

# **Head Injuries**

1- Scalp injuries (stretched skin)

2- Skull

3- Meninges

3- Brain

☞ Sequence of injury :scalp→skull→Meninges→brain.

## 1-Scalp Injuries:

- ▶ scalp has many B.V (highly vascularized) →small injury leads to profuse bleeding → treated by direct pressure using dress or bandage BUT if there is possibility 4 skull fracture WE DON'T USE IT bcoz it will lead to brain laceration .
- ▶ Bone fragments or depression or brain exposure ( y3ni there is a skull fracture ) → Cover with loose Gauze dressing.
- ▶ the infection possibility is low bcoz → it's highly profused . but if it happen it's dangerous bcoz it may leads to meningitis , brain abscess , encephalitis.
- ▶ it's difficult to differentiate between lacerated wound which is caused by blunt instrument & cut wound which is caused by sharp instrument bcoz the skin is stretched but u can use the hair 4 that .

○ hair in cut wound =cut , hair in lacerated wound =crushed (مطبئة)

☺Remember that :

Many B.V → profuse bleeding

Possible skull injury → No direct pressure

infection possibility is low bcoz → it's highly profused.

## 2-Skull Injures:

Skull consist of 3 layers : 1- outer table 2- cancellous bone 3- inner table.

### **Factors governing fracture of skull :**

- 1- force : high momentum (force) = more dangerous
- 2- striking surface area : مساحة السطح الضارب → if it's small → the injury will take the shape of the striking surface bcoz the power is concentrated in small area e.g. head of hammer.
- 2- Position of the head : Whether supported or not;
  - ☞ supported = واحد متكى راسه على الجدار → more dangerous bcoz the head will take the whole power.
  - ☞ unsupported = واحد يمشي → part of the power will used in moving the head .
- 3- site of the blow: depends on bone thickness.  
the weakest points are the squamous and temporal bone.

### **Types of skull fractures:**

#### **types of skull fracture depends on the instrument :**

##### **❖ blunt instrument cause :**

##### **-fissure fracture**

- polar fracture
- ring fracture
- thermal fracture

##### **-depressed fracture**

##### **-depressed comminuted fracture**

##### **❖ sharp instrument cause :**

##### **-chipped fracture**

##### **-cut fracture**

##### **-cut comminuted fracture**

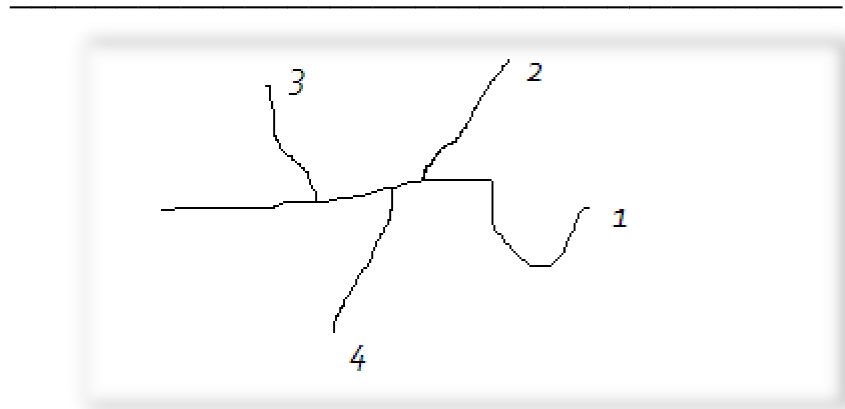
## **First : Skull fractures due to heavy blunt instruments**

### **I- Fissure fracture (linear fracture)** كسر الزجاج – كسر شرخي

**caused by** Blunt instrument with **wide** striking surface Area and **low** momentum.

the main rule is :

- ✓ start → at the point of impact
- ✓ extends → parallel to the line of force .
- ✓ the fissure run into weak point (previous fracture is like sutures of the skull ) & can't cross it .
- ✓ Multiple blows may produce multiple fissures, but a second fissure will end when it reaches the first fissure.



