

◆ Chief complaint:

headache and right side hearing loss for 1 year

◆ Present illness:

This 48 y/o woman suffered from headache and right side hearing impairment for 1 year. Blurred vision was noted over right eye in recently few months. She had visited 花蓮慈濟 hospital for help. Brain MRI done there showed a brain tumor R/O acoustic neuroma with compression on optic nerve.

Disturbed balance was noted at our OPD. There was no dizziness, nausea or vomiting.

- ◆ family history:
 - not contributory
- ◆ personal history:
 - denied smoking or drinking
 - allergy: 五分珠, 止痛錠, 海鮮, Ampicillin
- ◆ past history:
 1. asthma: for 5-6 years with regular medical control
 2. L-spine HIVD s/p op 7 years ago

- ◆ physical examination (including NE):
 1. visual acuity: finger counting: poor on R't
 2. Romberg test: balance disturbance (?)
 3. gait: balance disturbance (?)

- ◆ Lab data:

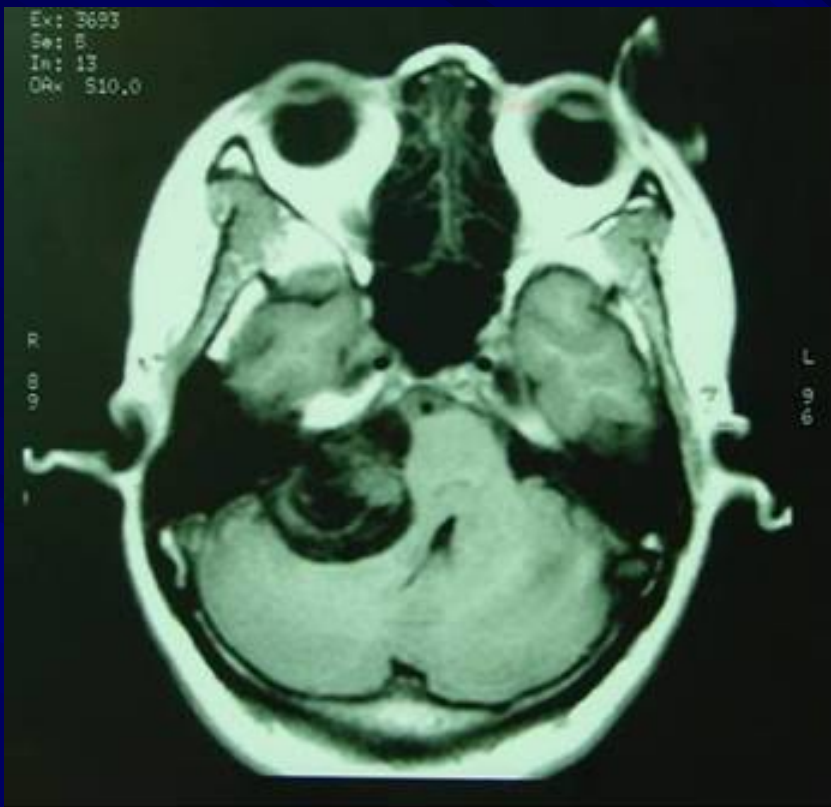
WBC: 12520/ul	Glucose: 79 mg/dl
Hb: 13.3 g/dl	BUN: 12 mg/dl
PLT: 353000/ul	Cr: 0.7 mg/dl
	GOT: 15 IU/L
	GPT: 17 IU/L
	Na: 142
	K: 3.8

◆ Imaging finding:

