Progressive hearing loss: A case report on surfer’s ear

Paresh Kushta Dessai, Sapna Sada Raut Dessai

ABSTRACT
Abstract is not required for Clinical Images
Progressive hearing loss: A case report on surfer’s ear

Paresh Kushta Dessai, Sapna Sada Raut Dessai

CASE REPORT

A 30-year-old male reported with the complaint of progressive bilateral hearing loss over a period of six months. There were no associated symptoms of otalgia, tinnitus, discharge or bleeding from the ears. Patient also could not recall any history of trauma to the face. ENT surgeon, who referred the patient for computed tomography (CT) evaluation of hearing loss, had performed the otoscopy and audiometry examinations. Otoscopic findings had revealed, a narrow external auditory canal, tympanic membrane was barely visualized on both sides and was intact. Bilateral moderate conductive hearing loss was noted. He was then advised high resolution computed tomography (HRCT) scan of the temporal bone.

Following findings were noted on HRCT. Broad-based osseous overgrowth of external auditory canal bilaterally, were noted on axial CT images. (Figure 1). Sagittal CT images showed evidence of dense bony protuberances arising from the tympanic and the petrous bone into the external auditory canal space. This resulted in significant narrowing of the ear canal and thus conductive hearing loss bilaterally (Figure 2). On obtaining a detailed history, it was noted that the patient was a frequent swimmer. Thus, the diagnosis of surfer’s ear was made. The patient was referred for surgical management of the exostoses.

Figure 1: High resolution computed tomography axial image of bilateral temporal region showing bony outgrowth in the external auditory canals.

Figure 2: (A) High resolution computed tomography image showing multiple sagittal sections through the external auditory canals showing bony outgrowth, (B) 3D volumetric reconstruction.

DISCUSSION

Conductive hearing loss is commonly secondary to impaction by cerumen, foreign body, inflammation, neoplasm, or bony outgrowth such as exostoses. Exostoses are benign bony protuberances, arising from the osseous portions of the external auditory canal [1]. They are mostly seen in individuals engaging in aquatic activities like frequent surfing [2]. Their growth is believed to be due to many years of repeated exposure to cold water and

Paresh Kushta Dessai¹, Sapna Sada Raut Dessai²

Affiliations: ¹MD, Radiology, Consultant Radiologist, Department of Radiodiagnosis, Apollo Victor Hospital, Margao, Goa, India; ²MDS, Oral Medicine and Radiology, Lecturer, Department of Oral medicine and Radiology, Goa Dental College and Hospital, Bambolim, Goa, India.

Corresponding Author: Paresh Kushta Dessai, H No 1226/2, Pansulem, Canacona, Goa 403702, India. Ph: +919422639458; Email: mailpkd@gmail.com

Received: 02 June 2014
Accepted: 26 June 2014
Published: 01 February 2015
wind. The cold stimulates bone growth and the ear canal gradually narrows thus avoiding water from reaching the eardrums.

Such exostoses is believed to be worse in the ear that faces the ocean at the time of “catching the wave.” The condition is commonly called ‘Surfer’s Ear’ due to its high prevalence amongst surfers [3, 4]. It is usually bilateral, and located close to the tympanic annulus at the tympanomastoid and tympanosquamous sutures [1, 5].

The new bone that grows is more sensitive than the original bone [6]. Hyperplasia continues painlessly as the ear is continuously hit by the cold waves during aquatic activities. Water and debris can get trapped behind the bony growth and ears can get easily blocked and infected. The bony growth can completely fill the canal. Thus, the patient may present with conductive hearing loss and recurrent episodes of external otitis with otalgia and cerumen impaction. When otoscopic examination is performed to determine patency of external auditory canal, one or more broad based elevated lesions that protrude into the external auditory canal will be evident.

The HRCT of the temporal bone is the examination of choice [7, 4] as it provides detailed osseous anatomy of the temporal bone. Intravenous contrast is not required to make the diagnosis. Radiographic differential diagnosis includes external auditory canal osteoma [1]. Clinically, it needs to be differentiated from medial canal fibrosis, necrotizing external otitis, external auditory canal cholesteatoma and keratosis obturans [1]. On imaging, these entities are visible as soft tissue lesions with or without bone destruction.

Osteomas differ from exostoses as they are usually unilateral, pedunculated benign tumors [7]. They are composed of densely sclerotic, well-formed bone jutting out from the cortical surface. External auditory exostosis lesion is found as solitary sessile bony growths and usually lateral to the isthmus. On histopathologic examination, they are seen as dense concentric layers of subperiosteal bone originating from near tympanic ring [3].

A history of cold water and wind exposure facilitates the diagnosis Surfer’s ear. It is believed that there is a positive association between the amount of time spent by an individual in surfing and the presence and severity of exostoses of the external auditory canal. In 1937, Van Gils postulated a thermal cause for the development of external auditory exostoses after observing a higher frequency of this pathological condition among cold water versus warm water swimmers [3]. Some in the past have considered salt-water exposure to be the cause but this was proved untrue by a study, which showed evidence of external auditory canal exostosis even in freshwater, seawater and non-swimmers. Water temperature has been found to be a major cause rather than water salinity as it causes meatal erythema [3].

