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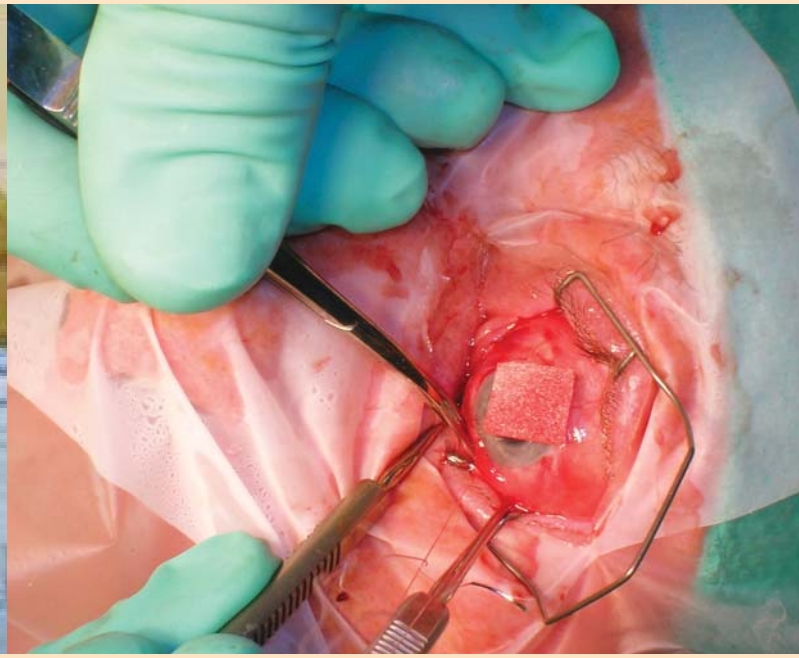

COMMON FACIAL FRACTURES

Contents

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Editorial

Dear Doctor,

As the members of Editorial Board, we would like to take this opportunity to thank you and show our gratitude for your unconditional support and appreciations of our quarterly newsletter Info Medicus since its initiation. With our sincere efforts followed by your constant encouragement we are confident that Info Medicus would continue to be the flagship vehicle in the field of basic science and clinical discovery.

In this issue, the Review Article highlights "Common Facial Fractures". The face is the most vulnerable area of the body and is usually the least protected. Fractures may involve the lower and upper jaws, palate, cheekbones, eye sockets or any combination of these bones, some of which require immediate medical care and/or surgery.

Abscess is localized infections of tissue marked by a collection of pus surrounded by inflamed tissue which may be found in any area of the body that can be resolved by drainage. That's why we would like to emphasize the procedure "Incision and Drainage of Abscess" as Clinical Method.

Moreover, we have presented "Peripheral Air Embolism" as Case Review where the mechanism of systemic air embolism and paradoxical air embolism through a cardiac defect during many types of vascular intervention have been well described.

In "Diagnosis at a Glimpse" we have featured three case scenario which, we think will be an enjoyable exercise.

In addition, we have presented some amazing news in "Medical Miracles".

Other regular features remain unchanged. We anticipate that this issue will be more informative and useful in the light of todays medical technology demand.

Wishing all our readers a very Happy and Prosperous 2014.

Thanks and best regards,

(Dr. S. M. Saidur Rahman)
Medical Services Manager

(Dr. Rumana Dowla)
Manager, Medical Information & Research

Common Facial Fractures

The face is the most vulnerable area of the body and is usually the least protected. Facial trauma (Maxillofacial trauma) are injuries to the face, jawbone or mouth, which may include skin lacerations, obstruction to the nasal cavity or sinuses, damage to orbital sockets, fractures to the jawbone and missing teeth. The most common causes of facial trauma include road traffic accident, sports, penetrating injuries and violence.

One of the most common types of facial trauma includes broken bones. Fractures may involve the lower and upper jaws, palate, cheekbones, eye sockets or any combination of these bones, which may affect the ability to see, breath, speak and swallow. Not all facial trauma are extensive; however, they should not be taken lightly. For those who participate in athletics, oral and maxillofacial surgeons often recommend that patients wear the appropriate mask, helmet or protective mouth guard.

Anatomy of the face

The face, or countenance, extends superiorly to the hair line, inferiorly to the chin and the base of the mandible, and on each side to the auricle. The forehead is therefore common to both the face and the scalp.

Skin

The facial skin is very vascular. Rich vascularity makes the face blush and blanch. Wounds of the face bleed profusely but heal rapidly. Facial skin in very elastic and thick because the facial muscles are inserted into it, the wounds of the face, therefore, tend to gape.

Superficial fascia

The superficial fascia of the face contains (1) the facial muscles, all of which are inserted into skin; (2) the vessels and nerves, on their way to the muscles and to the skin; and (3) a variable amount of fat. Fat is absent from the eyelids, but is well developed in the cheeks, forming the buccal pads that are very prominent in infants in whom they in sucking. The deep fascia is absent from the face, except over the parotid gland where it forms the buccopharyngeal fascia.

Facial muscles

The facial muscles, or the muscles of facial expression, are subcutaneous muscles. Topographically, the muscles are grouped under the following heads:

A. Muscle of the scalp
- Occipitofrontalis

B. Muscle of the auricle
- Auricularis anterior
- Auricularis superior
- Auricularis posterior

C. Muscle of the eyelids
- Orbicularis oculi
- Corrugator superecilli
- Levator palpebrae

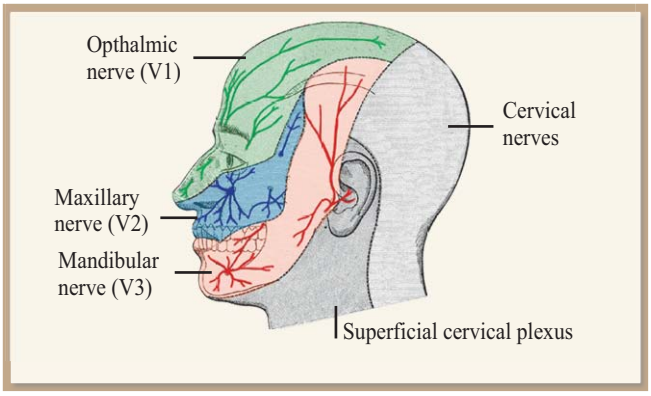
D. Muscle of the nose
- Procerus
- Compressor naris
- Dilator naris
- Depressor septi

E. Muscle around the mouth
- Orbicularis oris
- Levator labii superiors alaequae nasi
- Levator labii superioris
- Zygomaticus minor
- Zygomaticus major
- Depressor anguli oris
- Depressor labii inferioris
- Mentalis
- Risorius
- Buccinator

F. Muscle of the neck
- Platysma

Sensory nerve supply

The trigeminal nerve is the sensory nerve of the face. The greater part of the skin over the angle of the jaw is supplied through the cervical plexus. In addition to the skin of the face the sensory distribution of the trigeminal nerve is also to the nasal cavity, the paranasal air sinuses, the eyeball, the mouth cavity (palate, cheeks, gums, teeth and anterior 2/3 of tongue), and the supratentorial part of the dura mater, including that lining the anterior and middle cranial fossae.



Sensory nerve supply of the face

Motor nerve supply

The facial nerve is the motor nerves of the face. Its five terminal branches (temporal, zygomatic, buccal, mandibular and cervical) emerge from the parotid gland and diverge to supply to the various facial muscles.

Artery supply

The facial is richly vascular. It is supplied by (1) Facial artery, (2) Transverse facial artery and (3) Arteries that accompany the cutaneous nerves.

Venous supply

The veins of the face accompany the arteries and drain into the common facial and retromandibular veins. They communicate with the cavernous sinus. The facial vein is the largest vein of the face. It is formed by the union of the supratrochlear and supraorbitial veins.

