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Transient Brain Injury: A Case Report

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ABSTRACT :

Transient Brain Injury or mild traumatic brain injury is a clinical condition characterized by a transient alteration of consciousness or mental status resulting from a traumatic injury .It can cause loss of consciousness(less than 30 min), confusion, headaches, and imbalance. A 12-year-old male child presents with the chief complaint of sudden loss of consciousness, ecchymosis , fracture and ENT bleeding at government Hospital, Shimla during the month of January' 2025 and diagnosed with transient brain injury .Stapler suturing was done maintain to skin and bone integrity.

Keywords: Echymosis,Conciuosness,Integrity,Transient brain injury.

INTRODUCTION :

Transient Brain Injury is a clinical condition characterized by transient or temporary alteration of consciousness or mental status resulting from a traumatic injury as shown in fig 1.

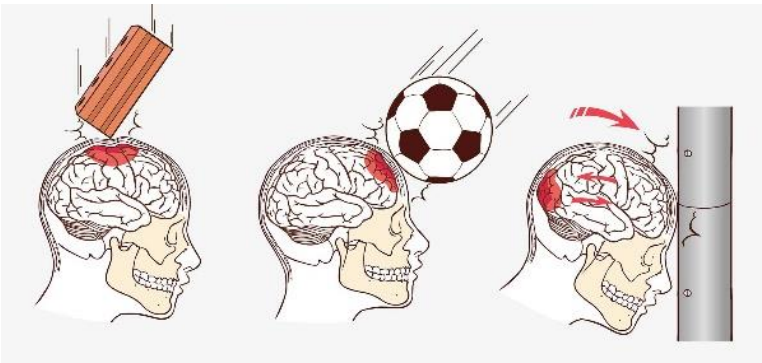

Fig.1 shows the brain injury

TRANSIENT BRAIN INJURY

A traumatic brain injury (TBI) refers to a brain injury that is caused by a forceful bump, blow, or jolt to the head or body, or from an object entering the brain. Not all blows or jolts to the head result in TBI. (Transient Brain Injury).
Some injuries are considered primary, meaning the damage is immediate. Others can be secondary, meaning they can occur gradually over the course of hours, days, or weeks after injury. These secondary brain injuries are the result of reactive processes that occur after the initial head trauma.

There are two broad types of head injuries: Penetrating and non-penetrating.
Penetrating TBI (also known as open transient brain injury) happens when an object pierces the skull e.g., a bullet, shrapnel, bone fragment, etc. and enters the brain tissue. Penetrating TBI typically damages only part of the brain.
Non-penetrating TBI (also known as closed head injury or blunt Transient brain injury) is caused by an external force strong enough to move the brain within the skull. Causes include falls, motor vehicle crashes, sports injuries, blast injury, or being struck by an object.

MECHANISM OF TRANSIENT BRAIN INJURY

A *transient brain injury* occurs when an external force or physiological disruption temporarily affects brain function without causing permanent structural damage. The most common example is a *concussion*, a mild form of traumatic brain injury (TBI). The underlying mechanisms involve both biomechanical and neurochemical changes in the brain.

1. Bio mechanical Forces
2. Neurochemical and cellular disruptions
3. Temporary Functional Impairment

CASE PRESENTATION-:

A 12-year-old male presents with the chief complaint of loss of consciousness, ecchymosis , fracture and ENT bleeding at government Hospital, Shimla during the month of February' 2025. After physical examination and other investigations, he was diagnosed with transient brain injury.

Present Medical History:

Patient was apparently well before admitting in government hospital Shimla. on dated: 26-01-2025.he fell from bicycle in the evening and got hit with iron gate at 5 pm and was brought to the causality ward at 5:27pm, as he got unconscious, fracture on left arm and ENT bleeding with GCS score of E2VTM4.patient was intubated on the same day with endotracheal tube and put on ventilator for respiratory support.

Present surgical history-

ON 26/1/25 Patient went under minor stapler suturing on head at the temporoparietal region.

Mode of ventilator: - Pressure Volume Control: Synchronised intermittent mandatory ventilation.

PEEP	**4cmH2O**
VT	**240ml**
MV	**18**
FiO2	**50%**
Ps	**10cmH20**

HISTORY OF PAST ILLNESS.

Past medical history-

The patient had a past medical history of chickenpox 3yr back.

