



Lecture 6

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Nasal obstruction



Nasal obstruction

Nasal Breathing Function

During normal nasal breathing, air passes through the anterior nares over the nasal mucosa to the nasopharynx, with resulting humidification, cleansing, filtering, and warming of the air but without the sensation of obstruction. These functions are influenced by changes in the natural environment, normal physiologic reflexes, normal anatomic variations, and pathologic conditions



Nasal Septal Deviation

Nasal septal deviation is an asymmetric bowing of the nasal septum that may compress the middle turbinate laterally, narrowing the middle meatus

Bony spurs are often associated with septal deviation, which may further compromise the ostiomeatal unit. Nasal septal deviation is usually congenital but may be a posttraumatic finding in some patients life *in utero* onwards there are many risks of nasal trauma in which the septum is involved.

**Therefore, in adulthood a straight septum is more the exception than the rule
A straight septum is the exception rather than
the rule.**



Cleft lip and palate are two of the most common congenital conditions in which the septum is involved, not only because the basal support of the septum is missing, but also because surgical closure at a very young age causes scar formation that inhibits further development of the surrounding structures

Septal trauma is very common. It may occur at any stage of life. Often a septal deformity is the only sign of trauma, which previously went unnoticed or was forgotten



so the **causes of septal deviation**

1 Trauma

2 Minimal with caecerian section

3 Moderate with normal vertex presentation

4 Severe with persistant occipitoposterior position

5 Genetic

Septal deviation Can be divided to

Spur.....sharp angulation occur at junction of vomer with septal cartilage
usually result of vertical compression force

Deviation.....c or s shape involve cartilage and bone

Dislocation....lower border of septal cartilage displaced from its medial
position into one of the nostril

The **symptoms** and **signs** accompanying septal deviation may be nasal
blockage, dryness,
crusting, bleeding, itching, rhinorrhoea, anosmia, headache and cosmetic
complaints





examination

First, the mucosa is inspected for swelling, vulnerable blood vessels, secretions, pus, crusts, atrophy and dysplasia.

Congestion of the mucosa can mask or accentuate pathology related to the skeleton, such as septal deviations, spurs and crests.

In order to observe these properly, decongestion by adrenaline or similar is strongly recommended

In **rhinomanometry, two graphs are produced, one representing the relationship between the pressure and flow in the right half of the nose and the other in the left half of the nose**

****Acoustic rhinometry** is a means of measuring the cross-sectional area of the nose**





INDICATIONS FOR SEPTOPLASTY

Nasal obstruction, crusting, rhinorrhoea, post-nasal discharge, recurrent sinus pressure or pain, epistaxis, headache, snoring and sleep apnoea

In septoplasty four general principles

1 Incision

2 Exposure

3 Mobilization and straightening

3 fixation

FREER



COTTLE



Nasal polyp

**It is around ,smooth,translucent,soft,yellow or pale
structure results from prolapsed lining of ethmoid sinus**







Aetiology

1 bernouilli phenomenon

If there is constriction the pressure will drop result in prolapse of mucosa

2 polysaccharide changes in ground substance

3 vasomotor imbalance when patient is not atopic

4 infection

5 allergy 90% or more of polyps have eosinophil and there is association with asthma, and the nasal findings mimic allergy (rhinorrhea, sneezing & nasal obstruction)





Incidence

It is a disease of adult, male predominance.

If present below 2 year think of meningocele

If present below 10 year think of cystic fibrosis

Any child with nasal polyps should be regarded as having cystic fibrosis until proved otherwise

Unilateral nasal polyp need histopathological study





Sign and symptoms

- 😊 Polyp seen by anterior rhinoscopy occasionally seen normal externally
- 😊 Mouth breathing due to nasal obstruction which is constantly present but of varying degree depending on the size of polyp
- 😊 Watery rhinorrhea
- 😊 Post nasal drip
- 😊 Anosmia
- 😊 Hyponasal voice
- 😊 Hypertelorism may develop if patient develop polyp before fusion of facial bone



Management

Aneroir rhinoscopy is enough to diagnose nasal polyp

Plain x-ray

CT scan

Nasal polyp treated either medically by short course of systemic steroid or intranasal steroid(betamethasone) or steroid nasal drops for one month this depend on the extent of the polyposis



