'Headless Mermaid': a helpful normal appearance to evaluate medial wall of middle ear on coronal high resolution CT scan of temporal bone

Anagha Rajeev Joshi

Radiodiagnosis, Lokmanya Tilak Municipal Medical College and General Hospital, Mumbai, Maharashtra, India

Correspondence to

Professor Anagha Rajeev Joshi; anaghajoshi2405@gmail.com

Accepted 10 December 2021

DESCRIPTION

High resolution CT (HRCT) of the temporal bone is an excellent investigation for osseous abnormalities of the auditory apparatus. In this article, a new sign termed as 'Headless Mermaid' appearance for normal imaging appearance of the inner ear structures forming the medial wall of the middle ear is proposed.

The medial wall of the middle ear is formed by the bony labyrinth. The cochlear promontory is formed by the basal turn of the cochlea. The oval window is at the midpoint of the medial wall of the middle ear.¹ The inner ear structures forming the medial wall of the middle ear on the coronal section look like a Headless Mermaid ([figure 1](#)),

The Headless Mermaid appearance constitutes:

1. The basal turn of the cochlea with promontory: the tail of the Mermaid.
2. Oval window: the umbilicus of the Mermaid.
3. Vestibule: the chest and abdomen of the Mermaid.
4. Superior semicircular canal (SCC) and lateral semicircular canal (LCC): the hands of the Mermaid in ballerina pose.

Alteration in the Headless Mermaid appearance on HRCT temporal bone scan in coronal plane gives a

Figure 2 (A) Coronal HRCT temporal bone reveals erosion of the left tail of the Mermaid representing promontory (arrow head) and focal erosion of the lower hand of the Mermaid representing the lateral semicircular canal (LCC) (white arrow). (B) Coronal image of HRCT temporal bone reveals bone deposition in the bilateral Mermaid tails representing deposition in bilateral basal turn of cochlea (arrow) suggestive of labyrinthitis ossificans.

Figure 1 Coronal image of high resolution CT (HRCT) temporal bone on the right side depicting the Headless Mermaid in ballerina pose—basal turn of the cochlea with promontory (solid white arrow); superior semicircular canals (SCC) and lateral semicircular canals (LCC) (black thin arrow and yellow arrow, respectively); umbilicus (orange arrow). Transparency drawn by Dr Anagha Joshi.

clue to the underlying pathological process. Coronal images of two patients with the altered appearance of Headless Mermaid have been shown ([figure 2A,B](#)).

Contributors ARJ conceptualisation, design preparation, review of manuscript and literature search. The illustration in figure 1 has been done by ARJ.

Funding The authors have not declared a specific grant for this research from any funding agency in the public, commercial or not-for-profit sectors.

Learning points

- ▶ The Headless Mermaid appearance will be helpful to look at all the anatomical components of the medial wall of the middle ear, on the coronal high resolution CT (HRCT) of the temporal bone.
- ▶ This appearance is a helpful tool for reading temporal bone CT scans, especially for junior residents.
- ▶ Any alteration in the appearance of 'Headless Mermaid' helps towards pointing the abnormality in the medial wall of the middle ear and involved parts of the bony labyrinth.

© BMJ Publishing Group Limited 2021. No commercial re-use. See rights and permissions. Published by BMJ.

To cite: Joshi AR. *BMJ Case Rep* 2021;**14**:e245752. doi:10.1136/bcr-2021-245752

Competing interests None declared.

Patient consent for publication Consent obtained directly from patient(s).

Provenance and peer review Not commissioned; externally peer reviewed.

Case reports provide a valuable learning resource for the scientific community and can indicate areas of interest for future research. They should not be used in isolation to guide treatment choices or public health policy.

ORCID iD

Anagha Rajeev Joshi <http://orcid.org/0000-0002-2494-8512>

REFERENCE

- 1 Juliano AF. Cross sectional imaging of the ear and temporal bone. *Head Neck Pathol* 2018;12:302–20.

Copyright 2021 BMJ Publishing Group. All rights reserved. For permission to reuse any of this content visit <https://www.bmj.com/company/products-services/rights-and-licensing/permissions/>
BMJ Case Report Fellows may re-use this article for personal use and teaching without any further permission.

Become a Fellow of BMJ Case Reports today and you can:

- ▶ Submit as many cases as you like
- ▶ Enjoy fast sympathetic peer review and rapid publication of accepted articles
- ▶ Access all the published articles
- ▶ Re-use any of the published material for personal use and teaching without further permission

Customer Service

If you have any further queries about your subscription, please contact our customer services team on +44 (0) 207111 1105 or via email at support@bmj.com.

Visit casereports.bmj.com for more articles like this and to become a Fellow