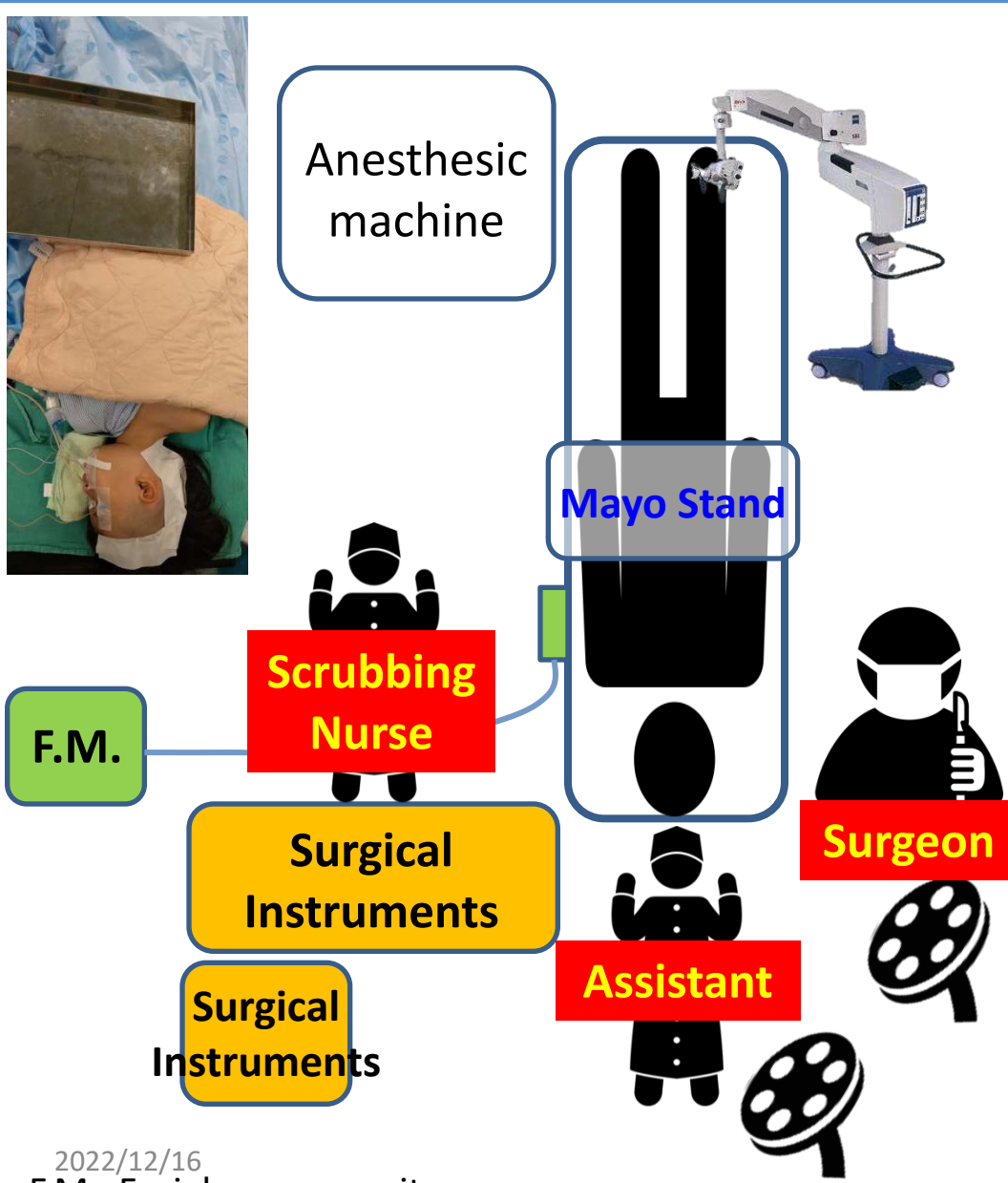




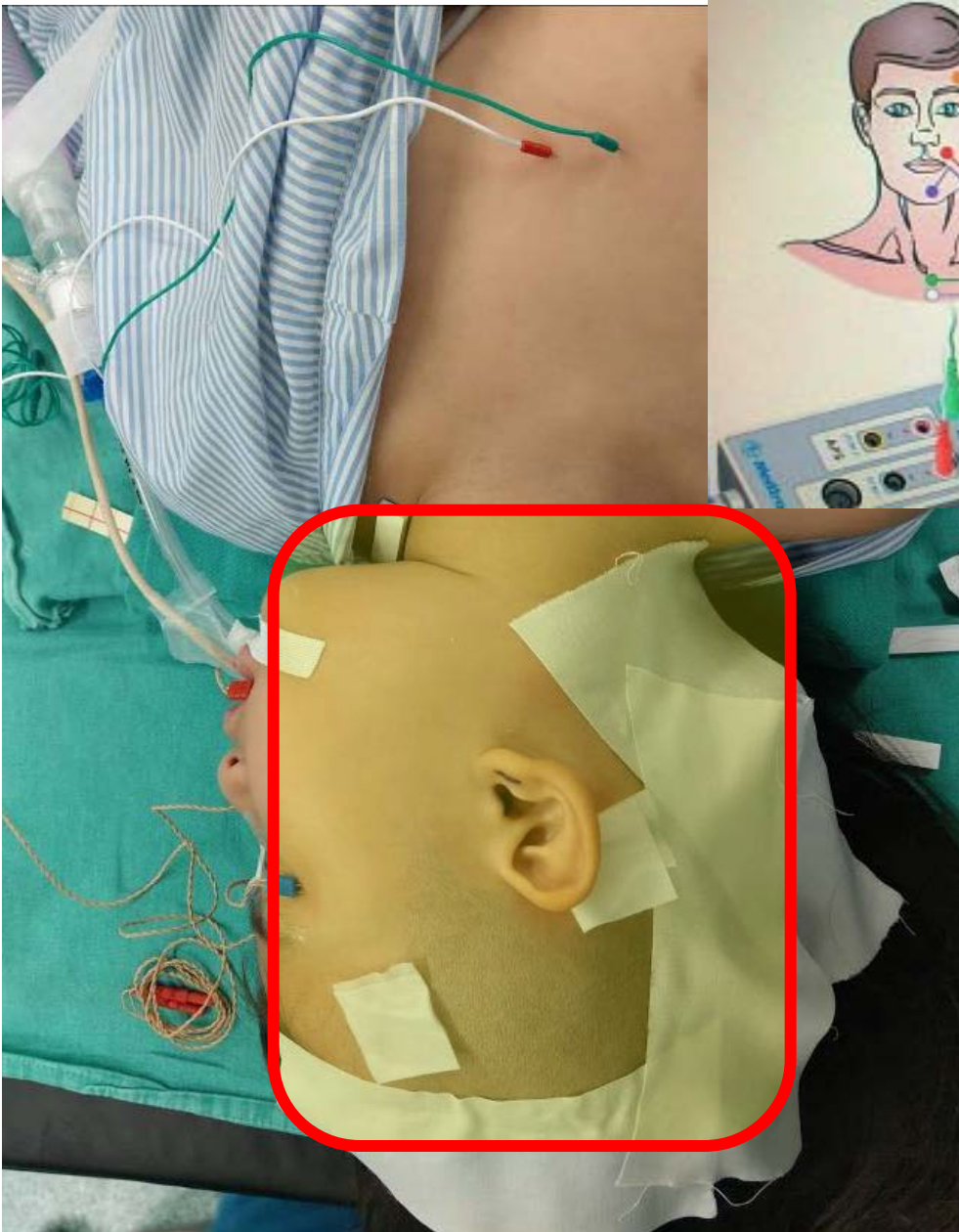
How I do it, cochlear implantation

吳弘斌醫師 MD, PhD
台灣台中慈濟醫院 耳鼻喉部

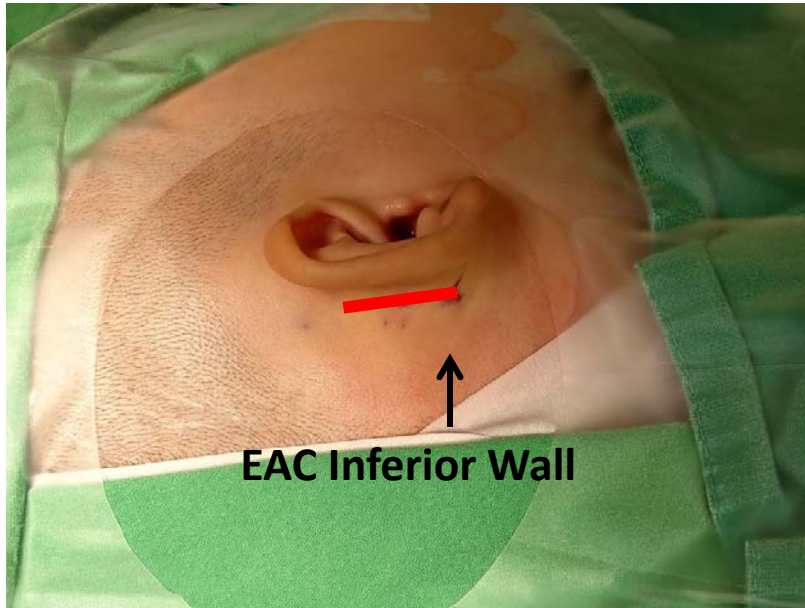
Setup



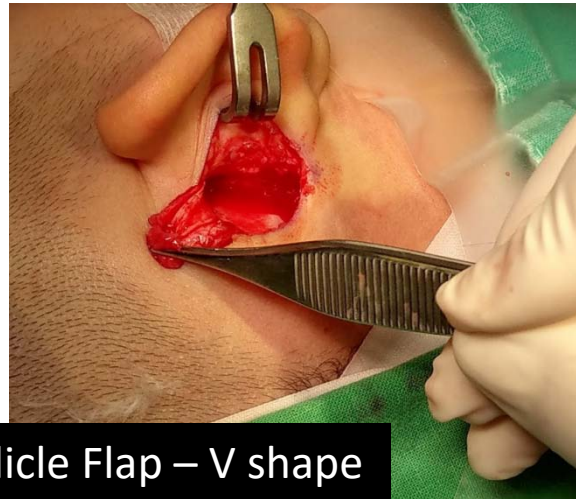
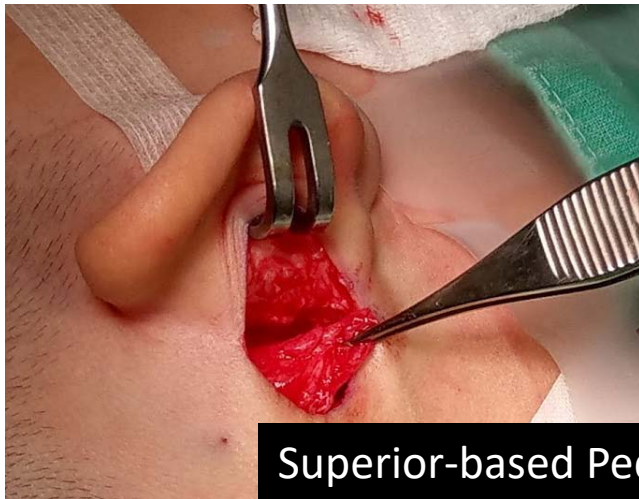
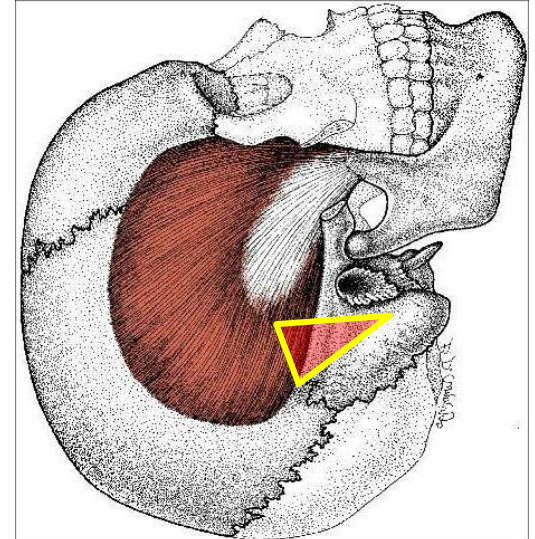
Disinfection & Draping



