

## LETTERS TO THE EDITOR

### THE VALSALVA MANOEUVRE

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Dear Editor

I was prompted to write this letter after reading the excellent review by Dr David Taylor.<sup>1</sup> Delonca, in an article on methods of equalising middle ear pressures for divers on descent, quotes from a book written by Valsalva called "Tractus de Aure Humana" or *A Treatise On The Human Ear*.<sup>2</sup> In another historical publication I read that in this book about the human ear, Valsalva described his manoeuvre as a means of treating discharging ears in adults. In other words by blowing air up the Eustachian tube it forced pus from the middle ear through the perforated tympanic membrane and this resulted in a cure of the chronic suppurative otitis media.

From my investigations the Valsalva manoeuvre is in fact the method used by divers to force air up the Eustachian tube and this interpretation of the manoeuvre is accepted by all Ear Nose and Throat surgeons. However there seems to be some conflict of opinion with physicians. When I asked a physician what was meant by the Valsalva manoeuvre, he described what Dr Taylor states in his introduction, a forced expiration against a closed glottis. Dr Taylor described a "standardised" Valsalva manoeuvre, which is neither of the above. As far as pressure effects are concerned there is a difference between expiration against a closed glottis and holding the nose and blowing hard down through the nose.

I have often wondered whether Valsalva wrote 2 books, one for the physicians and one for the ear surgeons or whether or not some person many years ago misinterpreted what Valsalva wrote so that the physicians are firmly convinced that their interpretation is the true one and the Ear Nose and Throat surgeons are all wrong.

Dr Taylor states that complications are usually seen when Valsalva is performed either "too forcefully" or "for too long a period." He does not define what he means by either of these indices. I have maintained over the past 30 years that a person should not hold the nose blocked for more than 5 seconds at a time and none of my patients have come to any harm. I consider that carrying out the Valsalva manoeuvre and raising the pressure for less than 5 seconds will not cause any problems and none have been reported to me.

It is difficult to define "forceful" and this leads to many people having problems inflating their ears because

they blow gently down through the blocked nose and this does not provide sufficient back pressure to inflate the ears. Some patients I have told to blow hard and they immediately clear their ears within 1 or 2 seconds and their problem is solved. If one states that forceful attempts are to be avoided, then instructors tend to tell their people to be gentle and thus cause problems. Ear surgeons use a Politzer bag to forcefully inflate the middle ear producing much higher pressures than the expiratory muscles can ever produce. So I consider that it is the rare person who is capable of providing sufficient force to cause any trouble in inflating the normal ear. I have had one patient in 45 years.

I disagree that a sudden clearance of a blocked Eustachian tube allows the transmission of pressures into the middle ear chamber driving the tympanic membrane outwards and jerking the stapes (also) outwards. The linkage between the 3 middle ear ossicles is relatively loose to allow for sudden excess movements of the eardrum without transferring forceful movements to the inner ear. The tympanic membrane when moved quickly in or out, as is commonly and frequently done with the pneumatic speculum or with the more violent Politzer bag, does not involve shifting the stapes outwards. In fact if the middle ear pressure is raised, then the stapes is likely to be pushed into the vestibule rather than to be pulled out. That is my explanation for alternobaric vertigo.

The article otherwise is a tremendous achievement by David and will remain as a standard reference to anybody interested in the physiological and patho-physiological effects of the Valsalva manoeuvre whether it be the physicians' definition of the Valsalva or the ear surgeons' definition.

Noel Roydhouse.

### Reference

- 1 Taylor D. The Valsalva manoeuvre: a critical review. *SPUMS J* 1996; 26 (1): 8-13
- 2 Delonca G. Considerations on manoeuvres to equalise the pressure in the ear of the underwater diver. (Title translated from the French.) *Bull Medsubhyp* 1970; 3: 10-24

### Key Words

ENT, physiology.

*This letter has been shown to Dr Taylor whose reply follows.*