Unit seven:Respiratory diseases and conditions

Respiratory tract Diseases and Conditions

**a)      Topic objectives**

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| By the end of this lesson the learner should be able to1.State the A & P  of the resp. system2. Diagnose and manage common congenital respiratory anomalies3. State factors that influnce resp. illness |

**b)     Topic Content**

**TOPIC 2; Respiratory Congenital anomalies**

**Congenital anomalies of the nose**

**Congenital absence of the nose *(arhinia),***

**.**complete or partial duplication, or

a single centrally placed nostril can  occur in isolation but is usually  part of a malformation.

**Choanal atresia**

This is the most common congenital anomaly of the nose  ≈1/7,000 live births.

It consists of a unilateral or bilateral bony (90%) or membranous (10%) septum between the nose and the pharynx; most cases are a combination of bony and membranous atresia..

Clinical manifestation

variable ability to breathe through their mouths, nasal obstruction. When the obstruction is unilateral, the infant may be asymptomatic.  bilateral choanal atresia - difficulty with mouth breathing make vigorous attempts to inspire, often suck in their lips, and develop cyanosis..

 cry relieves  cyanosis, only to repeat the cycle after closing their mouths. difficulty sucking and swallowing, cyanotic on attempt to feed

**Diagnosis**

Inability to pass an NGT through each nostril to nasopharynx. fiberoptic rhinoscopy**.**

**Treatment**

Intubation

Surgery

**Congenital defects of the nasal septum**

Perforation of the septum is most commonly acquired after birth secondary to infection, such as syphilis, tuberculosis, or trauma; rarely, it is developmental. Continuous positive airway pressure cannulas are a cause of iatrogenic perforation. Trauma from delivery is

Mild septal deviations are common and usually asymptomatic;. pyriform aperture stenosis.

Infants with this bony abnormality of the anterior nasal aperture present with severe nasal obstruction at birth or shortly thereafter. Diagnosis is made by  CT of the nose;

**Treatment**  -surgical repair

**Laryngomalacia**

clinical manifestations.

  stridor- inspiratory, low pitched exacerbated by any exertion (crying, agitation, feeding), supine position, and viral infections of the upper airway. Stridor results from the collapse of supraglottic structures inward during inspiration., complete bronchoscopy is undertaken for patients with moderate to severe obstruction.

Symptoms usually appear in the first 2 wk of life and increase in severity for up to 6 mo,

Laryngopharyngeal reflux is commonly associated with laryngomalacia.

**Diagnosis**

flexible laryngoscopy

chest radiographs.

With associated dysphagia, a contrast swallow study and esophagogram may be indicated. Because 15–60% of infants with laryngomalacia have synchronous airway anomalies

**Treatment**

Expectant observation (symptoms resolve spontaneously). Laryngopharyngeal reflux is managed aggressively

severe obstruction with apparent life-threatening events, cor  pulmonale, cyanosis,FTT,  Endoscopic supraglottoplasty can be used to avoid tracheotomy**.**

**Congenital Subglottic Stenosis**

 is the 2nd most common cause of stridor.

Stridor is biphasic or 1° inspiratory.

Recurrent or persistent croup is typical. 1ST  symptoms often occur with a respiratory tract infection as edema and thickened secretions of a common cold narrow an already compromised airway

**Vocal Cord Paralysis**

is the 3rd most common congenital laryngeal anomaly producing stridor in infants and children.

Congenital central lesions such as myelomeningocele, Arnold-Chiari malformation, and hydrocephalus are often associated. lesions, evaluation includes neurology and cardiology consultations as well as diagnostic endoscopy of the larynx, trachea, and bronchi.

**Cause**

Paralysis can occur as a result of surgical correction of congenital cardiac anomalies or tracheoesophageal fistula.

S+S -high-pitched inspiratory stridor: a phonatory sound or inspiratory cry. Unilateral paralysis       causes aspiration, coughing, and choking. The cry is weak and breathy, but stridor and other symptoms of airway obstruction are less common.

**Diagnosis**

is made by awake flexible laryngoscopy.

A thorough investigation for the underlying cause is indicated. Because of the association with other congenital

**Treatment**

Vocal cord paralysis in infants usually resolves spontaneously within 6–12 mo.

Bilateral paralysis may require temporary tracheotomy.

Congenital Laryngeal Webs and Atresia

Most congenital laryngeal webs are glottic with subglottic extension and associated subglottic stenosis The cry may be high pitched. Airway obstruction is not always present and may be related to the subglottic stenosis. Thick webs may be suspected in lateral radiographs of the airway.