Incision



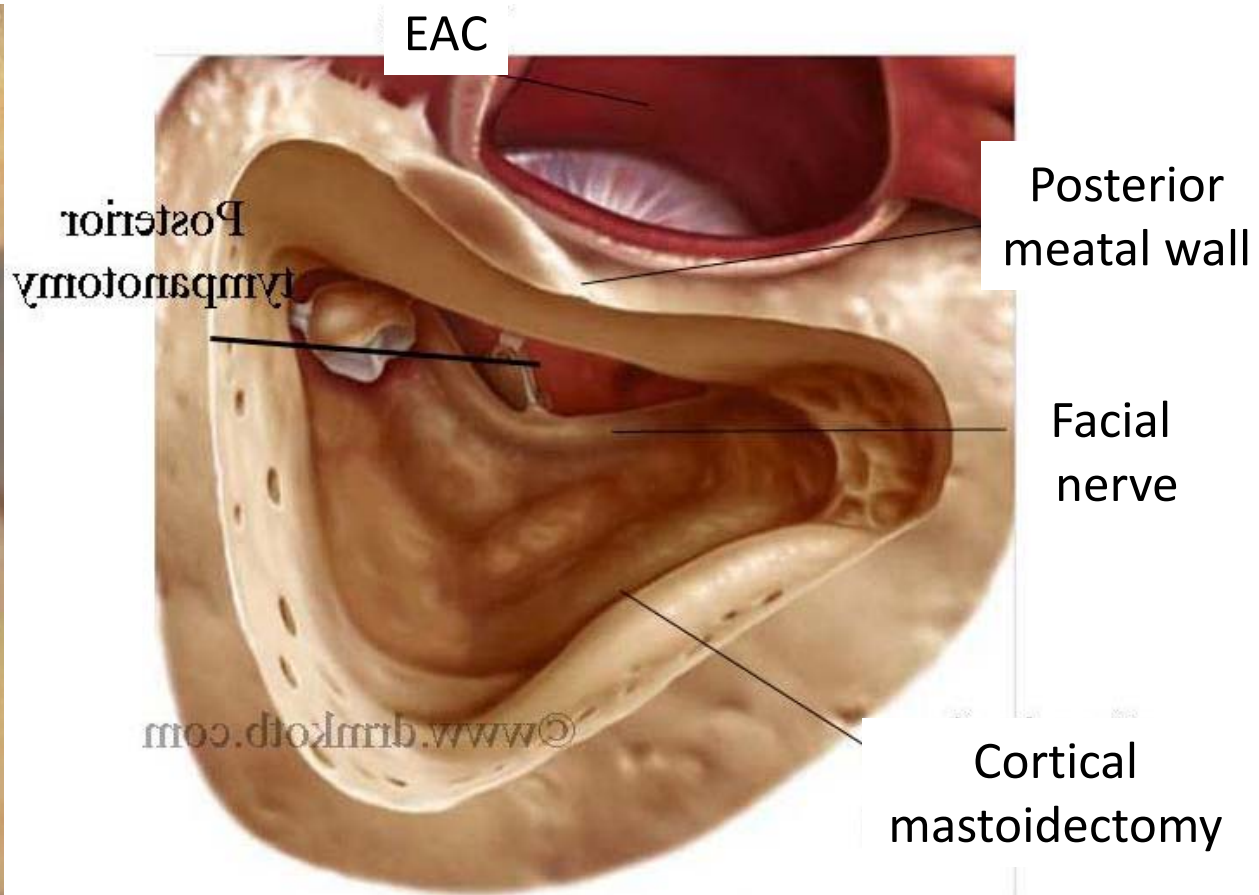
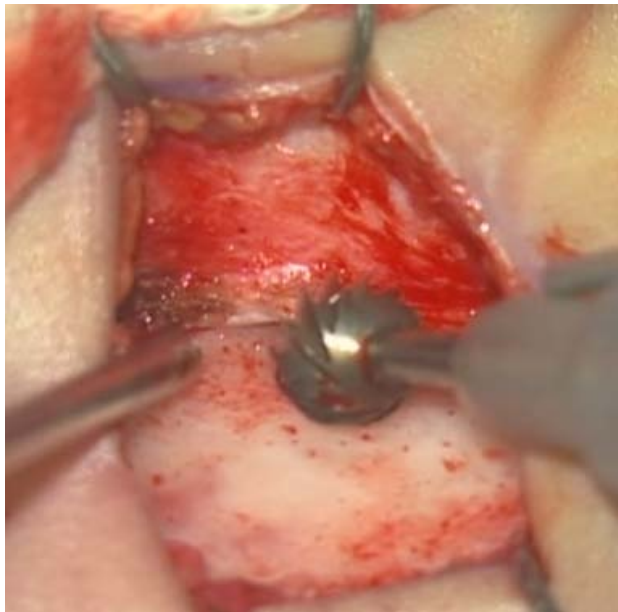
Make A Superior-based Pedicle Flap



Superior-based Pedicle Flap – V shape

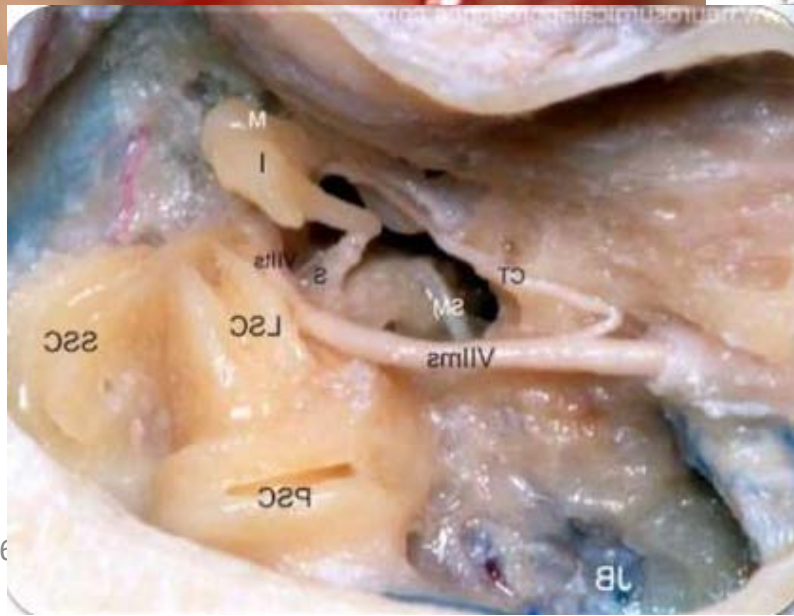
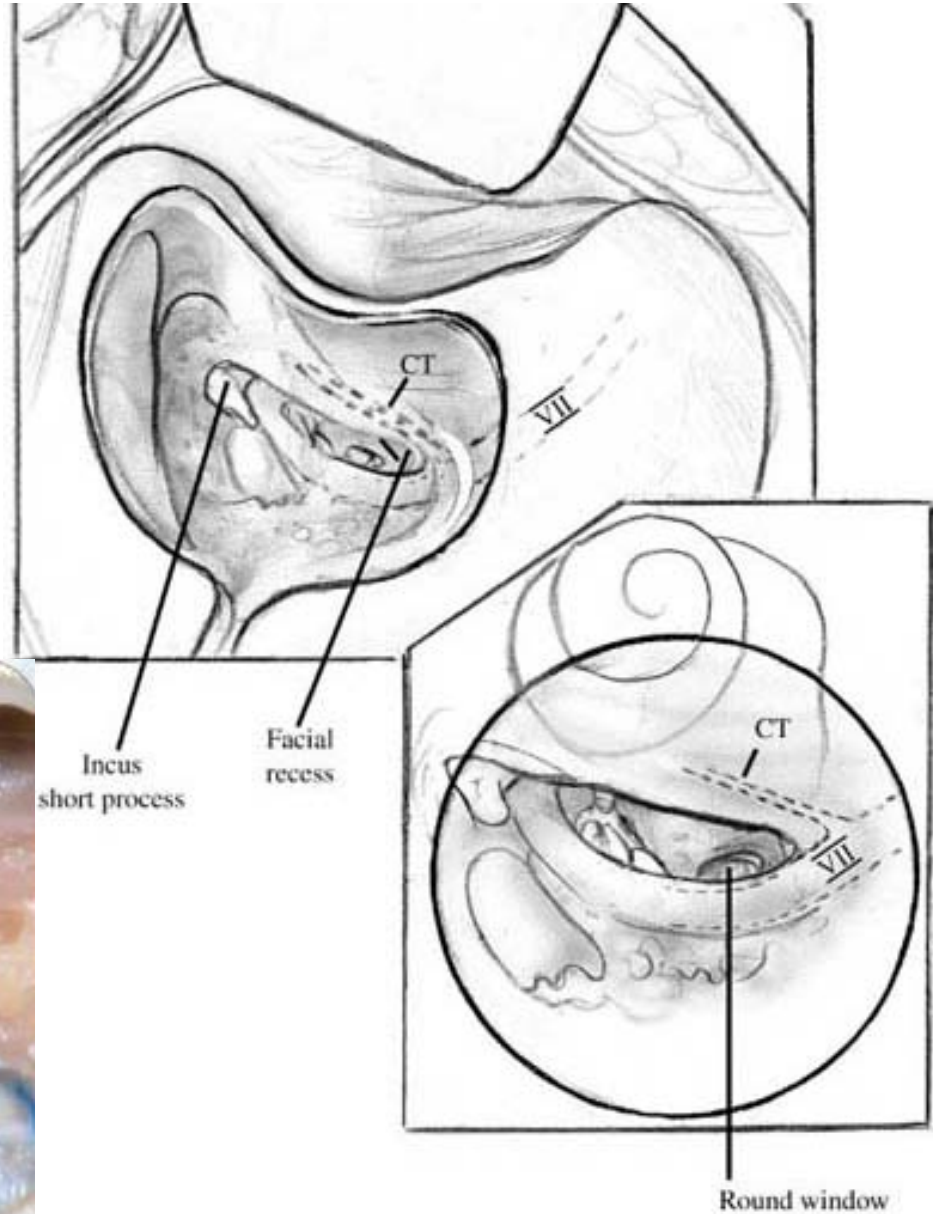
Pieces of areolar tissue was removed for fascia grafting and later reconstruction

