



Guidance Document for processing PM-JAY packages

Conservative Management of Head Injury

Procedures covered: 2

Specialty: Polytrauma, Orthopedics, Neurosurgery, General Surgery

Package name	Procedure name	HBP 1.0 code	HBP 2.0 code	Package price (INR)
Conservative Management of Head Injury	Severe	New Package	ST001A	1,000
Conservative Management of Head Injury	Depressed Fracture	New Package	ST001B	5,000

ALOS: 10 days

Minimum qualification of the treating doctor:

Essential: MS/DNB/Equivalent (General Surgery); MS/DNB/Equivalent (Orthopedic surgery); MCh/DNB/Equivalent (Neurosurgery)

Special empanelment criteria/linkage to empanelment module: Functional Operational Theatre

Disclaimer:

For monitoring and administering the claim management process of **Conservative Management of Head Injury**, NHA shall be following these guidelines. This document has been prepared for guidance of PROCESSING TEAM and TRANSACTION MANAGEMENT SYSTEM of AB PM-JAY for the claims of procedures mentioned above. The hospitals can also refer to this document so that they have the insight on how the claims will be processed. However, this document doesn't provide any guidance on clinical and therapeutic management of patient. In that respect the hospitals and physicians may refer to any other relevant material as per the extant professional norms.

PART I: GUIDELINES FOR CLINICIANS AND HEALTHCARE PROVIDERS

1.1 Objective:

The purpose of this document is to act as a guidance & a clinical decision support tool for the clinicians in deciding the line of treatment, plan clinical management of patient and decide referral of cases to the appropriate level of care (as required) for treatment of patients under PMJAY and selection of corresponding Health Benefit Package.

It will also serve as a tool for hospitals to determine and submit the mandatory documents required for claiming reimbursement of health benefit package under PMJAY.

1.2 Clinical key pointers:

The brain is surrounded by cerebrospinal fluid (CSF), enclosed in meningeal covering, and protected inside the skull. Furthermore, the fascia and muscles of the scalp provide additional

cushioning to the brain. Test results have shown that 10 times more force is required to fracture cadaveric skull with overlaying scalp than the one without.

Fractures of the skull

Common sites of fracture

- Squamous temporal and parietal bones over the temples and the sphenoid sinus
- The foramen magnum
- The petrous temporal ridge
- The inner parts of the sphenoid wings at the skull base

Adults with simple linear fractures who are neurologically intact do not require any intervention and may even be discharged home safely and asked to return if symptomatic. The role of surgery is limited in the management of skull fractures. Infants and children with open depressed fractures require surgical intervention. Most surgeons prefer to elevate depressed skull fractures if the depressed segment is more than 5 mm below the inner table of adjacent bone. Indications for immediate elevation are gross contamination, dural tear with pneumocephalus, and an underlying hematoma.

Classification

- Linear skull fracture

Linear fracture results from low-energy blunt trauma over a wide surface area of the skull. It runs through the entire thickness of the bone and, by itself, is of little significance except when it runs through a vascular channel, venous sinus groove, or a suture. In these situations, it may cause epidural hematoma, venous sinus thrombosis and occlusion, and sutural diastasis, respectively.

Presentation: Most patients with linear skull fractures are asymptomatic and present without loss of consciousness. Swelling occurs at the site of impact, and the skin may or may not be breached.

- Basilar skull fracture

In essence, a basilar fracture is a linear fracture at the base of the skull. It is usually associated with a dural tear and is found at specific points on the skull base.

Presentation: Patients with fractures of the petrous temporal bone present with CSF otorrhea and bruising over the mastoids, i.e, Battle sign. Presentation with anterior cranial fossa fractures is with CSF rhinorrhea and bruising around the eyes, i.e, "raccoon eyes." Loss of consciousness and Glasgow Coma Score may vary depending on an associated intracranial pathologic condition.

- Temporal fracture

Temporal bone fracture is encountered in 75% of all skull base fractures. The 3 subtypes of temporal fractures are longitudinal, transverse, and mixed.

Presentation:

Longitudinal temporal bone fractures result in ossicular chain disruption and conductive deafness of greater than 30 dB that lasts longer than 6-7 weeks. Facial palsy, nystagmus, and facial numbness are secondary to involvement of the VII, VI, and V cranial nerves, respectively. Transverse temporal bone fractures involve the VIII cranial nerve and the labyrinth, resulting in nystagmus, ataxia, and permanent neural hearing loss.

- Occipital condylar fracture

Occipital condylar fracture results from a high-energy blunt trauma with axial compression, lateral bending, or rotational injury to the alar ligament. These fractures are subdivided into 3 types based on the morphology and mechanism of injury. An alternative classification divides these fractures into displaced and stable, ie, with and without ligamentous injury.

