

Peer Review File

Article Information: <https://dx.doi.org/10.21037/ajo-21-6>

Reviewer A:

This paper provides a retrospective review of one surgeon's results using the forehead flap to repair nasal defects over a ten year period. Surgical and oncological outcomes are discussed along with functional results associated with this flap, particularly nasal obstruction. There is very little written on this reconstructive technique within the otolaryngology literature and given the prevalence of cutaneous malignancy in Australia the otolaryngologist should be familiar with this versatile flap.

Keyword - consider changing cancer to nasal neoplasm (better MESH term) - use MESH browser to check keywords.

<https://meshb.nlm.nih.gov/MeSHonDemand>

[keyword cancer changed to "nasal neoplasm" \(page 2\)](#)

Intro:

Line 53 - am not sure what accounting for 20% of this estimated incidence means? incidence of what?

[Apologies, vague and probably not relevant. Referred to the Darling Downs accounting for 20% of the cases of non-melanoma skin cancer in Queensland each year. Entire introduction has been revised further as also suggested by reviewer 2 \(page 3\)](#)

Methods:

Were there any exclusion criteria?

[There were no specific exclusion criteria, in that all cases of forehead flap performed were extracted and included to ensure a representative population. Children \(< 18yrs old\) would have been excluded but no cases were performed in this population. Sentence included to address this \(pg 4\)](#)

As no statistical analysis performed may benefit from a statement regarding why not needed?

[Statistical analysis sub-section included in Methods section \(pg 4\).](#)

[Data was collated and statistical analysis performed in Microsoft Excel \(Version 2105\). A](#)

[univariate descriptive analysis was undertaken.](#)

Results:

Throughout the results please provide the raw number not just %. This could be provided also in tabulated form. Future authors undertaking reviews may wish to use results and this is difficult without the raw data and also does not allow the reader to analysis results for themselves.

In instances where just % was reported the raw numerical data has now been included as well for all cases.

Line 88 - implying immunosuppressed?

Vague statement clarified as followed. Six patients (6%) were immunosuppressed: five being on medical therapy for either rheumatoid arthritis or systemic lupus erythematosus, and one with a diagnosis of chronic lymphocytic leukaemia (CLL). (pg 5)

line118- 57% please provide raw number_

Completed. Autologous conchal cartilage was inset as an alar batten graft(s) in 55 patients, harvested via a posterior incision and subperichondrial dissection (pg 6)line 120 - possibly more information about the bivalve or turn in flaps? Or a diagram?

Six patients with malignancy had full thickness defects necessitating internal lining reconstruction. This was achieved by folding the thinned distal component of the forehead flap around the alar rim with a 1mm releasing incision as described by Menick, thus sandwiching the cartilage graft between. (pg 6)

Line 122 - raw numbers please

Primary closure of the forehead donor site was achieved in 81 patients after undermining in the subgaleal plane with blunt dissection, while 15 had partial primary closure with the residual defect left to heal by secondary intention. Two patients required a full thickness skin graft (FTSG). (pg 6)

There is no comment of complications from cartilage harvesting - assume where none.

No complications at the donor site from cartilage harvest were recorded. Sentence included for clarity as suggested.

There were no recorded complications with forehead, cartilage graft or skin graft donor sites or scar revision procedures performed. (pg 7)

If the author had a photo that highlighted any of the outcomes from this study it would add to the visual interest. Discussion:

No discussion around cartilage graft use and how this study compares to the literature?

Given that the conclusion states the use of cartilage and designing inner lining may be key to preventing nasal obstruction would like to see further discussion around this point.

Discussion regarding bivalve or turn in?