Surgical treatment

1 simple polypectomy

**2 intranasal ethmoidectomy which done
endoscopically**

3 external ethmoidectomy





Antrochoanal polyp

Antrchoanal polyyps are a separate entity,this polyp has two components,a solid nasal one and a cystic maxillary one

It is less common arise from maxillary antrum and prolapsed through the ostium of the sinus to the nasal cavity and nasopharynx

It is common in adolescence

Ther is no place of medical treatment in antrochoanal polyp



Septal haematoma

It is due to collection of blood beneath the mucoprechondrium of the nasal septum this collection interfere with the vitality of the cartilage ,the cartilage remain viable for 3 days more than 3 days the chondrocyte die lead to absorption of the cartilage

Clinical pictures

Nasal obstruction---

complete bilateral

nasal obstruction

Discomfort

Septal swelling soft red in colour

Complication

Septal abscess

Cartilage necrosis

Nasal saddle deformity

Treatment

Simple aspiration ---if haematoma is small

Incision and drainage

Packing to obliterate dead space with or without quilting suture

Systemic AB

Septal abcess

- *Mostly due to trauma 75%**

- *Infective –measle,scarlet fever,furenculosis,AIDS.**

- *Complicate ethmoid and sphenoid sinus infection**

Complication

Spread infection to orbit,meningies,brain,cavernous sinus



Clinical pictures

Sever pain

Septal swelling

Nasal obstruction

Pyrexia

Treatment

Immediate drainage

Systemic AB

**Reconstruction of the defect in the acute phase will
reduce growth impaction**



Fracture nasal bone

Treatment of nasal fractures was first recorded 5000 years ago during the early Pharonic period inAncient Egypt

Delays in management can result in significant cosmetic and functional deformity that is often a cause for subsequent medicolegal action
The prominence and delicate structure of the nose make it vulnerable to a broad spectrum of injurywhich accounts for why it is the most frequently fractured facial bone.



Sports, falls, and assaults are the usual mechanisms responsible for the majority of nasal fractures, with alcohol consumption being an important contributing factor in many cases. Males are affected approximately twice as often as females in both the adult and pediatric populations, with a peak incidence occurring during the second and third decades of life

Deformity, swelling, epistaxis, and periorbital ecchymosis are signs that are suggestive of nasal fracture, whereas bony crepitus and nasal segment mobility are diagnostic

Pathophysiology

Understanding the process by which nasal fractures occur and how injuries to key areas of support can alter appearance and function are essential to appropriate treatment. Variables such as force, impact direction, nature of the striking object, patient's age, and other host factors will influence the pattern of injury to both the bony and cartilaginous components of the nose.



The cartilaginous portions of the external nose are able to absorb a greater amount of force without fracture as compared with the bony components,

Pattern of fracture

Nasal fractures can be subdivided into three broad categories that characterize the patterns of damage sustained with increasing force. This classification has some practical utility as each category of fracture requires a different method of treatment



CLASS 1

are the result of low–moderate degrees of force and hence the extent of deformity is usually not marked.

**The simplest form of a class 1 fracture is the depressed nasal bone,
The fractured segment usually remains in position due to its inferior attachment to the upperlateral cartilage which provides an element of recoil.**

The nasal septum is generally not involved. In the more severe variant, both nasal bones and the septum are fractured .

Class 1 fractures tend not to cause gross lateral displacement of the nasal bones and may not even be perceptible.

Deformity generally results from a persistently depressed fragment, which is often due to impaction of the flail segment beneath the residual nasal bone. In children, these fractures may be of the ‘greenstick’ variety and significant nasal deformity may only develop at puberty when nasal growth becomes accentuated

Class 2

fractures are the result of greater force and are often associated with significant cosmetic deformity.



In addition to fracturing the nasal bones, the frontal process of the maxilla and septal structures are also involved.

The ethmoid labyrinth and adjacent orbital structures remain intact.



