Tinnitus

Definition

- hearing nocuous sounds not produced by external stimulus. Hissing, roaring, ringing, clicking or whooshing.

- It can be **Tonal** ranging from high to low pitch, multi tonal, or **noise** like.
- May be Constant, pulsed, or intermittent.
- Starts Suddenly or insidiously.
- More prevalent in males.
- Location. In the ear or in the head.
- Uni or bilateral.

Classification

- **Objective** tinnitus (there is mistake in the book). Heard by the pt and examiner.

- **Subjective** tinnitus (audible only to the pt). is more common.

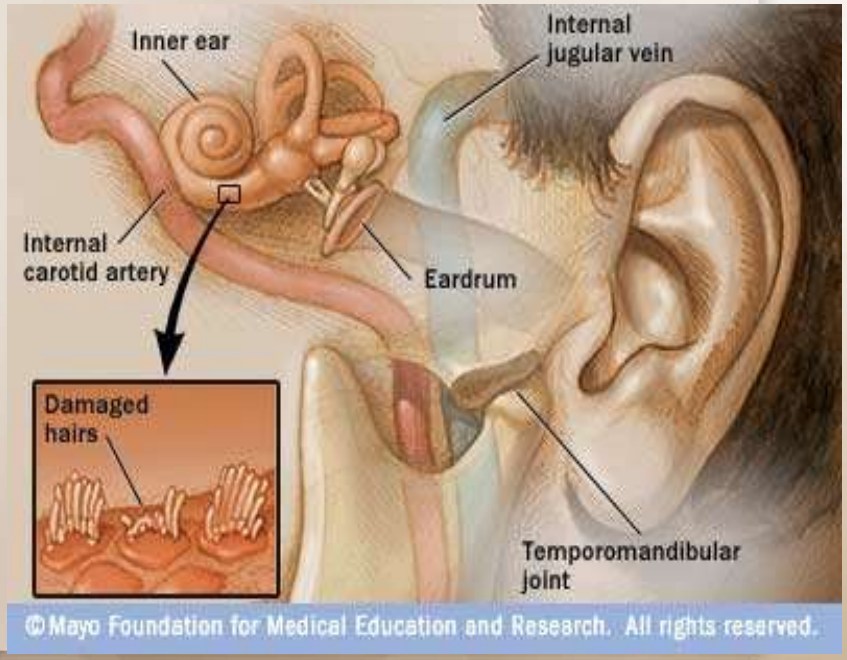
- ***Objective*** :

-**vascular** like aneurysms, glomus jugulare tumors, carotid body tomor. Usually pusatile.

-**muscular** like patulous eustachian tubes, palatal or stapedial or tensor tympani myoclonus or spasms, .

-**infestations** of the external canal by worms or larvas.

-**TMJ** causing clicking sounds.



- ***Subjective :*** in 80% of pts with SNHL.

1**-Auditory**.

