Post traumatic cholesteatoma in a case of Temporal bone fracture
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Abstract: In the management and follow up in a case of road traffic accident which resulted in a longitudinal temporal bone fracture with facial nerve palsy persisting over four years with recent onset of ear discharge and impairment in hearing found to have attic cholesteatoma which was managed with canal wall down mastoidectomy and cartilage tympanoplasty. We would like to recommend a long term follow up in all cases of temporal bone fracture even with a negative history of prior ear discharge or hard of hearing.

Keywords: Temporal bone, Facial nerve, Cholesteatoma, Mastoidectomy, Tympanoplasty

INTRODUCTION

Patient with right sided facial Nerve palsy acquired by temporal bone fracture four years ago

The aim of bringing the presentation to the fore is to increase the awareness of the incidence of post traumatic cholesteatoma and the essentiality of follow up in all cases of temporal bone fracture.

CASE 25 year old male presented with right ear discharge and impairment of hearing for 4 months. He had a past history of road traffic accident about 4 years ago and was diagnosed with temporal bone fracture with right facial nerve palsy. On examination was found to have postero superior retraction pocket. CT scan temporal bone taken during the recent presentation showed soft tissue density filling epitympanum, anterior attic, aditus ad antrum, posterior mesotympanum and antrum extending into sinodural angle and tip cell region. The lateral semicircular canal was intact.

Healed fracture of the temporal bone could be made out with diastasis of the fragments but the facial nerve could not be delineated because of the soft tissue mass in the middle ear cleft. The ossicles were absent. In the CT taken four years ago at the time of the road traffic accident which showed a fracture in the squamous part of temporal bone. The middle ear cleft had minimal mucosal changes but was adequately ventilated and all the ossicles were intact. Pure tone audiogram taken during the recent presentation showed a profound mixed hearing loss.

HRCT temporal bone of the patient showing fracture with normal appearing middle ear and mastoid system on the right side

An exploratory tympanomastoidectomy was planned. Intra operatively a healed displaced fracture line was seen in the squamous part of the temporal bone with cholesteatoma filling the epitympanum, posterior mesotympanum, mastoid antrum extending upto sinodural angle and tip cell region. After careful dissection of the sac, complete clearance of middle ear and mastoid disease was done with canal wall down mastoidectomy. Ossicles were found to be eroded. Cartilage strut placed over the footplate and temporalis fascia graft was used in reconstruction. A wide meatoplasty done for drainage and post operative care. Post operative period was uneventful. The patient was reviewed after three months and had a healthy self cleansing mastoid cavity.

DISCUSSION: Temporal bone fracture has been classified by Ulrich as longitudinal and transverse whereas Kelly and Tansi as otic capsule sparing and otic capsule disturbing. The usual complications are conducting hearing loss, facial paralysis, SNHL, mixed hearing loss, vertigo/mastoid cavity.
BPPV, perilymph fistula, traumatic endolymphatic hydrops, CSF fistula, meningitis. The unusual complications are V, VI, XI, XII palsy, sigmoid sinus thrombosis, secondary acquired cholesteatoma, classical Eagle syndrome, sympathetic cochleolabyrinthitis. Post-traumatic cholesteatomas are well recognised albeit rare late complications of temporal bone injuries. The time interval for onset of disease is very variable ranging from 1 to 25 years. In most cases reported, time for manifestation was 10 years. It is postulated that tympanic membrane rupture allowed foreign body implantation in the middle ear resulting in localised chronic inflammatory reactions and squamous metaplasia and hence cholesteatomas.

HRCT temporal bone of the patient showing soft tissue density in the middle ear and mastoid system on the right side

External meatal fractures with soft-tissue and bony fragment displacement predispose to soft tissue and blood organising in fracture lines. Complex displaced bony fragments, diastasis of the suture lines or tears in the tympanic membrane have all been shown to produce foci of cholesteatoma formation. The absence of any evidence of tympanic membrane, ossicular or mastoid cell disease lends strong support to the post traumatic implantation theory.

CONCLUSION: When cholesteatoma occur secondary to temporal bone fracture in a well pneumatised bone, it can become more extensive and spread rapidly. To conclude, we recommend a long term follow up in any patient with temporal bone fracture.

REFERENCES:
2. Head and neck surgery otolaryngology – page 2076 Byron Bailey, Jonas T. Johnson, Shawn D Newlands
3. Radiology of Petrous bone page 29 Marc lemmerling, Sypros S. Kolias