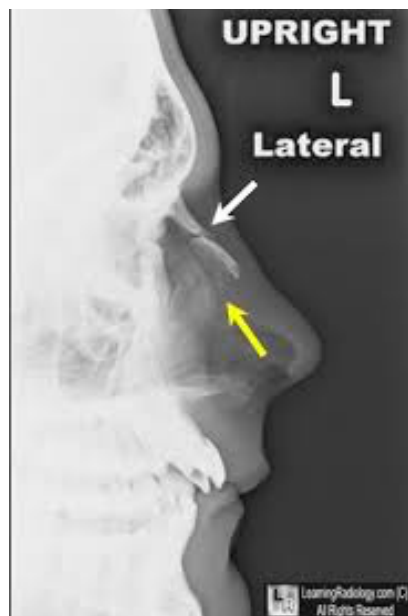
Class 3

fractures are the most severe nasal injuries encountered and usually result from highvelocity trauma.

They are also termed naso-orbito-ethmoid fractures and often have associated fractures of the maxilla.

The external buttresses of the nose give way and the ethmoid Labrynth collapses on itself. This causes the perpendicular plate of the ethmoid to rotate and the quadrilateral cartilage to fall backwards. These movements cause a classic, ‘pig-like’ appearance to the patient, with a foreshortened saddled nose and the nostrils facing more anteriorly, like the snout of a pig.

There is also telecanthus, which may be exaggerated further by disruption of the medial canthal ligament from the crest of the lacrimal bone





Management

Look after

- **details of how the injury was sustained;**
- **nasal obstruction;**
- **change in appearance;**
- **epistaxis;**
- **hyposmia;**
- **watery rhinorrhoea;**
- **visual disturbance;**
- **diplopia;**
- **epiphora;**
- **altered bite;**
- **loose teeth;**
- **trismus**

Examination

deviation, depression, step deformities;

- mobility, crepitus, specific areas of point**

tenderness;

- generalized swelling;**

- skin lacerations;**

- septal fracture/haematoma/abscess/perforation;**

- mucosal laceration**

Investigation

The need for nasal x-rays is controversial and in many places it is actively discouraged.

Unlike other fractures, nasal x-rays are not required in order to make the diagnosis or aid subsequent reduction.



Treatment

A very significant number of patients do not require any active treatment. Many do not have a nasal fracture and, in those that do, the fracture may not be displaced.

Soft tissue swelling can produce the misleading appearance of a deformity which disappears as the swelling subsides.

Reassurance is all that these patients require and some may heed suggestions to avoid further trauma.

Topical vasoconstrictor drops are helpful to alleviate congestion and obstructive symptoms.

A reexamination about five days later is prudent where there is uncertainty about the need for reduction, a large number of patients will have a preexisting nasal deformity caused by a previous incident

Manipulation of the nose will, at best, only return it to its most recent appearance.

Patients that fall into this category are probably better advised to consider a formal rhinoplasty when everything has settled down some months later.

The indications for surgical intervention in the acute phase are significant cosmetic deformity **and nasal obstruction caused by a septal haematoma**

As a general rule, primary care physicians should refer all patients to ENT departments for evaluation if there is any deformity or significant nasal obstruction.

Patients with a suspected septal haematoma should be seen urgently at the first possible opportunity.



**Reduction of a fractured nose can be performed under local or general anaesthesia.
Local anaesthesia has the advantages of reduced cost and convenience
Local anaesthetic can be used as a combination of external infiltration with internal application of topical preparations.**

Lignocaine is injected along the nasomaxillary groove, infraorbital nerve in its foramen and around the infratrochlear nerve.

Within the nose, sprays, injections, pastes or packs coated with local anaesthetic are all acceptable, using combinations of cocaine, lignocaine, adrenaline and phenylephrine.

The general principle of fracture reduction is to mobilize the fragments first by increasing and then decreasing the degree of deformity

