advantage over Merocel, is the individualized sizing andshaping of the plates or strips and one long strip can be placed in both nasalcavities.[36]

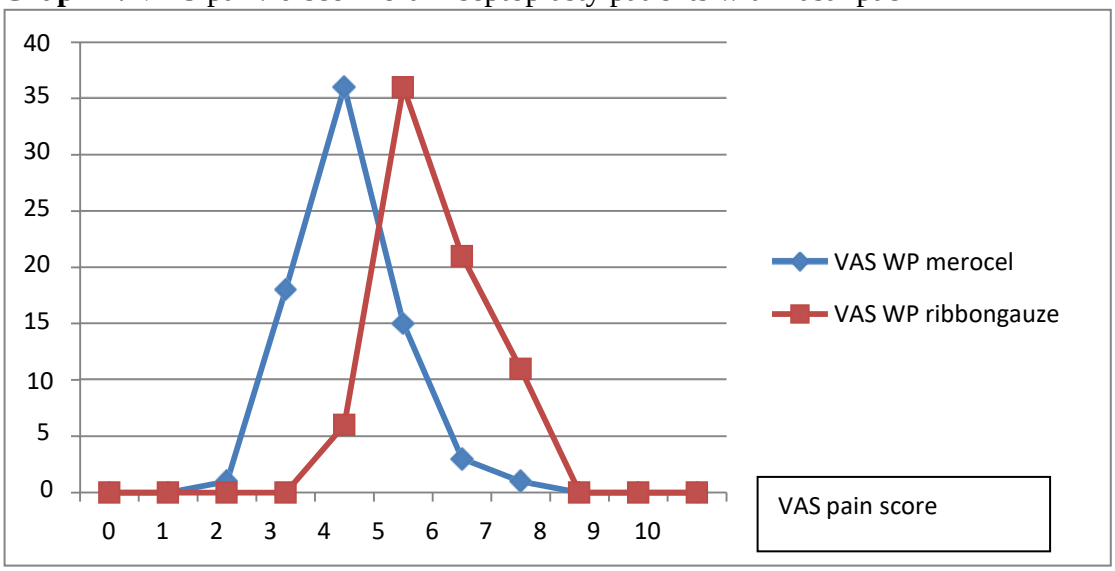
COMPARISION OF PARAMETERS IN PATIENTS WHO UNDERWENT NASAL PACKING AFTER SEPTOPLASTY:

A) VAS score for pain/ discomfort in patients with nasal pack.

Table 6: showing VAS scores for discomfort of patients with nasal pack afterseptoplasty in the two types of pack groups

	VAS for discomfort in patients with pack										
Type of pack	0	1	2	3	4	5	6	7	8	9	10
merocele	0	0	1	18	36	15	3	1	0	0	0
Ribbon gauze	0	0	0	0	6	36	21	11	0	0	0

Graph 4: VAS pain/ discomfort in septoplasty patients with nasal pack



VAS score for discomfort/pain in patients with merocele pack were 2(1.3%)3(24.4%),4(48.6%),5(20.4%),6(4%),7(1.3%)and that of patients with ribbon gauze were 4(8.1%),5(48.6%),6(28.4%),7(14.9%). The difference between two subgroups was found to be

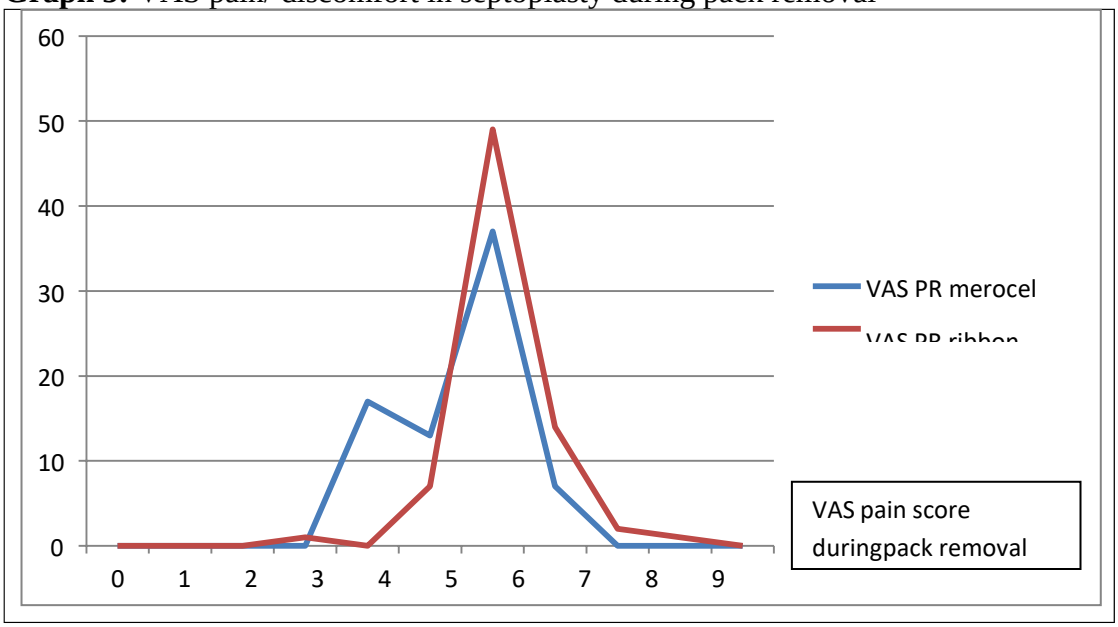
statistically significant(**p-value<0.000001**).