Mastoidectomy

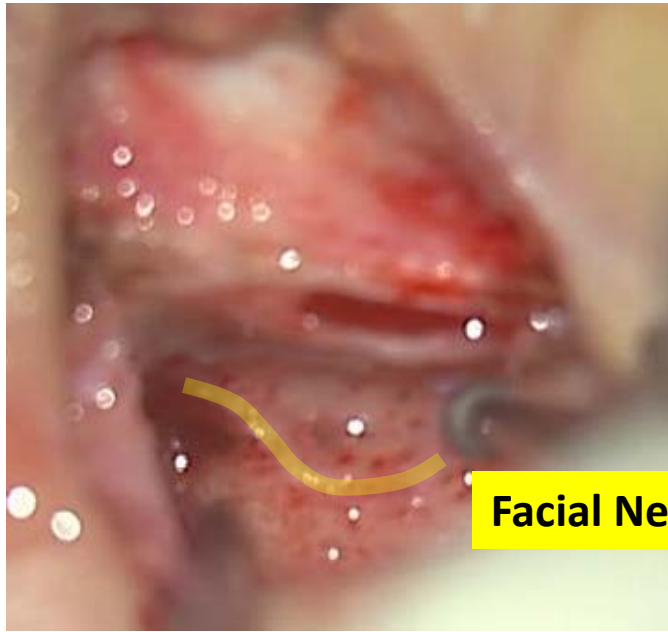


Posterior canal wall – As thin as possible

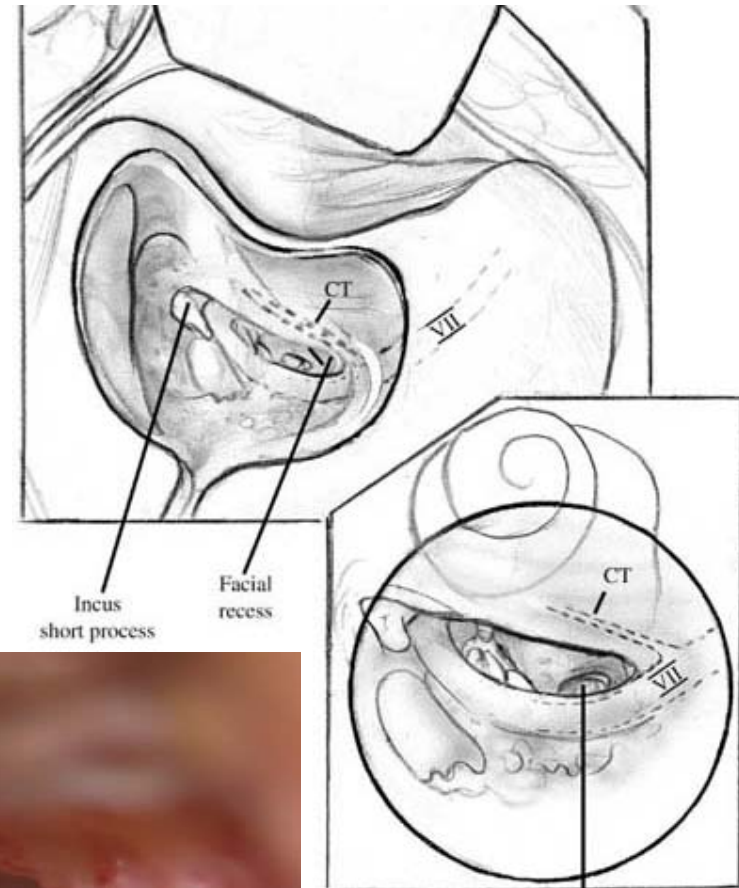
Incus & Lateral Semicircular Canal



Facial Recess & Round Window



Facial Nerve



Incus short process

Facial recess

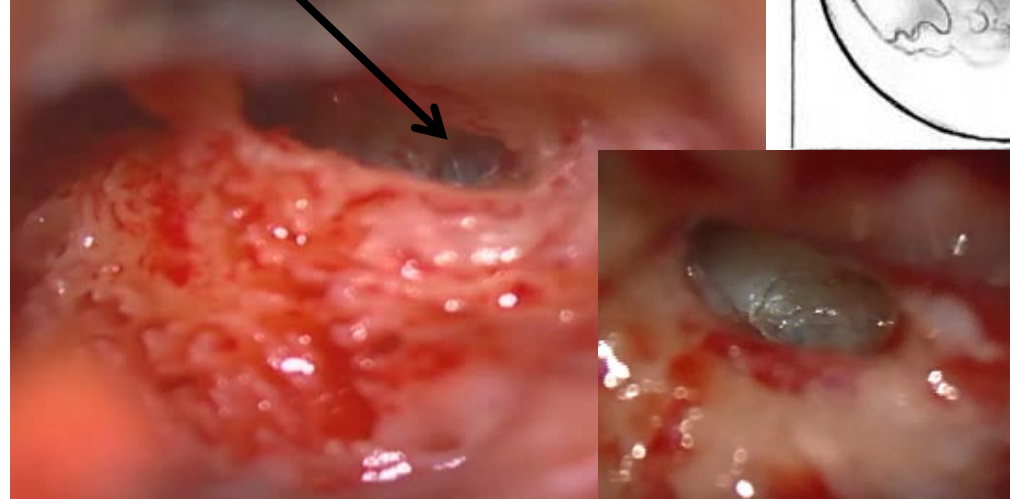
Round window

Posterior Tympanotomy

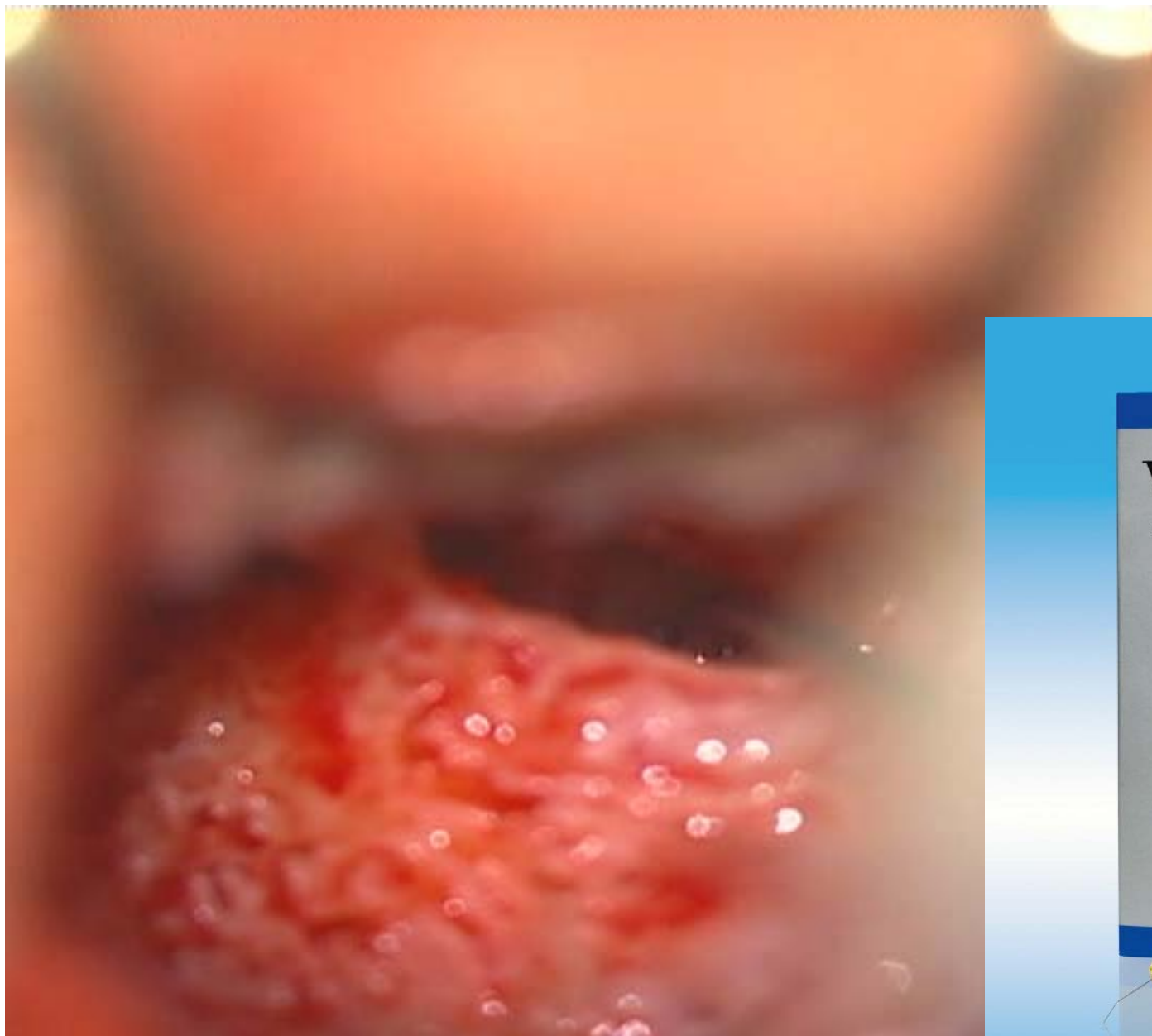
Facial Recess



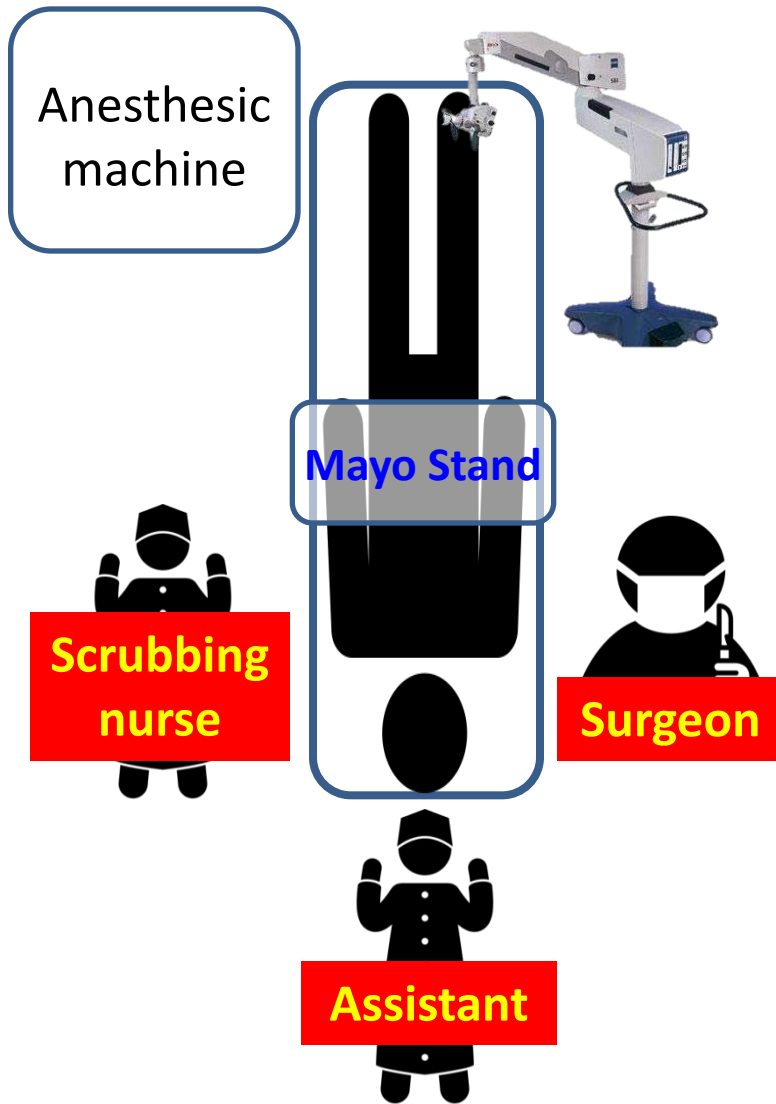
Round Window



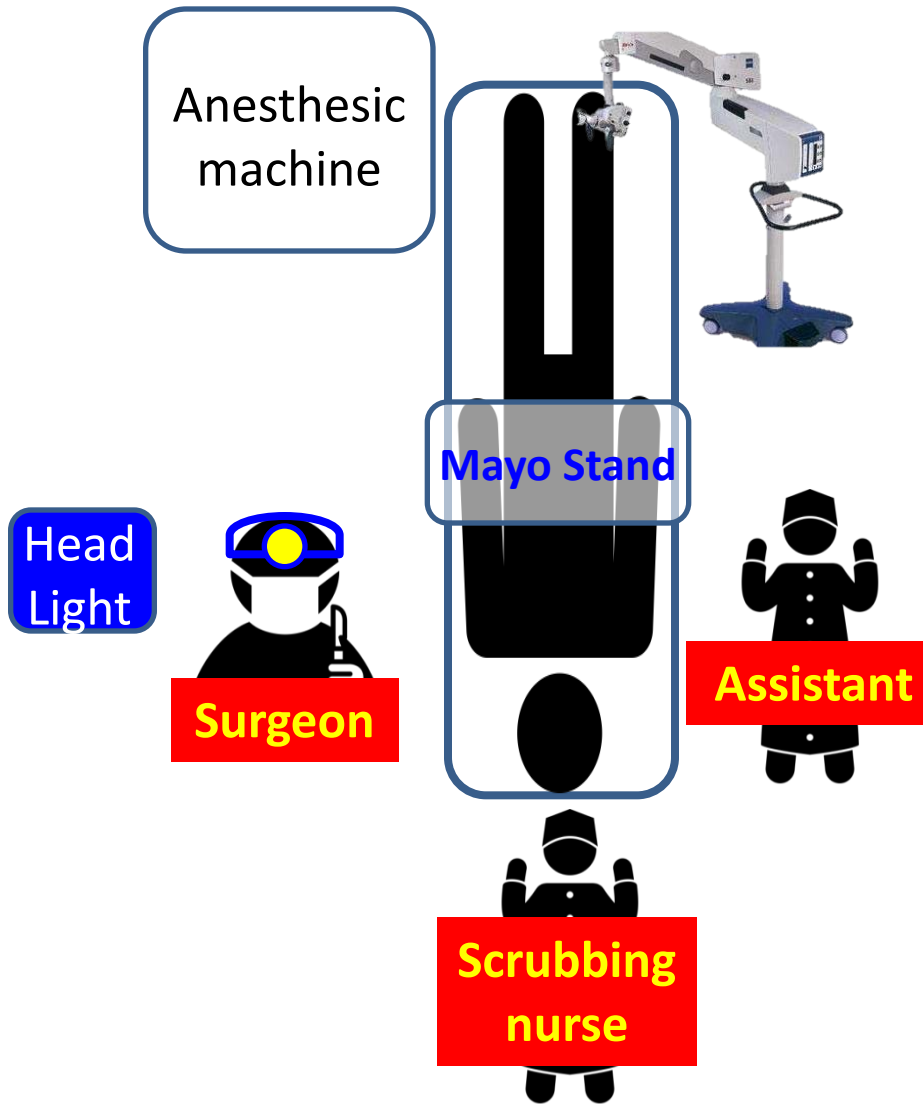
Irrigation & Hyaluronate Injection



