

Bullous myringitis mimicking tick on tympanic membrane: a rare cause of otalgia

Pęcherzowe zapalenie błony bębenkowej imitujące kleszcza wszczepionego w błonę bębenkową: rzadki przypadek bólu ucha

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Abstract

Aim: Common causes of otalgia include otitis media, otitis externa, mastoiditis, bullous myringitis, and foreign bodies. Bullous myringitis is an inflammation of the tympanic membrane manifesting with fluid-filled blisters on its surface. The aim of this case presentation was to highlight the causes of otalgia and the importance of correct differential diagnosis of these different pathologies. In tropical countries, including Turkey, Malaysia, Sri Lanka and India, otoacariasis is a frequent cause of otalgia. **Case report:** We report a case of an 8-year-old girl presenting with left otalgia and low-grade fever. On examination, there was a vesicle on the tympanic membrane without pinna or tragal tenderness. The first attending physician misdiagnosed the patient as presenting with a tick on the tympanic membrane instead of bullous myringitis. She was referred to an otorhinolaryngology clinic for a tick on the tympanic membrane, where she received a revised diagnosis of bullous myringitis. The patient was treated with oral antibiotics and analgesics. She underwent regular follow-up, achieved a complete recovery and was discharged well. **Conclusion:** Early diagnosis and correct management are essential to ensure the most optimal outcome for patients.

Keywords: otalgia, tympanic membrane, tick, blister, myringitis

Streszczenie

Wprowadzenie i cel: Najczęstsze przyczyny bólu ucha obejmują zapalenie ucha środkowego, zapalenie ucha zewnętrznego, zapalenie wyrostka sutkowatego, pęcherzowe zapalenie błony bębenkowej i obecność ciała obcego w uchu. Pęcherzowe zapalenie błony bębenkowej to stan zapalny objawiający się powstawaniem na jej powierzchni pęcherzy wypełnionych płynem. Celem opisu przypadku było zwrócenie uwagi na możliwe przyczyny bólu ucha oraz znaczenie prawidłowej diagnostyki różnicowej tych różnych patologii. W krajach tropikalnych, takich jak Turcja, Maleszja, Sri Lanka i Indie, częstą przyczyną bólu ucha jest obecność kleszcza w przewodzie słuchowym. **Opis przypadku:** W pracy opisano przypadek 8-letniej dziewczynki zgłaszającej ból ucha lewego i stan podgorączkowy. W badaniu stwierdzono obecność pęcherzyka na błonie bębenkowej, bez bolesności w obrębie małżowiny i chrząstki usznej. Pierwszy lekarz prowadzący dokonał błędnego rozpoznania kleszcza wszczepionego w błonę bębenkową zamiast pęcherzowego zapalenia błony bębenkowej. W celu leczenia zapalenia pacjentkę skierowano do kliniki otorynolaryngologicznej, gdzie ustalono nowe rozpoznanie: pęcherzowe zapalenie błony bębenkowej. Włączono leczenie doustnymi antybiotykami i środkami przeciwbólowymi. Dziewczynka przeszła badania kontrolne i po ustąpieniu objawów została wypisana ze szpitala w dobrym stanie. **Wnioski:** Wczesne rozpoznanie i właściwe leczenie są niezbędne, aby zapewnić pacjentom optymalne wyniki leczenia.

Słowa kluczowe: ból ucha, błona bębenkowa, kleszcz, pęcherz, zapalenie błony bębenkowej

INTRODUCTION

Otalgia can be classified as primary or secondary. Common causes of otalgia include otitis externa, otitis media, furunculosis, bullous myringitis (BM), herpes zoster oticus, mastoiditis, malignant otitis externa, foreign bodies and trauma. Myringitis is an inflammation of the tympanic membrane (TM) that can spread to the external auditory canal⁽¹⁾. BM is an acute TM inflammation characterised by the presence of bullae or vesicles on the TM. Ticks are small-sized arachnids that feed on a variety of hosts including humans. The ticks' mouthparts attach to the TM or auditory canal, and their rostrums burrow into the skin to draw blood. Since the bullae resemble a tick's engorged body, it can mimic an aural tick, thus leading to misdiagnosis, unnecessary referral and treatment.