Discussion amended to discuss alternative techniques including septal, turbinate, bi-valve and folded forehead flap for internal lining reconstruction. Conclusion amended given small numbers in our series and type of internal lining has not prospectively or retrospectively evaluated in the literature. We agree this remains an area for future research (page 9)

The need to reconstruct the nose in layers, particularly the use of cartilage alar batten grafts to provide contour and prevent airway obstruction, is well recognised (21). Alternative techniques for internal lining reconstruction in full thickness defects have been described, including septal and turbinate local flaps. The folded forehead flap has performed well in our series, but an alternative bi-valve technique, which sandwiches the cartilage graft between the outer skin and inner pericranium-galea appears similarly reliable and avoids a second flap complicating the reconstruction (8, 21-23).

Authors haven't discussed limitations of this study. Eg retrospective case series (level 4 evidence) no objective measurements of functional or cosmetic outcomes. This paragraph should come after you have put your findings into context in regards the literature and discuss what would improve knowledge in the field. Eg is excision + forehead flap better than radiation alone?

Randomised controlled study - surgical excision + flap vs Moes +flap for oncological, cosmetic or functional outcome?

Discussion amended to include paragraph highlighting limitations of this study (page 10)

Overall, a low complication rate relative to the published literature was observed in our cohort, combined with good rates of oncologic clearance and locoregional recurrence. There were no cases of complete flap failure and only one case of partial flap necrosis in an active smoker.

Meticulous surgical technique and a low threshold for auricular cartilage harvest and reconstruction of the lower third of the nose is thought to have contributed to the low rates of vascular compromise and post-operative nasal obstruction observed in our cohort, although variability in reporting measures make direct comparisons difficult. Beyond the inherent limitations of a retrospective study, no objective measurements of functional or aesthetic outcome were available for our series, limiting conclusions. A prospective study with validated standardised measurements for complications and quality of life outcomes is indicated. However, this study does demonstrate the value of a facial plastic surgery trained ENT surgeon, equipped with robust reconstructive options such as the forehead flap, in the provision of cancer and reconstructive services, particularly in under-resourced regional settings with a high burden of advanced skin cancer.

What does this study add to the literature? How can these results then improve patient management, outcomes or the health system in general. Prevented the patient from needing to access care further from home, value for health sector and patient. Role within Ent training for further facial plastics training.

Discussion and introduction both amended to reflect one of the key messages of the article with respect to optimizing patient outcomes and health system resourcing through training ENT surgeons in the use of a robust pedicled flap for nasal reconstruction. (pages 3, 10)

Patients with advanced cutaneous malignancy of the nose require appropriate reconstruction to restore cosmesis and function. The high incidence of skin cancer in Australia is largely drawn from regional populations with significant occupational and recreational sun exposure. Travel to metropolitan centres with tertiary plastic surgery services places a significant financial, physical and emotional burden on many patients and an increasing strain on the health budget. Facial plastic surgery is a core element of otolaryngology head and neck surgical (OHNS)

training and practice in Australia. Where ENT surgeons can provide a robust reconstructive service for advanced cutaneous malignancy of the head and neck, particularly in regional centres, there are likely to be significant benefits at an individual and systems level.

The provision of surgical and cancer care in rural and regional Australia is challenging. For advanced facial skin lesions, management can be complex and otherwise require referral and travel to a metropolitan tertiary centre. Within our unit, we have presented the cost saving utility that can be drawn from optimised regional surgical care in partnership with local primary care providers, recognising potential cost savings and working to deliver an improved service for both individual patients and our health service (24). Following this presentation of forehead flap nasal reconstruction oncological and functional outcomes, future study and wider cost-benefit analysis would further support this contribution to regional cancer care service in the context of increasing cost for skin cancer management in Australia.

Overall, this study demonstrates the value of facial plastic surgery trained ENT surgeons, equipped with robust reconstructive options such as the forehead flap, in the provision of cancer and reconstructive services, particularly in under-resourced regional settings with a high burden of advanced skin cancer.

References:

Author may want to ensure they have reviewed any current otolaryngology papers on the topic.

This review from Current Opinion is worth reading.