**Diagnosis  & Treatment**

Diagnosis is made by direct laryngoscopy.

Treatment may require only incision or dilation. Webs with associated subglottic stenosis are likely to require cartilage augmentation of the cricoid (laryngotracheal         reconstruction).

Congenital Subglottic Hemangioma

Symptoms of airway obstruction typically occur in the 1st 2 mo  Stridor is biphasic but usually more prominent during inspiration.

A barking cough, hoarseness, & symptoms of recurrent or persistent croup are typical. Chest       &  neck radiographs may show the characteristic asymmetric  narrowing of the subglottic larynx.

**Other congenital anormalies**

Tracheal stenosis

Tracheomalacia

Bronchomalacia

Congenital subglottic haemangioma

**Topic 3; Upper Respiratory tract diseases**

**Factors influencing type of respiratory illness**

·         Age

·         Frequency of exposure.

·         Size of airway.

·         Immune status.

·         Presence of other conditions: e.g., malnutrition,

congenital heart diseases,

anemia or immune deficiencies

Allergy  -worsen the condition.

*Season:* epidemic appearance of respiratory pathogens occurs in winter and spring months.

**Upper respiratory tract infections**

**common cold( rhinitis)**

is a viral illness in which the symptoms- rhinorrhea and nasal obstruction, myalgia

 fever are mild or absent

Common cause – rhino virus

**Rx- self limiting.**

Allergic rhinitis

S+s : Nasal congestion, Itching, Sneezing & Discharge

o/e Check for : mouth breathing, postnasal drip, cough, nose rubbing,  watery red eyes

**Investigations**: Skin test for specific allergen, specific serum IGE

RX: Avoid allergens, relief  symptoms

Sinusitis

 is a common illness of childhood & adolescence

are 2 types: viral and bacterial.

common cold produces a viral, self-limited rhinosinusitis 0.5– 2% of viral URTI in children and adolescents are complicated by acute bacterial sinusitis.

***Types of sinuses***

·  Ethmoidal, maxillary, frontal, and paranasal

**Causes***. Streptococcus pneumoniae* (≈30%), *Haemophilus influenzae* **(**≈20%), *Staphylococcus aureus,*

**Treatment**

Amoxycillin, Clavulanic, Azithromycin

 **Acute pharyngitis**

**Causes:**viruses, (adenoviruses, coronaviruses, enteroviruses, rhinoviruses, respiratory syncytial virus [RSV], Epstein-Barr virus [EBV], herpes simplex virus [HSV], metapneumovirus) and group A β-hemolytic streptococcus (GABHS).     causing

Other organisms

group C streptococcus, *Arcanobacterium haemolyticum, Francisella tularensis, Mycoplasma pneumoniae, Neisseria gonorrhoeae,* and *Corynebacterium diphtheriae****.***

Clinical manifestation

**Sore throat,**

Absence of cough,

fever. Headache and GI symptoms (abdominal pain, vomiting) are frequent.

The pharynx is red, and the tonsils are enlarged and classically covered        with a yellow, blood-tinged exudate**.**

Fever, sneezing, irritability, vomiting & diarrhea in a younger child

**Older child**

Dryness & irritation of nose & throat, sneezing, & muscular aches**.**

 incubation period is 2–5

There may be petechiae or “doughnut” lesions on the soft palate and posterior pharynx, and the uvula may be red, stippled, and swollen. The anterior cervical lympnodes are enlarged and tender**.**

**Etiology & characteristics**

Viruses

Bacteria -- group A beta- hemolytic streptococcus, homophiles influenza, & pneumococci.

Infection tends to spread to available extent as a result of the continuous nature of the     mucous membrane lining the respiratory     tract.

Complications of acute naso- pharingitis:

-          Otitis media

-          Lower respiratory tract infection

-          Sinusitis

-          Retro pharyngeal abscess.

-          Peritonsillar abscess; rheumatic fever, or acute glomerulonephritis.

**Management of acute pharyngitis**

Throat swab C/S

Bed rest

Soathe the throat with warm fluids, soups, Older child- ´warm saline . Gargle . Paracetamol for fever

Antibiotics- erythromycin, pen v or according to the c/s

**Tonsillitis:**

Tonsillitis is inflammation of the tonsils due to viral or bacterial infection. Tonsils are small glands (lymphoid tissue) in the pharyngeal cavity.

 Tonsillitis is one of the most common ailments in pre-school children, but it can also occur at any age.

Peak age 3—4

A child may have tonsillitis if he/she has a sore throat, a fever and is off food.