The facial bones

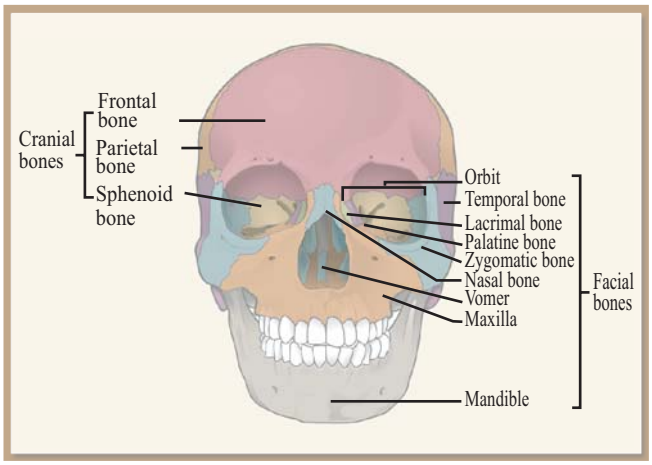
The facial skeleton is composed of a series of horizontal and vertical bony buttresses that support the architecture of the face against internal and external applied forces. The facial buttresses are designed to withstand forceful impacts in order to protect the underlying vital elements such as the brain, the eyes, and other neurovascular structures.

The facial skeleton can be divided into three parts

- The upper third consists of the frontal bone and ends at the level of the supraorbital rims. Fractures in this area most often involve the frontal sinus.
- The middle third of the face is the most prominent and complex. It extends from below the supraorbital rims to the incisal edges of the upper teeth. This region consists of orbits, nasal, zygomatic, and maxillary bones. The cone-shaped orbital space is composed of seven bones. The periorbital bony rim serves as an attachment for the suspensory ligaments of the eye and the protective framework of the globe and optic nerve. The zygomatic, along with the maxilla, gives the malar projection of the midface anteriorly. Laterally, it articulates with the frontal bone to form the zygomatic arch. The nose projects from the mid face and is composed of both cartilage and bone to give it the characteristic shape. The mid face experiences the highest incidences of fracturing because of its increased projection from the face.
- The lower third of the face is the mandible and the teeth it supports. It extends from below the incisal edges of the upper teeth to the mandible. The condylar processes are considered a part of the lower third, even though they articulate with the temporal bone to form the temporomandibular joint.

The region of the orbit

- The superior orbital margin is formed by the frontal bone.
- The lateral orbital margin is formed by the frontal process of the zygomatic, the zygomatic process of the frontal bone and the greater wing of the sphenoid bone.
- The inferior orbital margin is formed by the maxilla and the zygomatic bones.
- The medial orbital margin is formed by the frontal process of the maxilla, the lacrimal bone, the angular and orbital process of the frontal bone and the ethmoid bone.
- The orbital floor is formed by the roof of the maxillary sinus.
- Apex of the orbit is formed by parts of the sphenoid, palatine and ethmoid bones.



Anterior view of the facial bone

Etiology of facial fractures

Facial fractures are usually caused by:

- Road traffic accidents (most common in our country)
- Assault (domestic violence is an important cause)
- Falls
- Sporting accidents
- Work related injuries

Evaluation of facial fracture

Evaluation of the facial fractures should follow the principles of trauma assessment and should begin with airway, breathing, circulation. Examinations of vital signs and mental status are also crucial parts of the initial assessment. After the initial assessment and stabilization, the facial examination is then performed in a systematic manner with particular attention paid to important bony landmarks, neurovascular structures, and soft tissues.

Common facial fractures

- Nasal fractures
- Mandibular fractures
- Maxillary fractures
- Frontal bone fractures

Assessment principles

These principles are involved in the initial assessment of patient with major trauma and have been outlined by the American College of Surgeons (ACS) in their guidelines regarding Advanced Trauma Life Support (ATLS) protocols. These principles are follows:

- Preparation and transport
- Primary survey and resuscitation, including monitoring and radiography
- Secondary survey, including special investigations, such as CT scanning or angiography
- Ongoing re-evaluation
- Definitive care

Early assessment and treatment planning of maxillofacial trauma

Advanced Trauma life Support (ATLS) has been recognized as the gold standard for the initial management of multiple trauma patients. Although the priority of maxillofacial trauma is usually subordinated to more critical, life threatening trauma, the role of the maxillofacial surgeon in the primary and secondary surveys of patients with maxillofacial trauma should be emphasized.

The treatment of patients with maxillofacial trauma can be managed by a maxillofacial trauma team if the trauma is isolated to the maxillofacial area or by a designated hospital trauma team. All the members of the treatment team should assume the responsibility of constant patient reassessment. Facial trauma is classified into three categories according to the urgency of necessary treatment:

- Immediate, resuscitative, or emergent treatment required: Facial trauma that is life threatening (causing airway obstruction or severe hemorrhage) or sight threatening (causing increases in intraocular pressure) at securing the airway, stopping the hemorrhage, or relieving the intraocular pressure via cantholysis.
- Treatment required within a few hours: Facial trauma that is extremely contaminated in a patients who is hemodynamically stable.
- Treatment can be developed for more than 24 hours if necessary: Most other facial fractures.

Airway (with cervical spine protection)

Patients with facial fractures are usually able to maintain protective oral and pharyngeal reflexes and can clear their own airway of saliva, blood, or vomitus. Dislodged tooth fragments, dental appliances, or mandibular structural collapse may compromise the airway and should be noted. If a patient has an unfavorable bilateral mandibular fracture causing airway obstruction, then it can be assisted by simply stabilizing the fracture with a bridle wire. Emergent tracheostomy is seldom needed, even in severe facial fractures, unless a concomitant injury to the cranium, neck, or chest exists.

Breathing and ventilation

If the patient's Glasgow Coma Scale (GCS) score is lower than 15, performing a procedure to stabilize a bilateral mandibular fracture will permit the patient to breathe spontaneously and will reduce the likelihood of airway obstruction if the patient's level of consciousness decreases.

>>FAST TRACK<<

If significant trauma has occurred to the midface, there may be an associated cervical spine or intracranial injury.

Circulation

The face and neck are heavily vascularized regions of the body and this large blood supply facilitates a level of healing that is unmatched elsewhere in the body. Extensive arterial hemorrhage from facial wounds usually results from injury to the maxillary artery, the superficial temporal artery, or the angular artery. Direct pressure is usually sufficient for initial hemostasis, followed by ligation of the bleeding vessel through the wound if it is clearly visible. If no clear source of bleeding is identified, the airway should be protected, a compressive facial dressing applied. Scalp lacerations can be most rapidly stabilized with Raney clips.

Ocular evaluation

Ocular examination is a routine part of the survey and includes pupil size, reactivity to light, and symmetry. In addition, the examiner should rule out a relative afferent pupillary defect (RAPD) and palpate the globe.

Neurologic evaluation

Every maxillofacial trauma should be considered a head trauma, and patients with such fractures should be given the appropriate neurologic evaluation. The unconscious patients are assumed to have head and neck injuries, and proper immobilization of the neck and spine should be applied immediately.

Nasal fracture

Nasal fracture is the most common facial traumas. The nasal bones are the most commonly fractured bones of the face, as they occupy a prominent, exposed position and have little structural support. Changes in appearance and function can be prevented by prompt and appropriate management.

Presentation

Assessment of nasal fracture should include a careful search of other facial trauma, since the risk of important head trauma increases significantly with multiple facial trauma. External complications, internal complications and cosmetic appearance should also be considered.

History

A detailed history exploring the mechanism and timing of injury, and loss of consciousness, will help distinguish isolated nasal and septal fractures from those likely to be associated with other injuries. Any history of prior nasal and/or septal trauma or surgery should also be documented. The possibility of non-accidental trauma must be considered. Concussion and brain injury symptoms such as headache, nausea or emesis, dizziness, disorientations, or lethargy must be elicited.

Important features to be noted are

- Age of the patient
- Mechanism of the injury: High impact accidents are more likely to be associated with multiple facial and head injuries
- Timing of the injury: Obvious deformities are easier to visualise within hours after the injury. After about four hours, swelling may obscure accurate diagnosis
- Previous nasal injury, procedures, ENT problems and use of intranasal decongestant or steroids

Examination

Examination should start distally and move proximally. It should include an intranasal examination. Observing the nasal dorsum from the frontal, worm's eye, and bird's eye view will help the clinician appreciate any external nasal deformities. Overlying edema is frequently present with decreased definition of the melonasal angle and may mask the severity of the underlying skeletal deformity. Nasal septal deviation, septal deformities, and crepitus should be considered during examination. The intranasal examination with a nasal speculum, appropriate lighting, suction, and vasoconstrictor is important to assess the status of the cartilaginous and bony nasal septum, rule out septal hematoma, and determine the origin and extent of epistaxis and/or cerebrospinal fluid (CSF) rhinorrhea.