Change the Position



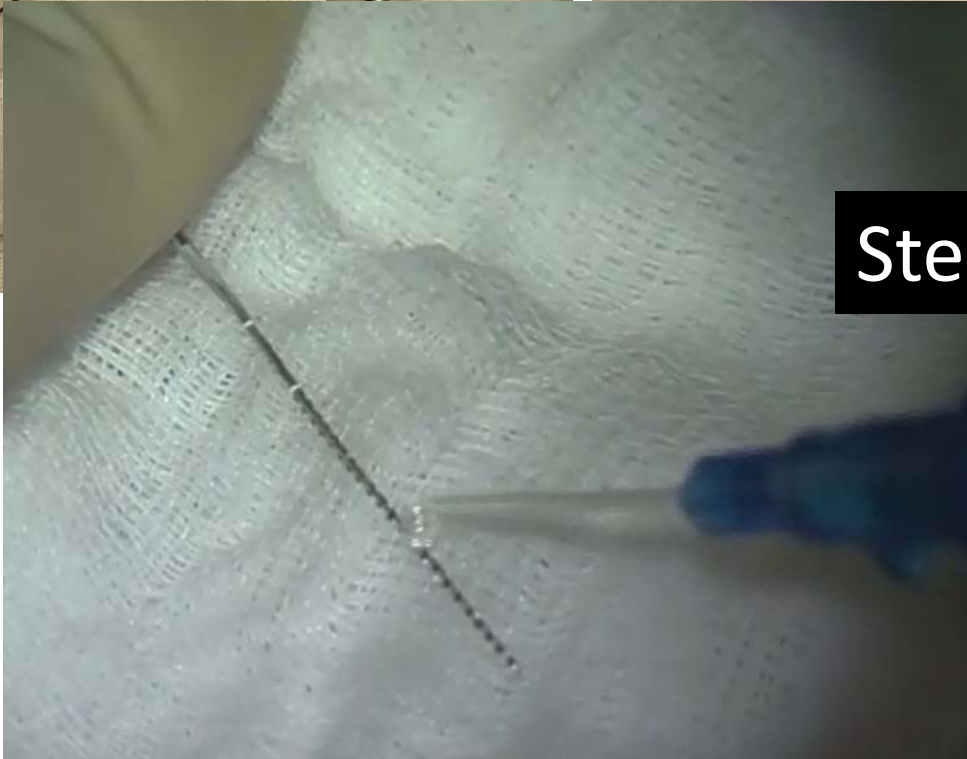
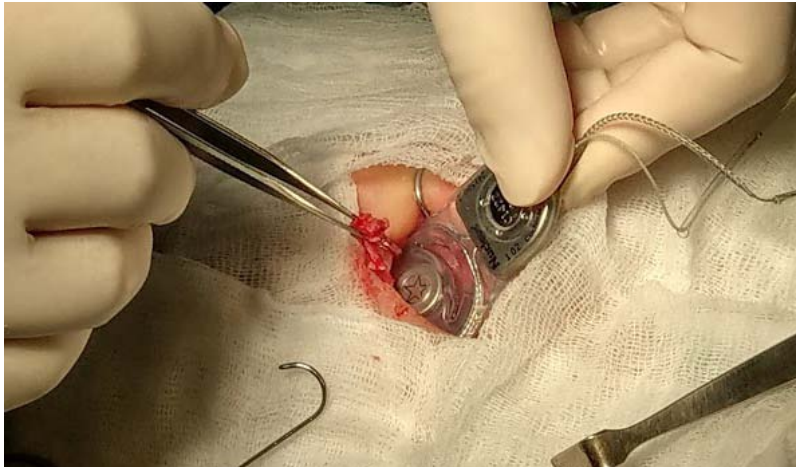
Change the Position



Subperiosteal Pocket for Implant



Inserted the Implant



Insert the Electrode via Round Window



Insert the Electrode via Round Window — **Soft Technique**



Insert the Ball Electrode
under the Temporalis Muscle

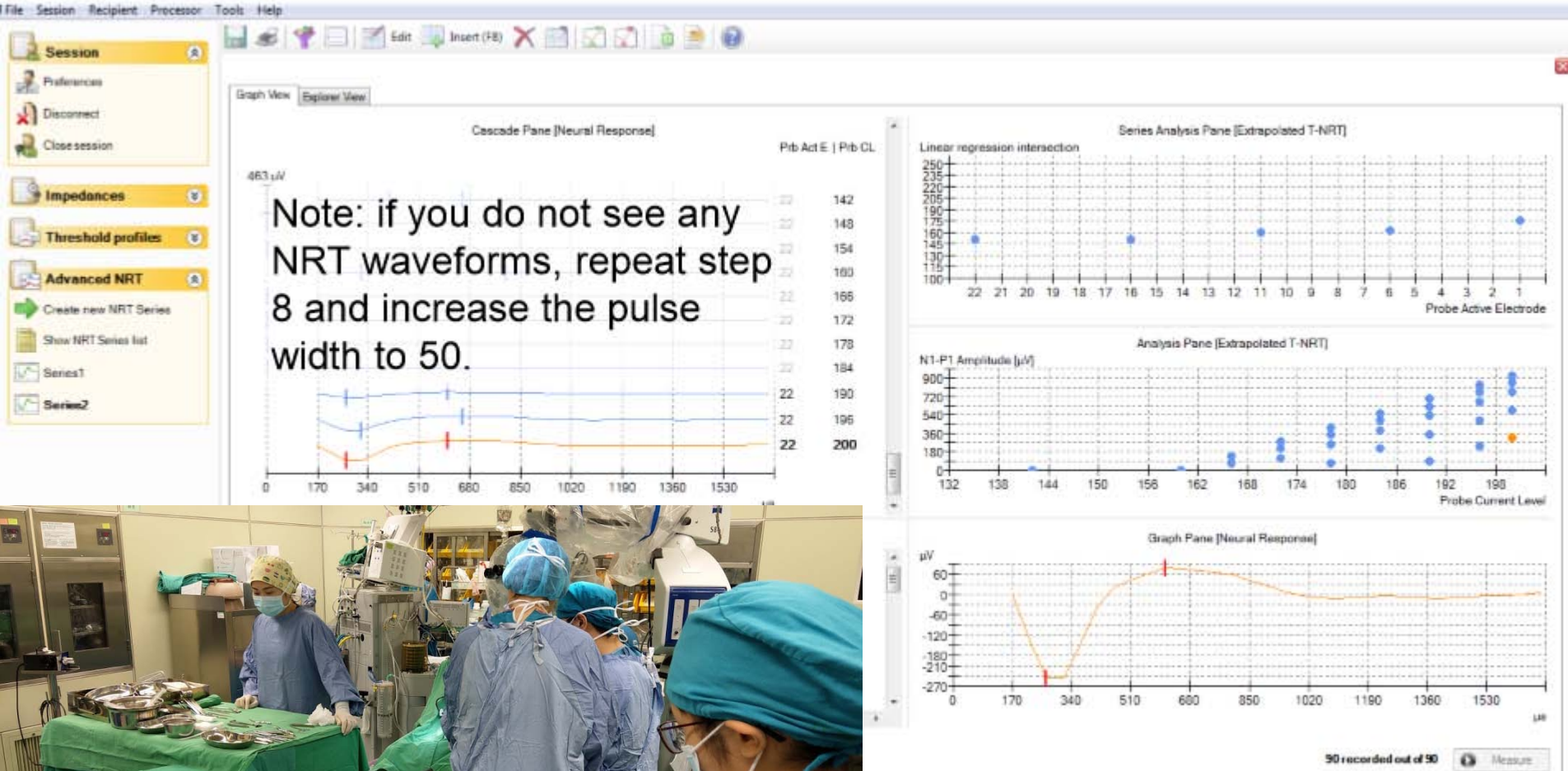


Areolar Tissue for Fixation the Electrode

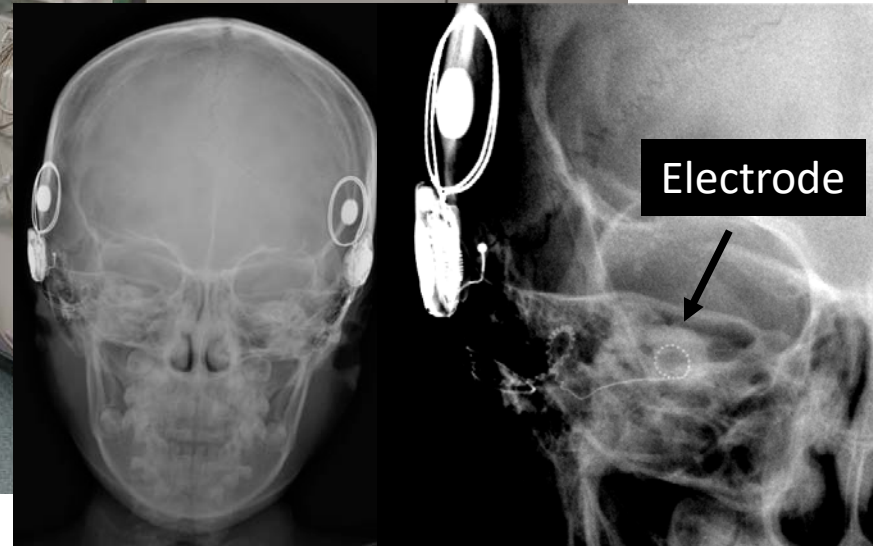
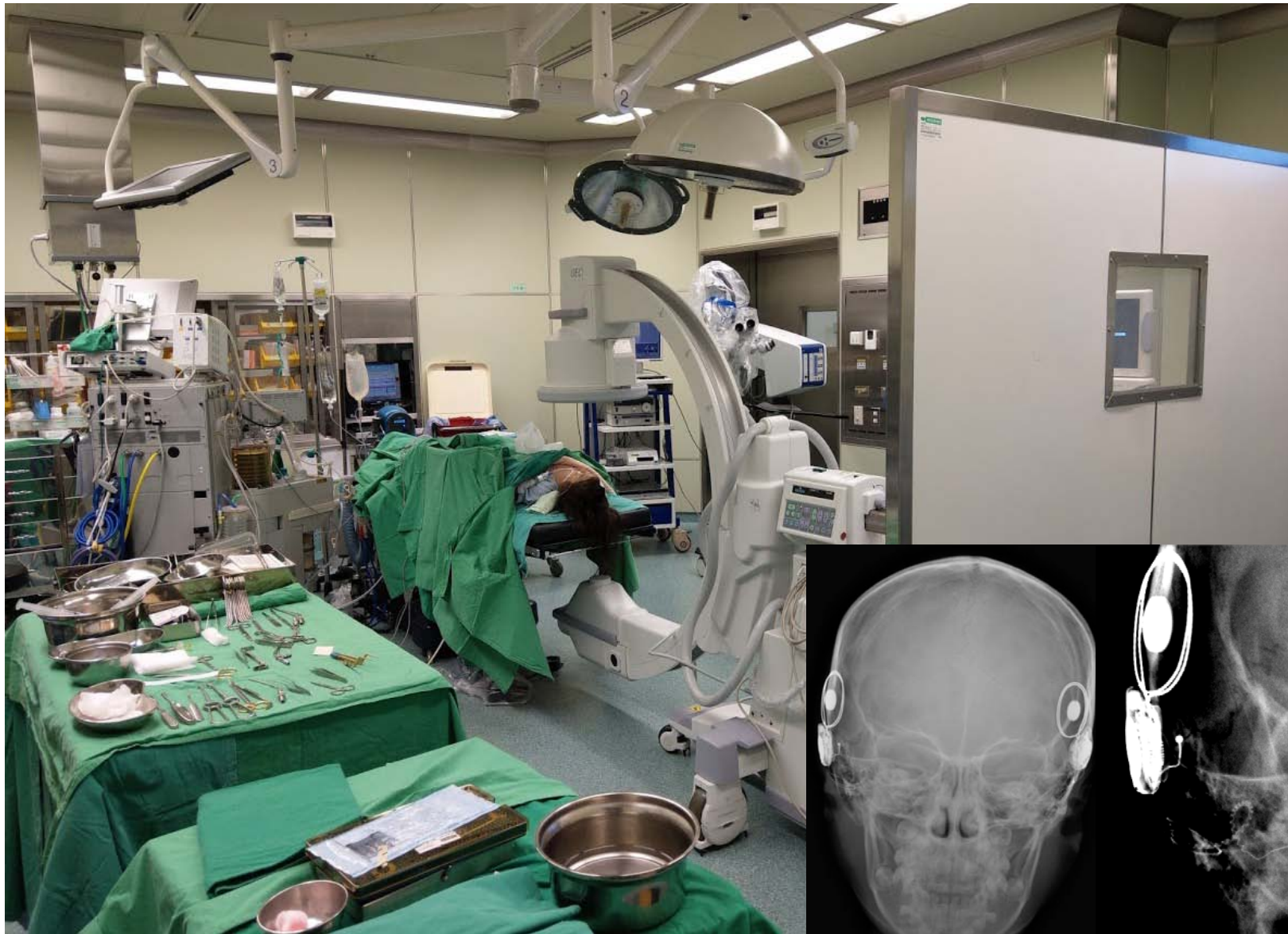
Wound Closure



