CLINICAL VIGNETTE

Meniere's Disease: A Common Disorder In Outpatient Clinic

By Brian S. Morris, MD

Case Report

The patient is a 55-year-old male with a history of asthma and melanoma who presents with a two-year history of attacks of vertigo, right ear fullness, right ear hearing loss, and tinnitus. In 2010, he was treated with oral steroids by another physician and his symptoms improved. He subsequently had three more vertigo attacks with similar symptoms in his right ear. The timing of his vertigo coincides with exacerbations of his asthma. His symptoms are aggravated by a high salt diet. He has been receiving immunotherapy for his allergies and follows a low salt diet which he believes reduces the frequency of the attacks.

His past medical history includes allergic rhinitis. Current medications includes inhaled albuterol.

He does not smoke and he rarely drinks alcohol. Family history is negative for tinnitus and vertigo.

His physical examination revealed a blood pressure of 110/72, pulse 84, normal temperature, weight 219 pounds, and BMI of 28. No nystagmus was present. His neurologic and ear exams were normal except for Rinne and Weber testing consistent with sensorineural hearing loss in the right ear.

Laboratory evaluation revealed a normal CBC, chemistries, ESR, and TSH. Audiology evaluation confirmed a low frequency hearing loss in the right ear with normal hearing in the left ear.

The patient had an MRI of the head which was negative and he was referred to ENT where a diagnosis of Meniere's disease was confirmed.

General Discussion and Epidemiology

Meniere's disease, also known as endolymphatic hydrops, is an idiopathic disorder of the inner ear associated with increased endolymphatic pressure[1]. The condition results in tinnitus which is associated with hearing loss and vertigo[2]. In The United States, Meniere's disease has an incidence of 1 in every 1000 patients[3]. Some European countries have a higher incidence of Meniere's although that may be related to greater reporting[4]. Half of all patients report a family history of the disorder[5]. 90% of patients with Meniere's disease have a unilateral presentation and half of such patients will eventually have bilateral involvement[6]. Meniere's disease can present at any age including the very young and the elderly, but the peak age of presentation is between the ages of 40-60. Interestingly, Meniere's tends to affect women more often than men and Caucasians more often than those of Asian, Hispanic, or African Americans[7].

Etiology and Pathophysiology

Meniere's disease is an idiopathic disorder although some cases are secondary to infections, metabolic disorders, trauma, autoimmune disorders, endocrine disorders, or medications[3]. Meniere's can also be aggravated by allergic disorders such as asthma[8]. Although the exact pathophysiology of Meniere's disease is unknown, patients have increased endolymphatic pressure from excess lymph accumulation[2]. Increases in pressure within the endolymph and perilymph chambers, as well as abnormalities within the membrane that separates them, lead to alterations in pressure resulting in vertigo, hearing issues, and tinnitus[2]. Chemical changes ultimately affect nerve receptors and hair cells in the inner ear resulting in acute symptoms[2]. The apex of the cochlea, rather than the base, appears to be more sensitive to these changes leading to low frequency sounds being affected rather than high frequency sounds[2].

Clinical Features

The clinical features of Meniere's disease include recurrent episodes of vertigo, ear fullness, hearing loss, and tinnitus[9]. Either tinnitus or ear fullness must be present to make the diagnosis[9]. Vertigo is the most common presenting complaint[10]. The vertigo may be brief, lasting minutes to hours, or may be longstanding and be associated with nausea and vomiting[11]. At least two episodes of vertigo of at

least 20 minutes in duration are required to make a diagnosis[11]. About 12% of patients with vertigo have Meniere's disease[12]. Patients are typically fatigued after an episode, but usually feel well between episodes except for a gradual deterioration in hearing and balance with each episode[11]. Environmental triggers include dietary, psychosocial, or hormonal factors[11]. Sensorineural hearing loss affects the low frequency tones and tends to worsen as the disorder progresses[13]. Episodic tinnitus that sounds like a vibrating whistle or a low frequency roar is another common clinical feature[14].

Diagnosis and Testing

The physical condition of patients can vary[11]. Patients can look quite ill during attacks with vomiting, diaphoresis, syncope and nystagmus[15]. Examination with otoscopy is fairly normal and the examination itself may elicit symptoms[15]. A complete neurologic exam should be performed to rule out other conditions and to assess balance[15]. The examination includes maneuvers to elicit vertigo and nystagmus[15]. The Rinne and Weber tests as well as audiology testing are performed[15]. Laboratory testing should also incude CBC, chemistries, ESR, CRP, Lyme serologies, Celiac testing, brainstem auditory evoked potentials, electrocochleography, and caloric testing/electronystagmography[15]. Magnetic resonance imaging (MRI) or computed tomography (CT) may also be ordered to rule out a structural lesion[1].

Treatment

Medical therapy is directed at both the acute attacks as well as preventing future attacks[1]. Treatment is also directed at contributing conditions[7]. Medical management typically involves salt restriction, steroids, and diuretics[13]. Short-term use of intramuscular or intravenous benzodiazepines, as well as anti-nausea medications may also be helpful for acute symptoms[15]. Counseling with a licensed dietician is helpful to determine trigger foods[15]. Surgical therapy for Meniere's disease is usually reserved for cases where medical management and lifestyle adjustments have not been adequate[16]. The four most common procedures for Meniere's disease include endolymphatic sac decompression, labyrinthectomy, vestibular nerve section, and intratympanic injection of medications such as steroids or antibiotics[14].

Prognosis

The prognosis of patients with Meniere's disease is unpredictable[17]. Symptoms can be significantly worse early in the course of the disease when pressure fluctuations are more noticeable to patients[15]. The frequency of episodes can vary with about 5% of patients ultimately requiring surgery[18]. Most patients improve over time as the disease "burns out" resulting in hearing loss, ataxia, and residual tinnitus[15]. Drop attacks can occur which can be a cause of morbidity and mortality[19].

Clinical Course and Follow-Up

The patient made some adjustments in his lifestyle reducing salt, caffeine, alcohol, and stress. His symptoms stabilized and he is now being monitored to see if further treatments need to be considered.

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