



DIAGNOSIS OF EARLY ENDOLYMPHATIC HYDROPS

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Abstract

OBJECTIVE

To evaluate ear fullness as an early symptom of endolymphatic hydrops by relating it to enhanced SP/AP ratio on electrocochleography.

METHODS

The study that was conducted between January 2010 and January 2011 included 2 groups. Group I (20 patients) with normal hearing and complaining ear fullness with no eustachian dysfunction and Group II (10 persons) as normal controls. Basic audiologic assessment and electrocochleography were done for both groups.

RESULTS

In group I, 100% of patients had an enhanced SP/AP ratio in the ears with ear fullness in comparison to controls of group II. In group I, the SP/AP ratio ranged in 35 affected ears from 0.3-1.85 with a mean of 0.655 ± 0.325 . In group II, the SP/AP ratio ranged in 20 ears from 0.25-0.29 with a mean of 0.27 ± 0.11 .

CONCLUSION

Ear fullness can be an early sign of endolymphatic hydrops confirmed by electrocochleography leading to its early management.

Background

It is difficult to identify patients with endolymphatic hydrops (ELH) in the early stages when the presentation of the classic triad of tinnitus, fluctuating hearing loss, and episodic vertigo is incomplete. Consequently, delays in diagnosis and subsequent treatment may lead to fluctuating progressive sensorineural hearing loss and recurring vertigo, which may be incapacitating. Ear fullness may be a very early symptom though it is not salient. Therefore, the relation between the sense of fullness and possible hydrops may be unveiled if ear fullness is associated with enhanced SP/AP ratio on electrocochleography (ECoChG) which is consistently present in patients with established Meniere's disease.

Objective

Evaluate the sense of ear fullness as an early sign of ELH and its relation to enhanced SP/AP ratio, also the evaluation of the early treatment of ELH.

Methods

The present study was carried out in the Department of Otolaryngology, Head and Neck surgery, University of Alexandria between January 2010 and January 2011. The material consists of 30 cases divided as:

Group I: Twenty patients with normal hearing and complaining of sense of pressure (ear fullness) with no history of Eustachian tube dysfunction and with or without history of vertigo.

Group II: Ten persons as normal controls.

Full history taking, otological, audiological examination and cochlear electrophysiology assessment were done to all patients in the two groups.

Audiological assessment:

- Pure tone audiometry.
- Impedance tympanometry.
- Speech audiometry.
- ECoChG.

None invasive extratympanic ECoChG was done to all patients for both ears. An SP/AP ratio of 0.30 was used in this study as the cut-off point to differentiate normal persons from subjects with ELH.

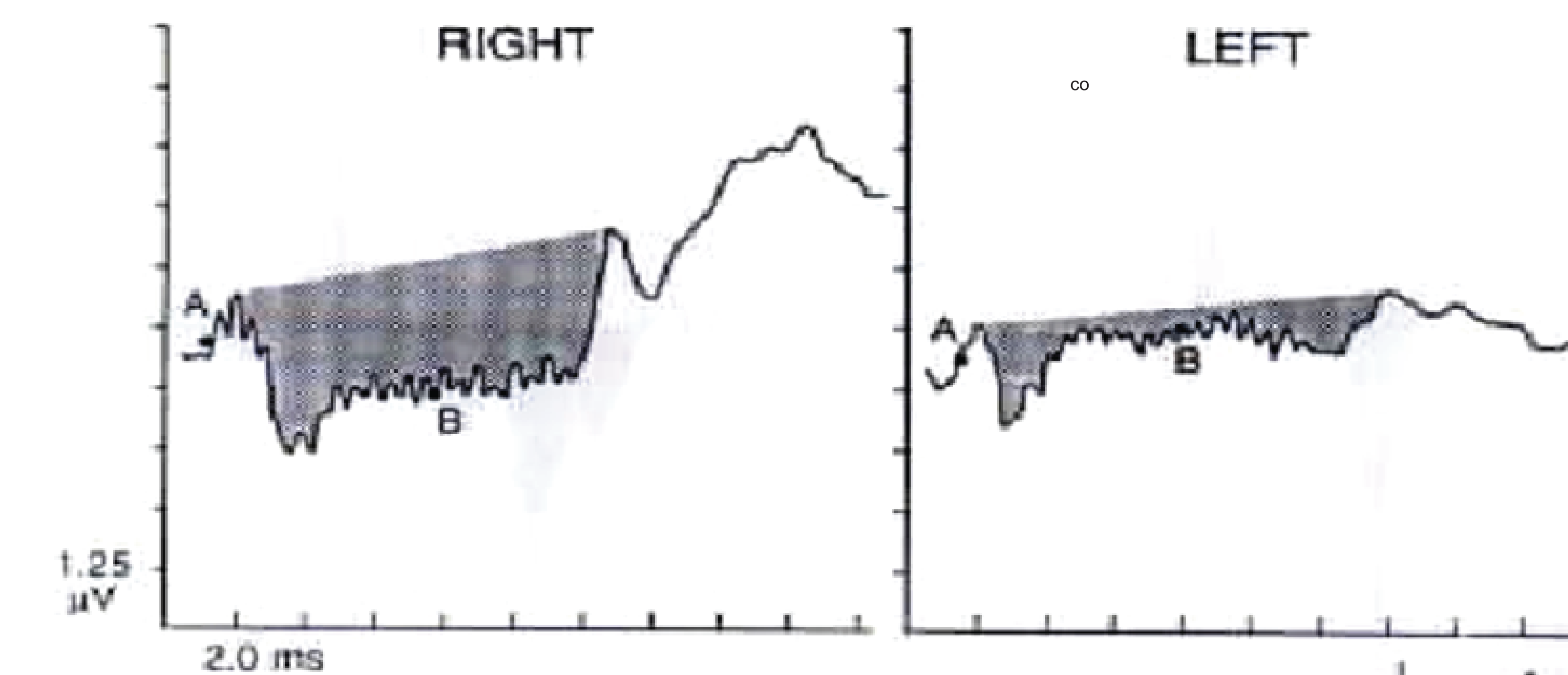
Results

In Group I (n=20):

- Unilateral aural fullness cases (n=5) was present in (25%) of cases while bilateral aural fullness cases (n=15) was present in (75%) of cases. ECoChG: The affected ears (n=35) showed SP/AP ratio ranged from 0.3-1.85 with a mean of 0.655 ± 0.325 .

In Group II (n=10)

- ECoChG: The SP/AP ratio was ranged in 20 ears from 0.25-0.29 with a mean of 0.27 ± 0.11 . There was a significant difference between the SP/AP ratio in the affected ears in Group I and in normal controls.



Comparison of ECoChG between the affected (right) and unaffected (left) ears of a patient with ELH.

Shaded areas include the AP and SP components.

Comparison between the distribution of SP/AP ratios among the affected ears of the study group (Group I), control group (Group II).

	Group I	Group II
N	35	20
SP/AP Range	0.3-1.85	0.25-0.29
Mean	0.655	0.27
SD	0.325	0.11
P		0.001*

Using χ^2 , P value = <0.001 significant.

Conclusion

The isolated symptom of ear fullness can be a sign of early ELH confirmed by ECoChG which is a reliable and highly specific tool leading to early treatment and stabilization of the condition.

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