Testing NRT

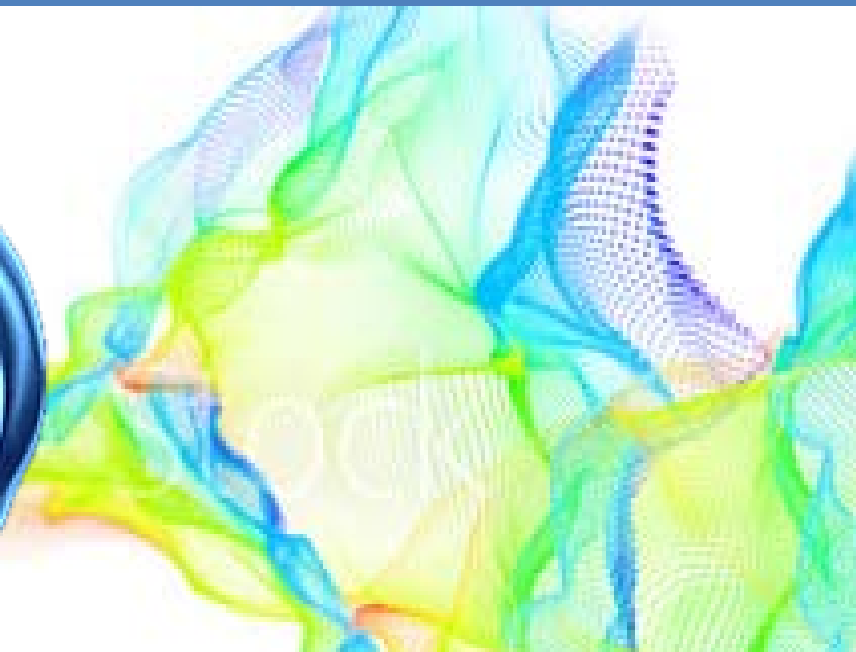


C-arm



Mastoid Dressing





Transcanal Cochlear Implantation in CHARGE Syndrome

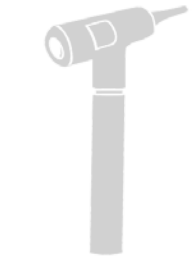
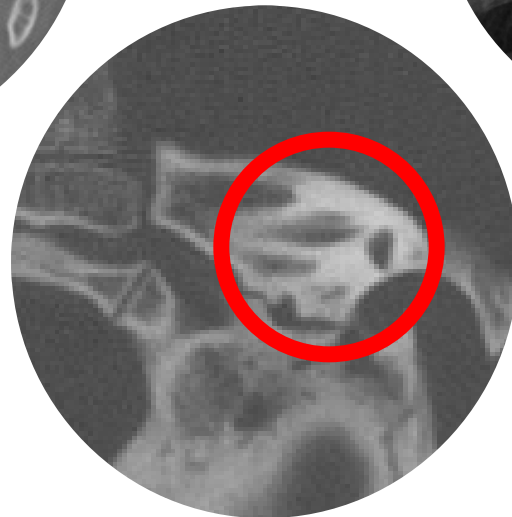


- 3 year old child
- Hearing loss since birth
- Ask for CI evaluation

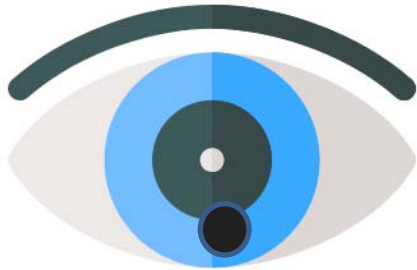
Past:

1. Patent Ductus Arteriosus
2. Growth retardation

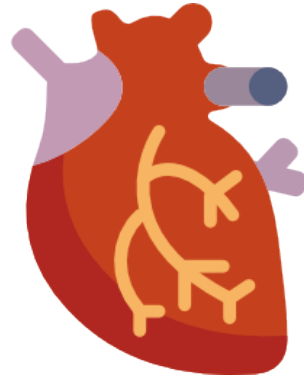
CHARGE syndrome



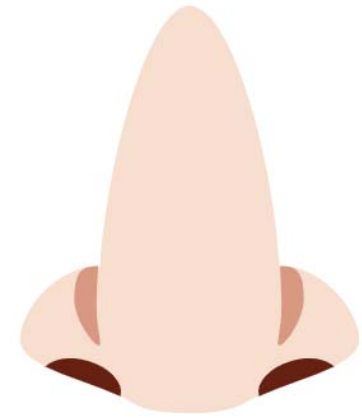
CHARGE



Coloboma



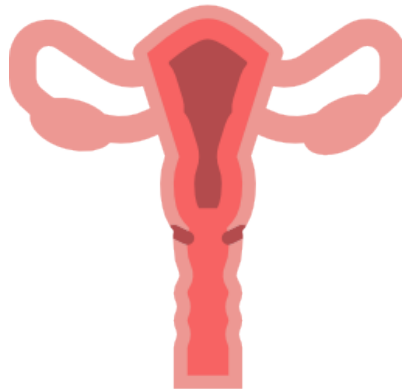
Heart defects



Choanal Atresia



Growth
Retardation



Genital
abnormalities



Ear
abnormalities

CHARGE criteria

Verloes' diagnostic criteria (2005)

(Verloes A. 2005; Am J Med Genet A. 15;133A(3):306-8)

Major criteria (3 C's)

Coloboma (iris or choroid, with or without microphthalmia)

★ Choanal atresia

★ Hypoplastic semi-circular Canals

Minor criteria

★ Rhombencephalic dysfunction (brainstem dysfunctions, cranial nerve VII to XII palsies and neurosensory deafness)

Hypothalamo-hypophyseal dysfunction (including GH and gonadotrophin deficiencies)

★ Abnormal middle or external ear

★ Malformation of mediastinal organs (heart, esophagus)