Austin, Grace, Shockley, William. Reconstruction of nasal defects: contemporary approaches.

CURR. OPIN. OTOLARYNGOL. HEAD NECK SURG.. 2016;24(5):453-460.

doi:10.1097/MOO.000000000000295.

This just published review although in itself may not be useful may be worth checking references in case any other useful papers.

Reconstruction of Cutaneous Cancer Defects of the Head and Neck

Otolaryngologic Clinics of North America, The. Eid, Issam N., MD; Arosarena, Oneida A., MD. Published April 1, 2021. Volume 54, Issue 2. Pages 379-395.

Thank you. These articles facilitated a further review of the otolaryngology and facial plastic surgery literature. References not relevant to the key findings or messages of the study have been revised as suggested by review 2. However, this allowed new references to be included of more relevance, including literature discussing internal lining reconstruction and alternatives to forehead flap reconstruction has been referenced as per the text. (Page 12)

Reviewer B:

Good series presentation given the limitations of a retrospective study but too wordy. Need to edit down to be succinct and make the key point.

Text revised and made more concise throughout aiming to highlight the key messages, including provision of regional health care. Approximately 600 words cut from manuscript overall after including additional text/references to alternatives to forehead flap, internal lining recon as suggested by Reviewer 1.

The biggest value to the literature is the demonstration that the forehead flap is robust, can be performed in the right hands in a regional centre and patients do not need to attend a tertiary referral centre and all the benefits (including cost-benefit) this offers. This point is not emphasized enough. Switch para 1 and para 2 in introduction around but state high incidence in regional area first sentence. Also state not uncommon practice for these patients to go to larger centres in major cities which means travel, increased cost, limited access ect

Introduction has been revised including paragraphs 1 and 2 switched around (pg 3) Discussion has also been revised and streamlined.

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to restore cosmesis and function. The high incidence of skin cancer in Australia is largely drawn

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The provision of surgical and cancer care in rural and regional Australia is challenging. For advanced facial skin lesions, management can be complex and otherwise require referral and travel to a metropolitan tertiary centre. Within our unit, we have presented the cost saving utility that can be drawn from optimised regional surgical care in partnership with local primary care providers, recognising potential cost savings and working to deliver an improved service for both individual patients and our health service (24). Following this presentation of forehead flap nasal reconstruction oncological and functional outcomes, future study and wider cost-benefit analysis would further support this contribution to regional cancer care service in the context of increasing cost for skin cancer management in Australia.

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Methods:

Ethics approval in first paragraph. Wording would be "Low negligent risk project Ethics Approval given by.... " It is still an approval, not an exemption.

Paragraph revised to read “Low negligible risk research approval (LNR 19 QTDD 48702) was granted by the Darling Downs regional Human Research Ethics Committee.” (pg 4)

At line 80, no need to state that

"given the study design posed no risk of 81 harm or discomfort to participants." That is known definition of low risk.

This statement has been removed as recommended as it is tautologous (pg 4).

Any exclusion criteria?

There were no specific exclusion criteria, in that all cases of forehead flap performed were extracted and included to ensure a representative population. Sentence included to address this (pg 4)

Results and Discussion Too long, too much information. Reduce down to what is key in making the point.

Results and discussion have been revised and shortened as recommended. Word count reduced from 3503 to 2956 while further emphasizing key points and addressing some minor omissions raised by Reviewer 1.

Conclusion Keep as a strong positive statement. The last sentence detracts completely and is unnecessary as it applies to small number. Mention in results. discussion but not here.

Last sentence removed (pg10). This point is elaborated upon in results and discussion sections as recommended.

Conclusion

Excellent oncologic and functional outcomes can be achieved in the setting of advanced nasal cutaneous malignancy treated with forehead flap reconstruction by ENT head and neck surgeons, comparable to those achieved at tertiary facial plastic surgery centres

Edit with the key point in mind

Discussion has been revised and shortened as suggested to emphasise the key points.