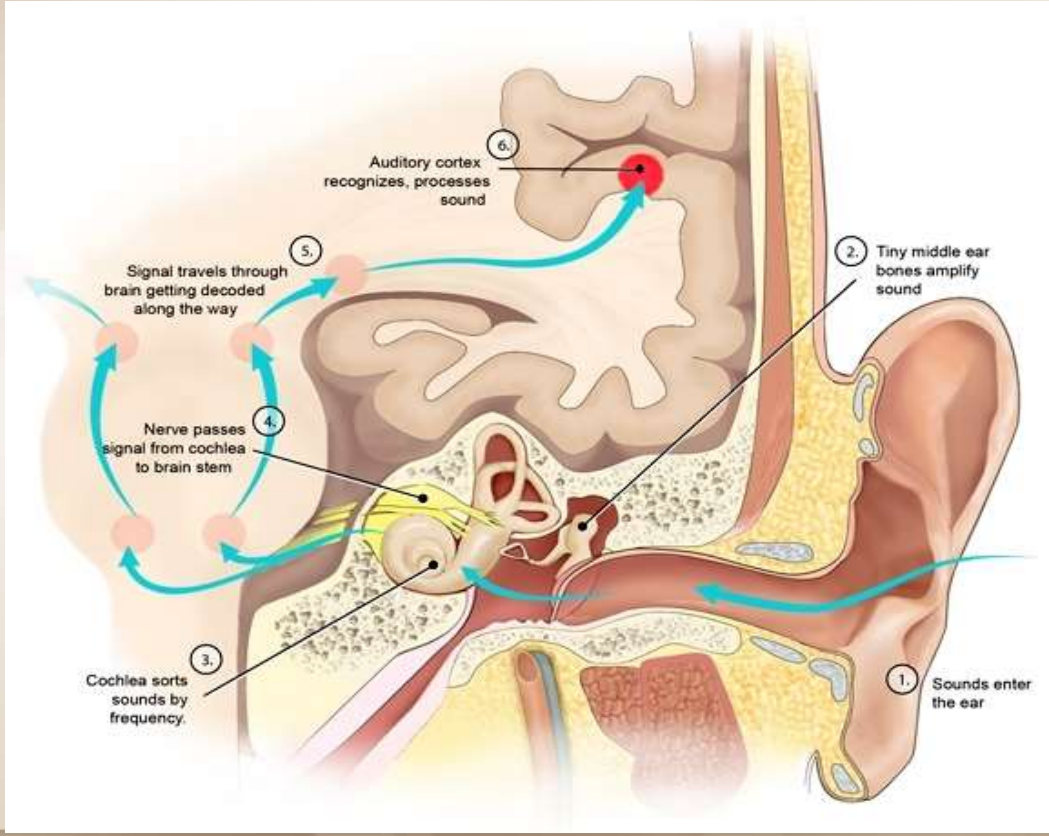
- Conductive. Any conductive elements disorders.
- Sensory neural like Meniere`s D and many diseases up to auditory cortex .

2**-Non-auditory**

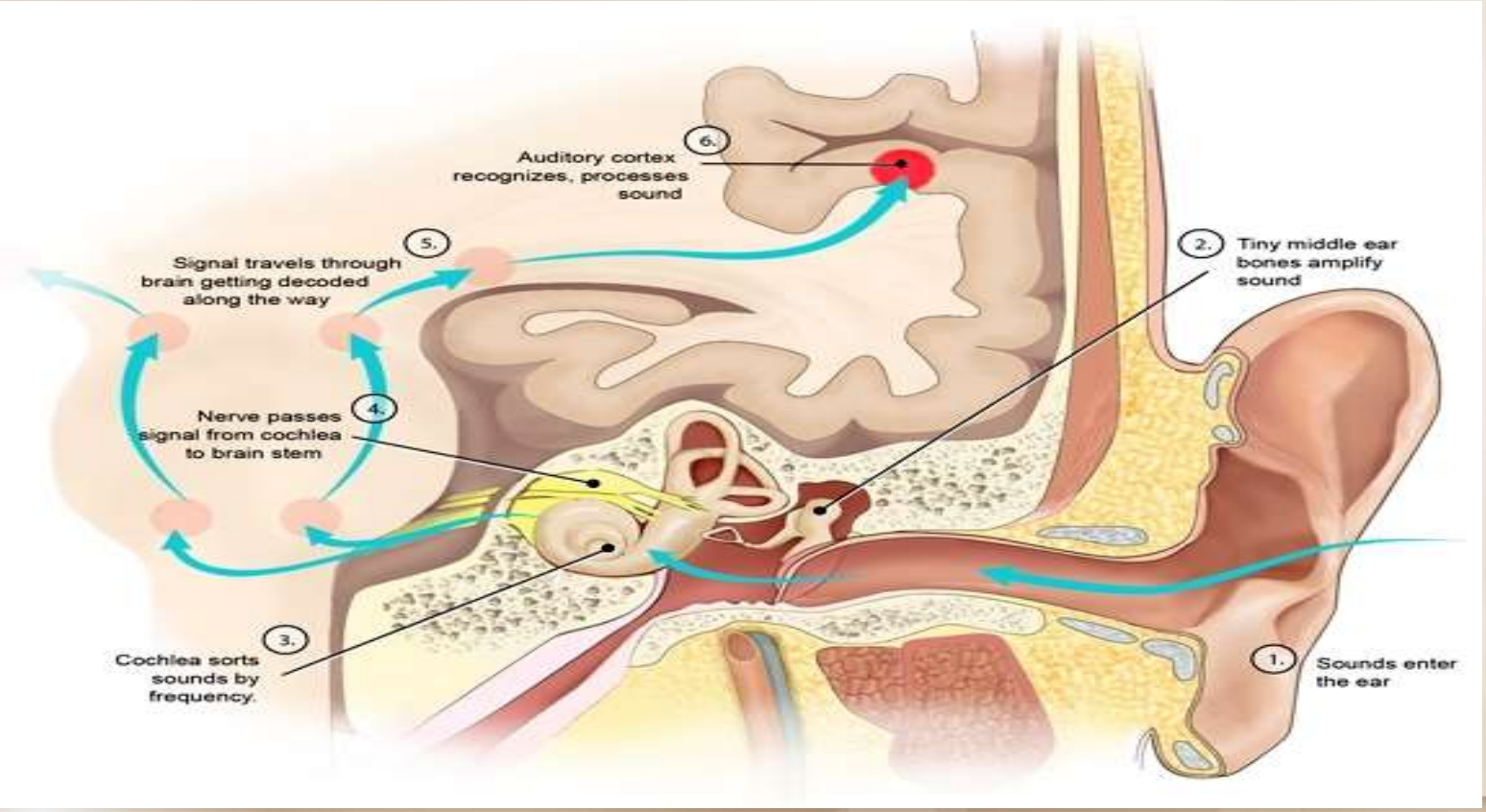
-systemic diseases like HTN, DM, cervical, allergies, stress, anemia, obesity, drugs, ….