★ Mental retardation

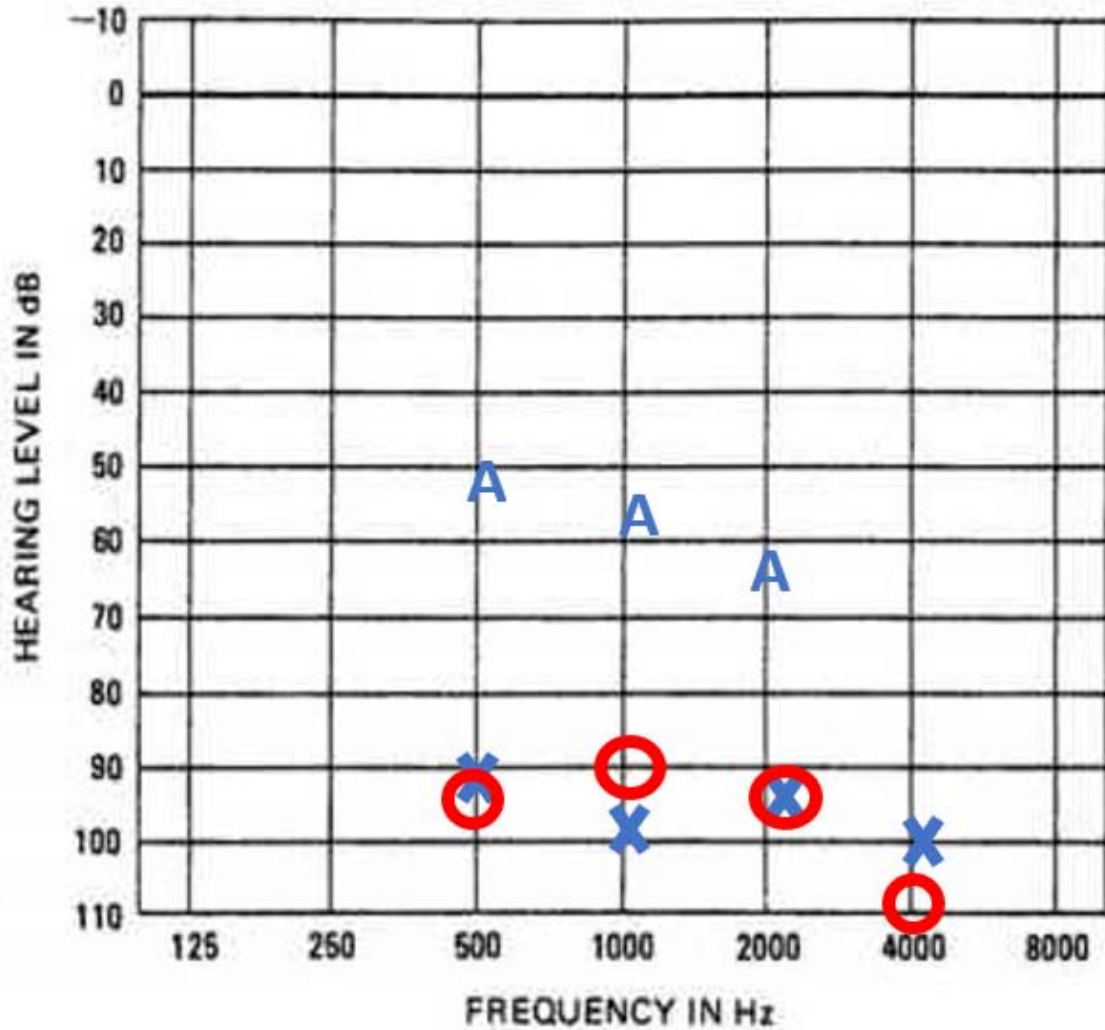
Diagnostic criteria interpretation

★ Typical CHARGE: 3 major, or 2 major and 2 minor criteria

Partial/incomplete CHARGE: 2 major and 1 minor criteria

Atypical CHARGE: 2 major, or 1 major and 3 minor criteria

PTA

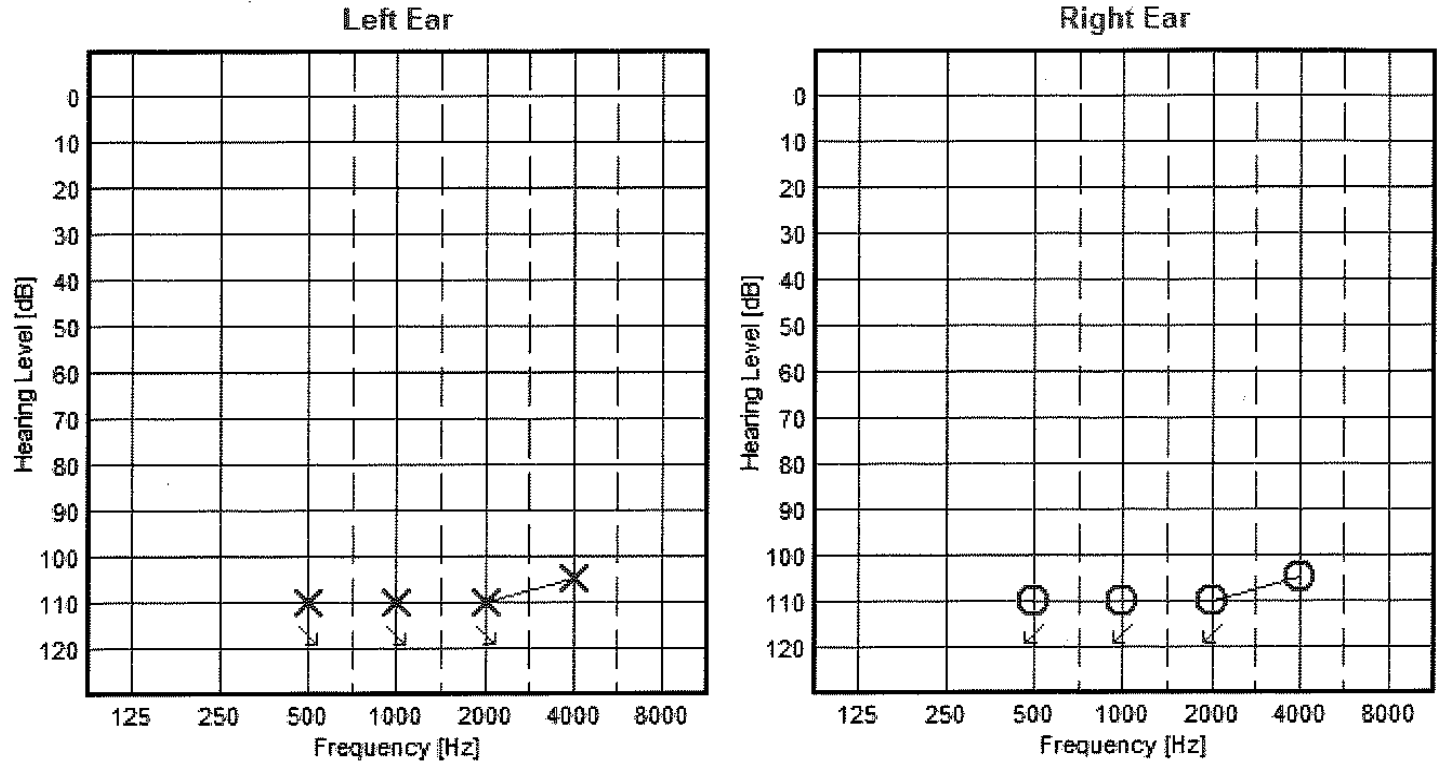


PTA: R:97dB L:97dB profound SNHL

ASSR

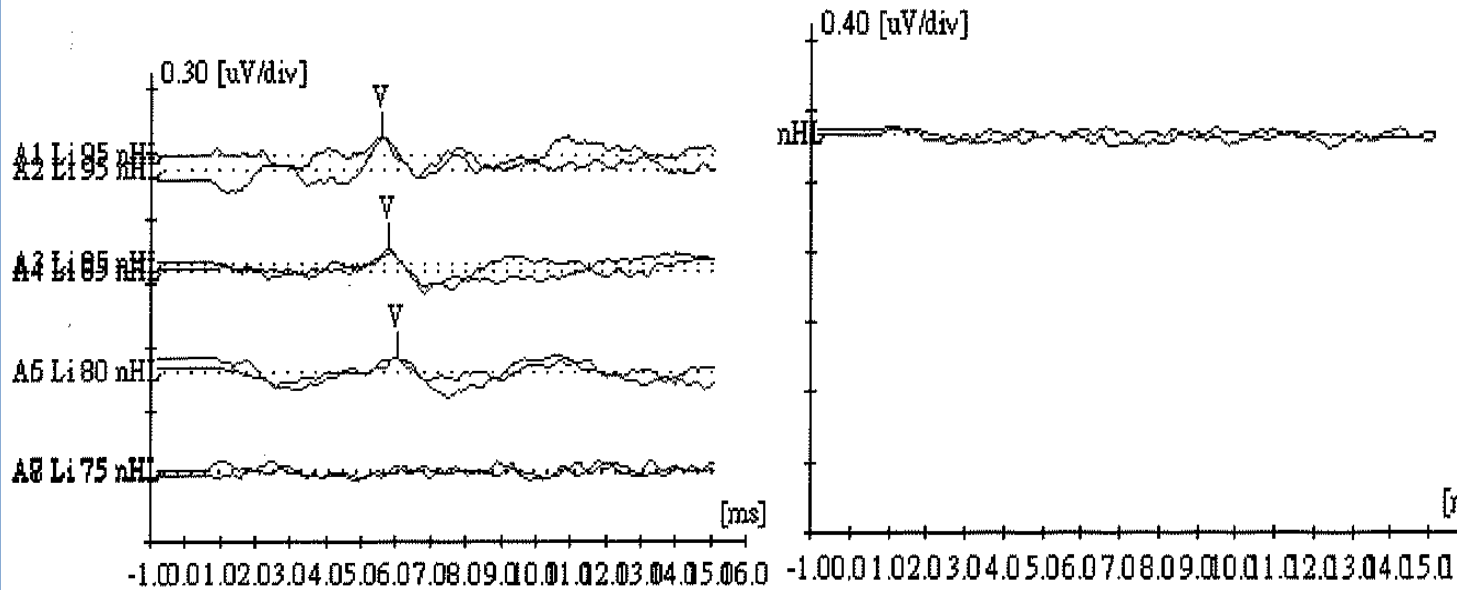


Physiologic Audiogram



ASSR: bilateral >110dB

cABR



L : 80dB

R: no response

MRI

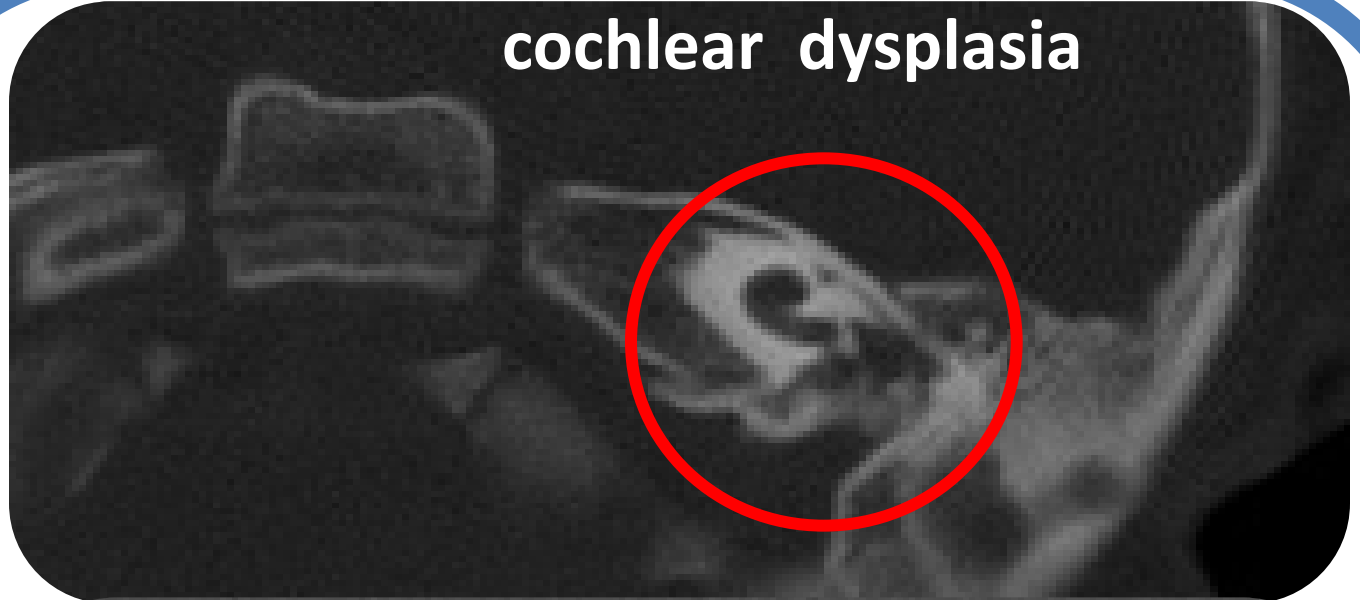


no obvious cochlear nerve

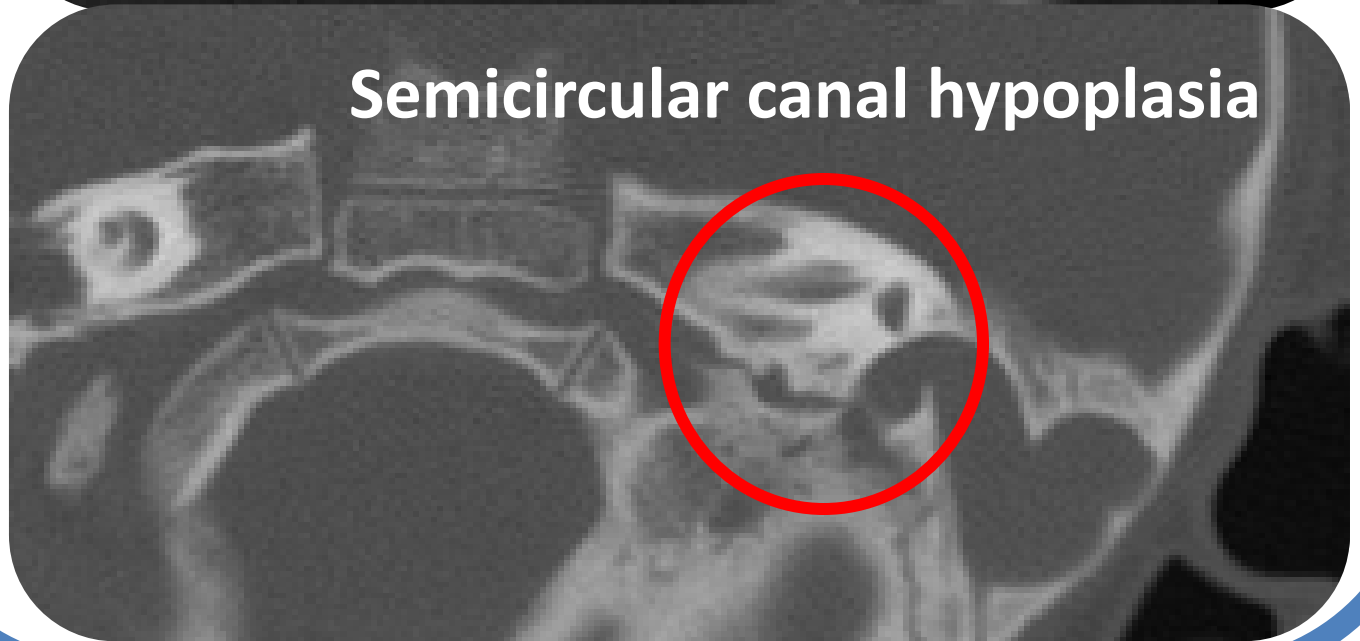




cochlear dysplasia



Semicircular canal hypoplasia



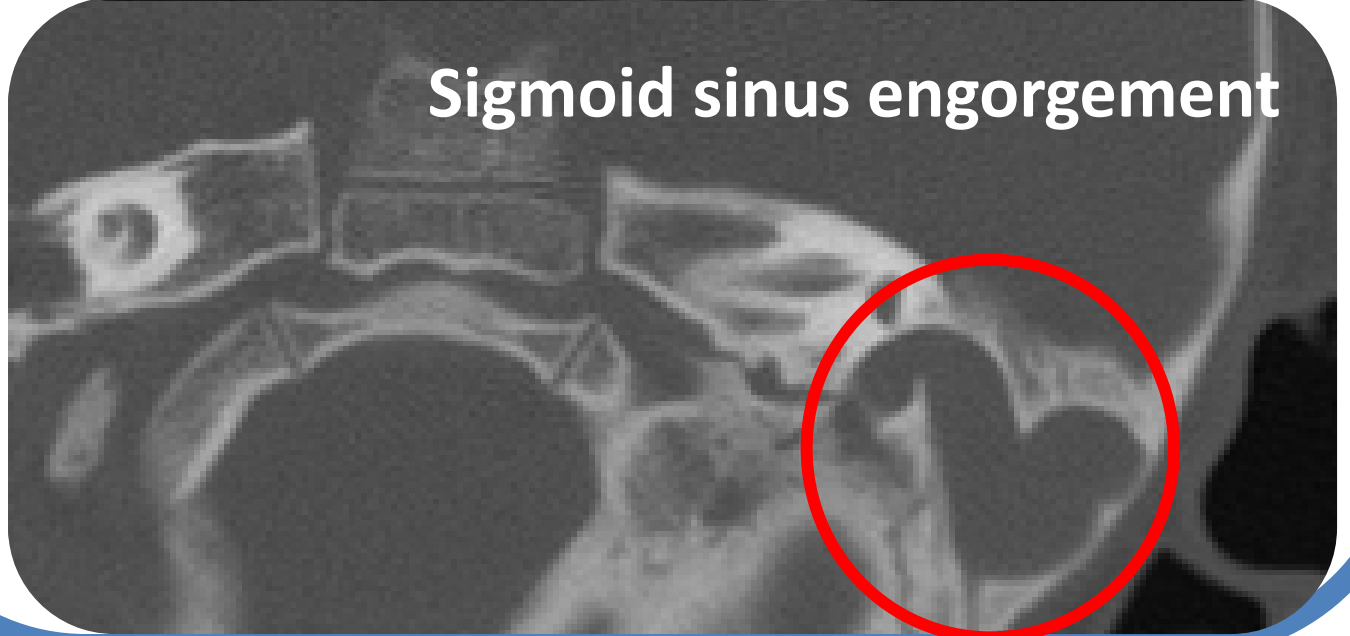
HRCT