Ashe and Walsham forceps

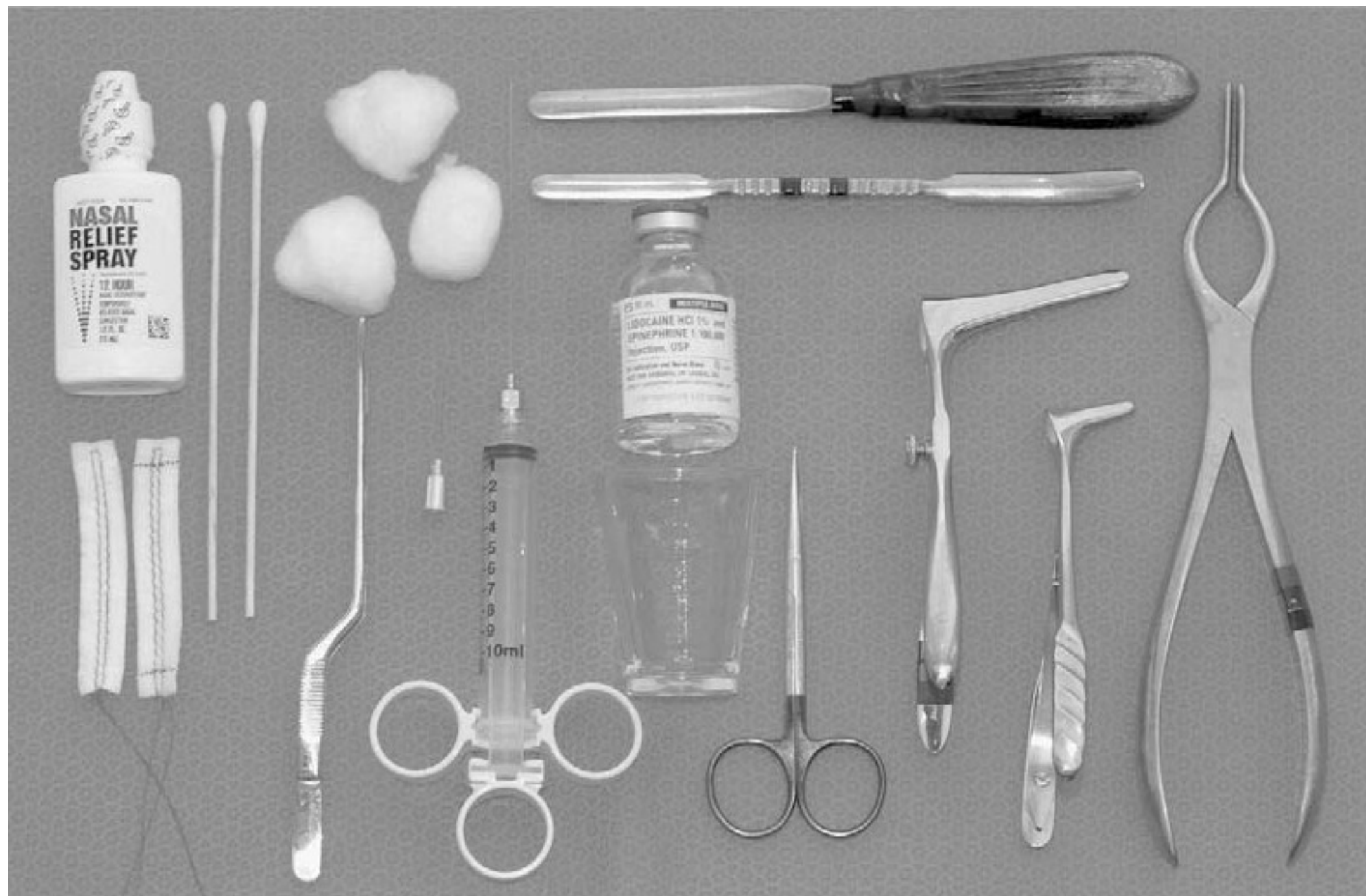
Splints or packs may be necessary, depending on the stability of the reduction and the surgeon's preference.

A splint or plaster applied to the nasal bridge maintains, to some extent, the position of the nasal bones and prevents accidental displacement.

Splints are usually kept in place for about seven days.

It is advisable to refrain from contact sports for at least six weeks

All class 1 and most class 2 fractures can be reduced with these techniques.







indications for open reduction:

- **bilateral fractures with dislocation of the nasal dorsum and significant (preexistent or recent) septal deformity;**
- **infracture of the nasal dorsum;**
- **fractures of the cartilaginous pyramid, with or without dislocation of the upper laterals**

For depressed tip or flail lateral fractures that are unstable despite closed reduction techniques, Kirschner (K) wires can be used

The external wire can be covered by dressings or plaster to protect the wires from disruption and the patient from injury.

The wires are removed after two weeks