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Review

Are head bandages required post-pinnaplasty?

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ABSTRACT

A best evidence topic in ear, nose and throat surgery was written according to a structured protocol. The question addressed was: In patients who are undergoing pinnaplasty for prominent ears, does the use of post-operative head bandages as compared to not using post-operative head bandages improve clinical outcomes?

A total of 121 papers were identified using the reported search protocol, of which five articles represented the best evidence to answer the clinical question. The authors, journal, date and country of publication, patient group studied, study type, relevant outcomes and results of these papers are tabulated.

All five studies showed that no advantage exists in using head bandages with patients who have undergone pinnaplasty. Four of the five studies concluded that head bandages should not be utilised at all, whereas two of the five studies suggested that there is little reason to use head bandages after the first 24 h post-pinnaplasty.

Therefore, the clinical bottom line is that provided the pinnaplasty result is good at time of surgery, there is reasonable evidence to suggest that head bandages have no effect on complications or patient satisfaction, so at best they are unnecessary and at worst, their physical drawbacks may actually outweigh any of their perceived benefits.

1. Introduction

A best evidence topic was constructed according to a structured protocol, as described in the International Journal of Surgery.[1]

2. Clinical scenario

You have performed pinnaplasty on a patient for their prominent ears. After the operation, the nurse asks you how you would like the patient's head to be bandaged. One of the nurses suggests that head bandage should be applied for at least ten days while another argues that the value of any head bandage is completely unproven. You wonder who is right and resolve to check the literature to determine whether the use of post-operative head bandages is associated with better outcomes than not using post-operative head bandages.

3. Three-part question

In [patients who are undergoing pinnaplasty for prominent ears], does the [use of post-operative head bandages] as compared to [not using post-operative head bandages] improve [clinical outcomes]?

4. Search strategy

Search strategy using Medline from 1948 to March 2012 using the PubMed interface: (conchaplast* OR pinnaplast* OR otoplast*).ti,ab AND (dressing* OR bandage* OR post*).ti,ab. The search was duplicate filtered. Reference lists of key articles were also searched for more references.

5. Search results

A total of 121 papers were found using the reported PubMed search. Included studies discussed the use of head bandages post-pinnaplasty (and their optimum duration of use) and the non-use of head bandages. Five articles represented the best evidence to answer the clinical question. These are presented in Table 1.

6. Results

Ramkumar et al.[2] randomised 78 children undergoing pinnaplasty, in this prospective controlled trial, to either wearing

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Table 1
Best evidence papers.

Author, date and country, study type (level of evidence)	Patient group	Outcomes	Key results	Comment
Ramkumar et al.[2] 2006 J Plast Reconstr Aesthet Surg United Kingdom RCT (Level 2 evidence)	78 children undergoing correction of prominent ears. 39 had dressings for 24 h compared to 39 that had dressings for 10 days.	Complications (24HB vs. 10HB) Patient satisfaction (24HB vs. 10HB) LEP change (24HB vs. 10HB) Unscheduled hospital visits (24HB vs. 10HB)	20% vs. 19% 79% vs. 82%, $p > 0.05$ −1.0 vs.−0.95, $p > 0.05$ 8 vs. 14, $p > 0.05$	This prospective randomised controlled trial showed that there are no advantages to using HBs for over 24 h. The quality of this trial is diminished by a lack of explanation for the exclusion of one patient from each limb of the study and the obvious fact that the authors neglected to explore the possibility that not applying head bandages at all may be of most benefit. Additionally, methods of randomisation were not detailed.
Orabi et al.[3] 2009 Ear Nose Throat J United Kingdom Quasi-RCT (Level 3 evidence)	84 patients with prominent ears HB $n = 61$ NHB $n = 23$	Complications (HB vs. NHB) Patient satisfaction (HB vs. NHB)	36% vs. 26%, $p > 0.05$ Visual analogue scores: 6.56 vs. 8.46, $p > 0.05$	This prospective, quasi-randomised controlled trial showed that HBs are both unnecessary and non-advantageous. It is confounded by lack of true randomisation and unequally sized study arms, possibly marring this well-conceived trial.
Self et al.[4] 2010 J Plast Reconstr Aesthet Surg United Kingdom Case series outcomes review (Level 4 evidence)	18 children who had undergone pinnaplasty	Complications (HB vs. NHB)	33% vs. 17%	This follow-up study showed that the use of HBs is disadvantageous. Being a correspondence article, it is not completely reported and has a low power, rendering any conclusions less valuable.
Wong et al.[5] 2001 Br J Plast Surg United Kingdom Follow-up study (Level 4 evidence)	50 patients with prominent ears who underwent pinnaplasty but did not receive post-operative bandaging	Haematoma Infection rate Recurrence within first month	2% 0% 0%	This follow-up study showed that the non-use of HBs is not associated with an increase in complication rate. It is a low powered study without a control group, meaning the authors had to refer to a previous study for comparison. As this article was presented as a short correspondence, it lacked statistical analysis.
Bartley[7] 1998 J Laryngol Otol United Kingdom Case series (Level 4 evidence)	52 patients who underwent bilateral pinnaplasty for prominent ears. 24HB $n = 52$	Complications (24HB)	3.8%	This prospective audit showed that there is little benefit from using HBs beyond 24 h. It is significantly confounded by lack of comparison, both with another duration of bandage application and with an important non-head bandage wearing group, thus limiting the value of the conclusions.