Poor developed mastoid cavity



Sigmoid sinus engorgement



Modified Transcanal Approach

1. Undeveloped mastoid cavity
2. Middle and inner ear malformation
3. Lack of land marks
4. Distance



Modified Transcanal Approach



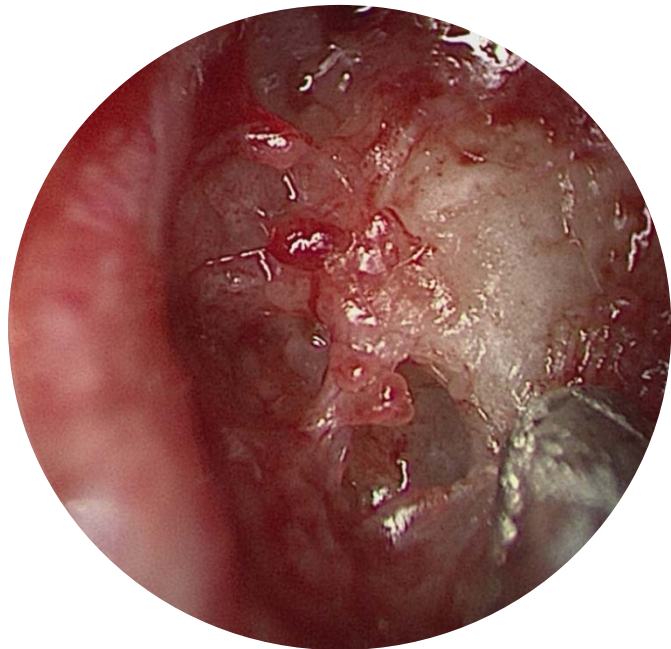
Advantages

- (a) No need for mastoidectomy
- (b) wide exposure of the middle ear
- (c) shortens the operative time
- (d) bypasses the underdeveloped mastoid and engorged sigmoid sinus
- (e) shortest route to reach the round window

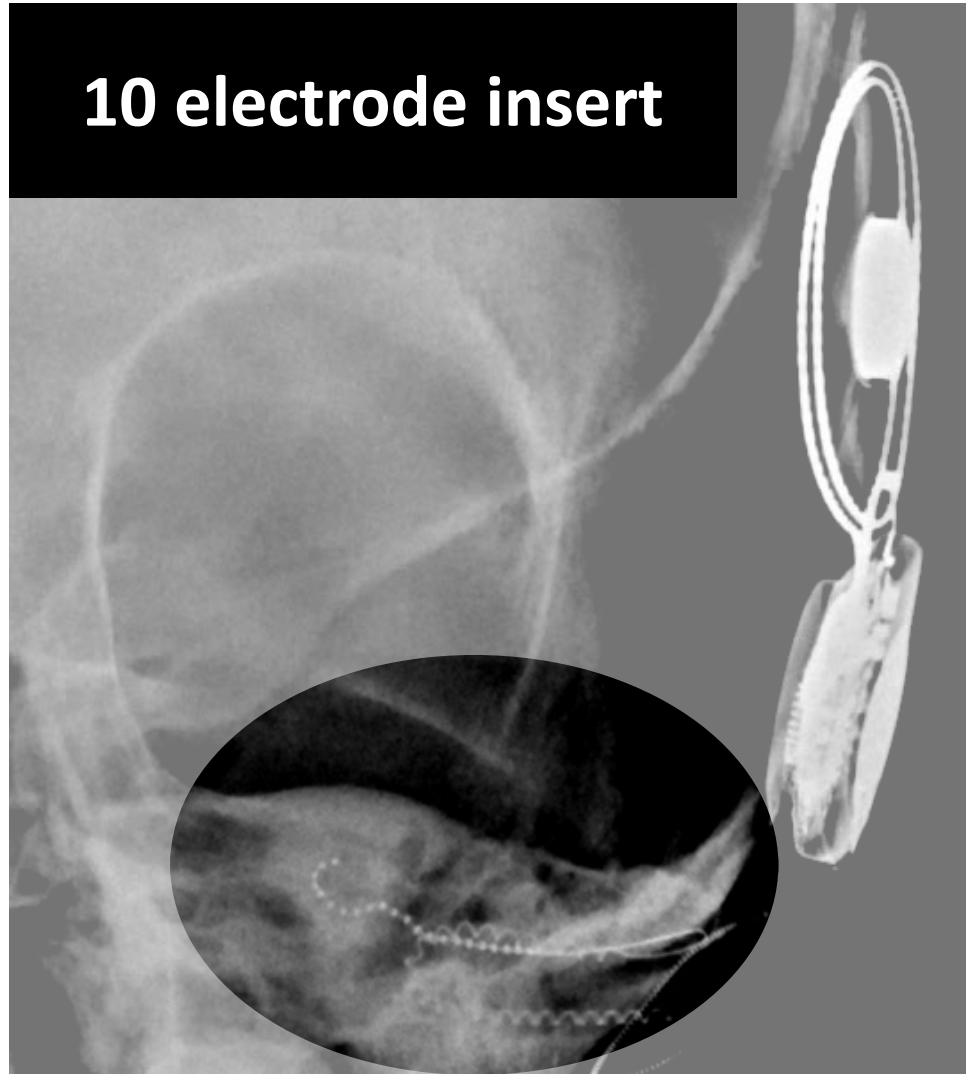


107/8/28

OP



10 electrode insert



107/8/28

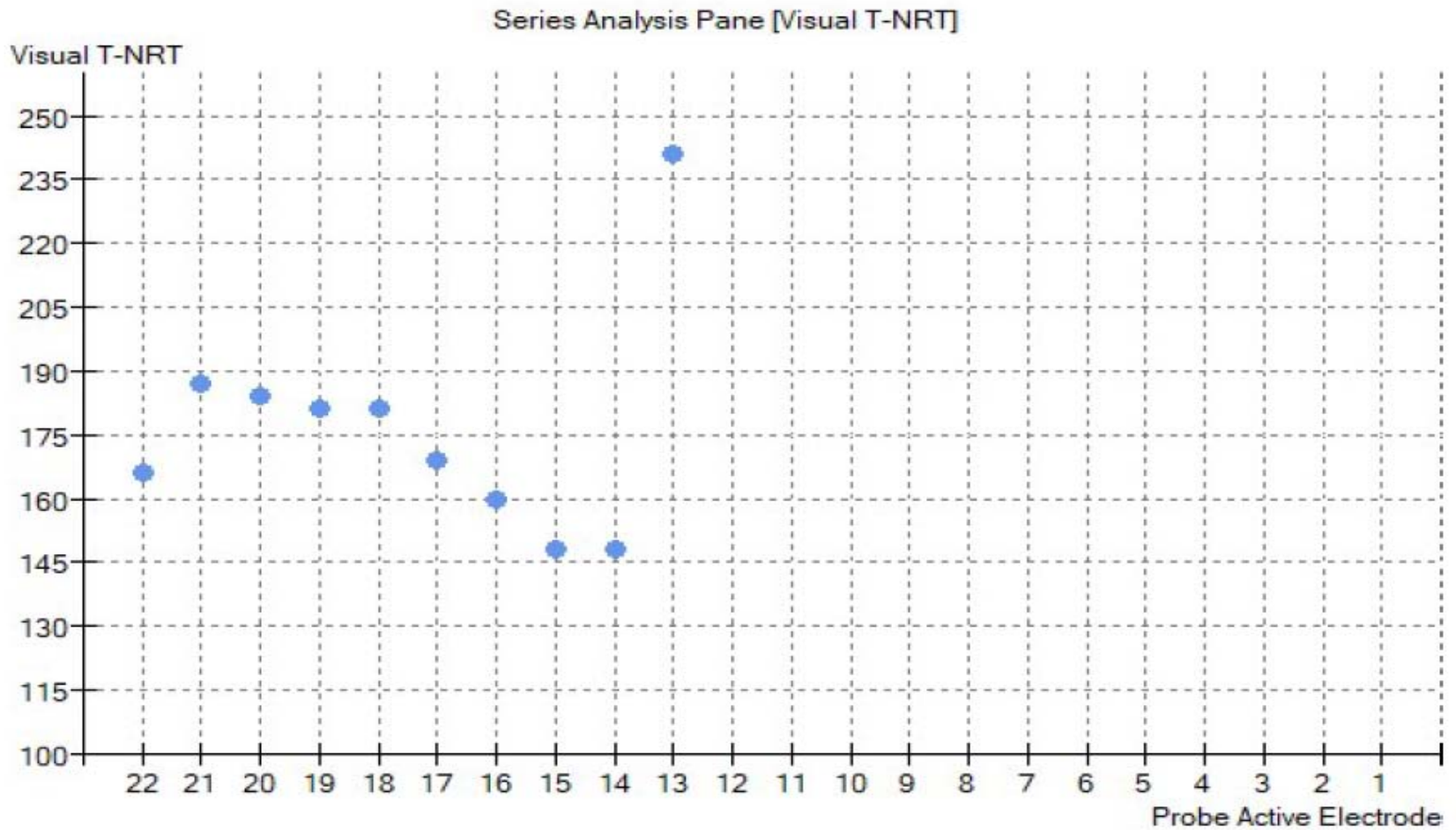
107/8/29



OP

CI activation

NRT Series Chart (Series Analysis Pane)



