The Journal of Laryngology & Otology (2016), ***130***, *210*.
© JLO (1984) Limited, 2015
doi:10.1017/S0022215115003023

Spontaneous closure of traumatic tympanic membrane perforations: observational study

Dear Editors,

I would like to address the article titled 'Spontaneous closure of traumatic tympanic membrane perforations: observational study' by Jellinge *et al*.[1]

Their work is very important. I agree with the authors in that traumatic tympanic membrane perforation has the highest closure rate with spontaneous healing. Regarding inverted and everted edges, however, the authors cited my paper and wrote, 'Previous reports of the importance of inverted and everted edges are contradictory,[2,3] but it has been stated that the type of epithelial migration has importance for closure time but not for closure rate'.[3]

I feel that Jellinge *et al*. misunderstand the two concepts of inverted edge and outward epithelial migration, which resulted in a misquotation. Inverted and everted edges refer to the remaining residual eardrum at the perforation margin when tympanic membrane perforation occurred, and the edge comprises the three layers of the eardrum. Studies have suggested that an inverted edge may migrate inward into the middle tympanic cavity, which results in failure to heal, or the development of a middle-ear cholesteatoma.[4–6] Our study suggested that the inverted and everted edges gradually become necrotic, form a crust, and migrate into the external auditory canal. Consequently, an inverted edge does not affect the outcome of spontaneous healing.[7] Other studies obtained similar findings.[8–10] By contrast, outward migratory epithelium is the outer squamous epithelial layer of the tympanic membrane on the perforation edge that proliferates and migrates upward away from the centre of the perforation during the spontaneous healing process. This non-centripetal migration of proliferating epithelial cells[3] may occur in perforations with and without inverted edges. It is merely an abnormal or pathological epithelium migration that occurs during the healing of traumatic tympanic membrane perforation, not another means of eardrum healing.

Our study showed that the perforation can start to heal only when the outward epithelial migration pattern evolves into a centripetal migration pattern. Once outward epithelial migration occurs, it may prolong and impede the closure of traumatic eardrum perforation.[3]

Based on these studies, I realise that the description of the quote in their Discussion confused inverted edge and outward migratory epithelium.

Z C LOU
Department of Otolaryngology, Head and Neck Surgery,
Affiliated Yiwu Hospital of Wenzhou Medical University,
Yiwu City, China

References

1 Jellinge ME, Kristensen S, Larsen K. Spontaneous closure of traumatic tympanic membrane perforations: observational study. *J Laryngol Otol* 2015;**129**:950–4
2 Lou ZC, Tang YM, Yang J. A prospective study evaluating spontaneous healing of aetiology, size and type-different groups of traumatic tympanic membrane perforation. *Clin Otolaryngol* 2011;**36**:450–60
3 Lou ZC. Spontaneous healing of traumatic eardrum perforation: outward epithelial cell migration and clinical outcome. *Otolaryngol Head Neck Surg* 2012;**147**:1114–19
4 Armstrong B. Traumatic perforations of the tympanic membrane: observe or repair? *Laryngoscope* 1972;**82**:1822–30
5 Meyerhoff WL, Marple BF, Roland PS. Tympanic membrane, middle ear, and mastoid. In: Roland PS, Marple BF, Meyerhoff WL, eds. *Hearing Loss*. New York: Thieme Medical, 1997;155–94
6 Winerman I, Man A, Segal S. Early repair of traumatic perforations of the tympanic membrane in children. *Int J Pediatr Otorhinolaryngol* 1982;**4**:23–7
7 Lou ZC, He JG. A randomised controlled trial comparing spontaneous healing, Gelfoam patching and edge-approximation plus Gelfoam patching in traumatic tympanic membrane perforation with inverted or everted edges. *Clin Otolaryngol* 2011;**36**:221–6
8 Park MK, Kim KH, Lee JD, Lee BD. Repair of large traumatic tympanic membrane perforation with a Steri-Strips patch. *Otolaryngol Head Neck Surg* 2011;**145**:581–5
9 Jun HJ, Oh KH, Yoo J, Han WG, Chang J, Jung HH *et al*. A new patch material for tympanic membrane perforation by trauma: the membrane of a hen egg shell. *Acta Otolaryngol* 2014;**134**:250–4
10 Camnitz PS, Bost WS. Traumatic perforations of the tympanic membrane: early closure with paper tape patching. *Otolaryngol Head Neck Surg* 1985;**93**:220–3

The Journal of Laryngology & Otology (2016), ***130***, *210*.
© JLO (1984) Limited, 2015
doi:10.1017/S0022215115003035

Authors' reply

Dear Editors,

We want to thank Zhengcai Lou for his interest in our study on spontaneous closure of traumatic tympanic membrane perforations, and for his clarification of the important results from his detailed studies on the subject.

As far as we can see, we have quoted correctly the conclusion of Dr Lou regarding the influence of epithelial migration.[1] With regard to the importance of inverted and everted edges, it is correct that the quotation of Dr Lou's paper could be misleading and should not have been used in that context. Our intention of referencing another study by Lou *et al*.[2] in this context was to draw attention to his discussion on his own results versus the opinion of other authors, with quotation of the two papers.

Anyway, we regard the studies from Dr Lou as some of the most important and advanced research in the field.

K LARSEN
Department of Otorhinolaryngology, Head and Neck
Surgery Hospital of Southwest Jutland, Esbjerg, Denmark

References

1 Lou ZC. Spontaneous healing of traumatic eardrum perforation: outward epithelial cell migration and clinical outcome. *Otolaryngol Head Neck Surg* 2012;**147**:1114–19
2 Lou ZC, Tang YM, Yang J. A prospective study evaluating spontaneous healing of aetiology, size and type-different groups of traumatic tympanic membrane perforation. *Clin Otolaryngol* 2011;**36**:450–60

https://doi.org/10.1017/S0022215115003035 Published online by Cambridge University Press