

CASE IMAGE

Symmetrically dotted tympanic membranes

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Key Clinical Message

Color changes of the tympanic membranes without an inflammatory component or perforation are rarely described. They may result from hemorrhage after barotrauma or spontaneously. Other explanatory models include discoloration due to otomycosis.

Abstract

This is a case of a 61-year-old patient with an unexplained incidental of black dots located almost symmetrically on the antero-inferior quadrant of both tympanic membranes. This harmless anatomical rarity has not been published before. Underlying pathologies should be excluded in the case of discoloration of the tympanic membranes.

KEYWORDS

hemorrhage, incidental, otomycosis, otoscopy, tympanic membrane

1 | CASE REPORT

A 61-year-old male presented to our university outpatient clinic after referral. The patient was fitted with behind-the-ear hearing aids on both sides due to a sensorineural hearing loss existing for many years. Apart from that, there was no history of relevant ear pathology, ear surgery or new otogenic complaints. On clinical examination of the left ear, occlusive wax was removed and subsequently the external auditory canal was clear. The tympanic membrane was intact and clinically mobile when the Valsalva maneuver was performed. Examination of the right ear revealed equivalent findings. Weber's test was not lateralized and Rinne's test was positive on both sides. As an incidental, a black dot was found on the antero-inferior quadrant approximately symmetrically on both tympanic membranes (Figure 1). These dots appeared static and could neither be manipulated nor removed, for example, by suction. In the supplementary medical history, it was

excluded that the patient suffered from any coagulation disorders. In addition, the patient did not perform any welding work, or work with colorants.

2 | DISCUSSION

The tympanic membrane is a key component of the auditory apparatus. This tri-laminar membrane consists of an inner mucosal epithelial layer, an intermediate fibrous layer, and an outer epidermal layer.¹ Color changes of the tympanic membranes without an inflammatory component or perforation are rarely described in the literature. They may result from hemorrhage of the tympanic membrane itself, for example, after blunt head trauma, barotrauma, or spontaneously.² Others described petechial hemorrhages of the tympanic membrane after life-threatening pressure to the head resulting from a suicide attempt by hanging.³ Another work reported an expansive

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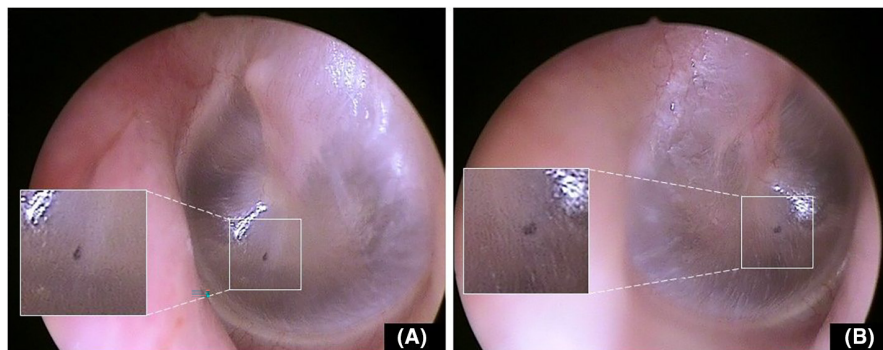


FIGURE 1 Oto-endoscopic view of the left (A) and right (B) tympanic membrane. The black dots are located on the antero-inferior quadrant of both tympanic membranes and are here marked with white squares and magnified at the edge of each image.

black discoloration of the external auditory canal and tympanic membrane due to otomycosis.⁴ However, despite intensive review of the literature, no comparable case of symmetrically dotted tympanic membranes could be found. A mechanistic explanation for the presented discoloration remains open at this point. However, underlying pathologies should be excluded in the case of discoloration of the tympanic membranes.

AUTHOR CONTRIBUTIONS

Christopher Seifen: Conceptualization; project administration; visualization; writing – original draft; writing – review and editing. **Kai Helling:** Supervision; writing – review and editing.

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None.

CONFLICT OF INTEREST STATEMENT

There is no conflict of interest.

DATA AVAILABILITY STATEMENT

Relevant data are available in the manuscript.

ETHICS STATEMENT

Not applicable.

CONSENT

Written informed consent was obtained from the patient to publish this report in accordance with the journal's patient consent policy.

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REFERENCES

1. Volandri G, Di Puccio F, Forte P, Carmignani C. Biomechanics of the tympanic membrane. *J Biomech.* 2011;44(7):1219-1236. doi:10.1016/j.jbiomech.2010.12.023
2. Kim CH, Shin JE. Hemorrhage within the tympanic membrane without perforation. *J Otolaryngol Head Neck Surg.* 2018;47(1):66. doi:10.1186/s40463-018-0300-0
3. Rasmussen ER, Larsen PL, Andersen K, Larsen M, Qvortrup K, Hougen HP. Petechial hemorrhages of the tympanic membrane in attempted suicide by hanging: a case report. *J Forensic Leg Med.* 2013;20(2):119-121. doi:10.1016/j.jflm.2012.05.007
4. Saniasiaya J, Narayanan P. Hyphae in external auditory canal. *BMJ Case Rep.* 2021;14(7):e245388. doi:10.1136/bcr-2021-245388

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