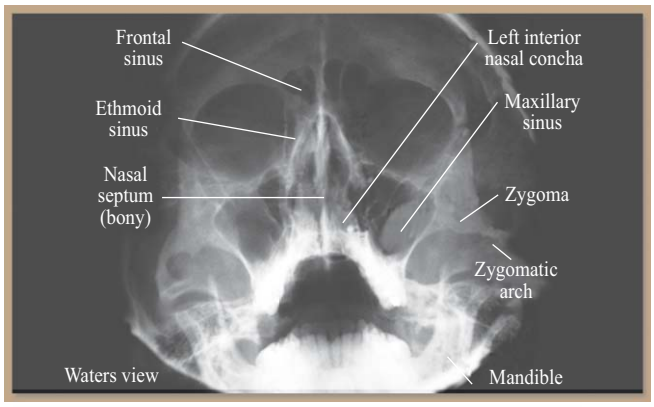
A detailed facial examination is also important should include visual acuity, extraocular muscle movement, pupil size and reactivity, intercanthal distance, medial canthal tendon position, mandibular range of motion, and occlusion. During examination, if the patients may exhibit signs and symptoms of a concussion. As such, a symptom driven neurologic examination is important in a subset of patients with facial trauma.

Investigations

Radiographs

Plain radiographic films may be adequate to assess the extent and displacement of nasal bone fractures when no other trauma are suspected, but they are used less often with the advent of CT.

- Radiological views of lateral nasal bones and occipitofrontal
- Waters' view 30 degrees
- If Naso-Orbito-Ethmoid (NOE) complex injury is suspected, a CT scan with both axial and coronal views is required. Recently, cone beam CT has been used in dental unit and other settings to visualize bony lesions, dysmorphology, and fractures.
- In addition, 3-D CT reconstructions may be indicated



Waters' view

Management

For most routine nasal fractures, operative management of nasal fractures requires consideration for the timing, anesthetic, setting in which treatment is rendered, and details of the operative approach. The recommended time frame to repair nasal fractures is within the first week after injury. It is acceptable to perform immediate treatment, but at times in may be helpful to allow swelling to decrease prior to definitive treatment. Treatment within the first several days facilitates the healing process and limits patient disability. Epistaxis common in nasal fracture that may lead to airway obstruction, aspiration, shock, and exsanguinations if not recognized and managed early. Control of a massive and a potentially lethal epistaxis consists of the following-

- Protecting the airway with endotracheal intubation or tracheostomy, if necessary
- Ruling out coagulopathy
- Packing the posterior and anterior nasal cavities

Packs should remain in place for not more than 24 hours; antibiotic coverage is recommended so that serious infections can be avoided. If packing is needed for more than 24 hours, they should be changed daily.

Close reduction

Most nasal fractures are treated with close reduction and various forms of external stabilization, with or without packing materials for the internal nose.

Open treatment of severe nasal fracture

Most open approaches to complex nasal fractures are accomplished from a bicoronal incision in coordination with other related fractures such as the frontal sinus and Naso-Orbital-Ethmoid (NOE) complex. Rarely, primary bone grafting may be helpful at the initial reconstruction.

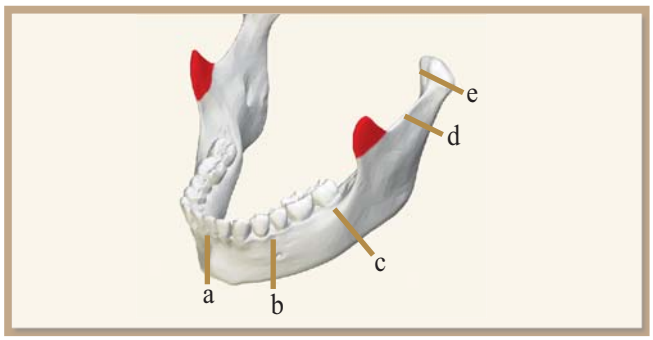
Mandibular fractures

Mandibular fractures were the only facial bone fractures in an average of 70% of patients. The main causes of mandibular fractures worldwide include motor vehicle accidents, interpersonal violence, falls, and sports related injuries.

Classification according to anatomic region

Mandibular fractures are also classified by the anatomic areas involved, as - symphysis, body, angle, ramus, condylar process, coronoid process, and alveolar process. Dingman and Natvig have defined these regions as follows:

- Midline: Fractures between central incisors
- Parasymphyseal: Fractures occurring within the area of the symphysis
- Symphysis: Bounded by vertical lines distal to the canine teeth
- Body: From the distal symphysis to a line coinciding with the alveolar border of the masseter muscle (usually including the third molar)



Common sites of mandible fractures. (a) symphyseal/parasymphyseal; (b) body; (c) angle; (d) subcondylar; (e) condylar head

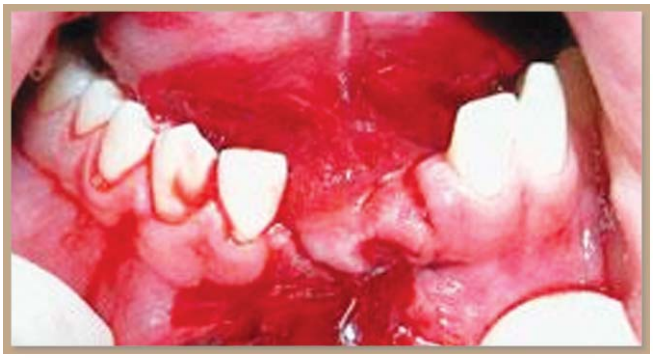
- Angle: Triangular region bounded by the anterior border of the masseter muscle to the posteriosuperior attachment of the masseter muscle (usually distal to the third molar)
- Ramus: Bounded by the superior aspect of the angle to two lines forming an apex at the sigmoid notch
- Condylar process: Area of the condylar process superior the ramus region
- Coronoid process: Includes the coronoid process of the mandible superior to the ramus region
- Alveolar process: The region that would normally contain teeth

Assessment of Mandibular fractures

Six significant injury criteria to create the acronym FLOSID, which essentially allowed for ease of assessment and defined, fracture characteristics.

Fracture type (F)

- Incomplete
- Simple
- Comminuted
- Bone defect



Avulsion of 2nd lower incisors and a step in the occlusal plane associated with a mandibular symphyseal fracture

Location of fracture (L)

- Left from midline (L1) to condylar head (L8)
- Right from midline (R1) to condylar head (R8)

Nature of occlusion (O)

- Normal
- Malocclusion
- Edentulous

Extent of soft tissue damage (S)

- Closed
- Open intraorally
- Open extraorally
- Soft tissue defect

Presence of infection (I)

- Yes
- No

Radiographic analysis of interfragmentary displacement (D)

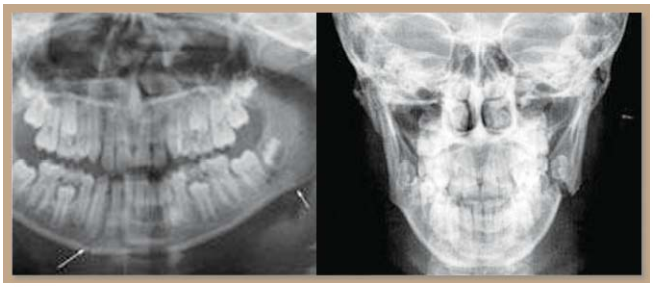
- Mild
- Moderate
- Severe

Investigation

The preferred radiology modality for mid face injuries is a maxillofacial CT scan. A maxillofacial CT scan will provide 2 to 3 mm axial cuts with coronal reformatting. The CT scan allows evaluation of bone, providing detailed information about fractures patterns. CT scan also provides characterization of soft tissues, including the extent of edema, presence of foreign bodies, and formation of a retrobulbar haematoma or entrapment of the extraoccular musculature.

