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Double-blind randomised controlled trial comparing Merocel with Rapid Rhino nasal packs after routine nasal surgery*

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SUMMARY

Introduction: *Nasal packing after routine nasal surgery is commonly practiced in the UK. The most popular pack appears to be Merocel, however this can be associated with significant pain on its removal.*

Aim: *To test the efficacy of a relatively new nasal pack- the Rapid Rhino Goodman pack - introduced to our department, which claims to reduce pain and bleeding after nasal surgery.*

Methods: Fourteen patients undergoing routine nasal surgery were recruited into a randomised controlled trial. One nasal cavity was packed with a Merocel pack and the other with a Rapid Rhino Goodman pack. Patients were asked to record pain levels on each side using a visual analogue scale.

Results: *We found no difference between packs whilst in-situ, with all patients recording low to moderate pain scores. There were significantly higher pain levels associated with Merocel pack removal than with Rapid Rhino pack removal (average pain scores 5.64 vs 1.64, $p<0.001$) and less bleeding overall.*

Conclusions: *Rapid Rhino (Goodman pack) is associated with significantly less pain on removal than Merocel pack, causes less bleeding and is not more painful whilst in-situ. We therefore recommend its use in routine nasal surgery.*

Key words: nasal, surgery, packs, complications, post-operative

INTRODUCTION

Nasal packing is used routinely in nasal surgery to prevent both post-operative haemorrhage and adhesion formation. Our unit currently uses Merocel (Medtronic Xomed, Florida, USA) as standard for approximately 24 hours post-operatively in routine nasal surgery. We have recently introduced the use of Rapid Rhino nasal packs for the use in haemorrhage control in acute epistaxis. From our own observations, the use of this pack is associated with less discomfort both whilst in-situ and especially on pack removal. Conversely, observations from patients and nursing staff on our ward have led us to believe that removal of Merocel packs is associated with a significantly high level of pain and discomfort. Indeed some patients have expressed a desire to avoid packing post-operatively for fear of pain at pack removal (own observations). The aim of this study was to therefore compare post-operative pain levels between Merocel and Rapid Rhino packs and to assess its efficacy for use in all routine nasal surgery.

METHODS

Local Research and Ethical Committee approval was granted prior to the start of the trial. Statistical support was obtained prior to starting the study. The sample size for a paired or single sample Student t test was estimated With a power of 80%, given a 2 point difference in the visual analogue scale (standard deviation of difference =2.46) a minimum of 14 pairs of patients would be required to be recruited. A total of 17 patients were recruited into the study. Patients were selected to have a Rapid Rhino pack in one nostril and a Merocel pack in the other. Side of pack was randomly chosen on the day of surgery using random number tables. Surgery performed were septoplasty with or without turbinectomy and functional endoscopic sinus surgery. The same surgeon performed all surgery. Patients were asked to record pain levels on each side on a visual analogue scale between 0 and 10, with 10 representing the most severe pain imaginable. Pain scores were recorded one and six hours post-operatively and after pack removal. Our usual practice to remove Merocel packs after infiltration with

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5mls of 4% lignocaine spray (Lavy et al., 1996) was adhered to on the side with Merocel only. Patients were not informed that this was to be the side packed with Merocel to retain the blindness of the study. They were informed that the spray would aid removal of the pack only. The side of pack removed first was randomly chosen with each patient by the nursing staff. Other complications such as excessive bleeding and accidental pack removal were noted. Results obtained were tabulated and subjected to statistical analysis (Wilcoxon Rank testing for non-parametric data).

RESULTS

A total of 17 patients were recruited into the study, but only 14 fully completed pain questionnaires. This was due to three patients accidentally removing the Rapid Rhino pack during recovery. Results are shown in Table 1.

Table 1. Results comparing pain levels of Merocel with Rapid Rhino packs post-operatively.

