**Treatment of midfacial fracture goals:**

-maximal rehabilitation

-Oral functions should get back to normal

-Bone healing,we have to accelerate bone healing

-Retain ocular, masticatory and nasal functions

-Speech (teeth and alveolus)

-esthetics

In rehabilitation operation of the face we have to achieve good reduction of facial pillars into their original sites so that successful re-contouring of the face can be achieved.

 **Facial pillars:**

 - frontal bone.

 - zygomatic arch: give anterioposterior contour or what is called cheeks prominence.

 - maxilla: give nice complex profile of the face.

 - mandibular plate or chin: any depression in it result in what is called retrognathia.

 **Treatment**

-open/closed reduction (reduction means you put the bone into …..? )

Open:by openening and seeing bone surgically (making incision) to reach the area

closed: without reaching area surgically. For example: when we have unilateral condylar fracture, reduction is done by intermaxillary fixation for 6 weeks.

 Fixation: fix the fractured bone by different methods,now a days we use titanium plates and screws with difrrent sizes (5,6,8 mm,microscrews)….. In old days we used wires (SS wires) but it can't really maintain the bony segments in their position.

So we avoid using them esp. for facial pillars fixation. And in case we use them we have to make IMF(intermaxillary fixation) as well and that will not work for pillars

IMF: not used a lot recently, with development of Ti plates and screws. In the past they were common with SS wires. Note: Ti plates and screws are more modern and stable method, no need to do IMF with them, instead ortho. Elastics can be used to provide proprioception and guidance. The dr. showed us how IMF is done, we arch bar on upper and lower teeth and we tie them by interdental wires after that the two bars are joined together. There is another method in which screws are used instead of the bars.

Reduce bone with Rigid fixation will give stability good facial appearance

Suspension wires used for ex fractured maxilla to frontal bone or fixed bone in superior aspect

Immobilization: try to fix 2 jaws together either use arch-arch wires the purpose of it enu yseer healing of the bone 3la el correct occlusion

Doctor showed us photographs for a patient with a road traffic accident, symptoms: bilateral ecchymosis, swelling, nasal deviation, laceration and mid palatal fracture which resulted in severe median diastema. In the 3D CT, subcondylar fracture and zygomatic fracture are obvious. The patient has LeFort class I on one side and class II on the other. Treatment for this patient is reduction and fixation. Inside the operation there was difficulty in attaining occlusion anteriorly because the patient already has anterior open bite, what the dr. realize following the operation.

Another case: an axial scan of CT for a patient with mid facial trauma, both maxillary sinuses are filled with fluid (blood), there is nasal symptoms (record here is not clear) and on the right side the whole zygomatic bone/arch are depressed. In such a patient oral function (chewing, speech,..) and esthetics are lost, so the treatment goal is to achieve a maximum reduction in order to attain rehabilitation and accelerate bone healing so that ocular, nasal and masticatory function can be recovered along with acceptable facial and dental esthetics.

Zygomatic bone : as we know it has four extensions: cheek prominence, frontal process, maxillary process and that process of zygomatic arch. So this bone is like a star and when it fracture it will rotate. If we have trauma on that bone we access it through the laceration, if it’s existing. If no laceration was there, we can reach frontal process through eye brow incision, through infraorbital incision we can reach infraorbital ridge and intra orally by going sublabially then up we reach the body of zygoma. So we can get accesses in esthetic way.

Talking about zygomatic arch fracture, pt will suffer from swelling, pain .etc but the characteristic feature is limitation in mouth opening because when this bone goes inward following fracture coronoid process movement will be hindered. It can unilateral, which is more common, or bilateral ( حدا حط رأس المريض على الأرض و دعس عليه)

The most common approach to treat such type of fracture is called Gillies, a British surgeon. It is closed type of reduction, used when the fracture is simple and not comminuted. An incision at temporal area is done and we insert Gillies elevator between superficial temporal fascia and the temporalis muscle fascia( deep temporal fascia), there is a gap between them and by getting there we are beneath the process so we push it outward. By this approach we avoid facial nerve braches injury and any scar in pt face because the incision area is covered by hair.

Another photos for a lady who had scrimmage with her husband, and they were in the car, so he push her out of the car O.o and go back to treat her!

On the CT scan there were no fractures, so it is simple soft tissue injury but the blow can be transmitted into the orbital floor resulting in increased intraorbital pressure which can lead to orbital floor fracture because it is so thin. Through that fracture hernia of muscle and orbital content occurs (orbital blow out). Those pts will complain of double vision esp. at lower gaze due to muscle entrapment. This can be associated with zygomatic fracture.

To treat that type of fracture we make incision through lower eye lid ( infraorbital ridge incision), so we go through skin then through orbicularis muscle to reach lower orbital ridge. Then we free muscle and orbital content and add bone graft that is fixed by titanium mesh.

The last case was about pt that had a road traffic injury in the UAE in the past and he went through treatment but still has telecanthus due to fracture in nasoethmoidal bone and medial orbital wall. In these cases earlier attendance end with more successful outcome than later because of scaring and fusion of segments so the anatomy is distorted and complete recovery cannot be achieved. The pt was informed about that but he wanted to go through the operation.

We cannot reach that area entirely unless we make a coronal incision (very useful incision) or what is called face off, and through cranium we go down reaching nasoethmoidal, that is aggressive but it is the only way!

After reaching the area sectioning is done in attempt to fined medial canthal ligament and fixes it by S/S wires so that some reduction in intercanthal ligament can be obtained. To reconstruct medial orbital wall, bone graft and mesh is used. Molding of the mesh can be performed on a model that was produced by mirror image of the opposite side aided by computer and modern technology.