CASE SUMMARY

An 8-year-old girl presented with a sudden onset moderate dull pain in the left ear for one day. She was referred for a TM tick by her primary care physician. She also complained of low-grade fever for one day. She denied an upper respiratory tract infection, rhinitis, tinnitus, vertigo, and reduced hearing. There was no history of trauma or ear pricking. On examination, pinna was normal, no tenderness on manipulation of tragus, pinna traction, and no mastoid tenderness. On otoscopic examination, external ear canal normal, no vesicles and no tick faecal material. There was a bulla on the left TM with the presence of dilated TM blood vessels, an absent light reflex, and minimal pus discharge in the middle ear (Fig. 1). A fully or partially engorged tick will appear silver or white in colour. The bulla shape looked like a fully engorged tick, which caused the misinterpretation. No cervical

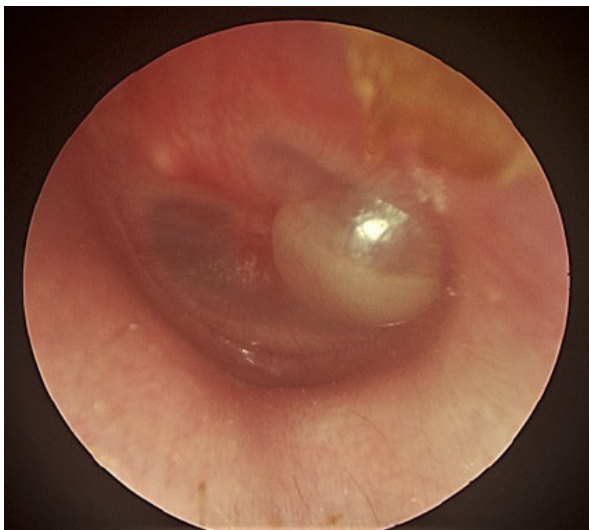


Fig. 1. Otoscopic examination of the left ear showing a bulla over the tympanic membrane with dilated blood vessels on tympanic membrane, absent light reflex, and minimal pus in the middle ear

lymph node was palpable. There was no similar lesion in the external ear or ear canal. Other system examinations were unremarkable. She was diagnosed with BM and was started on oral amoxicillin-clavulanic acid for one week, plus analgesics. One week later, the patient achieved total resolution of the symptoms and she was discharged well.

DISCUSSION

There are two types of otalgia: primary and secondary. Common causes of primary otalgia include otitis externa, otitis media, furunculosis, BM, herpes zoster oticus, keratosis obturans, mastoiditis, malignant otitis externa, foreign bodies and trauma. In paediatrics, acute otitis media is the most common cause of otalgia⁽²⁾. Myringitis is an inflammation of the TM that can affect the lateral aspect of the TM⁽¹⁾. It can extend to the wall of the external auditory canal⁽¹⁾. There are different types of myringitis such as bullous, granular, haemorrhagic bullous and fungal⁽³⁾. BM is an acute TM inflammation characterised by the presence of bullae or vesicles on the TM without external or middle ear involvement⁽⁴⁾. The vesicles can be single or multiple. Extravasation of serous fluid or blood is thought to be the cause of the bullae, which are formed between the middle fibrous and outer squamous layers of the TM.