Past surgical history-

Patient had no any specific and significant past surgical history in the past years.

FAMILY HISTORY & FAMILY TREE

Medical history-

All the family members of patient are healthy and medically fit. No any history of genetic disorder and hereditary problems like Diabetes mellitus, hypertension etc.

Surgical history-

Patient's family members had no any specific and significant past or present surgical history as of appendectomy, hysterectomy, cholecystectomy or no history of genetic disorders etc. All the family members are healthy.

PHYSICAL EXAMINATION

GENERAL EXAMINATION

Weight	-	32kg
Height	-	4 ft. 2inc
GCS SCORE	-	E2VTM4
Respiratory rate	-	32b/m
SPO2	-	98%
TEMP	-	99F

CENTRAL NERVOUS SYSTEM

- Patient was semi-conscious and not oriented to time, place and person.

HAEMATOLOGICAL STUDIES:

S.no	Lab Tests	Patient's Value	Normal Value
1.	CBC		
	i. Haemoglobin	12 gm/dL	11-16gm/dL
	ii. TLC	8,000/cumm	4000-11,000/cumm
	iii. TEC	4.15/cumm	3.5-5.5/cumm
	iv. Platelet count	179*10^3	150-450*10^3
	v. PCT	0.23	0.05 ng/ml
	vi. PWD	18.90	9.0-17.0%
	vii. PCV (HCT)	39.10%	35-48%
	viii. MCV	89.10 fL	82-95 fL
	ix. MCH	27.40 pg.	25-33 pg.
	x. MCHC	34.70 g/dl	33-37 g/dl
	xi. Neutrophils	40.10%	40-70%
	xii. Lymphocytes	35%	20-45%
	xiii. Monocytes	5.60%	0-8%
	xiv. Eosinophils	0.20%	0-6%
	xv. Basophils	0.30%	0-1%
	xvi. Lactulose	**2.48mmol/L**	Less than 0.3 mg/dl
	xvii. PH	**7.21**	7.35-7.45
	xviii. Pottasium	**2.3mmol/L**	3.5-5.0mmol/L

No such serious deviations were noted in blood test.

OTHER LAB TEST

NCCT Scan Report:

Multiple contusions were seen under CT scan

From this report doctors suspected **Transient brain injury**

TREATMENT

S.no	Drug Name & Salt Name	Dose	Route	Frequency
1.	Inj. Levofloxacin	500 gm	Intravenous	BD
2.	Inj PCM	650mg	Intravenous	TDS
3.	Neb. Budesonide	-	Inhalation	OD
4.	E/d Tobramycin	-	Intravenous	4 hrly
5.	E/D Refresh	-	Intravenous	4 hrly
6.	INJ EPTOIN	4-8mg/kg	Intravenous	BD

DISCUSSION :

TRANSIENT BRAIN INJURY

Transient Brain Injury or mild traumatic brain injury is a clinical condition characterized by a transient alteration of consciousness or mental status resulting from a traumatic injury .It can cause loss of consciousness(less than 30 min), confusion, headaches, and imbalance.

Key Features of TBI:

- Temporal neurological dysfunctioning
- Non-structural brain damage
- Loss of consciousness
- Cognitive impairment

Symptoms:

- Nausea and vomiting
- Dizziness
- Headaches
- Loss of consciousness
- Changes in sensory perception
- Trouble communicating
- Aggressiveness
- Loss of coordination

Causes and Risk Factors:

TBI can be caused by assault, falls especially in children, motor vehicle accident, and Sports injury like foot ball

Diagnosis:

- Clinical examination: Checking for loss of consciousness, loss of sensory perception, trouble communicating
- Nerve conduction studies: To evaluate the function of the nerves.
- Lumbar puncture: Measuring cerebrospinal fluid to rule out other causes.

Treatment:

- Supportive care: This includes physical therapy to help regain muscle strength and respiratory support if needed.
- Pain management: For any neuropathic pain

CONCLUSION :

A 12-year-old male child presents with the chief complaint of loss of consciousness, ecchymosis, fracture on left, ENT bleeding as a result of fall from bicycle and was admitted at government Hospital, Shimla during the month of January 2025. After physical examination and radiological investigation, he was diagnosed with transient brain injury, he underwent minor suturing. The prognosis was good and the patient was under recovery care.

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