Pathophysiology

- Unknown exact mechanism.
- It is **central** rather than peripheral origin. ????
  - It remains after severing the 8th nerve. Like in phantom limb after amputation.



- Acute peripheral insult leads to **chronic signal**, which leads to **central modification**, which leads to **psychological enhancement**, which leads to **intractable tinnitus**.



Clinical examination

- Includes **history**, **medical**, **audiologic**, and/or **neurologic and psycho logic** evaluation.

- **History.**
  - **Onset and duration,**
  - **course,**
  - **description,**
  - **site,**
  - **exacerbating factors (food, stress, lack of sleep,..),**
  - **drugs,**
  - **noise exposure,**
  - **familial hx,**
  - **effects on (sleep, social, occupation).**

Clinical examination

- **Full Medical exam: ENT, cardiovascular like carotid body tumour, cervical, TMJ, metabolic ,drugs.**
- **Audiologic evaluation.**
  - Basically PTs, tympanometry, speech tests, tinnitus matching tests. residual inhibition after masking.
  - OAE, BERA, site of lesion.
- **Neurologic/ psycho logic evaluation**
- **Severity scaling** :

-Severity of tinnitus is a function of the individual's reaction to tinnitus.

-There is no objective way to measure subjective tinnitus.

Treatment and management

- It is a **symptom**, <u>not a disease</u>. the aim of management is to eliminate the disease, & the symptom.

- **Surgery**. if indicated ⇨ 50% improvement in 8th n section (in Meniere`s) --------->phantom limb.

- **Drugs**. Either to alleviate tinnitus or to alleviate problems associated with tinnitus. <u>Vasodilators</u> help in some pts.

- **Diet**.- avoid some substances (caffeine, salt, ..). – vitamin or mineral supplements in deficiencies.
- **Masking.**- tinnitus maskers after matching tests , bedside noise generators.
- **Electrical stimulation and cochlear implants.** Controversies.
- **Psychological** interventions or techniques aimed at successfully reducing the stress, distress, and distraction can be very productive.

Psychological interventions

- 1- **stress and maladaptive coping strategies** (either physical or psychological):

  -stress management **courses** through
  a- community health organization, &
  b- professionals.
  -mental control.
  -relaxation.
  -self-hypnosis.

2- **myogenic biofeedback** with **counseling** to minimize tinnitus and facilitate relaxation.

3**- desensitization**. A broad band noise presented can successfully produce a habilitation to the tinnitus.

4- **cognitive-behavioral therapy** as an adjunctive approach to managing tinnitus to modify maladaptive thoughts and behaviors.

5- **self-education** about the symptom.

6- **other alternative approaches** as acupuncture and chiropractry