CXR: normal

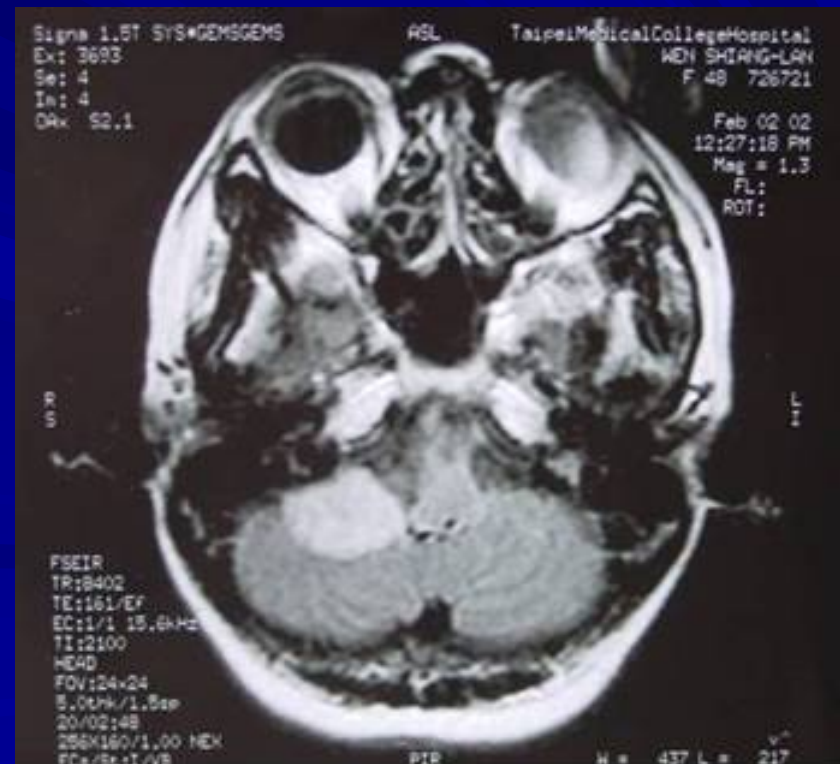
Brain MRI: (2002/02/02)

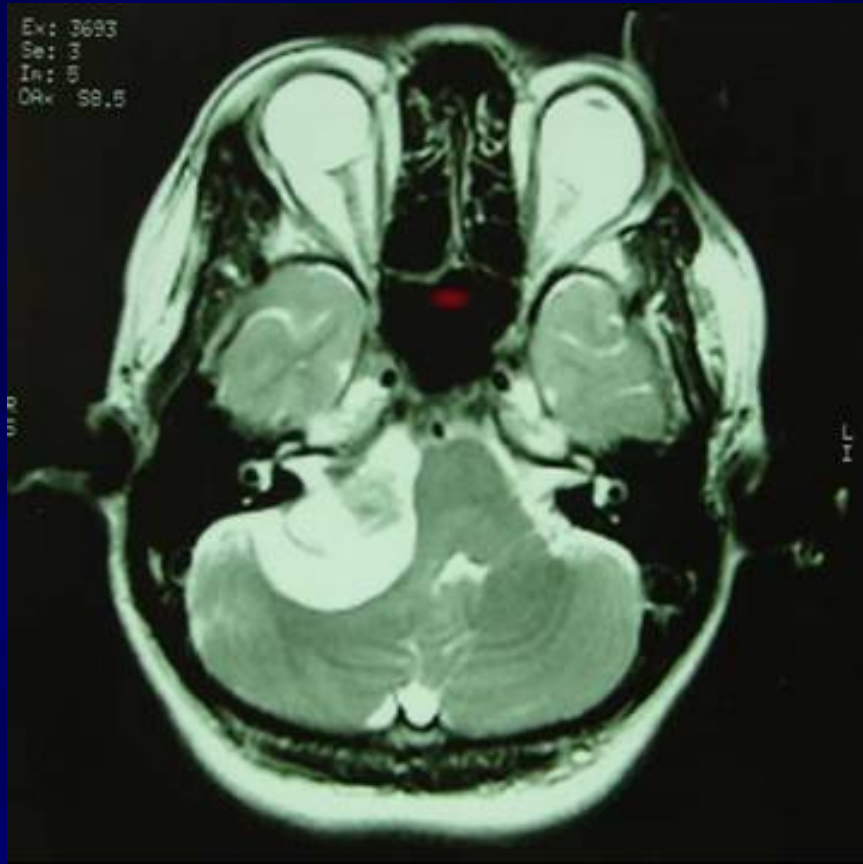
- The cerebral ventricles are of normal size and symmetrical arranged. There are no signs of increased intracranial pressure.
- Post-operative bone change of the left frontal bone.
- There is a well defined low SI mass with 3.7x3x3 cm in size at the right CPA on T1WI whereas bright up on both T2W and FLAIR images and compresses the pons to the left.
- The mass has **inhomogeneous** contrast enhancement and **enlargement of right IAC**.
- MRA shows normal tributaries of bil. carotid and basilar arteries.
- Conclusion: Right CPA tumor, suggestive of acoustic neuroma.



