



# Carotid Challenge & Pulsatile Tinnitus

## YEAR 2024



# Carrotic challenge & pulsatile tinnitues disease

Pulsatile tinnitus can be disabled but occasionally life threatening.

Have been first described by POORTEN at 1878, Vascular tinnitus has not being cured up to 2008. Carotid and vascular tinnitus document have been published from New York and Baltimore University at Vascular American Journal 2009 series for the first time

Dr. Fortune defined Vascular tinnitus as any abnormal noise perceived by patients when no external acoustic stimulus exists.

Roughly 7% of the population visit doctors with tinnitus complain

The word Tinnitus as of Latin Origin, meaning to ring. Tinnitus has two different pronunciation both of which are correct:

1. TI-night-US, this is typically used by patients and lay people.
2. Tinn-a-tus, this is typically used by clinicians and researchers.



## Vascular

### Arterial

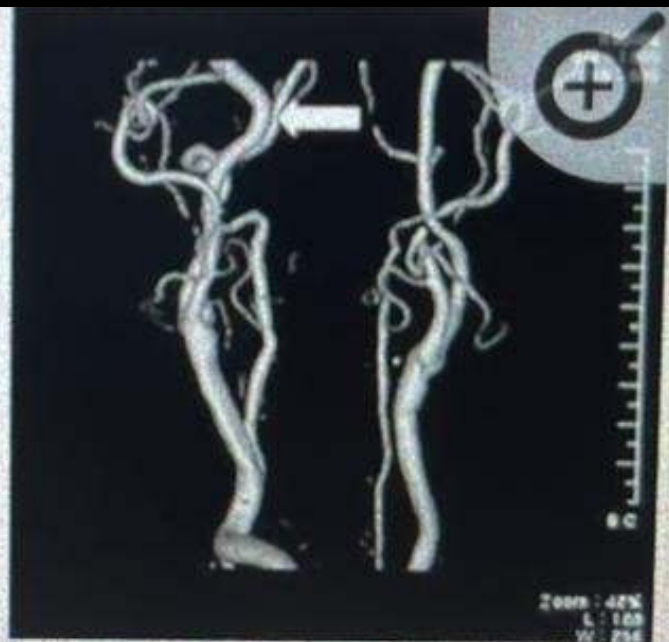
- AV malformations, intracranial or extracranial
- Intracranial AV fistula and aneurysm
- ACAD, subclavian artery disease
- Fibromuscular dysplasia of carotid artery
- Internal carotid artery dissection
- External carotid artery stenosis
- Occlusion of the contralateral CCA
- Brachiocephalic artery stenosis
- Persistent stapedial artery
- Aberrant artery in the stria vascularis
- Vascular compression of the 8<sup>th</sup> cranial nerve
- Increased cardiac output (anemia, pregnancy, thyrotoxicosis)
- Aortic murmurs
- Paget's disease
- Migraine
- Hypertension