107/8/28

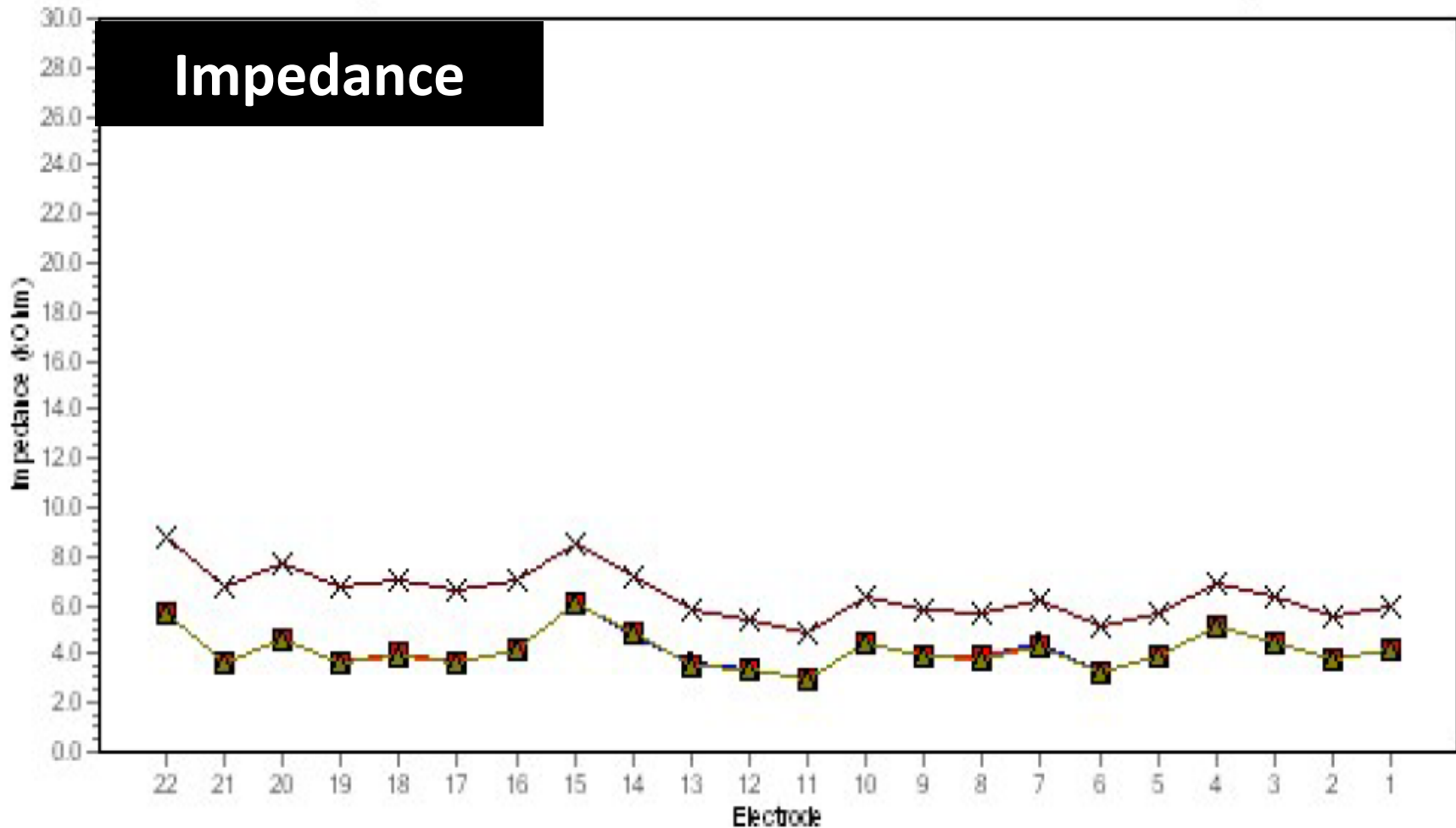
107/8/29



OP

CI activation

CG 2018/8/29 CG 2018/8/29 CG 2018/8/29 MP1 2018/8/29



107/8/28

107/8/29

107/9/17

107/10/15

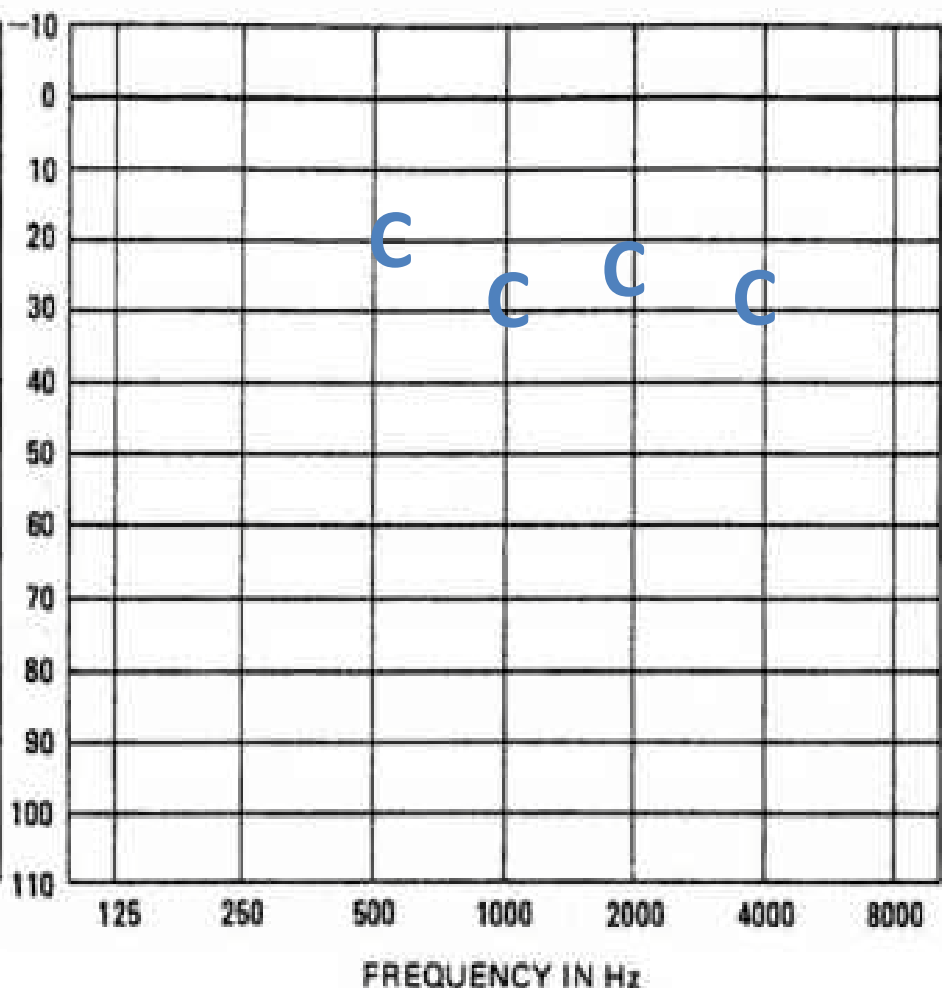
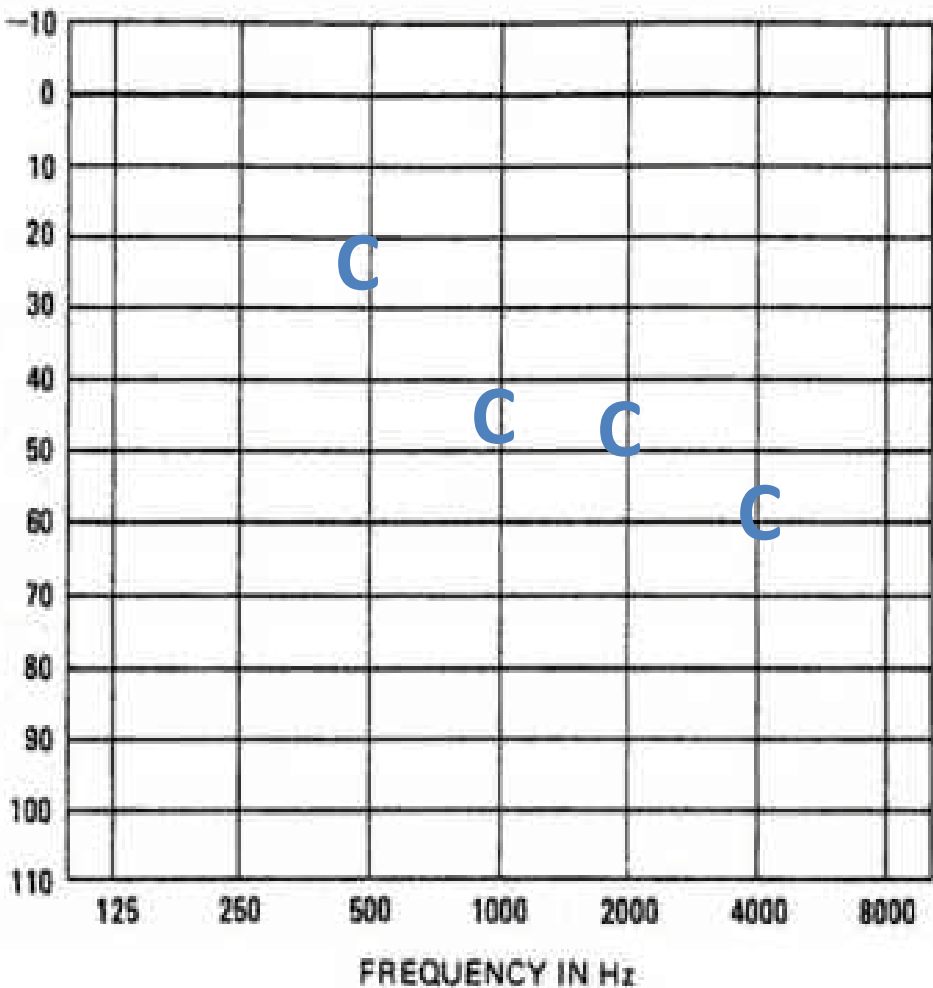


OP

CI activation

Mapping

Mapping



107/8/28

107/8/29

107/10/15

107/03/19

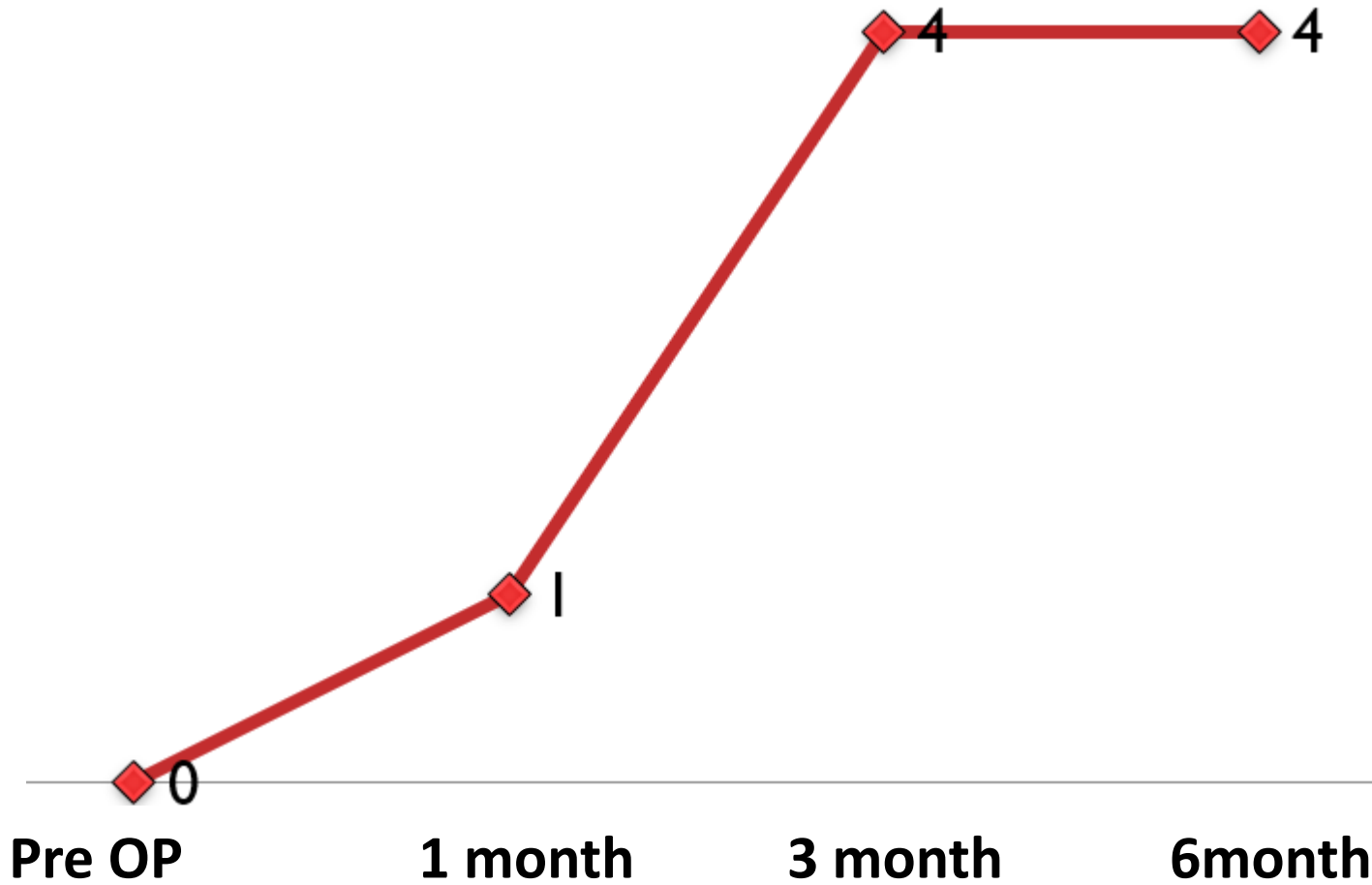


OP

CI activation

Mapping

IT-MAIS



summary



CHARGE
syndrome



HRCT finding



Modified
Transcanal
approach

