

Supplementary material

Structured reporting template for radiological assessment

RADIOLOGICAL ASSESSMENT FORM

Patient Study ID: _____

Date of HRCT Scan: _____

Evaluator Name & Role (e.g., Neuroradiologist / Surgeon): _____

1. MASTOID CAVITY STATUS *(Select one primary category)*

- **Clear / Well-aerated:** No evidence of soft tissue opacification.
- **Partial Opacification:** Non-dependent opacification involving less than 100% of the mastoid air cells.
- **Complete Opacification:** Diffuse, total opacification of the entire mastoid cavity.

2. MIDDLE EAR/TYMPANIC CAVITY INVOLVEMENT *(Select all that apply)*

- Epitympanum (Attic)
- Mesotympanum
- Hypotympanum
- Protympanum (Eustachian tube orifice)
- Not involved

3. BONY LANDMARK INTEGRITY

- **Scutum:**

Intact

Eroded / Blunted

Notes: _____

- **Tegmen Tympani:**

Intact, Normal Thickness

Thinned

Dehiscent

Notes (e.g., location): _____

- **Facial Nerve Canal:**

Intact

Dehiscent (Probable)

Dehiscent (Definite)

Location of Dehiscence (if applicable): [] Tympanic Segment []

Geniculate Ganglion [] Other: _____

4. COCHLEAR STATUS

- **Cochlear Ossification:**

Absent: Grade 0

Present

- *Grade I:* Ossification confined to round window niche (obliteration with bony thickness > 4 mm).
- *Grade II:* Ossification extends into basal turn but $\leq 180^\circ$
- *Grade III:* Ossification extends beyond basal turn, $> 180^\circ$.

Linear Extent (if Grade II/III, measure along basal turn from RW niche): _____ mm

5. OTHER CRITICAL FINDINGS

- **Ossicular Chain:**

Intact

Erosion (Specify ossicles): _____

- **Semicircular Canals:**

Intact

Fistula (Specify canal): _____

- **Jugular Bulb / Carotid Artery:**

Normal

Dehiscent / High-riding (Specify): _____

- **Additional Notes or Unusual Anatomical Variants:**

Evaluator Signature: _____

Date of Evaluation: _____

Supplementary Table 1 Individual patient data: Preoperative high-resolution computed tomography-based prediction *vs* actual surgical approach and key imaging determinants

Patient ID	Key HRCT determinants	Predicted approach	Actual approach	Concordance	Notes
1	Complete mastoid opacification; Scutum erosion	CWD/STP	STP	Yes	-
2	Complete mastoid opacification; Soft tissue in epitympanum & mastoid	CWD/STP	CWD	Yes	-
3	Complete mastoid opacification; Erosion of posterior canal wall	CWD/STP	CWD	Yes	-
4	Complete mastoid opacification; Soft tissue in epitympanum & mastoid	CWD/STP	CWD	Yes	-
5	Complete mastoid opacification; Grade III CO	CWD/STP	STP	Yes	Drill-out performed
6	Soft tissue confined to epitympanum; Well-aerated mastoid; Intact canal wall	CWU	CWU	Yes	-
7	Soft tissue in mesotympanum; Clear mastoid; Intact ossicular chain	CWU	CWU	Yes	-
8	Pars flaccida retraction; Well-aerated mastoid	CWU	CWU	Yes	-
9	Epitympanic soft tissue; Clear mastoid	CWU	CWU	Yes	-
10	Mesotympanic granulation tissue; Well-aerated mastoid	CWU	CWU	Yes	-
11	Localized soft tissue in attic; Well-aerated mastoid; Intact scutum	CWU	CWU	Yes	-
12	Middle ear cholesteatoma (confined); Clear mastoid	CWU	CWU	Yes	-

This table provides a case-by-case breakdown of the primary imaging findings that led to the surgical approach prediction, following the criteria outlined in

the Materials and Methods section. CO: Cochlear ossification; CWD: Canal wall-down; CWU: Canal wall-up; HRCT: High-resolution computed tomography; STP: Subtotal petrosectomy.