An Unusual Cause of Bullous Myringitis with Acute Otitis Media
Ryosei Minoda, Toru Miwa, Tetsuji Sanuki and Eiji Yumoto
Otolaryngology -- Head and Neck Surgery 2011 145: 874 originally published online 29 April 2011
DOI: 10.1177/0194599811407426

The online version of this article can be found at:
http://oto.sagepub.com/content/145/5/874

Published by:
SAGE
http://www.sagepublications.com

On behalf of:
AMERICAN ACADEMY OF OTOLARYNGOLOGY--HEAD AND NECK SURGERY

American Academy of Otolaryngology- Head and Neck Surgery

Additional services and information for Otolaryngology -- Head and Neck Surgery can be found at:

Email Alerts: http://oto.sagepub.com/cgi/alerts
Subscriptions: http://oto.sagepub.com/subscriptions
Reprints: http://www.sagepub.com/journalsReprints.nav
Permissions: http://www.sagepub.com/journalsPermissions.nav

>> Version of Record - Nov 1, 2011

Proof - Apr 29, 2011

What is This?
Acute bullous myringitis (BM) is an extremely painful ear condition that is characterized by bulla formation on the tympanic membrane. BM usually accompanies acute otitis media (AOM) but is present in less than 10% of AOM cases. A case control study revealed that BM is a severe form of AOM. It is generally recognized that BM is caused by viral and bacterial pathogens. We describe a habitual solvent sniffer with BM that was caused by paint thinner entering the nasal cavity. As it is seldom obvious in an office setting that a patient under examination has been abusing inhalants, it is helpful to know that organic solvent inflow into the nasal cavity can cause BM and AOM.

Case Report

A 38-year-old male restaurant cook presented with fullness in the right ear that he had noticed the previous night. He stated that liquid paint thinner had entered his nasal cavity by mistake while he was sniffing it; he had poured the paint thinner into a plastic bag and breathed in the fumes while lying on his right side. He subsequently noticed his ear symptoms. He confessed that he habitually sniffed paint thinner. His right tympanic membrane was distended and reddish with a blister (Figure 1). The right nasal cavity mucosa was slightly edematous and reddish, and there was mucus secretion in the right nasal cavity. There was a brownish mucous discharge through the orifice of the right Eustachian tube (Figure 2). The blister on the tympanic membrane, which ruptured easily with weak suction, contained a brownish serous effusion. Pure-tone audiometry showed a 30-dB sound-pressure-level (SPL) conductive hearing loss in the right ear. Myringotomy revealed an accumulation of brownish mucus in the tympanic cavity. The left ear and nose findings were normal. He was prescribed otic solutions of ofloxacin and betamethasone for 1 week. At the follow-up visit, although the tympanic membrane was slightly dark red, which suggested residual accumulation of the effusion in the tympanic cavity, there was no discharge from the Eustachian tube, and the tympanic membrane was dry and was not distended. We prescribed a mixture of betamethasone (0.25 mg) and D-chlorpheniramine maleate (2 mg) twice a day for 1 week. He did not return for a further follow-up examination.

Figure 1. The right tympanic membrane was distended and red with a brownish blister.

Figure 2. The right nasal cavity mucosa was slightly edematous and reddish, and there was mucus secretion in the right nasal cavity.

Keywords
acute bullous otitis media, paint thinner, habitual sniffer, Eustachian tube

No sponsorships or competing interests have been disclosed for this article.
Minoda et al

Discussion

Paint thinner, of which the largest constituent is toluene, is a widely used industrial solvent. The deliberate inhalation of paint thinner by substance abusers remains a problem. Inhalant abuse involves breathing in a substance directly from a container, placing a rag soaked in the substance over the nose and mouth, or pouring the substance into a plastic bag. Some possible acute effects include sudden sniffing death syndrome, asphyxia, or secondary serious injuries. Chronic inhalant abuse can damage cardiac, renal, hepatic, and neurologic systems. Diagnosis of inhalant abuse is difficult and relies almost entirely on a thorough history.

Most organic solvents, including toluene, can extract the fat or lipid portion from cell membranes. This defatting process produces cell damage. In our patient, the BM and AOM were probably induced by the defatting effect on the mucous membrane in the tympanic cavity due to paint thinner that entered via the Eustachian tube. It has been reported that toluene mimics the effects of cholinergic receptor antagonists in vivo. It is not clear whether inoculation of paint thinner into the tympanic cavity has an acute toxic effect on inner-ear function. Because our patient did not show any sensory-neural threshold deterioration, the direct inoculation of the paint thinner into the tympanic cavity may not have had an acute toxic effect on inner-ear function.

There are a number of differences in the clinical findings between typical BM and BM induced by accidental paint thinner entry into the nasal cavity. For example, whereas BM patients usually have severe ear pain, our patient did not complain of any ear pain. In addition, typical BM patients are usually children, whereas the latter type of BM patient may be older.

Although there are no established treatments for BM and AOM induced by accidental entry of paint thinner into the nasal cavity, myringotomy appears to be an effective therapy, accompanied by irrigation with saline after the myringotomy.

This manuscript was approved by the institutional review board committee of Kumamoto University Hospital.

Author Contributions

Ryosei Minoda, principal manuscript drafting, patient care; Toru Miwa, manuscript editing and finalization; Tetsuji Sanuki, manuscript editing and finalization; Eiji Yumoto, editing and final approval.

Disclosures

Competing interests: None.

Sponsorships: None.

Funding source: None.

References


Figure 2. There was mucus secretion in the right nasal cavity and a brownish mucous discharge through the orifice of the right Eustachian tube.

Downloaded from oto.sagepub.com at SOCIEDADE BRASILEIRA DE CIRUR on November 10, 2011