Common cause is streptococcus

It is airborne

More in winter

Palatine tonsils

(Visible during oral examination)

 **Treatment:**

Encourage bed rest.

Introduce soft liquid diet according to the child's preferences.

Warm saline gargles & paracetamol are useful to promote comfort.

 antibiotics

Tonsillectomy in chronic tonsillitis is controversial, ideal should not be removed before 4years

**Otitis media:**

Otitis media (OM) is the 2nd  most common d’se  of childhood, after  (URI).

**OM:** is defined as an inflammation of the middle ear.

Otitis media

Healthy Tympanic Membrane

**Etiology of (O .M)**

 Obstruction of Eust. Tube **by**edematous mucosa during URI or enlarged adenoid.

Eustachian tube obstruction **lead to** high  –ve  pressure in the middle ear cavity **lead to occurance of** trasudative middle ear (ME) effusion.

Organisms **contaminate** the ME. effusion…..otitis media occur.Organisms reach ME cavity by:reflux from nasopharynx, particularly if drum is perforated. aspiration:

    due to high –ve me pressure insufflation during:

·         Crying

·         Nose- blowing

·         Sneezing

·         Swallowing

**Pathophysiology:**

Otitis media is the result of dysfunctioning Eustachian tube.

The ET, which connects the middle ear to the naso-pharynx, is normally closed, narrow &, directed downward, preventing organisms from the pharyngeal cavity from entering the middle ear.It opens to allow drainage of secretions produced by middle ear mucosa & to equalize air pressure between the middle ear & outside environment.

Impaired drainage causes the pathological condition due to retention of secretion in the middle ear.

Anatomic position of Eustachian tube in adult

Predisposing factors of developing otitis media in children:

1. Developmental alterations  -Eustachian tube (short, wide, & straight),
2. immature immune system, and
3. frequent infections of the upper respiratory mucosa
4. the usual lying-down position of infants favors the pooling of fluids,    such as formula.

**Types of O.M.**

1- Acute otitis media (AOM) :-

It implies rapid onset of disease associated with 1 or more of *the following symptoms*:

Irritability,vigrous crying,rolling head ,rubbing ear (in young child).

Plus sharp pain due to pressure on mastoid area.

Otalgia, Fever, otorrhea, recent onset of anorexia, vomiting, & diarrhea (in older child).

2- Otitis media with effusion (OME):

Is middle ear effusion (MEE) of any duration that lacks the associated signs and symptoms of infection (e.g., fever, otalgia, irritability). OME usually follows an episode of AOM.

3- Chronic otitis media:

Is a chronic inflammation of the middle ear that persists for > 2 weeks and is associated with otorrhea through a perforated TM,

 **Management of otitis media:**

Antibiotic pcns (Septrin, Ampicillin or Amoxicillin).

Anti-inflammatory (analgesic & antipyretic).

**Complications of O.M**

*Extra-cranial complication:-*

·         Hearing loss

·         Chronic suppurative O.M

·         Adhesive otitis

·         Facial palsy

·         Perforation

·         Mastoiditis

·         Tympanosclerosis

*Intra-cranial complication:-*

·         Meningitis.

·         Focal encephalitis.

·         Brain abscess.

·         Sinus thrombophlebitis

**Topic 4: Lower respiratory tract infections in children**

**a)      Topic objectives**

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| By the end of the topic the learner should be able to diagnose and manage lower respiratory tract infections in children |

**Lower respiratory tract infections in children**

Bronchitis.

Brochiolities.

Bronchial asthma.

Pneumonia

 T.B. Infection.

**History**

  Cough & Duration

  H/o TB contact, HIV status

  Sudden onset of choking

  Paroxysms with whoop / vomiting/ cyanosis

  Immunization status = BCG, Pentavalent

  H /o Asthma

**Examination**

  Central cyanosis

  Apnoea, gasping, grunting, nasal flaring

  Audible wheeze, stridor

  Head nodding

  Tachycardia

  Severe palmar pallor

Chest exam

  Respiratory rate , Chest indrawing , Hyperinflated chest, Trachea shift, apex beat displacement, raised  JVP, Crepitations,     reduced   air entry,  bronchial breath sounds  or wheeze

Percussion signs of pleural effusion – stony dullness

Pneumothorax – hyper-resonance

Investigations

  Pulse oximetry to detect hypoxia

  Full blood count

  Chest x ray

DDX of cough

  Pneumonia

  Pleural effusion/ empyema

  Asthma

  Bronchiolitis

  Cardiac failure , CHD

  Pertussis

  TB

  F/B

  Croup, diphtheria