Treatment

When the ear canal is significantly narrowed a surgical procedure may be required to re-open the canal [4, 5]. It is important to stay out of the water until the ear canal is completely healed. Hearing testing is performed before and after the surgery. Surgery complications include canal stenosis, temporomandibular joint prolapse, sensorineural loss, persistent deep bony lip, and persistent tympanic membrane proliferation, facial nerve injury [6].

CONCLUSION

Regular surfers and divers should be advised to avoid very cold water. They should be advised to use earplugs or wetsuit hood. The custom plugs may be fabricated which have the advantage of staying in very well. An alcohol-based swimmers eardrop can help dry any residual moisture in the canal after water exposure. Surgery for exostoses should be performed carefully to prevent complications.
REFERENCES

1. Trojanowska A, Drop A, Trojanowski P, Bogusiewicz KR, Klatka J, Biliewicz BB. External and middle ear diseases: Radiological diagnosis based on clinical signs and symptoms. Insights Imaging 2012 Feb;3(1):33–48.
2. Deleyiannis FW, Cockcroft BD, Pinczower EF. Exostoses of the External Auditory Canal in Oregon Surfers. Am J Otolaryngol 1996 Sep-Oct;17(5):303–7.
3. Kroon DF, Lawson ML, Derkay CS, Hoffmann K, McCook J. Surfer’s ear: External auditory exostoses are more prevalent in cold water surfers. Otolaryngol Head Neck Surg 2002 May;126(5):499–504.
4. White RD, Ananthakrishnan G, McKeen SA, Brunton JN, Hussain SS, Sudarshan TA. Masses and disease entities of the external auditory canal: Radiological and clinical correlation. Clin Radiol 2012 Feb;67(2):172–81.
5. Wang MC, Liu CY, Shiao AS, Wang T. Ear problems in Swimmers. J Chin Med Assoc 2005 Aug;68(8):347–52.
6. Wong BJ, Cervantes W, Doyle KJ, et al. Prevalence of External Auditory Canal Exostosis in Surfers. Arch Otolaryngol Head Neck Surg 1999 Sep;125(9):969–72.
7. Eshetu T, Aygun N. Imaging of the Temporal Bone: A Symptom-Based Approach. Semin Roentgenol 2013 Jan;48(1):52–64.

ABOUT THE AUTHORS

Article citation: Dessai PK, Dessai SSRD. Progressive hearing loss: A case report on surfer’s ear. Int J Case Rep Images 2015;6(2):118–120.

Paresh Kushta Dessai, MD Radiology, Consultant Radiologist, Department of Radiodiagnosis, Apollo Victor Hospital, Margao, Goa, India.
Email: mailpkd@gmail.com

Sapna Sada Raut Dessai, MDS Oral Medicine & Radiology, Lecturer, Department of Oral Medicine and Radiology, Goa Dental College and Hospital, Bambolim, Goa, India.
Email: dr.sapnasrd@yahoo.com

Access full text article on other devices

Access PDF of article on other devices
Edorium Journals: An introduction

Edorium Journals Team

About Edorium Journals
Edorium Journals is a publisher of high-quality, open access, international scholarly journals covering subjects in basic sciences and clinical specialties and subspecialties.

Invitation for article submission
We sincerely invite you to submit your valuable research for publication to Edorium Journals.

But why should you publish with Edorium Journals?
In less than 10 words - we give you what no one does.

Vision of being the best
We have the vision of making our journals the best and the most authoritative journals in their respective specialties. We are working towards this goal every day of every week of every month of every year.

Exceptional services
We care for you, your work and your time. Our efficient, personalized and courteous services are a testimony to this.

Editorial Review
All manuscripts submitted to Edorium Journals undergo pre-processing review, first editorial review, peer review, second editorial review and finally third editorial review.

Peer Review
All manuscripts submitted to Edorium Journals undergo anonymous, double-blind, external peer review.

Early View version
Early View version of your manuscript will be published in the journal within 72 hours of final acceptance.

Manuscript status
From submission to publication of your article you will get regular updates (minimum six times) about status of your manuscripts directly in your email.

Our Commitment

Six weeks
You will get first decision on your manuscript within six weeks (42 days) of submission. If we fail to honor this by even one day, we will publish your manuscript free of charge.

Four weeks
After we receive page proofs, your manuscript will be published in the journal within four weeks (31 days). If we fail to honor this by even one day, we will publish your manuscript free of charge and refund you the full article publication charges you paid for your manuscript.

Mentored Review Articles (MRA)
Our academic program “Mentored Review Article” (MRA) gives you a unique opportunity to publish papers under mentorship of international faculty. These articles are published free of charges.

Favored Author program
One email is all it takes to become our favored author. You will not only get fee waivers but also get information and insights about scholarly publishing.

Institutional Membership program
Join our Institutional Memberships program and help scholars from your institute make their research accessible to all and save thousands of dollars in fees make their research accessible to all.

Our presence
We have some of the best designed publication formats. Our websites are very user friendly and enable you to do your work very easily with no hassle.

Something more...
We request you to have a look at our website to know more about us and our services.

We welcome you to interact with us, share with us, join us and of course publish with us.