Radiograph

- **Mandible: Body and Ramus**
  - Orthopantomogram (OPG) views
  - PA mandible (may require paramedian PA view)
  - Right and left lateral oblique views
  - Lower occlusal views
  - Periapical view
- **Mandible: Condyles**
  - Orthopantomogram (OPG) views
  - PA mandible with mouth open views
  - Toller transpharyngeal views
  - TMJ, including tomograms



Right parasymphyseal and left angle mandibular fractures - (a) OPG (b) PA mandible

- **For suspected condylar injuries - Reverse Towne's view**
- **CT scan may be done to identify the fracture**

Management

Mandible fractures are a frequent injury because of the mandible's prominence and relative lack of support. As with any facial fracture, consideration must be given for the need of emergency treatment to secure the airway or to obtain hemostasis if necessary before initiating definitive treatment of the fracture. Mandibular fractures occur in all age groups. Fractures of the condyle and subcondylar regions are the most common due to trauma to the chin from falls.

General principle of management

- The patient's general physical status should be carefully evaluated and monitored before any consideration of treating mandibular fractures.
- Diagnosis and treatment of mandibular fractures should be approached methodically, not with an emergency type of mentality.
- Reestablishment of occlusion is the primary goal in the treatment of mandibular fractures.
- With multiple facial fractures, mandibular fractures should be treated first.
- Intermaxillary fixation time should vary according to the type, location, number, and severity of the mandibular fractures, the patient's age and health, and the method used for reduction and immobilization.
- Prophylactic antibiotic should be used for compound fractures.
- Nutritional needs should be closely monitored postoperatively.
- Mandibular fractures can be treated by close reduction.

Treatment

Fractures of the mandible were frequently reduced indirectly and then fixed with internal fixation.

- Generally, early reduction and internal fixation is best for displaced or mobile fractures of the body and angles of the mandible. This helps gain early mandibular mobilization.
- Non-displaced stable fractures may be treated conservatively, with a soft diet and early mobilisation.
- Resorbable fixation is now considered a good option if available.

Indication for closed reduction	Indication for open reduction
• Nondisplaced favorable fractures • Grossly comminuted fractures • Fractures exposed by significant loss of overlying soft tissue • Edentulous mandibular fractures • Mandibular fractures in children with developing dentition • Coronoid process fractures • Condylar fractures	• Displaced unfavorable fractures of the body or parasymphyseal region of the mandible or through the angle of the mandible • Multiple fractures of the facial bones • Midface fractures and displaced bilateral condylar fractures • Fractures of an edentulous mandible with severe displacement of the fracture ligaments • Edentulous maxilla opposing a mandibular fracture • Delay of treatment and interposition of soft tissue between noncontacting displaced fracture fragments

Surgical approaches of open reduction and fixation procedures

- Submandibular approach
- Retromandibular approach
- Preauricular approach
- Endaural approach
- Intraoral access

Condylar fractures and temporo-mandibular joint injuries

Intra-articular injuries of the condyle constitute the highest risk of growth disturbance and joint hypomobility. Treatment should aim for continued normal jaw growth to maintain symmetry and a balanced occlusion.

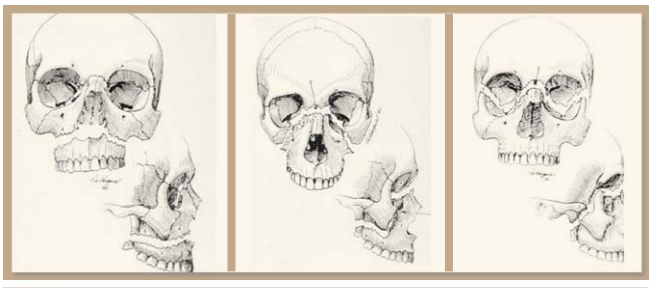
- The majority of condylar injuries are managed conservatively with soft diet and early mobilization. A short period of immobilization by inter maxillary fixation may be indicated in older children with bilateral fractures, malocclusion and persistent pain.
- Absolute indications for open reduction of condylar fractures include either central or lateral dislocation of the condylar head with subsequent mechanical blocking of normal movement.

Maxillary fracture

The maxilla represents the bridge between the cranial base superiorly and the dental occlusal plane inferiorly. Its intimate association with the oral cavity, nasal cavity, and orbits and the multitude of structures contained within and adjacent to it make the maxilla a functionally and cosmetically important structure. Fracture of these bones is potentially life threatening as well as disfiguring. Timely and systematic repair of these fractures provides the best chance to correct deformity and prevent unfavorable sequel.

Le Fort classification of Maxillary fracture

In 1911, Rene Le Fort classified fractures according to patterns which he created on cadavers using various degrees of force. The Le Fort classification is used extensively today throughout the world. He defined the three most common "Linea minorors resistentiae", which are classified as the Le Fort I, Le Fort II, and Le Fort III fractures. Although the Le Fort classified the fractures from superior to inferior, the custom today is that the classification runs inferior to superior.



Le Fort I Le Fort II Le Fort III

Le Fort type I

The Le Fort type I fractures, or transverse fracture, is a horizontal fracture across the inferior aspect of the maxilla. It may result from a direct blow on the maxillary alveolar rim in a downward direction. The alveolar process and hard palate become separated from the rest of the maxilla. The fracture extends through the lower nasal septum, the lateral maxillary sinus wall and into the palatine bones and pterygoid plates.

Examination

The Le Fort I fractures, on initial examination, may not be clearly evident. Examination should include firmly grasping the maxillary and attempting displacement of the maxilla in three dimensions, as well as compression and expansion of the maxillary arch. Malocclusion and mobility may be noted. Hypoesthesia of the infraorbital nerve may be caused by the rapid development of edema. Palatal ecchymosis is usually noted and may present in conjunction with a malocclusion or displacement of the fractured fragment.

Management

Treatment of unilateral maxillary fracture

The fractured segment is reduced by digital pressure and a maxillary arch bar is applied loosely to the teeth in the mobile segment and firmly to the stable dentition in the unfractured maxillary segment. Impacted maxillary fractures may be impossible to mobilize with digital manipulation alone. A disimpaction forceps may be used in this situation for reduction of the impacted maxillary segment. Teeth in the line of fracture should be felt in place unless excessively mobile or hopelessly nonrestorable.

Open Reduction and Internal Fixation (ORIF) by miniplates are completed through a vestibular incision and Mobile Maxillary Fixation (MMF) is removed. The patient is kept on a soft diet 2 to 3 weeks while the fractures heal. MMF may also be left in place if there is concern for patient compliance.

Treatment of Le Fort type I fractures

Early reduction of Le Fort I fractures presents minimal difficulty but, beyond 7 to 10 days, increasing amounts of force are required because of the natural healing process. Open Reduction and Internal Fixation (ORIF) with restoration of facial contour is the preferred method of treatment. Mobile Maxillary Fixation (MMF) is also an acceptable, although less optimal, method of treatment. This requires a treatment period of approximately 6 weeks, depending on the level of comminution.

Le Fort type II

The Le Fort II fracture is pyramidal shaped. It may result from a blow to the lower or midmaxilla; the apex of the pyramid is the nasofrontal suture.

The fracture extends from the nasal bridge through the frontal processes of the maxilla, through the lacrimal bones and inferior orbital floor and rim, through or near the inferior orbital foramen, and inferiorly through the anterior wall of the maxillary sinus. It then travels under the zygomatic, across the pterygomaxillary fissure, and through the pterygoid plates.

Examination

The physical examination is likely to reveal noticeable signs of injury. Edema is often overlying the fracture site. The classic raccoon sign caused by bilateral periorbital edema and ecchymosis may be noted. CSF rhinorrhea may be encountered as the result of the dural tear. Epistaxis is common. Hypoesthesia of the infraorbital nerve is also common because of direct trauma or rapid edema formation. Malocclusion is often present in the form of anterior open bite. Grasping the anterior maxilla and attempting anterioposterior displacement facilities evaluation of the nasofrontal suture and inferior orbital rim.

