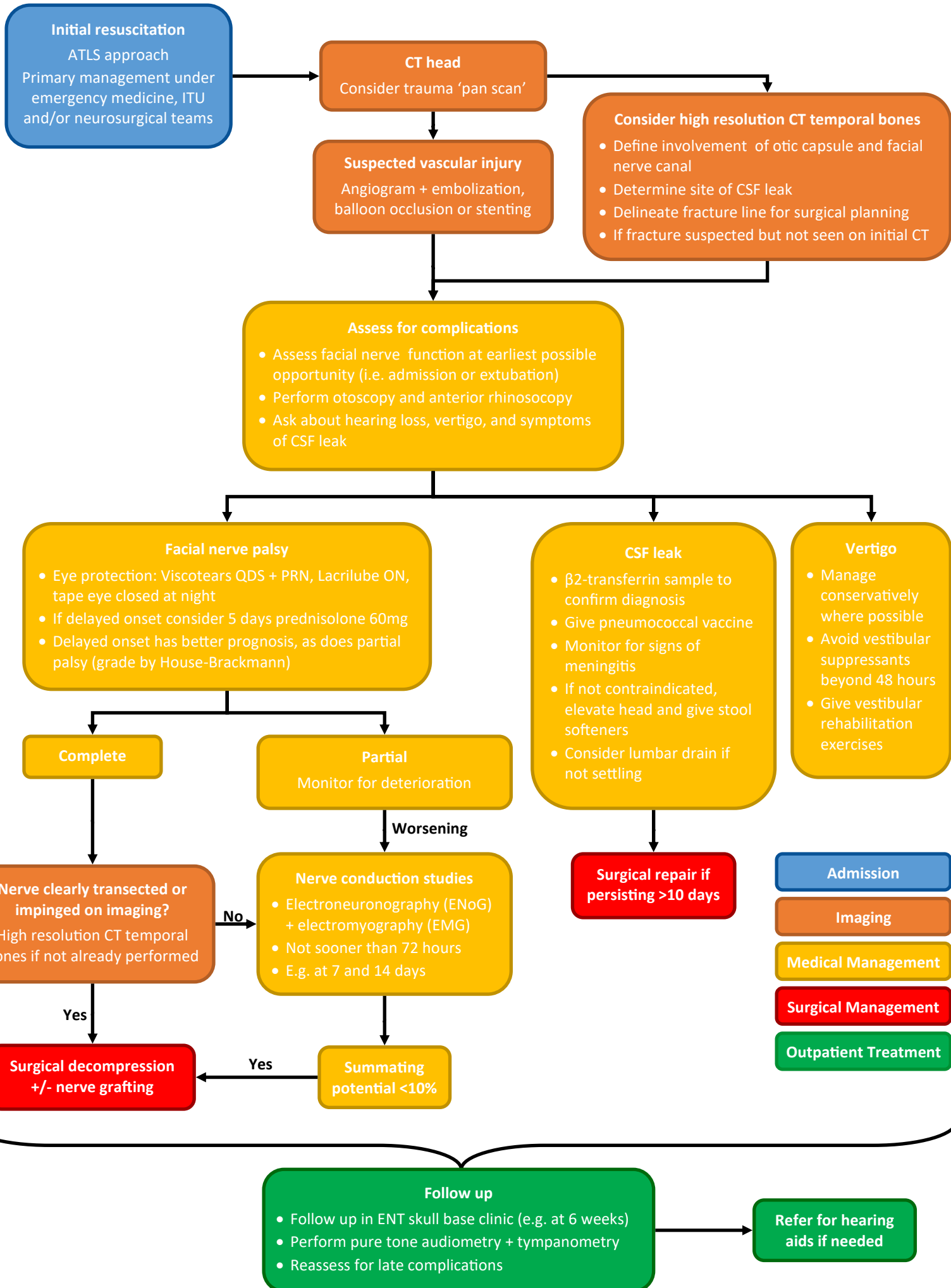


Acute management of temporal bone fractures guideline



References

Initial resuscitation

Patients with temporal bone fractures will have suffered a significant head injury in order to impart sufficient force to fracture this bone^{1,2}. Many will have significant intracranial injuries³ requiring neurosurgical intervention and these will take priority. Many such patients will require monitoring in a Level 2 or Level 3 setting⁴. Overall management is beyond the scope of this guideline but should follow the Brain Trauma Foundation guidelines⁵.

CT head

As per NICE guidelines, patients with any sign of basal skull fracture should have a CT head performed within 1 hour⁶.

Suspected vascular injury

Vascular injury may be suspected clinically or by the involvement of the carotid canal on CT⁷. CT angiography is specific but not sensitive in diagnosing blunt cerebrovascular injury and therefore conventional angiography is preferred⁸.

Consider high resolution CT temporal bones

Helical CT as performed in a trauma setting will identify over 98% temporal bone fractures³; high-resolution dedicated CT of the temporal bones is indicated particularly where there are complications in order to precisely delineate the fracture line, or where a fracture is clinically suspected but not identified on initial helical CT⁹. It is also useful after the acute period in diagnosis and surgical planning regarding ossicular dislocation and labyrinthitis ossificans¹⁰.

Assess for complications

Complications of temporal bone fractures are common¹¹. Clinical examination should include the cranial nerves, otoscopy and anterior rhinoscopy.

Facial nerve palsy

The literature regarding management of traumatic facial nerve palsies remains inconclusive and large prospective studies are lacking¹². Modern high-resolution CT scans give excellent anatomic definition and can accurately predict the site of facial nerve injury in most cases^{13,14}; thus if obvious nerve compromise is demonstrated at CT, early surgical intervention is warranted. Earlier surgery has better outcomes than late intervention¹⁵ and it is therefore important to identify surgical candidates in a timely matter. Nerve conduction studies are used to identify candidates for surgery¹². Electroneuronography, if available, is ideal¹⁶ but should be performed not sooner than 72 hours as it is unreliable before Wallerian degeneration has taken place¹⁷. Timings will vary by local availability; the example of 7 and 14 days post-injury is performed at the authors' trust. The prognosis in the case of delayed onset palsy is excellent with conservative management¹⁸ and very few cases will require surgery. The evidence for prednisolone is weak¹⁹.

CSF leak

Most traumatic CSF leaks will resolve with conservative management and therefore a period of bed rest with measures to reduce fluctuations in intracranial pressure is recommended²⁰. β 2-transferrin is reliable in diagnosing the presence of cerebrospinal fluid²¹. The use of prophylactic antibiotics is controversial, but generally not recommended as there is a low rate of meningitis in traumatic CSF leak²².

Vertigo

Vertigo is common following temporal bone fractures. Vestibular suppressants impair adaptation and should therefore be avoided or, if required, used for as short a period as possible²³. Vestibular rehabilitation is effective and should be offered early²⁴.

Follow up

A majority of patients have long term complications 12 months after temporal bone fractures, which significantly affect quality of life and are frequently disabling²⁵. Further management is beyond the scope of this acute guideline, but further elective surgery may include ossiculoplasty for dislocation, tympanotomy for perilymph fistula, or repair of persistent CSF leak.

Refer for hearing aids if needed

All patients with hearing loss affecting their ability to hear or communicate should be referred for hearing aids²⁶.

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