

Case Report

An unusual cause of acute tympanic membrane perforation: A case report

Anelechi B. Chukuezi and Jones N. Nwosu*

Department of Otolaryngology, Imo State University Teaching Hospital, Orlu, Imo State, Nigeria.

Accepted 26 March, 2009

This is a case report of a 26 – year old lady who presented in the Accident and Emergency Department of our hospital with complaints of sudden onset of right otalgia, tinnitus and loss of hearing which she claimed started at about 12:30 h after vigorous kissing incident. The tympanic membrane was ruptured. She was managed conservatively with oral antibiotics with spontaneous and complete healing of the perforated tympanic membrane within one month of follow-up. It was shown that ear kissing can lead to auditory injury and loss of hearing and so kissing should be made as gentle as possible in all circumstances.

Key words: Unusual cause, kissing, acute tympanic membrane perforation.

INTRODUCTION

Tympanic membrane perforations are common in Otolaryngological practice. Perforations of tympanic membrane are categorized into acute and chronic (Ott and Lundy, 2001; Fagan and Patel, 2002). Traumatic perforations of the ear drum are often encountered in the emergency room and in the primary care setting (Fernandez et al., 2001). The literature reports various cause of acute traumatic rupture of the tympanic membrane (Ott and Lundy, 2001; Fagan and Patel, 2002; Reiter, 2008; Orji and Agu, 2008; Davidson and Morris, 1992; Griffin, 1979). We report here an unusual traumatic cause of acute tympanic membrane perforation from decreased pressure within the external auditory meatus resulting from vigorous kiss in the ear.

Case report

Mrs. C, a 26 year old lady presented in the Accident and Emergency Department of our hospital with complaints of sudden onset of right otalgia, tinnitus and loss of hearing which she claimed started about 12.30 h after kissing incident. She gave a history of bloody discharge from the right ear. There was no history of being slapped or beaten on that ear or assault of any kind. She was reluctant initially to offer any cause for the sudden rupture of her right tympanic membrane. Further questioning revealed that while she was making love that night with her hus-

band he passionately kissed her in the right ear leading to the complaints.

Her vital signs were normal. She was afebrile, not pale, anicteric. Abdomen was full and moved with respiration. There were no palpable peripheral lymph nodes, pedal oedema or enlarged abdominal organs. The chest was clear with good air entry and heart sounds were normal.

Both pinnae appeared normal. Otoscopy of external auditory meatus revealed ecchymosis around the walls and tympanic membrane with fresh central perforation of about 25 – 30% in the pars tensa with irregular margins. Weber's test lateralized to the affected side and Rinne's test was negative.

Audiogram done the following day showed conductive hearing loss of 20 dB; averages taken at 500, 1000, 2000 and 4000 Hz.

She was advised to keep the affected ear dry and oral antibiotic was prescribed for her. Spontaneous and complete healing of the perforation occurred within one month of follow-up.

DISCUSSION

The tympanic membrane is divided into the pars flaccida superiorly and pars tensa inferiorly. Majority (80%) of perforations of the tympanic membrane occur in the pars tensa - the lower quadrants (Davidson and Morris, 1992; Davut and Zamazan, 2000; Ibekwe et al., 2007). Patients that have traumatic perforation of the tympanic membrane often present with complaints of pain, hearing loss,

*Corresponding author. E-mail: fortbarn@yahoo.com.

bleeding and various degrees of tinnitus. The hearing loss often correlates with size, location and extent of injury and perforation.

Tympanic membrane perforations typically result from trauma or acute otitis media (Davidson and Morris, 1992). Majority of perforations are due to trauma. Perforations could be bilateral depending on the cause. Despite the protected location of the tympanic membrane - deep in the bony part of the external auditory meatus, it remains susceptible to damage by trauma. Literature review showed that traumatic perforations of the tympanic membrane can be caused by open-hand blows, injuries by cotton-tipped swabs or foreign bodies, explosions as a result of blast overpressure, welding sparks, fracture injuries to the temporal bone, barometric causes due to environmental pressure changes like in flying and scuba diving; iatrogenic causes like vigorous syringing of the ear or surgical intervention during insertion of ventilating tubes (Ott and Lundy, 2001; Fagan and Patel, 2002; Griffin, 1979). The ear is the organ that is most vulnerable to damage by blast overpressure (Robbins, 2007; Ralph et al., 2005). An increase in pressure of as little as 5 psi above atmospheric pressure (1 atm is equivalent to 14.7 psi, or 760 mm Hg) can rupture the human eardrum (Jensen and Bonding, 1993). Severe injuries to the ear or tympanic membrane could lead to severe deafness and damage to the ossicles or permanent hearing loss if the oval window is affected. In the case reported the perforation and consequent mild conductive hearing loss resulted from kissing of the ear. The sucking action produced decreased pressure within the external auditory canal resulting in sudden rupture of the tympanic membrane. A permanent ear injury following a strong kiss on the external auditory meatus by a 4 year old girl has been reported (Reiter, 2008). Both resulted from kissing but the impact here was more and to the cochlea leading to sensorineural hearing loss while ours was limited to external/middle ear producing mild conductive hearing loss.