Management

Open Reduction and Internal Fixation (ORIF) is advantageous for the treatment of these fractures. If the nasofrontal suture area is intact and continuous with the maxillary segment, bilateral intraoral exposure allows appropriate four point fixation. However, the orbital floor, inferior orbital rim, or nasofrontal region often requires exploration and repair. In this situation, additional access is required.

Name of the incision used in ORIF

- Infraorbital incision
- Subciliary or Lower Blepharoplasty incision
- Subtarsal or Mid-Lower Lid incision
- Transconjunctival incision

Le Fort type III

The Le Fort III, because of the complex nature of midfacial injuries, classification is often difficult; fractures classified as Le Fort III may actually be combinations of Le Fort I and II and zygomatic complex fractures. However, in one series, pure Le Fort III factures accounted for approximately 9% of midfacial fractures. The Le Fort III fracture pattern is a craniofacial dysjunction. It may follow a blow to the nasal bridge or upper maxilla. There is separation of all of the facial bones from the cranial base with simultaneous fracture of the zygomatic, maxilla, and nasal bones. The fracture line extends through the ethmoid bones, orbits, and pterygomaxillary suture into the sphenopalatine fossa. It presents with massive facial edema and facial flattening. There may be movement of all of the facial bones in relation to the cranial base.

Symptoms include a classic dish face deformity and mobility of the zygomaticomaxillary complex. CSF leakage, edema, periorbital ecchymosis, traumatic telecanthus, and epiphora may be observed.

Examination

- Ophthalmic examination is required if any midfacial injuries is occurred in the orbital region
- Analysis of any clear nasal discharge for beta 2 transferrin suggesting a CSF leak

Investigation

Clinical examination can be supplemented and diagnosis confirmed by CT, with coronal, axial, and sagittal views.

Radiograph

- Waters' view 15 degrees and 30 degrees (occipitomental views), Postero - anterior and lateral skull views
- CT scan of the full facial complex, from vertex to clavicles, with axial and coronal views
- 3-D CT reconstruction if possible

Management

There is some controversy regarding the optimal timing of the repair of mid face injuries, particularly when significant edema is present. As a general principle, treatment should begin once the edema from the initial insult has begun to subside but should not be delayed for more than 10-14 days. However, concomitant neurosurgical trauma and other issues may delay the repair beyond the surgeon's control. The Le Fort III fracture is essentially a complicated combination of bilateral zygoma and Naso-Orbito-Ethmoid (NOE) fractures, and the same principles apply when treating this fractures pattern.

- Maxillary fractures are usually managed by open reduction and fixation.
- Patients with higher Le Fort injuries have more severe injuries and more frequently need a surgical airway. Those with Le Fort III fracture have a higher chance of needing neurosurgical intervention or experiencing vision threatening trauma.

Fixation of maxillary fracture

- Orbital floor deficiencies can be made up with grafts, alloplasts or titanium mesh
- Dental wiring may be needed to stabilize the dental arch and achieve the correct occlusion
- External fixation is only rarely used

Frontal bone fracture

Fracture of the frontal bone may occur in association with extensive facial injuries; or in isolation, as a result of direct blunt trauma to the forehead in a motor vehicle accident, sporting collision or assault.

Some frontal sinus fractures may be clinically obvious, with a depression or an open wound permitting direct visualization. In other cases, however, there may be no clinical signs.

A high degree of suspicion is therefore required, based on the presenting history and mechanism of trauma. Considerable force is required to fracture the frontal bone and the patient should be maintained in cervical spine precautions until a trauma to the cervical spine is excluded.

Clinical features

- Soft tissue edema over the frontal region, peri orbital ecchymosis and edema
- Soft tissue contusions and/or lacerations over the frontal and glabellar regions
- Complex injuries
- Edema may preclude the palpation of underlying fractures of the anterior wall of the frontal sinus
- Epistaxis or CSF rhinorrhoea may be present with nasal fractures and Naso-Orbito-Ethmoid (NOE)

Investigation

Although the clinical examination must never be devalued, few areas of craniofacial trauma are aided by modern CT technology as much as frontobasilar injury. Axial images are clearly revealed the location, severity, and degree of comminution of anterior and posterior wall fractures, as well as demonstrated the presence or degree of nasoethmoid impaction and status of the lacrimal system.

Radiograph

- Lateral skull view, occipitofrontal view
- CT scan, with both brain and bony windows of cranium and orbits, axial and coronal views

Management

Goal of treatment

The goals of treatment of frontal bone or sinus injuries are structural protection of the intracranial contents, isolation of the intracranial compartment from aerodigestive tract, provision of a functional sinus, cosmetic restoration of natural contour with the use of minimally visible incisions, minimization of postoperative morbidity and prevention of postoperative infectious and inflammatory complications.

Treatment

Treatment will be based on the assessment of the involvement of the anterior and posterior walls of the frontal sinus, and on the presence of persistent CSF leak.

- Displaced fractures of both the anterior and posterior wall are managed in conjunction with the neurosurgery collaboration should be sought, and may necessitate a transcranial procedure to manage the posterior table fractures.
- Displaced fractures of the anterior wall require surgical management with open reduction and internal fixation of the anterior wall via a coronal approach.
- Non displaced or minimally displaced fractures of the anterior wall can be managed conservatively; i .e. no nose blowing and antibiotic therapy.

Complications of facial fracture

Immediate

- Airway compromise
- Aspiration
- Haemorrhage
- Infection

Longer-term

- Scars and permanent facial deformity
- Chronic sinusitis
- Nerve damage leading to loss of facial sensation, movement, smell, taste or vision
- Malocclusion
- Nonunion or malunion of fractures
- Malnutrition and weight loss

Prevention of facial fracture

- Full-face helmets may offer some protection against maxillofacial injury
- Airbags, non lacerating windscreens and seatbelts in cars
- Safety measures in high risk occupations (e.g., farm and forestry workers)
- Gumshields in sports, although it is unclear which offers the best protection for which sport

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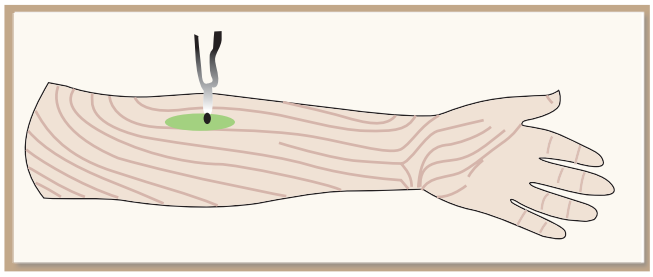
Incision and Drainage of Abscess

Abscess is localized infections of tissue marked by a collection of pus surrounded by inflamed tissue. Abscess may be found in any area of the body, but most abscesses presenting for urgent attention are found on the extremities, buttocks, breast, perianal area, or from a hair follicle. Abscess begins when the normal skin barrier is breached, and microorganisms invade the underlying tissues. Causative organisms commonly include *Streptococcus, Staphylococcus,* enteric bacteria (perianal abscesses), or a combination of Anaerobic and Gram-negative organisms. Abscess resolve by drainage. Smaller (<5mm in diameter) abscess may resolve to conservative measures (warm soaks) to promote drainage. Larger abscesses will require incision to drain the pus, as the increased inflammation, pus collection, and walling off of the abscess cavity diminishes the effectiveness of conservative measures.

Anatomy of the skin

- Epithelium: Outer layer of stratified squamous epithelium derived from cornified skin cells



Make the incision along existing skin-tension lines

- Dermis: The dermis is less dense and contains terminal capillaries and nerve endings. The reticular layer is the deepest layer of the dermis and contains the origins of hair follicles, sweat glands, and sebaceous glands.

Definitions

Skin abscesses can be differentiated from folliculitis, furuncles, and carbuncles as follows:

Folliculitis: Folliculitis is a superficial bacterial infection of the hair follicles with purulent material in the epidermis. The condition may occur anywhere on the skin with the exception of the palms of the hands and soles of the feet.