Presentation:

Occipital condylar fracture is a very rare and serious injury. Most of the patients with occipital condylar fracture, especially with type III, are in a coma and have other associated cervical spinal injuries. These patients may also present with other lower cranial nerve injuries and hemiplegia or quadriplegia.

- Clivus fractures

Fractures of the clivus are described as a result of high-energy impact sustained in motor vehicle accidents. Longitudinal, transverse, and oblique types have been described in the literature.

Depressed skull fracture

Depressed skull fractures, result from a high-energy direct blow to small surface area of the skull with a blunt object such as a baseball bat. Comminution of fragments starts from the point of maximum impact and spreads centrifugally. Most of the depressed fractures are over the frontoparietal region because the bone is thin and the specific location is prone to an assailant's attack. A depressed fracture may be open or closed. Open fractures, by definition, have either a skin laceration over the fracture or the fracture runs through the paranasal sinuses and the middle ear structures, resulting in communication between the external environment and the cranial cavity. Open fractures may be clean or contaminated dirty.

Presentation: The presentation may vary depending on other associated intracranial injuries, such as epidural hematoma, dural tears, and seizures.

DIAGNOSIS

- Investigations

CT scan is the gold standard for diagnosis of skull fractures.

CT scan for skull fractures was found to have a sensitivity of 85.4% and a specificity of 100%. Skull films are suboptimal in revealing basilar skull fractures. Hence, other than a fracture at the Vertex that might be missed by CT scan and picked up by a plain film, skull x-ray is of no benefit when a CT scan is obtained.

MRI or magnetic resonance angiography is of ancillary value for suspected ligamentous and vascular injuries. Bony injuries are far better visualized using CT scan. In addition to a complete neurological examination, baseline laboratory analyses, and tetanus toxoid (where appropriate, as in open skull fractures, the diagnostic workup for fractures is radiological.

- **Management**

Medical Therapy

Adults with simple linear fractures who are neurologically intact do not require any intervention and may even be discharged home safely and asked to return if symptomatic.

Simple depressed fractures in neurologically intact person are treated expectantly. These depressed fractures heal well and smooth out with time, without elevation.

Seizure medications are recommended if the chance of developing seizures is higher than 20%. Open fractures, if contaminated, may require antibiotics in addition to tetanus toxoid.

Surgical Therapy

The role of surgery is limited in the management of skull fractures. Surgery to elevate depressed skull fractures is preferred in

- Open (compound) fractures.
- Depressed fracture thickness >of calvaria and
- Those fractures not meeting criteria for non-surgical management.

Non-surgical management

May be considered if

1. There is no evidence of dural penetration and no significant intracranial hematoma
2. Depression <1cm
3. No frontal sinus involvement
4. No wound infection or gross contamination
5. No gross cosmetic deformity

- **Indications for CT in TBI (Traumatic Brain Injury)**

1. Witnessed LOC (Loss of Consciousness)
2. Definite Amnesia
3. Disorientation with a Glasgow coma scale score (GCS) of 13-15
4. GCS <15 at 2 hours after injury
5. Suspected open or depressed fracture
6. Any signs of basilar skull # - Raccoon eye, Battle sign, Otorrhea or Rhinorrhea
7. Vomiting of > 2 episodes
8. Age > 65 years
9. LOC for > 5 mins
10. Mechanism of injury

1.3 Mandatory documents- For healthcare providers

Following documents should be uploaded by the concerned hospital staff at the time of pre-authorization and claims submission:

Mandatory document	Conservative Management of Head Injury- Severe	Conservative Management of Head Injury-Depressed Fracture
i. At the time of Pre-authorization		
a. Clinical Notes detailing the injury with admission Glasgow coma scale score	Yes	Yes
b. CT head	Yes	Yes
ii. At the time of claim submission		
a. Detailed Indoor case papers	Yes	Yes
b. Detailed Procedure/ Operative notes	Yes	Yes
c. Post-op CT head	Yes	Yes
d. Detailed discharge summary	Yes	Yes

PART II: GUIDELINES FOR PROCESSING TEAM

PART III: GUIDELINES FOR IT

3.1 Objective: To enable setting up of cross check mechanisms/rule engines within the IT platform (TMS) to ensure compliance with STGs and to prevent fraud / abuse of the Health Benefit Package.



3.2 Below mentioned are the scenarios where a provision would be built in TMS for pop-ups:

1. Was CT head report of patient submitted?
2. What was the indication of intubation? In case GCS was 9 or more, intubation is done in very rare instances and this should be thoroughly checked to prevent unnecessary treatment

Till the time the functionality is being developed, the processing doctors shall check the above manually.

References

1. Trauma Protocol and Head Injury, Protocol for emergency and trauma care, Govt Medical College Thiruvananthapuram, 2019, pg 9-22