

## CASE REPORT ON ROAD TRAFFIC ACCIDENT (RTA)

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### ABSTRACT

Mr. 'X', 67 years old was admitted to hospital emergency OPD, Jodhpur with a complaint of headache, dizziness, vomiting, agitation and follow with episodes of seizures and loss of consciousness. He was a case of road traffic accident and was hit by a two-wheeler on roadside. He has been diagnosed with Head Injury after a thorough systematic neurological examination and had undergone a series of diagnostic evaluation. CT Scan was done for the patient and revealed a frontal contusion and surrounding edema. After admission, he was kept under observation and there was continuous increased in ICP and GCS score was 8. Then, patient was finally planned for bifrontal decompressive craniotomy surgery. Post-operative, the prognosis of the patient seems to be improved and is continuing with the treatment.

**Key words:** Trauma, Bifrontal-decompressive craniotomy, Head injury, Road traffic accident and Diabetes mellitus.

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### INTRODUCTION

Mr. 'X', 67 years old was admitted to hospital emergency OPD, Jodhpur with a complaint of headache, dizziness, vomiting, agitation and follow with episodes of seizures and loss of consciousness. He was a case of road traffic accident, hit by a two-wheeler on roadside. He has been diagnosed with Head Injury after a thorough systematic neurological examination and had undergone a series of diagnostic evaluation. CT Scan was done for the patient and observed frontal contusion and surrounding edema. After admission, he was kept under observation and it was found that ICP was increased continuously and GCS score found was 8. Then patient was finally planned for bifrontal decompressive craniotomy surgery. After operation he was shifted to AICU dueto compromised airway he was intubated and blood transfusion was done due to low hemoglobin level. When patient condition becomestable, he was shifted toward under neurosurgery and GCS Score was E<sub>4</sub>V<sub>T</sub>M<sub>5</sub>. He was also newly diagnosed with diabetes mellitus as the HbA1C Level was 7.2 %. Post-operative, the prognosis of the patient seems to be improved and is continuing with the treatment and also coming to hospital for follow up. The family history of the patient reveals that his father died due to

asthma and also have specific history of hereditary medical condition such as hypertension, diabetes mellitus but doesn't have any congenital

### INTRODUCTION

Road traffic accidents claim over a million lives every year in the world. As per World Health Organization (WHO) it is one of the leading cause of death. India, being a rapidly developing country with expanding economy has its own issues as regarding road traffic accidents due to rapid proliferation of motorization [1].

Among men under 35 years, accidents, usually motor vehicle collisions are the chief cause of death and >70% of these involve head injury. Road traffic accidents (RTAs) have emerged as an important public health issue which needs to be tackled by a multi-disciplinary approach. The trend in RTA injuries and death is becoming alarming in countries like India. The number of fatal and disabling road accident happening is increasing day by day and is a real public health challenge for all the concerned agencies to prevent it [2].