Furuncle: A furuncle is a well-circumscribed, painful, suppurative inflammatory nodule involving hair follicles that usually arises from preexisting folliculitis. A furuncle can occur at any site that contains hair follicles, especially in regions that are subject to friction and maceration (e.g.; face, neck, axilla, groin, thighs, and buttocks).

Carbuncle: A carbuncle is a red, swollen, and painful cluster of boils that are connected to each other under the skin. A carbuncle is an abscess larger than a boil, usually with one or more openings draining pus into the skin. However, the presence of carbuncles is actually a sign that the immune system is working.

Indications of Incision and Drainage

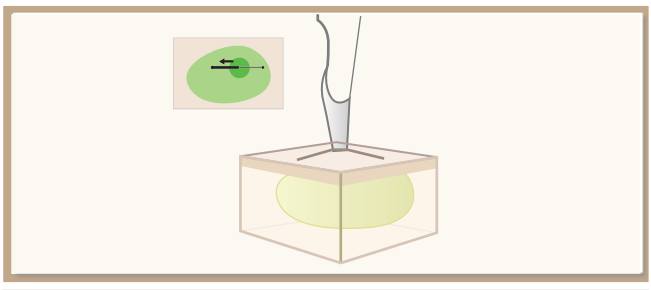
- Abscess on the skin which is palpable
- Surgical incision and drainage is the definitive treatment of a soft tissue abscess; antibiotics alone are ineffective. The drainage of a suppurative focus results in a marked resolution of symptoms in uncomplicated cases

Diagnosis

Diagnosis of abscess in three ways (Physical examination, Needle aspiration and Bedside ultrasound) -

Physical examination:

- Swelling
- Pain
- Redness
- Fluctuance



Extend the incision

Needle aspiration: Suspected of skin abscess, it is done mainly diagnosis of localize abscess, when physical examination is critical.

Bedside ultrasound: It is a valuable adjunctive tool to identify localized areas of fluid under the skin that may represent an isolated area of infection.

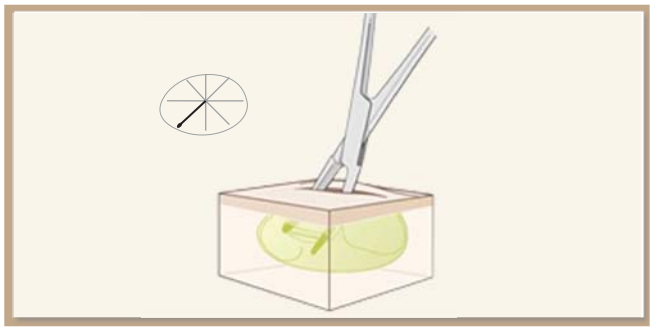
Equipment

- Skin cleansing agent
- Sterile gauze
- 5 to 10 ml syringe with 25 to 30 gauge needle

- 1% Lidocaine is appropriate for most Incision and Drainage procedures
  - Lidocaine with epinephrine can reduce the incidence of bleeding
  - Bupivacaine has a longer duration of action
- Scalpel blade with handle
- Small curved hemostat forcep
- Normal saline with a sterile bowl
- 18 gauge anglocatheter
- Swabs
- Packing material and sterile gauze
- Scissor
- Tape

Pre procedure counseling

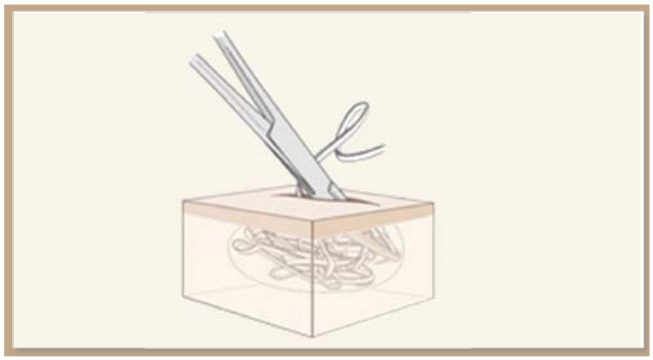
- Obtain informed consent
- Inform the patient of potential severe complications and their treatment
- Explain the steps of the procedure, including the most insignificant pain associated with anesthetic infiltration



Perform blunt dissection of the abscess cavity

Procedure

- Cleanse site over abscess with povidone iodine or alcohol. Carefully palpate the abscess to accurately determine the size and location
- Drape to create a sterile field
- Infiltrate local anesthetic; allow 2-3 minutes for anesthetic to take effect. Avoid infiltration of the abscess cavity
- Incise widely over abscess with the blade, cutting through the skin into the abscess cavity. Follow skin fold lines whenever able while making the incision
- Allow the pus to drain, using the gauzes to soak up drainage and blood. Use culture swab to take culture of abscess contents, swabbing inside the abscess cavity
- Use the hemostat to gently explore the abscess cavity to break up any loculations within the abscess
- Using the packing strip, pack the abscess cavity
- Place gauze dressing over wound, and tape in place



Place packing material

Post procedure care

- Advice the patient to keep the area elevated
- Instruct the patient not to disturb the dressing or splint until the first follow up visit
- Provide appropriate analgesia. Drainage relieves most of the pain of an abscess, but postoperative analgesics may be required
- The usefulness of administration of antibiotics remains unproven for prophylaxis against and treatment of routine cutaneous abscesses
- Consider antibiotics for immunocompromised patients and for the immunocompetent patient with "significant" cellulitis, lymphangitis, or systemic symptoms, such as chills or fever
- When cutaneous CA-MRSA (Community Associated-Methicillin Resistant Staphylococcus Aureus) infection presents as an abscess, incision and drainage remains the mainstay of therapy. Antibiotic therapy, in addition to appropriate surgical intervention, may be helpful to limit the spread of infection
- Handle facial abscesses carefully and recheck the patient frequently and the wounds in cosmetically important areas may require revision once healing is complete

Complications of Incision and Drainage

- Transient bacteremia
- Thrombophlebitis of the cavernous sinus (after incision of central facial abscesses)
- Neurovascular injury
- Spread of infection
- Scar formation

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Peripheral air embolism

A 51 year old man had venesection for haemochromatosis at his local clinic. After application of a tourniquet, a 14 gauge intravenous cannula was attached to intravenous tubing and a plastic collection bag, and inserted into a right antecubital fossa vein. Upon completion of the procedure, the tourniquet was released without previous clamping of the tubing system. The patient had a sudden gurgling sensation travelling up his arm, which was followed by severe central crushing chest pain with radiation to the jaw and left arm, severe dyspnoea, and left sided hemiparesis and dysphasia. Medical emergency services were contacted and the patient was transferred to hospital.

On arrival to the hospital he was hypoxic (oxygen saturation of 88% on room air). The left hemiplegia resolved within 15 minutes and the hypoxia, chest pain, and dyspnoea improved with application of high flow oxygen therapy. His initial ECG showed T-wave inversion, which resolved within 12 hours of admission. Troponin I was raised at 0·14 µg/L (ref 0-0·08 µg/L) and felt to 0·08 µg/L after 6 hours later. Computed tomographic pulmonary angiography (CTPA) showed a filling defect in a subsegmental branch of the lingula (figure), which was suggestive of pulmonary embolism. Non contrast CT brain scan was normal. 320 slice CT scan of the coronary arteries did not reveal any coronary abnormality but did show a patent foramen ovale. Transthoracic echocardiography with bubble study showed evidence of right to left shunting during both normal respiration and with valsalva. Estimated baseline right heart pressures were normal. Transoesophageal echocardiogram confirmed a patent foramen ovale and the passage of bubbles.