TM inflammation can result from trauma, such as a foreign body, an accident while cleaning the ear canal, unexpected loud noises, changes in cabin pressure on an aeroplane, or even an intentional hit to the ear. However, the precise aetiology is unknown. The patient may have concurrent acute otitis media⁽⁵⁾. *Streptococcus pneumoniae*, *Moraxella catarrhalis*, Group A *Streptococcus*, and *Staphylococcus aureus* are the most common culprits⁽⁵⁾. Viral causes include respiratory syncytial virus (RSV) or influenza viruses, which predominate⁽⁵⁾. It is more prevalent in children aged 2 to 8 years⁽⁵⁾. This disease is diagnosed clinically. The patient usually presents with moderate-to-severe sudden onset ear pain due to well-innervated TM. Young children under the age of 2 years who are experiencing pain may frequently demonstrate additional symptoms such as rubbing their ears, restless sleep, excessive crying, and poor feeding⁽⁵⁾. Patient will also have conductive hearing loss in the presence of middle ear effusion, but complete recovery of hearing is seen⁽⁶⁾. On otoscopy, there will be bulla/bullae on the TM, with thickening and an erythematous appearance of the TM, a reduced or absent light reflex, and decreased mobility. These bullae can rupture and cause self-limiting serosanguinous otorrhoea. Ramsay Hunt syndrome should be taken into consideration if there are bullae present in the external ear and external ear canal.

A conservative approach and proper analgesic can be used to treat BM⁽⁶⁾. A retrospective cohort study found that systemic antibiotics, surgical intervention, and topical medication are modalities used to treat BM. The study concluded that topical medication is the most effective treatment for symptom resolution⁽⁷⁾. As BM has a higher rate of

recurrence and most patients had middle ear effusions with positive bacterial cultures, more aggressive treatment was suggested by several authors⁽⁵⁾. The majority of patients will have pain resolution by day three of their illness; however, middle ear effusion resolution can take up to five weeks⁽⁵⁾. Complications of BM are similar to acute otitis media without bullae, with hearing loss being the most common one⁽⁵⁾. The hearing loss and vestibular dysfunction are usually temporary and recover after the infection has resolved⁽⁵⁾.

In our patient, the family medicine doctor mistaken the BM for a tick on TM. Tick infestations in the ear canal have been reported globally, with a significant prevalence in tropical regions like India, Malaysia, Sri Lanka, and Turkey⁽⁸⁾. It is a frequently observed problem on the east coast of Peninsular Malaysia and is typically encountered during dry periods, but it may occur at any time throughout the year⁽⁸⁾. The majority of ticks are black or dark brown in colour, flat, and oval in shape. After being fed blood, a tick that is fully or partially engorged will appear silver, green-grey, or even white.

Tick infestations should be suspected if a patient with potential tick exposure describes a sensation of crawling or a foreign body moving in the ear. On the other hand, bullous myringitis is frequently associated with severe otalgia. It may be difficult to differentiate between a tick on the TM and bullous myringitis through otoscopic examination, but it is required for a correct diagnosis and treatment. A few points can be used to distinguish a tick on the TM from bullous myringitis. In the case of an aural tick, the otoscope may reveal a foreign object (the tick) attached to or near the TM; it might be moving or firmly attached. The TM may appear relatively normal or it can have minimal inflammation or irritation around the tick attachment site. Tick faeces will be found in the ear canal. Some movement may be also noted as the tick tries to burrow deeper into the surrounding structure. This is a strong indicator of a tick instead of BM. In BM, fluid-filled blisters (bullae) are found on the TM, which may vary in size and number. These may be scattered across the TM surface. Tympanic membrane will exhibit signs of inflammation: it will be red, swollen, and distorted due to the fluid-filled blisters. Typically, the bullae on TM will not move during examination.

Ticks can transmit various diseases, such as Lyme disease, Rocky Mountain spotted fever, human granulocytic anaplasmosis, human monocytic anaplasmosis, tick-borne encephalitis, babesiosis, theileriosis, ehrlichiosis, etc.⁽⁹⁾. Intra-aural tick infestations need to be eliminated. The main complications of intra-aural tick infestation include canal abrasion, laceration, bleeding, otitis externa, TM perforation, and suppurative middle ear infections⁽¹⁰⁾. Correct

treatment is important to prevent recurrence and complications. Mistakenly removing a tick with alligator forceps could lead to tympanic perforation.

CONCLUSIONS

BM can mimic a tick infestation. Prompt diagnosis and proper treatment can help manage the infection, alleviate symptoms effectively and prevent complications.

Conflict of interest

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