B) VAS scores for pain/discomfort in patients during nasal pack removal

Table 7: showing VAS scores of patients during nasal pack removal comparingmerocel and ribbon gauze In septoplasty group.

	VAS for pain/discomfort in patients during nasal pack removal										
Type of pack	0	1	2	3	4	5	6	7	8	9	10
merocele	0	0	0	0	17	13	37	7	0	0	0
Ribbon gauze	0	0	0	1	0	7	49	14	2	1	0

Graph 5: VAS pain/ discomfort in septoplasty during pack removal



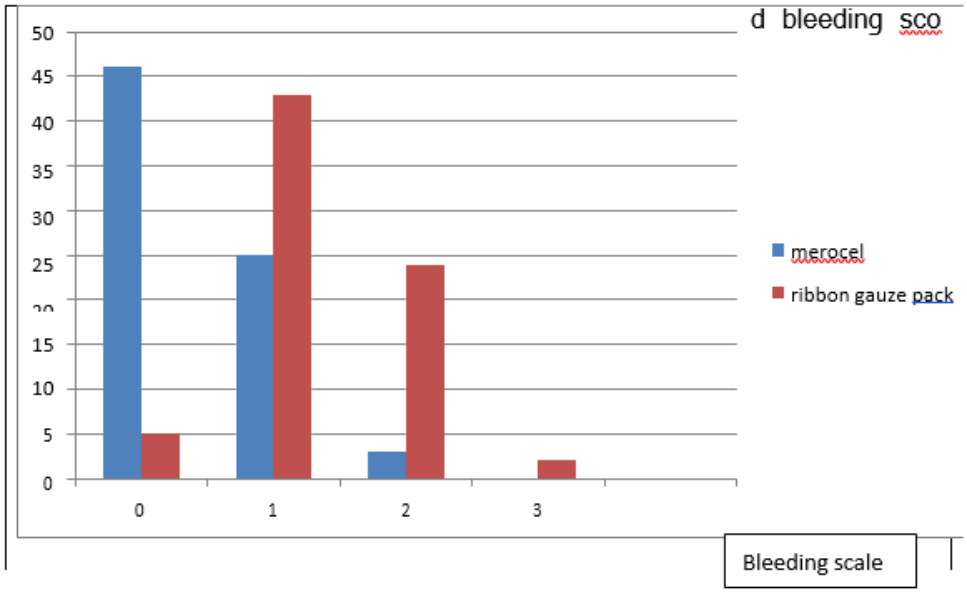
VAS scores for pain/ discomfort during nasal pack removal in patients with subgroup of merocel pack were 4(23%),5(17.6%),6(50%),7(9.4%) and that of patients with ribbon gauze were 3(1.3%), 5(9.4%), 6(66.2%), 7(18.9%), 8(2.7%), 9(1.3%). The difference between two subgroups was found to be statistically significant **(p-value<0.000001).**

C) Bleeding scores after pack removal comparing merocel and ribbon gauze In Septoplasty group

Table 8: showing bleeding after pack removal

Bleeding score	0	1	2	3
Merocel	46	25	3	0
Ribbon gauze pack	5	43	24	2

Graph 6: bleeding score of patients during pack removal comparing merocel and ribbon gauze in septoplasty



In patients with merocel pack sub group, 46 patients had bleeding sco 0(62.2%),25 patients had bleeding score 1(33.8%) and 3 patients had bleeding score 2(4%) where as in subgroup with ribbon gauze, 5patients had bleeding score 0(6.7%),43 patients had bleeding score 1(58.1%),24 patients had bleeding score 2(32.4%)and 2 patients had bleeding score 3(2.7%). There is statistically significant difference between bleeding score of two subgroups of packing materials **(p alue<0.000001).**

D) Synechae formation in follow up comparing merocel and ribbon gauze

Table 9: showing incidence of synechae

Nasal Pack	Number of patients with synechae
Merocel pack	0
Ribbon gauze pack	3

Incidence of synechae during 4weeks follow up was zero in merocel subgroupand 3(4%) in ribbon gauze pack subgroup.

SUMMARY

- Total number of patients included in the study fulfilling inclusion and exclusion criteria were 271.
- Most of the patients belonged to the age group 21-30 years(n= 97, 35.8%)
- Number of male patients was more (167) compared to number of female patients (104), M:F ratio= 1.6 : 1.
- Majority of the patients included in the study underwent anterior nasal packing for septoplasty(n=148,54.6%)
- doscopic DCR).

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