Multiple perforations of the tympanic membrane: what to suspect

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DESCRIPTION

A 27-year-old woman, otherwise healthy, and with no history of ear, nose and throat disorders, presented for otorhinolaryngology evaluation for 3-week persistent bilateral otorrhea refractory to medical treatment, accompanied by hearing loss sensation. On physical examination, she had two tympanic membrane perforations on the left ear (video 1) and one perforation on the right ear. A chest X-ray showed an opacity on the superior lobe of the right lung, which was afterward confirmed as a nodule on computed tomography (figure 1). She was admitted to the hospital for investigation and treatment, namely systemic antibiotic and ear topical treatment. Blood samples showed high white cell count, with a predominance of neutrophils, with moderate elevation of both C reactive protein and sedimentation rate; moreover, a normal renal function was found, with no other abnormal findings, including normal levels of antinuclear antibody, antineutrophil cytoplasmic antibody (ANCA), antiphospholipid antibody and negative venereal disease research laboratory (VDRL) and Interferon-Gamma Release Assay (IGRA) tests. Sputum microbiological and mycological analysis was negative. Microbiological analysis of the otorrhoea revealed a susceptible Corynebacterium amycolatum. Audiometry showed a bilateral conductive hearing loss, mild on the right and moderate on the left ear.

A multidisciplinary team decided to perform a bronchofibroscopy, and a biopsy of the pulmonary lesion was done. It showed necrotising inflammation and vasculitis compatible with granulomatosis with polyangiitis (GwP). Afterward, ANCA directed to proteinase 3 became positive, and she also developed signs of glomerulonephritis. The patient started prednisolone 1 mg/kg/day, with favourable evolution. Before being discharged, the patient started therapy with cyclophosphamide.

In the 3 months follow-up consultation both tympanic membrane perforations had closed, and normal hearing thresholds were verified.

Multiple tympanic membrane perforations are uncommon and rarely seen because they often coalesce and result in one larger perforation. Nevertheless, when present, the differential diagnosis includes GwP, tuberculous otitis media and syphilis. Initial diagnosis of tuberculosis relies on two types of tests: skin test (namely Mantoux tuberculin skin test), and blood test (IGRA); the results of these tests should be correlated with clinical signs and symptoms suggestive of the disease, imaging findings, sputum analysis and epidemiological history. On the other hand, VDRL is a nontreponemal test that is useful for the first screening of syphilis; when reactive, the diagnosis should be further confirmed by a treponemal test, namely the fluorescent treponemal antibody absorption.

GwP (formerly known as Wegener’s granulomatosis) is an autoimmune disease, characterised by...

Learning points

► Patients with persistent otorrhea who have multiple tympanic membrane perforations must be evaluated by an otology specialist.

► The differential diagnosis of multiple tympanic membrane perforations includes granulomatosis with polyangiitis, but also tuberculous otitis media, and syphilis.

► Other clinical features, such as pulmonary nodules, but also as nasal crusts, subglottal stenosis and renal impairment, help in the diagnosis of granulomatosis with polyangiitis, that demands for a multidisciplinary team.
vasculitis, necrosis and granulomatous inflammation. The systemic/generalised disease usually affects the upper airway (rhinitis, sinusitis, otitis, subglottal stenosis), lower airway (cough, haemoptysis) and kidneys (glomerulonephritis). The localised/limited form is usually limited to the upper airway. Because it is rare and may have variable clinical features, a high index of suspicion is the key for early diagnosis of GwP, which is based on the combination of clinical manifestations, radiological imaging, elevation of ANCA and a biopsy showing necrotising granulomatous inflammation. Regarding treatment, the mainstay of treatment are corticosteroids to achieve remission which may be combined with cyclophosphamide in severe cases. Rituximab is used in relapsing or refractory cases.

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