**DEFINITION**

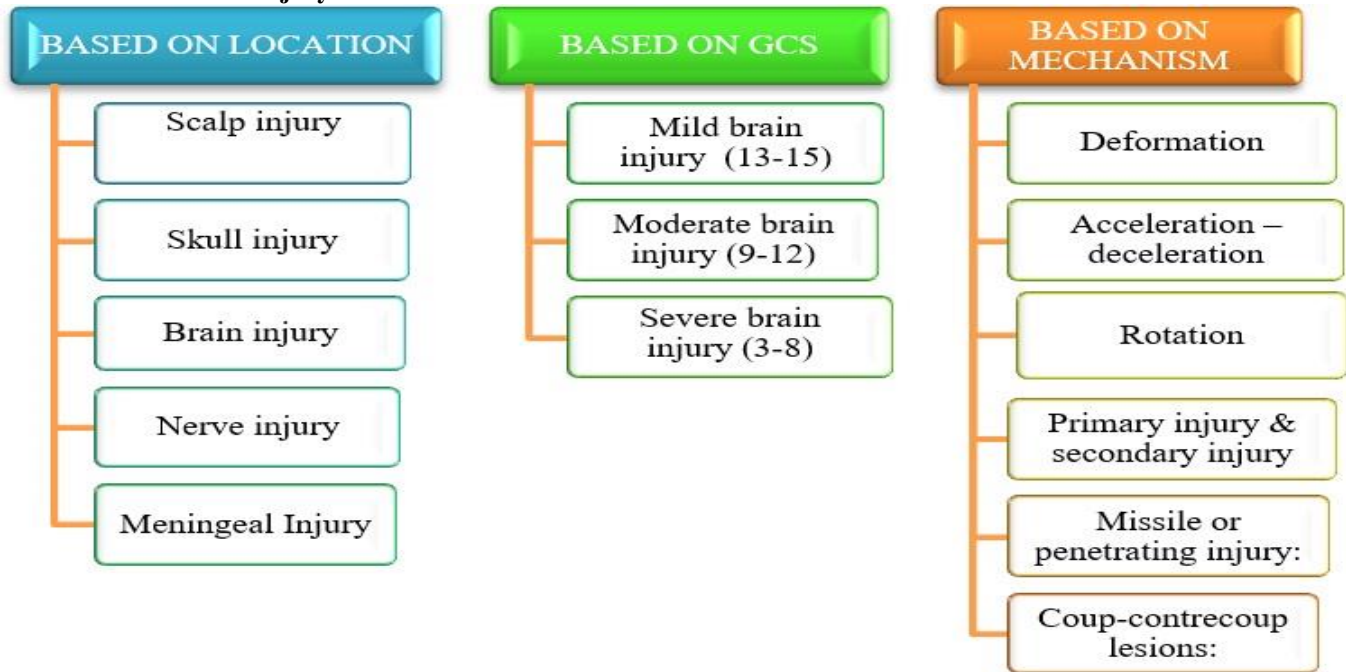
A road traffic accident is an injury to crashes originating from terminating with or involving a vehicle partially or fully on a public road. It is the third leading causes of global disease burden by the year 2020.

**INCIDENCE**

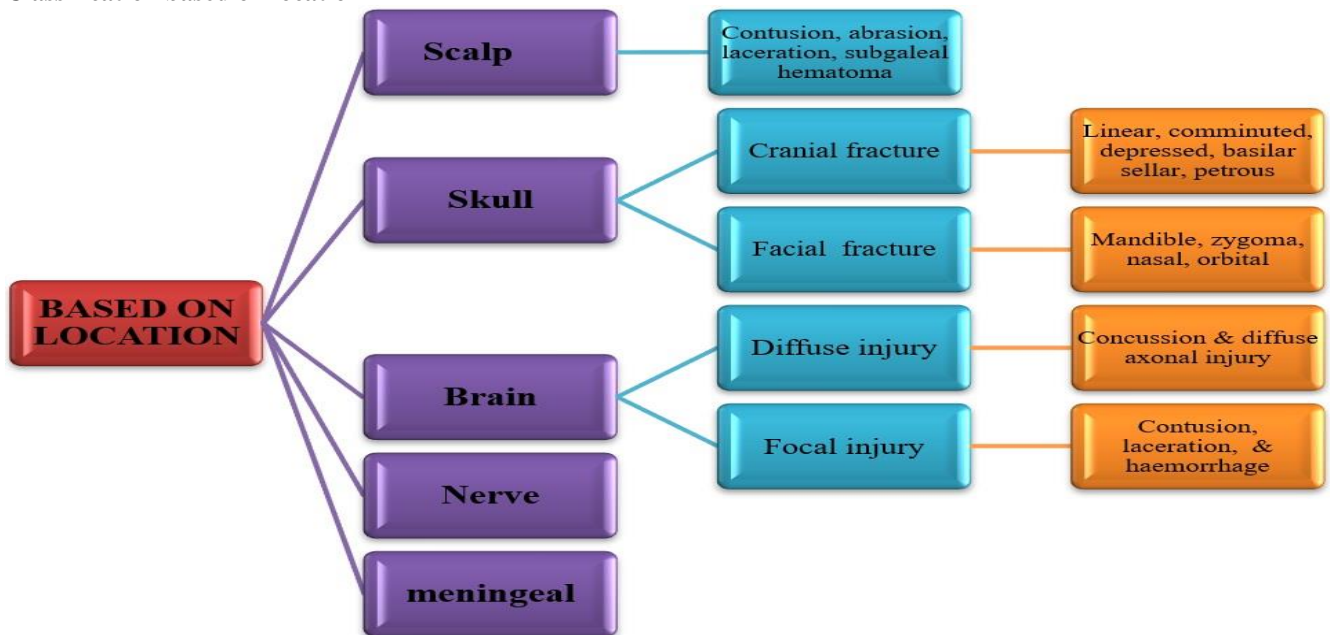
According to WHO, the worldwide incidence rate is high approximately 1.35 million people per year are result of a road traffic crash. RTA becomes the leading