PATIENT NUMBER	AGE	OPERATION	SIDE OF INCISION	RAPID RHINO SIDE	PAIN SCORE AT 1 HOUR		PAIN SCORE AT 6 HOURS		PAIN SCORE AT PACK REMOVAL	
					T1	T2	T1	T2	T1	T2
1	50	FESS	N/A	LEFT	3	3	4	2	0	6
2	64	SEPTO	RIGHT	LEFT	1	2	1	1	3	3
3	30	SEPTO	LEFT	RIGHT	5	4	6	5	3	7
4	51	SEPTO + TRIM	LEFT	LEFT	1	0	7	1	4	2
5	55	SEPTO + TRIM	LEFT	RIGHT	0	0	0	0	0	5
6	43	SEPTO	LEFT	RIGHT	0	0	4	4	1	9
7	29	FESS	N/A	RIGHT	0	0	0	5	0	5
8	29	SEPTO	LEFT	LEFT	2	1	2	1	0	2
9	18	FESS	N/A	LEFT	4	2	2	5	2	6
10	38	FESS	N/A	RIGHT	3	2	3	3	0	1
11	58	FESS	N/A	RIGHT	6	4	0	0	4	10
12	23	SEPTO	RIGHT	LEFT	4	2	3	1	1	10
13	57	EPTO + TRIM	RIGHT	LEFT	1	0	1	0	3	5
14	61	SEPTO	LEFT	RIGHT	0	0	0	0	2	8

Key for Table 1. Numbers represent pain scores on a scale of 0 (no pain) to 10 (worst pain)
FESS = Functional Endoscopic Sinus Surgery
SEPTO = Septoplasty
TRIM = Trimming of Inferior Turbinates
T1 = Side with Rapid Rhino pack
T2 = Side with Merocel pack
N/A = Not applicable (incisions were either bilateral or not made inferring no bias to one particular side)

The mean pain score for 1 hour in situ was 1.43 for Merocel and 2.14 for Rapid Rhino and for 6 hours in situ was 2 for Merocel and 2.34 for Rapid Rhino. This represents no significant difference in pain experienced between Merocel and Rapid Rhino whilst the packs were in situ ($p=0.54$). There was however a significant difference between pain scores on pack removal, Merocel being significantly more painful (mean pain scores 5.64 versus 1.64, $p<0.01$). There was no difference in pain scores between left and right sides with type of pack not being taken into account.

DISCUSSION

The ideal nasal pack should be easy to remove and insert, comfortable when in place and reduce infection and post-operative bleeding (Shinkwin et al., 1996). The decision to pack post-operatively or not is largely personal preference as evidence exists to both support (Friedmann et al., 1996) and reject (Nunez and Martin, 1991) routine packing. The main reason not to pack is usually due to concerns with pain whilst in situ and on removal although other complications are well published (Hull et al., 1983; Jacobson and Kasworm, 1986; Mansfield and Peterson, 1989; Allen et al., 1990; Kalogjera et al., 1995; Keerl et al., 1996). It would seem likely that if a suitable material could be found that eliminates problems of pain whilst in-situ and on removal the certain benefits of haemorrhage and adhesion prevention could be attained. A similar controlled trial by Shinkwin (1996) showed statistically reduced pain scores for Surgicel Nu-Knit when compared to Merocel packing, however 12% of these packs fragmented on removal with one requiring a further general anaesthetic for its removal. There was also a concern regarding its efficacy with major post-operative haemorrhage.

This study showed only a minimal amount of haemorrhage post pack removal with Rapid Rhino packs whilst there were 5 occasions when bleeding lasted longer than fifteen minutes with Merocel. This has been previously described when comparing Surgical Nu-Knit with Merocel (Shinkwin et al., 1996). The

bleeding was not considered clinically significant as on no occasion did patients require further re-packing or blood transfusion.

Our study shows that nasal packing is not a painful experience post-operatively, as the majority of pain scores recorded was low to moderate. The only occasions when pain levels reached considerable levels were on Merocel pack removal, with two patients describing this as the worst pain imaginable.

Rapid Rhino packs were associated with an increased risk of accidental pack removal at the start of the study, with 3 packs being removed by patients in the recovery area whilst the effects of general anaesthesia were wearing off. This problem was overcome by tying the ends of packs together (Merocel to Rapid Rhino) for the remaining 14 patients in the study. This practice should be continued if both sides are to be packed with Rapid Rhino and is to be recommended to prevent recurrent accidental removal.

The specific pack used in the study was the Goodman 5.5cm pack. This consists of a self-lubricating hydrocolloid fabric made of a net of carboxymethylatedcellulose. The haemostatic mechanism is similar to other known clotting agents such as ADP, thrombine and collagene (Riemann, 2002). There is no requirement for air or water insufflation. Ease of removal is explained by its lack of adhesion to nasal mucosa.

CONCLUSIONS

We can conclude that Rapid Rhino is associated with significantly less pain on removal than standard Merocel packs. Since there is no significant difference in pain whilst in situ, we therefore recommend its use for routine nasal surgery.

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