#### **Which one is happened first ??**

No.1 is the first → bcoz it's complete & the other fractures run to it ( weak point).

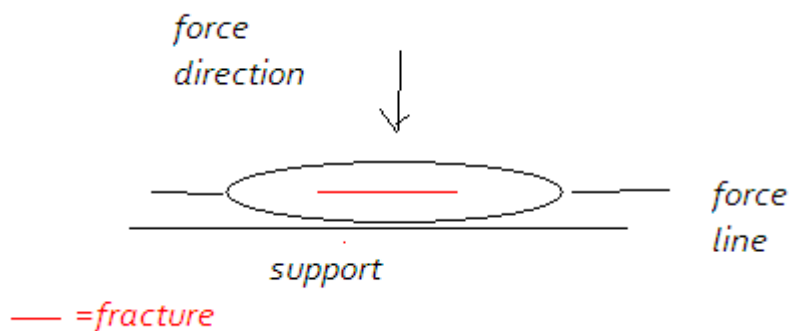
- ✓ Fissure fractures may be alone or they may accompany other types of fractures.
- ✓ However; there are different types of Fissure Fracture.

➤ Other types of fissure fracture doesn't follow the main rules :

a) **Polar fracture (indirect fracture) :**

زي البطيخة لما تكسر فيها تنكسر من النص أول  
برضو يحصل في head – supported

It extends **parallel** to the line of force and **perpendicular** on the direction of trauma as hitting a ballon.



Y3ni alfracture midway between supported head & impact .

b) **In ring fracture:**

falling on the breech from a height and upper cut in boxers.(indirect fissure fracture)

\*Upper cut in boxers:

Fissure fracture pushing mandibular process across glenoid cavity .

الي يحصل انه يضربه على chin يطلع الكسر ورا الاذن

\*Falling on the breech(buttock) from height:

Falling on the buttock pushing vertebral column against foramina magnum which cause circular fracture around it .

c) **Thermal fracture:** زي الزجاج المسخن

is a fissure occurring in case of severe burn of the head due to Evaporation of H<sub>2</sub>O from outer before inner table.

## **2- depressed fracture:**

**caused by** blunt instrument with **small** striking surface area of **medium** force → Depressed localized fracture e.g. head of a hammer.

في الكبار اخطر من الصغار لانو الصغار عظامهم elastic فحترجع بعكس الكبار الي ممكن يسبب لهم عاهه .

It takes the shape of striking surface of the causal object (rounded, square, triangular, etc... ). The depressed bone injures the brain.

May be accompanied by fissure fracture .

## **3-depressed comminuted fracture :**

It occurs due to a blow with heavy blunt object having a **wide** striking Surface area and **high** momentum e.g. car accidents, fall from height and block of wood.

العظم مفتت زي قشر البيض بس لسا في مكانة يعملون لهم عملية decompression operation يشلون فيها العظم عشان كذا اغلب الصور الي ورانا اياها المكان فاضي Healed by membrane formation (fiber) → leads to prominent infirmity .

	Fissure fracture	Depressed fracture	Depressed comminuted
S.A	Wide	Small	Wide
Momentum	Low	Medium	high
Localization	Not localized	Localized	Not localized

## **Dangers of depressed fractures:- (both .. depressed & depressed comminuted )**

1. Cerebral laceration by the depressed bony fragment.
2. Intra cranial hemorrhage.
3. Cerebral compression by the depressed fragments and by hemorrhage.
4. Intracranial infection.
5. Subjecting the patients to a decompression operation, this leaves a bony gap and permanent infirmity.

**\*\*\*\*\*The most dangerous complication of depressed fracture is : cerebral laceration**

**V.IMP:**

7yji 99.99% fel 25tbar l2no al dr. 3adha ktheeeeer maraaaaaaa

**What is the most dangerous complication of depressed fracture :**

- a) Intra cranial hemorrhage
- b) Cerebral compression
- c) Intracranial infection
- d) Cerebral laceration

**Done ☺**

**GOOD LUCK**

*Reham almuhaya*