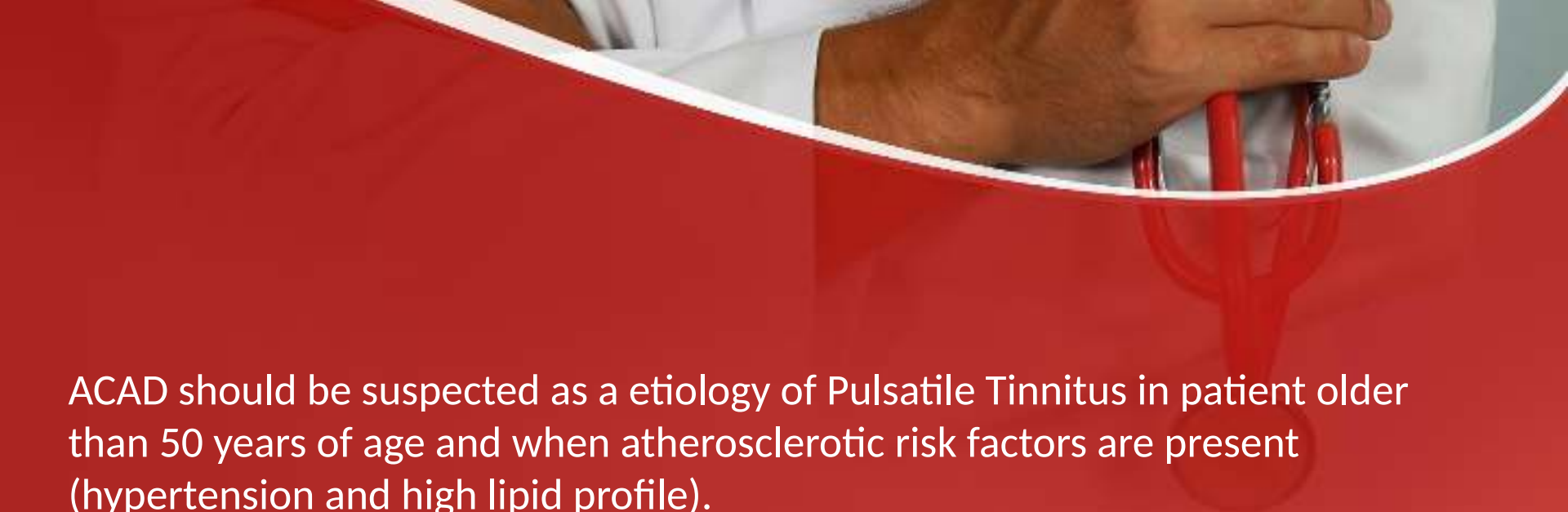
### Venous

- Jugular bulb anomalies
- Abnormal condylar and mastoid emissary veins
- Cerebral venous sinus thrombosis

### Non-Vascular

- Increase intracranial pressure (pseudotumor cerebri)
- Vascular neoplasms of the skull base and temporal bone
- Palatal, tensor tympani, and stapedial muscle myoclonus
- Abnormally patent eustachian tube
- Cholesterol granuloma of the middle ear
- Paget's disease
- Cavernous hemangioma
- Histiocytosis X
- Otosclerosis





ACAD should be suspected as a etiology of Pulsatile Tinnitus in patient older than 50 years of age and when atherosclerotic risk factors are present (hypertension and high lipid profile).

The research document by Dr. Fortune resulted that a male older than 50 years old with atherosclerosis factor is a carotid man for inclusion and exclusive vascular workout.

# Protocol for Inclusion criteria

1. Male preponderance
2. Ipsilateral carotid stenosis
3. Effective Tinnitus proximal lesion
4. Atherosclerotic profile (hypertensive lipid profile)
5. Carotid stenosis up to 50%
6. Unilateral or bilatateral





# Protocol for Exclusion criteria

1. Intracranial hypertensive syndrome
2. Abarant internal carotid artery intracranial



# A workup for Versatile Tinnitus including

1. Complete audiologic evaluation revealing mild to moderate bilateral sensorineural hearing loss.
2. Carotid duplex
3. Transcranial duplex scan show no flow abnormality  
intracranial MRA scan to rule out AVM, AV fistula, or fibromuscular dysplasia





# Management

1. Awareness of ACAD as cause of variable Tinnitus and possible treatment are important which have been proved ipsilateral CEA for Tinnitus 92 effective.
2. Proximal lesions lends themselves to CEA where as distal lesions have been rated by stenting.
3. It also reported that bilateral CEA was effective in the management of bilateral Tinnitus
4. Moreover, several patients with debilitating Tinnitus experience symptomatic relief after carotid intervention despite 50 to 80% stenosis.

# Finally many questions to be answered

1. Have to qualify circle of Willis hemodynamics and tributed to hostile vascular Tinnitus.
2. Management of Pulsatile Tinnitus with intracranial hypertensive syndrome
3. Bilateral CEA syndrome for ipsilateral debilitating Tinnitus
4. CEA with debilitating Tinnitus with 50% stenosis.



A hand holding a red stethoscope, with the image reflected on a glossy red surface. The text "THANK YOU FOR LISTENING" is centered in white.

THANK YOU FOR LISTENING