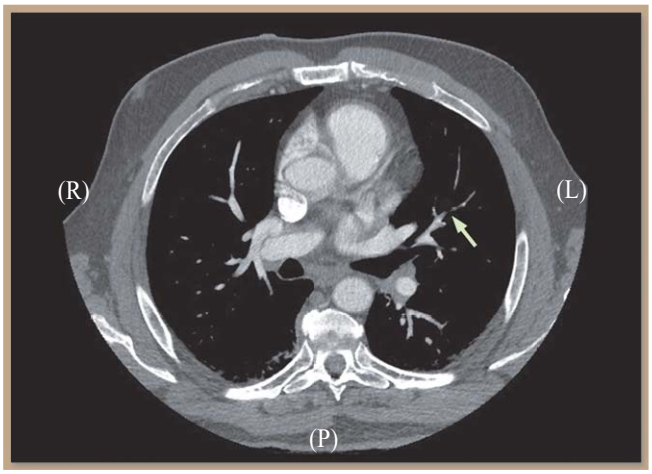


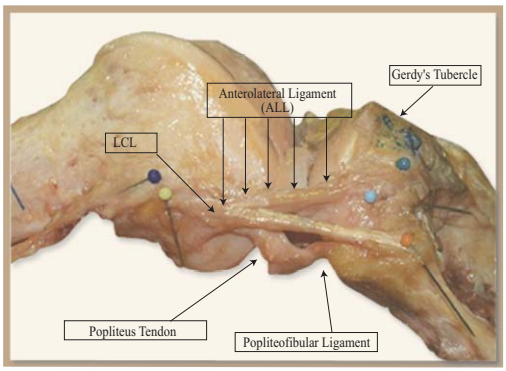
Figure: Peripheral air embolism (CT pulmonary angiogram with arrow indicating filling defect in a subsegmental branch of the lingual)

The patient had an uncomplicated recovery and declined interventional closure of his patent foramen ovale. The doctor's postulate that air emboli were created when the tourniquet was released, resulting in pulmonary embolism with air emboli also crossing the patent foramen ovale to cause transient cerebral and myocardial ischaemia. Systemic air embolism and paradoxical air embolism through a cardiac defect have been well described and can occur in many types of vascular intervention. Standard venesection, however, is recognized as a low risk procedure and the doctor's said they are not aware of a report of associated air embolism in the scientific literature since 1958, and none that describe associated paradoxical embolism. For air to enter the circulation there must be a direct communication with the vascular system, with a pressure gradient favoring the passage of air into the circulation. The collection bags are not under a vacuum seal, so there is usually a small volume of air that would be present within the bag at the beginning of the procedure. Air can also be accidentally inserted if the sampling port on the collection bag is accessed during the procedure. In this case, the application of the tourniquet caused pressure to increase in the peripheral vein above that of the empty collection bag allowing blood flow across the positive pressure gradient to fill the bag. Flow ceased when pressure equalized between the vein and the collecting system. The release of the tourniquet caused a sudden drop in pressure within the peripheral vein, resulting in a negative pressure gradient and allowing any displaced air within the bag to be sucked into the circulation. This effect can be avoided by first clamping the collection tubing before tourniquet release which was erroneously overlooked and the likely culprit in this case. This case highlights the importance of protocol and avoidance of complacency with even the most routine of procedures.

Reference: The Lancet, Volume 382, Issue 9897, Page 1070, 21 September 2013

New ligament discovered in Human Knee

A newly discovered ligament in the human knee has been identified by two orthopedic surgeons Dr. Steven Claes and Professor Dr. Johan Bellemans at the University Hospitals Leuven in Belgium, they have named the ligament-anterolateral ligament (ALL). According to their findings, 97 percent of humans have something called an anterolateral ligament (ALL) in addition to their anterior cruciate ligament (ACL). Dr. Steven Claes and Professor Dr. Johan Bellemans say anterolateral ligament (ALL) may play a significant role in how patients recover from anterior cruciate ligament (ACL) tears. After undergoing successful anterior cruciate ligament (ACL) repair surgeries, many patients will continue to suffer from a condition known as "pivot shift," in which the knee "gives way" during activity. In order to better understand this strange occurrence, Dr. Steven Claes and Dr. Johan Bellemans have been conducting research into ACL tears over the past four years. They looked into a theory made by a French surgeon in 1879, which claimed that an unknown ligament existed on the anterior of the human knee. After conducting a broad cadaver study using macroscopic dissection techniques, Claes and Bellemans found this theory to be correct. Their research showed that pivot shift occurs when there is additional injury in the anterolateral ligament (ALL). The study concluded as "Given its structure and anatomic location, the ALL is hypothesized to control internal tibial rotation and thus to affect the pivot shift phenomenon, although further studies are needed to investigate its biomechanical function." Dr Claes and Professor Bellemans are currently working on a surgical technique to correct ALL injuries, which could be ready within the next seven years.



Severed hand kept alive on man's ankle

Chinese doctors reported that they have saved a man's severed hand by grafting it to his ankle. Xiao Wei, a factory worker from Changde, China, accidentally severed his right hand at the wrist and smashed his arm in a machine while at work.

His co-workers were able to retrieve his hand and he was first taken to a local hospital in Changde, doctors of the local hospital said they could not save his hand, but they recommended that another, larger hospital in the Changsha area might be able to help him. Doctors at the Changsha hospital told Wei they would not be able to reattach his hand right away. They stitched Wei's hand to his ankle and, keep the hand alive, by "borrowing" a blood supply from the legs arteries. Besides ripping injuries surgeon successfully treated his arm was also flattened, there after they successfully treated his injuries, nearly a month later surgeon have been able to reattach his hand to its correct position. Mr Cairian Healy of the Royal College of Surgeons in England said although procedures such as these were rare, they were not inconceivable and "The Chinese are pretty experienced in microsurgery". After the successful replacement his hand Xiao Wei, said that he couldn't imagine life without a right hand.

Reference: bbc.co.uk

Problem 1

A 60 years old man presents to the emergency care center with gingival inflammation, redness, tenderness, and bleeding and a widespread pruritic rash on his back and extremities. He states that he began taking oral glyburide for type 2 diabetes for 2 months before onset of symptoms. On physical examination, patient is noted to have desquamative gingivitis, with a whitish, lacelike pattern on oral buccal mucosa, and violaceous polygonal-shaped papules on his arms and legs.

What is the diagnosis?

Problem 2

A 28 years old presents to the emergency care center expressing concern over an increasing numbers of sores developing on his arms and legs. He notes a lack of sensation overlying these sores, along with an alteration in skin pigment. Physical examination reveals a 4 cm, reddish, violaceous plaque involving the left thigh and smaller plaques on the arms and legs, with decreased sensation on the individual plaques. Patient also has palpable and enlarged peripheral nerves on his left arm. A dermatology consult is ordered for biopsy.

What is the diagnosis?

Problem 3

A 34 years old man requests evaluation of a rash affecting his dorsal proximal right thumb and right wrist. The eruption began on the thumb, and he first noticed it 3 weeks ago. Since then, the rash has become more red and diffuse despite application of clobetasol spray. Itching is minimal. He works as a salesman and enjoys gardening as a hobby. At presentation, examination of the affected area reveals a brightly erythematous plaque and papules. Axillary lymph nodes are nonpalpable, and he is afebrile. A culture is obtained, and itraconazole is commenced pending culture results. At follow up of 10 days later, the erythema had markedly decreased, as had the elevation of the plaque and papules.

What is the diagnosis?

Reference: Emergency Medicine, February 2013

Please see the answers Page 18

Firefighter - Mr. Halik is only person in world to live with no heart

A former UK fire fighter is the first man in the world to live without a pulse after having his heart removed and replaced by mechanical pumps six months ago. Mr. Jakub Halik, 37 years old, is also reportedly only the second person to have had his heart totally replaced with a pulseless artificial heart. The first person - a man from Texas named Craig Lewis - died a few weeks after surgery in 2011.

He was diagnosed with an aggressive tumour growing inside his heart but could not undergo a standard transplant because the drugs he would require afterwards cannot be taken by cancer patients. So, on April 3, 2012, his heart was removed in an eight hour operation led by Czech cardiologist Jan Pirk and the operation took place at the Institute for Clinical and Experimental Medicine (IKEM) in Prague, lasted eight hours. Professor Pirk's team decided to replace the organ with two mechanical pumps, which look like an eight inch piece of plumbing to the untrained eye. Inside, there is a propeller that spins at 10,000 rotations per minute replicating the pumping action of the heart. Each pump is designed to perform the separate tasks of the left and right sides of the heart. One of the devices pumps blood to the lungs for oxygenation while the other sends the oxygenated blood back into the circulatory system. The continuous flow pump should last longer than other artificial hearts and cause fewer problems as each side had just one moving part. The one thing they cannot replicate however is the pulse. But other than that, the 37 years old says, he is practically back to normal. Mr Halik must carry a battery that supplies the pumps with him everywhere he goes. But he isn't bed bound. Halik has been placed on the waiting list for a heart transplant. The average wait for a heart at IKEM is reportedly eight months. Though Halik's recovery has been going smoothly thus far, doctors have noted that they are unsure as to how long he can survive without a real heart.

