

Patulous Internal Auditory Canals: A Normal Variant

SENTHIL KUMAR AIYAPPAN, UPASANA RANGA, SAVEETHA VEERAIYAN

ABSTRACT

We report here, a case of bilateral, dilated, internal auditory canals, a normal anatomical variant which clinically and radiologically

has to be differentiated from other pathological causes of dilated internal auditory canals.

Key Words: Internal auditory canals, Patulous, Variant

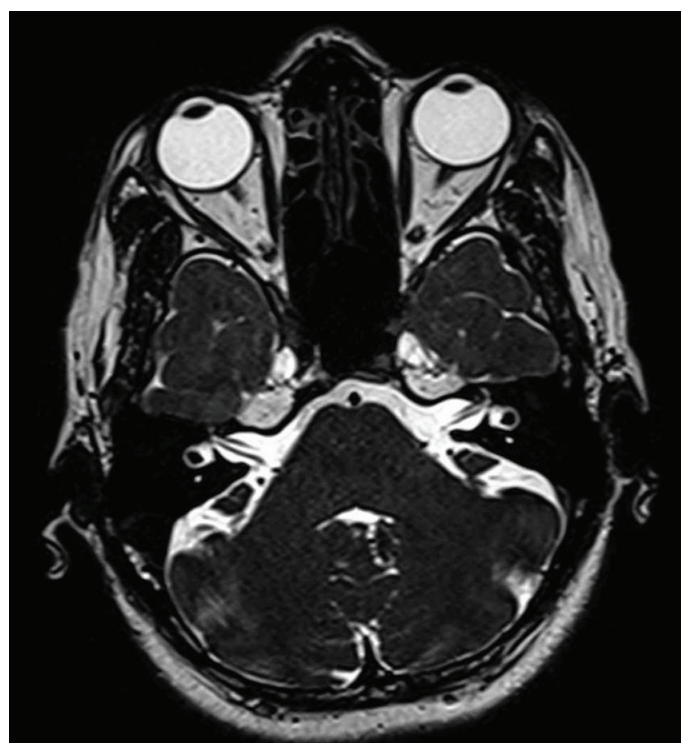
A 40-year-old male came with complaints of headache. The computed tomography (CT) scan of the brain showed no significant intra-cranial abnormality, except for bilateral, dilated, internal auditory canals (IAC). Dedicated sections of the temporal bone revealed the same findings [Table/Fig 1]. The inner ear structures were normal, with intact crista falciformis. The cortical outlines of both the IACs were smooth, with no bony erosions. Examination by an otolaryngologist showed no abnormality. Magnetic resonance imaging (MRI) was advised to rule out the underlying pathology. MRI showed dilatation of the bilateral IACs, especially in their mid portions [Table/Fig 2]. No obvious mass lesion was noted within the IAC or in the cerebellopontine angles. Bilateral seventh and eighth cranial nerves were normal. MRI screening of the brain and spine showed no abnormality.

Patulous IAC is an anatomic variant of the auditory canals, which is characterized by dilated IACs (especially in the mid portion),

with normal inner ear structures [1]. Though it is mostly bilateral, unilateral involvement has also been described. This condition has to be differentiated from the pathological causes of dilated IAC, the commonest being acoustic neuroma, which is seen in neurofibromatosis II, in association with cortical erosion. The dilatation of the IACs may be caused by increased local pressure, which is seen in patients with chronic hydrocephalus and dural ectasia (in neurofibromatosis) [2]. Dilated IACs can also be seen in syndromes such as Goldenhar syndrome, Apert syndrome and Patau syndrome in association with a defective fundus and crista falciformis [3]. The presence of a smooth cortical outline and a normal fundus with intact crista falciformis is therefore necessary to differentiate the normal variant from the pathological causes of dilated IACs [4].



[Table/Fig-1]: Axial CT section of temporal bones shows dilated bilateral internal auditory canals (white arrows).



[Table/Fig-2]: Axial T2 constructive interference of steady state (CISS) MRI sequence of temporal bones shows dilated IACs on both sides, with normal VII and VIII cranial nerves. No intracanalicular mass lesion is seen.

REFERENCES

- [1] Migirov L. Patulous internal auditory canal. *Arch Otolaryngol Head Neck Surg* 2003;129:992-93.
- [2] Sarwar M, Swischuk LE. Internal auditory canal enlargement due to dural ectasia in neurofibromatosis. *Am J Roentgenol* 1977;129: 935-36.
- [3] Bisdas S, Lenarz M, Lenarz T, Becker H. The abnormally dilated internal auditory canal: a non-specific finding or a distinctive pathological entity. *J Neuroradiol.* 2006;33(4):275-77.
- [4] Tomura N, Sashi R, Kobayashi M, Hirano H, Hashimoto M, Watarai J. Normal variations of the temporal bone on high-resolution CT: their incidence and clinical significance. *Clin Radiol* 1995; 50:144-48.

AUTHOR(S):

1. Dr. Senthil Kumar Aiyappan
2. Dr. Upasana Ranga
3. Dr. Saveetha Veeraiyan

PARTICULARS OF CONTRIBUTORS:

1. MD, Assistant Professor,
Department of Radiodiagnosis and Imaging,
Saveetha Medical College and Hospital,
Thandalam, Kanchipuram, Tamilnadu - 602105, India.
2. MD, Assistant Professor,
Department of Radiodiagnosis and Imaging,
Saveetha Medical College and Hospital,
Thandalam, Kanchipuram, Tamilnadu - 602105, India.
3. MD, Associate professor,
Department of Radiodiagnosis and Imaging,
Saveetha Medical College and Hospital,
Thandalam, Kanchipuram, Tamilnadu - 602105, India.

NAME, ADDRESS, TELEPHONE, E-MAIL ID OF THE CORRESPONDING AUTHOR:

Dr. Upasana Ranga, MD
Assistant professor
Department of Radiodiagnosis and Imaging
Saveetha Medical College and Hospital, Thandalam
Kanchipuram, Tamilnadu – 602105, India.
Phone: 91-44-26811173 (O), 91-9176549556 (Mob)
Fax: 91-44-26811999
E-mail: upasranga@yahoo.co.in

DECLARATION ON COMPETING INTERESTS:

No competing Interests.

Date of Submission: **Jul 23, 2011**
Date of peer review: **Sep 05, 2011**
Date of acceptance: **Sep 10, 2011**
Date of Publishing: **Nov 30, 2011**