There have been controversies on the best method of treating traumatic perforations of the tympanic membrane. Majority of all traumatic perforations heal spontaneously (Davidson and Morris, 1992; Orji and Agu, 2008; Søren, 1992; Griffin, 1979; Lindeman et al., 1987). Various studies have shown no significant difference between paper prosthesis and spontaneous healing with treatment with oral antibiotics (Lindeman et al., 1987; Amadasun, 2002). Our case healed spontaneously with oral antibiotics. The antibiotic was administered mainly for prophylaxis against secondary infection considering out peculiar environmental conditions. It has been shown that spontaneous healing of tympanic membrane was de-

layed significantly by large size ($\geq 50\%$ of entire TM), ear discharge (infection), wrong intervention (ear syringing) and penetrating injuries sustained through the ear canal (Orji and Agu, 2008).

Conclusion

This case has shown that ear kissing, though an act of affection, can lead to auditory injury and loss of hearing. Though the effect here can be considered mild, a more devastating outcome has been reported (Reiter, 2008). This is highlighted to create awareness and educate the public on this unusual and likely cause of tympanic membrane rupture.

REFERENCES

- Amadasun JE (2002). An observational study of the management of traumatic Tympanic membrane perforations. *J. Laryngol. Otol.* 116(3): 181-184.
- Davidson BJ, Morris MS (1992). The perforated tympanic membrane. *Am. fam. physician.* 45(4): 1777- 1782.
- Davut A, Ramazan K (2002). The Relationship between Traumatic Tympanic membrane perforations and Pneumatization of the Mastoid. *J. Oto-Rhino-laryngol.* 62(6):311-315.
- Fagan P, Patel N (2002). A hole in the drum. An overview of tympanic membrane perforations. *Aust. Fam. Physician.* 31(8): 707- 710.
- Fernandez G, Sharma VM, Amedee RG (2001); Traumatic perforation of the tympanic membrane. *J. La State Med. Soc.* 153(3):116-118.
- Griffin WL Jr (1979). A retrospective study of traumatic tympanic membrane perforations in a clinical practice. *Laryngoscope* 89 (2 part 1) : 261-282.
- Ibekwe TS, Ijaduola GTA, Nwaorgu OGB (2007). Tympanic Membrane Perforation Among Adults in West Africa. *Middle Ear and Mastoid Disease. Otol. Neurotol.* 28(3): 348-352.
- Jensen JH, Bonding P (1993). Experimental pressure induced rupture of the tympanic membrane in man. *Acta. Otolaryngol. (stockh).* 113(1): 62- 67.
- Lindeman P, Edström S, Granström G, Jacobsson S, von Sydow C, Westin T, Åberg B (1987). Acute Traumatic Tympanic Membrane Perforations. Cover or observe? *Arch. Otolaryngol. Head Neck Surg.* 113 (12): 1285-1287.
- Orji FT, Agu CC (2008). Determinants in spontaneous healing in traumatic perforations of the tympanic membrane. *Clin. Otolaryngol.* 33(5): 420-426.
- Ott MC, Lundy LB (2001). Tympanic membrane perforation in adults. How to manage, when to refer. *J. Postgrad. Med.* 110(5): 81- 84.
- Ralph GD, David GB, Howard RC, Michael JH (2005). Blast Injuries. *The New Engl. J. Med.* 352(13): 1335-1350.
- Reiter LA (2008). "The Kiss of Deaf": A case study. *The Hearing J.* 61(8): 32- -37.
- Robbins AS (2007). Tympanic – Membrane Perforation as a Marker of concussive Brain Injury in Iraq. *The New Engl. J. Med. (Letter to the Editor).* 357(8): 850 – 831.
- Søren K (1992). Spontaneous healing of traumatic tympanic membrane perforations in man: A century of experience. *J. Laryngol. Otol.* 106(12): 1037-1050.