

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

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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

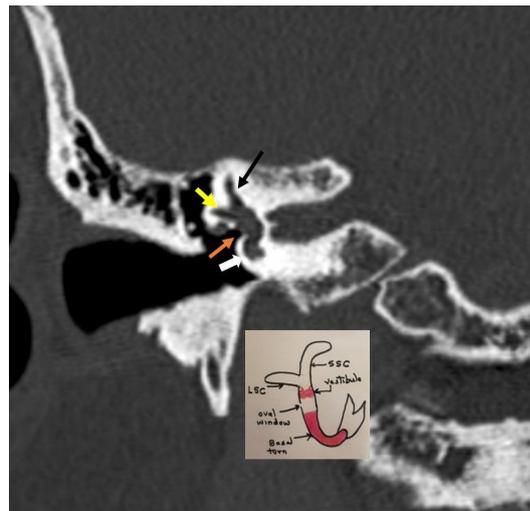


Figure 1 Coronal image of high resolution CT (HRCT) temporal bone on the right side depicting the Headless Mermaid in ballerina pose—basal turn of the cochlea with promontory (solid white arrow); superior semicircular canals (SCC) and lateral semicircular canals (LCC) (black thin arrow and yellow arrow,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

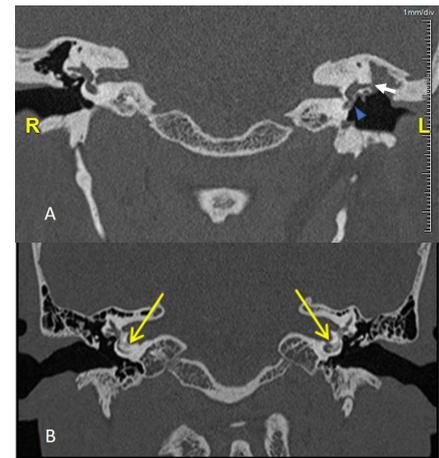


Figure 2 (A) Coronal HRCT temporal bone reveals erosion of the left tail of the Mermaid representing promontory (arrow head) and focal erosion of the lower hand of the Mermaid representing the lateral semicircular canal (LCC) (white arrow). (B) Coronal image of HRCT temporal bone reveals bone deposition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

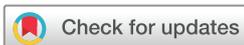
clue to the underlying pathological process. Coronal images of two patients with the altered appearance of Headless Mermaid have been shown ([figure 2A,B](#)).

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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.



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REFERENCE

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

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