cause of death among young peoples age group 15-29 years, children's, cyclist and older people with vulnerable of road constituting half of those dying on the road. Majority people are affected with low and middle socio-economic status. In India more than 1.3 lakhs people died on Indian roads and situation which exacerbates are such as rapid urbanization, motorization, lack of appropriate road engineering, poor awareness level, non-existence injury prevention programmes and poor enforcement of traffic laws [3].

**Classification of Head Injury**



**Classification based on location**



**Causes/Etiology**

<b>BOOK PICTURE</b>	<b>PATIENT PICTURE</b>
Unsafe driving such as: over speeding Drunken driving Without helmet Without seat belt Use of headphones/mobile phones during driving Signal breaking Wrong side walking and driving Unsafe crossing of road Overcrowding Road environment such as water accumulation, broken roads specially in rainy seasons.	The etiology in patient was due to unsafe crossing of road. Patient was hit by two-wheeler on road.

**Clinical Manifestations**

<b>BOOK PICTURE</b>	<b>PATIENT PICTURE</b>
Most of the road traffic injury cases died on spot but some may have clinical manifestation such altered level of consciousness. Change in pupillary sizes, equality and reactivity. Irregular breathing pattern Scalp injuries Deformed skull Weakness or numbness Headache Seizures Inability to speak or move parts. Problem with coordination and balance.	Altered level of consciousness and temporary confusion was present. Patient complain for Headache and swelling present around the frontal area. Patient also complains for Vomiting and difficulty in initiation of Speech.

**Diagnostic Evaluation**

<b>BOOK PICTURE</b>	<b>PATIENT PICTURE</b>
A thorough history collection and detailed neurological physical examination. Skull X-ray, MRI and CT-scan with 3D reconstruction is also recommended to visualize the soft tissue trauma of brain with specification. Brain angiography can reveal rupture /obstruction of blood vessels in brain. ICP monitoring to assess the swelling of brain tissue and neurocognitive test to check loss of memory and ability to process thoughts. CSF examination to check any infection present in brain.	A thorough history and physical examination was done. Tenderness and swelling were present in frontal region while doing palpation. GCS score was E4VTM5 CT shows frontal contusion with surrounding edema. HbA1c=7.2% Hb level was 10.6 g/dl

**Management**

<b>BOOK PICTURE</b>	<b>PATIENT PICTURE</b>
Disease is managed by therapeutic effect medicines and focus to remove symptoms and patient free from damaged occurs to brain by RTA(Head Injury) Analgesics to relieve from pain. Antiemetics to treat vomiting Antidiuretics to increase urine output and decrease increase intracranial pressure <b>Medical Treatment of increased intracranial pressure:</b>	Analgesic was administered to treat pain. Diclofenac 50mg SOS. Injection Emset 4mg was prescribed to treat vomiting Antidiuretics was administered such as mannitol 100ml and Lasix 20mg. Mannitol was prescribed to reduce the ICP which act as plasma expansion & osmotic effect. Surgical management Bi-frontal decompressive craniotomy



