Reviewer's report

Title: Obliteration of radical cavities with autogenous cortical bone; long-term results

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Reviewer: Patrick J Dawes

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Obliteration of Radical Cavities with autologous cortical bone.

Authors: AM Abdel-Rahman et al.

This review was prepared according to the guidelines offered by BMC ear, nose and throat disorders.

Question 1 - Is the question posed by the authors new and well defined?
No ## the introduction does not define the question to be addressed by the research. It is alluded to in the Abstract.

Question 2 - Are the methods appropriate and well described?
For the data collected it was necessary to examine the patients in order to have a final (latest) view of the cavity and an assessment of ear canal/cavity volume. However there was a lot of other data that may have been gleaned from the records of those not attending. That is: almost half the patients were not included but their case notes would have been available for review. There is a lot of missing data and we do not know what that may have been, yet some of it would have been retrievable as part of an ##institutional review## that would not have required ethical approval.

The purpose of the digital otoendoscopy is uncertain, otomicroscopy alone should be sufficient to assess the ears. Which examination technique was used for the assessment?

A questionnaire was used but is not shown. It is essential that this be shown and explained.

The Likert scale used for assessing the cavity jumps from minor formation of a cavity to major cavity, crusting. There is no point on the scale that indicates moderate cavity formation with no crusting. Thus the scale can only describe extremes ##a small or no cavity## and a large cavity.

Question 3 ## Are the data sound?
The data is not well presented.
From reading the paper it appears that 70- patients had 72 operations (page 7 line 4).

Is there a relationship between cavity/canal volume and the cavity as assessed by the Likert Scale; I would expect to see such a relationship.

Only 59 contralateral ears had tympanometry; why is this? There should have been 140 â## 72 = 68 ears assessed. This raises the suspicion that some of the contralateral ears may have had previous surgery and this will have affected the individuals need to use hearing aids in one or other ear. Thus hearing aid usage and cavity problems among the ears examined may relate to the condition of the other ear as much as to the condition of the operated ear.

The audiometric results should be presented in a table showing the Pre and Post Op AC and BC averages across 0.5,1,2,4 and well as the mean ABG. In addition post operative sensorineural hearing losses should be reported.

The ABG is shown in 10dB bins and this is correct.

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Question 4 - Does the manuscript adhere to the relevant standards for reporting and data deposition?

As mentioned above the audiometric data is insufficient.

The tables are poorly constructed and not all are labelled

The questionnaire is not shown (as an appendix)

The authors do not describe the post-operative problems following the obliteration procedure. Reference is made to the requirement for a subsequent procedure but the pathology requiring this is not described. In particular the frequency, site and depth of cavity resorption of recurrent disease is not described.

Question 5 - Are the discussion and conclusions well balanced and adequate supported by the data?

The discussion includes/introduces material not well covered in the results. The statement â##results with hearing are considered better in obliterated cavities than in open cavities(18)â## has only one supporting reference and the authors make no comparison between there data and that of others. I am unhappy about this, particularly as current opinion indicates that following an Intact Canal Wall Mastoidectomy hearing is not better than following Canal Wall Down Mastoidectomy.
Question 6 â##Are the limitations of the work clearly stated?

No

Question 7 â## Do the authors clearly acknowledge any work upon which they are building?

No â## there may be no prior line of thought

Question 8 Do the title and abstract adequately convey what has been found?

Yes, the title is potentially accurate. The abstract refers to the Likert scale but the results given for this are meaningless without reading the whole article. The values for ABG are not given. As such the abstract does not clearly stand alone.

Question 7 - Is the writing acceptable?

Yes for the majority of the article, some of the use of English should be corrected but can probably be done by the editorial team, if the article is published.

I am quite particular about how surgery is described and the use of the term â##radicalâ## with respect to a (mastoid) cavity has limited meaning. A radical mastoidectomy is a very specific procedure which involves leaving the oval window niche open to the environment, the middle ear cleft being sealed at the level of the promontory; whereas a â##modified radical mastoidectomyâ## is a procedure whereby a cavity is created and the middle ear sealed at the level of the facial nerve, that is the oval window niche is retained in the aerated middle ear space. Most CWD mastoid surgery would nowadays be expected to keep the oval window niche within the aerated middle ear. The cavity size is dictated by either disease extent (if performing a front to back or â##inside-outâ## procedure) or by the size of the mastoid air cell system (if performing back to front surgery). So the term radical cavity is, to me, meaningless.

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Major Compulsory Revisions (that the author must respond to before a decision on publication can be reached)

The introduction is short and does not adequately describe the aim of the study.

This is not solely a retrospective review, the examination of the patients indicated that there is an â##objectiveâ## assessment at an end point. This effectively excludes about half of those who had surgery but whose data may be available through a notes review.

The questionnaire should be shown

The results are not well presented and some material introduced in the discussion should be described in the results.

There is insufficient audiometric detail, more information should be given about
the preoperative and postoperative thresholds, including the 4kHz BC threshold. This information could be given in a table.

The complications are not adequately detailed.

Minors Essential Revisions (such as missing labels on figures, or the wrong use of a term, which the author can be trusted to correct)

Discretionary Revisions (which the author can choose to ignore)

Minor grammatical changes would improve readability

**What next?:** Unable to decide on acceptance or rejection until the authors have responded to the major compulsory revisions

**Level of interest:** An article whose findings are important to those with closely related research interests

**Quality of written English:** Needs some language corrections before being published

**Statistical review:** No, the manuscript does not need to be seen by a statistician.

**Declaration of competing interests:**

'I declare that I have no competing interests'