

5th International Conference and Exhibition on Surgery & ENT

November 07-08, 2016 Alicante, Spain

Investigation of rhythmic, synchronous and synergistic activities of paratubal muscles for opening Eustachian tube

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Eustachian tube (ET) is a valve activated by levator and tensor veli palatine muscles and its duty is to equalize the pressure inside the tympanic cavity (TC) with outside pressure. Eustachian tube activation is commonly believed to be a sporadic activity which is initiated by swallowing or yawning action. Although there have been numerous electromyographic (EMG) studies to understand the synergistic behavior of the two muscles, these studies never revealed the heart beat like periodic activity, reflex like nature and the tight relationship between the two muscle signals in terms of amplitude and delay. In a recent clinical study done on 50+ patients we have discovered extraordinarily periodic behavior of EMG signals of ET muscles alongside a very tight relationship between the two signals. Furthermore, there is strong evidence that the relationship of the EMG signals may indicate health status of ET. The study has been done using an unusual location for picking up ET muscle EMG signals which is being used for the first time. The new signal location enabled us to use commercially available subdermal EMG electrodes submucosally firmly placed at target location and furthermore enabled picking without using any local or topical anesthetics. The signals picked up from patients were all high fidelity signals and this led the discovery of periodic, clock-like synergistic signal pattern observed in all patients. This discovery sheds light into the behavior of tubal muscles which appears to be much more complex than what we used to think. Hopefully this discovery may lead to new understanding of electrical activity of ET and may pave the way for solving ET dysfunction (ETD) problem.

Biography

Professor of Otorhinolaryngology, Istanbul Kemerburgaz University, Medical Park Gaziosmanpaşa Hospital, Department of Otorhinolaryngology, 2010 – 2015 Clinical Director of Otorhinolaryngology Department, Turkish Ministry of Health, Haseki Training and Research Hospital, 2013 - 2015 Vice President, Education Planning and Coordination Committee, Haseki Training and Research Hospital, Coordinator, Operating Rooms Service, Haseki Training and Research Hospital, 2013-2015 Member, Infection Control Committee, Haseki Training and Research Hospital, 2012-2015 Member, Clinical Research Financial Support Appraisal Committee, Haseki, 2001-2010 Clinical Chief, Otorhinolaryngology Department, Vakıf Gureba Teaching and Research Hospital, 2000 Associated Professor of Otorhinolaryngology, Hacettepe University Medical Faculty, 1989 - 2000: Chief Intern, Vakıf Gureba Training and Research Hospital

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