<p><b>Positioning</b> in an upright position with the head of the bed at 30 degrees will lower ICP by increasing venous drainage from the cranial cavity.</p> <p><b>Hyperventilation</b> is the most rapid and effective means of lowering ICP, the lowering of the PaCO<sub>2</sub> leads to constriction of the cerebral blood vessels, reducing CBF &amp; there by deducing the ICP.</p> <p><b>Mannitol</b> to reduce the ICP by plasma expansion &amp; osmotic effect. Dosage is 0.5-1 gm/kg (37.5-50 gm) IV q6h; keep osmolarity &lt;315; do not give for more than 48h.</p> <p><b>Loop diuretics</b> helps to prevent the disequilibrium syndrome.</p> <p><b>Gastric prophylaxis</b> to avoid gastric irritation, ulcer or Haemorrhage, H<sub>2</sub>receptor blocker (T.Rantac 150 mg twice a day) or proton pump inhibitor can be used.</p> <p><b>Barbiturate coma</b> is used for medically intractable ICP elevation when other medical therapies have failed.</p> <p><b>Sedatives, Analgesics and Antipyretics:</b> Beta-blockers or mixed beta and alfablockers and Hypertonic Saline can also be prescribed.</p> <p><b>SURGICAL MANAGEMENT</b></p> <p><b>Ventriculostomy and Shunt procedures</b> more accurate way to measure ICP is to place a catheter into a ventricle of the brain, which has the added benefit of allowing cerebrospinal fluid to drain, releasing pressure in the skull</p> <p><b>Burr holes helps to</b> evacuate the clot before deep coma has developed. Opining into the cranium with a drill; used to remove localized fluid and blood beneath the duramater.</p> <p><b>Craniotomy is</b> opening into the cranium with removal of a bone flap and opening the dura to remove a lesion, repair a damaged area, drain blood, or relieve increase ICP.</p> <p><b>Cranectomy</b> is the incision made into the cranium to cut away the bone flap and opening of the dura to remove a lesion, repair a damaged area, drain blood, or to relieve increased ICP.</p> <p><b>Cranioplasty</b> is repair of a cranial defect resulting from trauma, malformation, or previous surgical procedure; artificial material used to replace damaged or lost bone.</p>	<p>was performed to control the increased ICP.</p> <p>Ventricoperitoneal shunt was also done to remove hematoma.</p> <p>Advised for positioning to elevate the head at 30 degree.</p> <p>Patient was intubated with endotracheal tube after surgery.</p> <p>Injection Pantop 40mg, OD, was also prescribed to the patient.</p> <p>Daily dressing for incision site.</p>
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**Nursing Diagnosis**

1. Ineffective airway clearance and impaired gas exchange related to brain injury.
2. Ineffective cerebral tissue perfusion related to increased ICP and decreased CPP.
3. Deficient fluid volume related to decreased LOC and hormonal dysfunction
4. Imbalanced nutrition, less than body requirements, related to metabolic changes, fluid restriction, and inadequate intake
5. Risk for injury (self-directed and directed at others) related to seizures, disorientation, restlessness, or brain damage
6. Activity intolerance related to tissue injury as manifested by patient inability to walk.

7. Impaired verbal communication related to injury to frontal lobe of brain as evidenced by inability in speaking
8. Risk of infection related to surgical procedures.

**Nursing Interventions**

1. Monitored the vital signs of patient to know the baseline data.
2. Assess the LOC & neurologic parameters.
3. Keep head of bed elevated no more than 45 degrees for the first 3 days postoperatively to prevent pressure on incision site.
4. Provide diversional therapy like listening music, reading newspaper etc.
5. Administer pain medication as ordered



6. Maintained a normal room temperature and provided a calm and quite environment to prevent anxiety due to hospitalization.
7. Administered drugs which are prescribed for the patient.
8. Monitor the vital signs frequently every 1 hourly immediately after surgery.
9. Monitor the patient after surgery for any sign of complications.
10. Closed monitoring and inspect the surgical site for any sign of infection.

#### **Prognosis**

The prognosis of the patient was good after the surgery and he was responding with the medication prescribed. The patient is continuing with the treatment plan and soon going to be discharged. He was instructed

for follow up check and health education were provided regarding the therapeutic regimen which needs to be followed at home.

#### **Complications**

No such complication was developed for the patient. But complication which may be developed if not treated initially are: seizures, meningitis, nerve damaged, cognitive problem, coma, personality changes and long-term neurological disorders such and Alzheimer's disease and Parkinson's disease etc.

#### **AKNOWLEDGEMENT**

Nil

#### **CONFLICT OF INTEREST**

Nil

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