10HB, 10-day head bandaging; 24HB, 24-h head bandaging; LEP, lateral ear projection; HB, head bandage; NHB, no-head-bandage; RCT, randomised controlled trials.

head bandages for 10 days following surgery (39 children) or for 24 h alone (39 children). Measured outcomes were lateral ear projection (LEP), patient satisfaction, complication rate and unscheduled hospital visits. Upon their second follow-up visit, children who wore head bandages for 10 days exhibited LEP of −0.95 compared with an LEP of −1.0 ($p = 0.58$) for the children who wore bandages for 24 h. For those who wore head bandages post-operatively for 10 days, the percentage of children reporting a 'happy' satisfaction rating at their second follow-up visit was 82%, compared with the 79% of children who wore bandages for 24 h ($p = 0.79$). Complications recorded upon the second follow-up visit were also non-significant between the two trial arms; 19% of children wearing bandages for 10 days had over one complication compared with 20% of the children who wore them for 24 h 36% of children who wore head bandages for 10 days returned to hospital in an at least one unscheduled visit, which is non-significant when compared with the 21% of children who did the same, but only wore bandages for 24 h ($p = 0.21$). This study was generally well designed, but the largest obvious drawback is that the authors did not examine the possibility that perhaps no head bandages were required at all. The authors demonstrated that there are no benefits from applying head bandages for over 24 h post-pinnaplasty.

Orabi et al.[3] quasi-randomised 84 patients undergoing pinnaplasty to either wearing head bandages post-operatively or not. Measured outcomes were complication rates and long-term patient satisfaction scores on a visual analogue scale. There was no significant difference in the complication rates between the two groups, 36% vs. 26% in the dressed and non-dressed groups respectively ($p = 0.3$). Patients who did not receive head dressings reported higher satisfaction with their results although this difference was not statistically significant ($p = 0.09$). Criticisms of this otherwise well conceived trial include the 'pseudo-randomisation' process (as opposed to true randomisation), unequal study group sizes, a lack of clarity surrounding the characteristics of the two groups, and a lack of consideration given to preoperative deformity which may have linked directly to rates of complication and patient satisfaction. The authors concluded that head bandages were both unnecessary and unhelpful.

Self et al.[4] analysed the results of 18 children who underwent pinnaplasty. Some of these children wore a head bandage post-operatively and some did not, although the authors did not specify the relative proportions. The outcome of interest was post-operative complication rate. 50% of bandage-wearing patients required reapplication of the dressings in hospital. 33% of bandage-wearing patients suffered complications whereas only 17% of non-bandage wearing patients suffered complications. The brevity of the article unfortunately meant that no information was given regarding relative group proportions and statistical analyses were not reported, perhaps because of the small sample sizes. Thus the only conclusion that can be drawn from the study is that not applying head bandages post-pinnaplasty results in a similar outcome to patients who were dressed.

Wong et al.[5] assessed the presence of haematoma, infection and recurrence of ear-prominence within the first month of follow-up in 50 patients. All patients in this series did not wear head bandages following pinnaplasty. Haematoma occurred in one patient (2%), no patients suffered infections and no patient had an early recurrence. Again, these results were reported as a short correspondence article, perhaps due to the small sample size, lack of statistical analysis and the absence of a control arm for direct comparison. The authors relied upon another study by Calder and Naasan[6] to demonstrate that their 2% complication rate in non-bandage wearing patients is no greater than it is in patients who are given head bandages. The study illustrated that not using head bandages does not increase rates of complication and as such, head bandages are of no benefit in patients who have undergone pinnaplasty in terms of suppressing complications.

Bartley[7] prospectively explored the complications in 52 patients who underwent bilateral pinnaplasty and only wore head bandages for 24 h post-operatively. Two of the 52 patients developed complications (4%) in the early post-operative period. Limitations of this study include the absence of a control group, the absence of a group remaining bandaged for a longer time period, and most importantly, the absence of a group receiving no bandages at all. Bartley concluded that whilst head bandages may protect some patient subpopulations, overall there is no need to routinely provide head bandages for longer than 24 h after the operation.

7. Clinical bottom line

Despite several studies demonstrating the advantages of not providing head bandaging (or ensuring duration of use is less than 24 h) compared with providing head bandaging, many centres still insist on dressing patients ears after their operation. This is perhaps testament to the traditional, routine and engrained nature of this non-evidence based technique.

We have found five articles which represent the best evidence currently available to answer our clinical question. These studies, although being the best evidence currently available, have several methodological flaws as already discussed. However, they at least illustrate the safety in not wearing head bandages post-pinnaplasty, and that in circumstances where they are applied they must be done so for the shortest duration possible. Additionally, patients who do not wear head bandages escape problems stemming from bandage slippage, pressure necrosis, masking of infection, itching, conductive hearing loss and the odour of coagulated blood.

Further appropriately powered randomised controlled trials comparing outcomes between bandaged and unbandaged patients would help finalise the argument on this exigent subject.

Ethical approval

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Author contribution

Joseph M. Norris: performed the literature search, collated pertinent articles, performed critical appraisal of the articles, wrote the manuscript and table and co-ordinated the reviewing and re-writing of the manuscript.

Nigel T. Mabvuure: co-conceived the clinical problem, assisted with performing the initial literature review and contributed significantly to reviewing and revising the manuscript.

Alex Cumberworth: contributed to careful critical appraisal of the evidence and helped review and re-write sections of the manuscript.

Simon J. Watts: conceived the pertinent clinical question for the BestBET and substantially contributed to the reviewing and re-writing of the manuscript.

Conflict of interest

None.

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