noncontrast T1WI:
right CPA lesion,
heterogeneous, compress
the 4th ventricle and pons
hypointense to brain on T1WI

IV gadolinium shortens
the average T1 relaxation
time within the tumor →
bright on the T1WI





T2WI and FLAIR:
hyperintense to brain



MRA shows normal tributaries of bil. carotid and basilar arteries.



Discussion (1)

- ◆ Acoustic Neuroma
= VESTIBULAR SCHWANNOMA = ACOUSTIC SCHWANNOMA = NEURILEMMOMA
Most common neoplasm of internal auditory canal / cerebellopontine angle!
- ◆ Prevalence
 - 5-10% of all intracranial tumors;
 - 85% of all intracranial neuromas;
 - 80-90% of all cerebellopontine angle tumors
- ◆ Age:
 - (a) sporadic tumor: 35-60 years; M:F = 1:2
 - (b) type 2 neurofibromatosis: 2nd decade

Discussion (2)

- ◆ Histology: encapsulated neoplasm composed of proliferating fusiform Schwann cells with
 - (a) highly cellular dense regions (Antoni A) with reticulin + collagen,
 - (b) loose areas with widely separated cells (Antoni B) in a reticulated myxoid matrix;
- ◆ Location:
 - (a) arises from within internal auditory canal (IAC)
 - (b) may in cerebellopontine angle cistern at opening of IAC with intracanalicular extension in 5%
- IAC enlargement / erosion (70-90%) widening / obliteration of ipsilateral cerebellopontine

Discussion (3)

- ◆ Plain film: erosion of IAC: a difference in canal height of >2 mm is abnormal and indicates a schwannoma in 93%
- ◆ CT:
 - **isodense small / hypodense large solid tumor
 - **cyst formation in tumor (= central necrosis) / adjacent to tumor (= extramural arachnoid cyst) in 15% of large tumors
 - **usually uniformly dense tumor enhancement with small tumors (50% may be missed without CECT) / ring enhancement with large tumors
 - ****NO calcification** intrathecal contrast / carbon dioxide insufflation (for tumors <5 mm)

Discussion (4)

- ◆ MR (most sensitive test with Gd-DTPA enhancement):
 - ** iso- / slightly hypointense on T1WI relative to brain intensely enhancing homogeneous mass
 - ** ringlike enhancement (if cystic) after Gd-DTPA hyperintense on T2WI
 - (DDx: meningioma remains hypo- / isointense)
- ◆ Angiography:
 - elevation and posterior displacement of anterior inferior cerebellar artery (AICA) on basal view
 - elevation of the superior cerebellar artery (large tumors)
 - displacement of basilar artery
 - anteriorly / posteriorly contralateral side compression
 - posterior and lateral displacement of petrosal vein
 - posterior displacement of choroid point of PICA
 - vascular supply

Cerebellopontine masses (“AMEN”)

lesion	T1WI (compared to gray matter)	T2WI (compared to gray matter)	Gadolinium enhancement
Acoustic schwannoma (80%)	Hypo	Hyper	+
Meningioma (11%)	Iso to hypo	Iso to hyper	+
Ependymoma (4%)	Hypo	Hyper	+
Neuroepithelial cyst (arachnoid, epidermoid) (5%)	CSF	CSF	—

(Adapted from Diagnostic Imaging P.133 Table5.12)