Annabelle doing fine 5 months after partial in-womb lung surgery

Lake Annabelle Hall wouldn't be alive today if doctors at Children's Hospital of Colorado hadn't operated on a cyst on her left lung before she was born. Doctors pulled her halfway out of her mother's womb, leaving her connected to her the umbilical cord and placenta, which served as life support for her while a team of 43 doctors and nurses operated on her. She is now 5 months old after the medical procedure for a rare condition that saved her life. Dr. Timothy Crombleholme performed the surgery just before Lake's birth November 6, 2012 and last week, Lake's parents got the all clear from Crombleholme.

In Lake's case, Perry's doctor discovered an abnormality during a routine 20 week visit during her pregnancy. Crombleholme examined Perry and soon realized that it was a lung cyst that would keep her from breathing as soon as Lake was born. Crombleholme decided to wait until after 30 weeks of pregnancy to attempt the surgery to remove the cyst and clear Lake's airway right before birth. Lake's left lung had grown larger than the other as fluid became trapped inside. Crombleholme assembled a group for the operation to remove the cyst that included teams of doctors and nurses with specialized roles - a team for Perry who would undergo a cesarean operation, a team for Lake while still inside the womb, a team for Lake while Crombleholme operated on her outside the womb, and a team for Lake after her birth. Hours of planning and meeting with the group were crucial. Once a baby is outside its mother's womb, doctors have only about hour to an hour and a half to perform the procedure on the fetus. Once Lake was out of Perry's womb it took Crombleholme nine minutes to remove the cyst and close the gaping incision on her right side. It took another 10 minutes to run a tube down Lake's tiny windpipe to make sure it was clear. Then doctors cut the umbilical cord, marking Lake's official birth. For her first four months Lake was given oxygen to help her breathe. Pioneered in the 1980s, the so called "exit procedure" and other pre birth surgeries used to be done only a handful of times per year at major hospitals. Now, specialty centers such as the Colorado Fetal Care Center at Children's Hospital perform pre birth surgery dozens of times a year.

Reference: huffingtonpost.com/tag/medical-miracles

Answer 1

The patient was given a diagnosis of lichen planus of the oral mucosa and skin. Lichen planus is a T-cell mediated disorder that affects the basal cells of the epidermis. As this condition has been associated with the use of certain medications, glyburide is a possible cause in this case. Other reported drug induced causes include ß-blockers, angiotensin converting enzyme inhibitors, hydrochlorothiazide, antimalarials, gold, and nonsteroidal anti inflammatory drugs. Hepatitis C virus is an important nondrug related cause of oral lichen planus. Lichen planus is typically treated with both topical and systemic corticosteroids and, in drug induced cases, discontinuation of the offending agent. This patient's symptoms gradually improved after a change in his diabetic medication and treatment with a topical corticosteroid. Systemic treatment was avoided because of patient's diabetic status.

Answer 2

Skin biopsy revealed nodular granulomas within the dermis, along with some nerve involvement; Fite stain showed scattered bacilli. A polymerase chain reaction analysis confirmed the diagnosis of leprosy, also known as Hansen's disease. Leprosy is a chronic infectious disease caused by the bacillus *Mycobacterium leprae*. This organism has a predilection for the skin and peripheral nerves. Involvement of the peripheral nerves can cause anesthesia of cutaneous lesions and enlarged palpable peripheral nerves. Whereas lepromatous leprosy has multiple organisms on biopsy, tuberculoid leprosy demonstrates only a few organisms. This patient was diagnosed with tuberculoid leprosy and referred to an infectious disease specialist for treatment. As a communicable disease, leprosy is nearly non existent in the United States, with most, if any, cases presenting in an immigrant from an area in which the condition is endemic (e.g., India, various African and South American countries).

Answer 3

Sporotrichosis was suspected based on the clinical appearance of the rash and on the patient's admission that he had experienced a rose thorn penetration when gardening. This diagnosis was confirmed by the culture results. Sporotrichosis is a cutaneous infection caused by the fungal organism *Sporothrix schenckii,* which enters the skin when handling contaminated plants, wood, or soil. Classic disease is characterized by the presence of an erythematous papule at the site of inoculation, most commonly the hand or arm. Satellite papules arise, and these slowly evolve into nodules. Regional spread occurs via the lymphatic system. The treatment of choice is itraconazole, which is best continued for a month following resolution of all lesions.

Jog your memory

Please select the correct answer by (√) against a, b, c, d of each question in the Business Reply Card and send it through our colleagues or mail within 16 February, 2014; this will ensure eligibility for the Raffle Draw and the lucky winners will get attractive prizes !

1. Renal calcification is a possible complication of:

A. Medullary cystic kidney disease
B. Renal tuberculosis
C. Sarcoidosis
D. Sickle cell anemia

2. The medical history of a 45 years old male reveals episodes of vertigo and loss of consciousness associated with sweating. Possible causes of his symptoms include:

A. Hyperventilation
B. Hyperglycemia
C. Pheochromocytoma
E. Paroxysmal tachycardia

3. A 40 year old lady was admitted to hospital with fever and cough productive of sputum. Chest X-ray shows diffuse patchy consolidation around the left lung. She has had a flu like illness about four weeks ago, and has a past medical history of asthma. She also smokes. Which organism is likely to be responsible?

A. Mycoplasma
B. Pseudomonas
C. Klebsiella
D. Staphylococcus

8. A 65 year old lady has epigastric pain for several months and is referred for endoscopy. Biopsy confirms MALT lymphoma. What is the treatment of choice?

A. Chemotherapy
B. H.pylori eradication
C. Interferon
D. Surgery

5. A 50 year old man had a ventricular fibrillation cardiac arrest whilst at a railway station. He was successfully resuscitation by a passerby. Coronary angiography showed no stenotic lesions in the coronary arteries. Which is the next management step?

A. Lifelong amiodarone
B. Implantable cardiac defibrillator
C. Procainamide
D. No further action necessary

6. All of the following factors influence the impact of diabetes mellitus on public health, EXCEPT:

A. Insulin dependent (Type I) diabetes mellitus decreases the average life expectancy by 15%

B. The prevalence of disability is 2-3 times higher than in the normal population

C. The prevalence of blindness is 10 times higher than in the total population

D. The prevalence of limb amputations is 20-30 times higher than in the normal population

7. A paradoxically split second heart sound is a feature of:

A. Severe pulmonary stenosis
B. Severe aortic stenosis
C. A patent ductus arteriosus
D. Complete right bundle branch block

8. Recognized causes of motor neuropathy include:

A. Diabetes mellitus
B. Porphyria
C. Friedrich's ataxia
D. Diphtheria

9. In a 30 year old female patient it was found that pupillary reflex on one eye was poor and the pupil on that side was larger than the opposite side. Her knee jerks were absent. What is the diagnosis?

A. Argyll Robertson pupil
B. Horner's syndrome
C. Adie Holmes pupil
D. Myasthenia grav

10. The inheritance patterns of the muscular dystrophies are markedly different. The inheritance of progressive muscular dystrophy is:

A. Sex-linked recessive
B. Autosomal dominant
C. Autosomal recessive
D. Sex-linked dominant

Info Quiz Participants

- Have you selected the correct answer (s).
- You still have time (Last date - 16 February, 2014) to put your entry submission together for Info Quiz Prize.
- We look forward to receiving your winning entry.

Info Quiz Answers

October-December 2013

1. a	2. c	3. a	4. b	5. c
6. d	7. d	8. b	9. d	10. a

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