**المحاضرة الثانية عشر / تشريح وفسلجه / قسم هندسة الاجهزة الطبية /**

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**Respiratory System :**

**Anatomy or Morphology :**

**Anatomical parts of respiratory system are : Nose , Sinuses , Larynx , Trachea , Bronchi , Bronchioles , Alveoli .**

**Nose : 1 - External organ of respiratory system cover nasal cavity which is subdivided to left and right by ty medial cartilaginous and bony wall (nasal septum ) .**

**2 - Air in the nose cleaned( by hair ) , moisten and warming the inspired air by mucous membrane and blood vessels .**

**3 – The roof of the nose have the nerve endings of Olfactory nerve , sensory epithelial cells convey the sensation of smell to the central nervous system .**

**4 – Nose contain mucous glands within mucous membrane**

**Sinuses : Nasal cavity communicate with nasal sinuses**

 **Types : four pairs**

**1 – Maxillary sinuses , largest one located under eyes .**

**2 – Frontal sinuses , located above eyes .**

**3 – Ethmoid sinuses , located between eyes .**

**4 - Sphenoid sinuses , located behind eyes .**

**Functions of sinuses :**

**1 – Serve as resonance champers for human voice .**

**2 - Decrease bony mass of anterior part of skull .**

**لاحظوا الحويصلات الرئويه تشبه العنقود حوالي 8 – 10 حويصله في العنقود والمقطع يبين فتحة دخول الهواء وخروجه الى القصيبه والعناقيد محاطه بشعيرات دمويه شريانيه ووريديه لاجل التبادل الغازي / سوف اكتبها بالانكليزي .**

**Notice the alveoli like grapes 8 -10 alveolus and cross section reveal opening of air entrance / leaving the lumen of alveoli and connection with bronchiole . from outside these grapes surrounded by arterial and venous capillaries**

**For gas exchange .**

**Human respiratory system takes up oxygen and expel carbon dioxide .**

**Lung : 1 - An organ situated in thoracic cavity of the chest . 2 - It is organ of gas exchange , delicate tissue protected by ribs and muscles (intercoastal muscles ) of thoracic cage .**

**3 – Lung , right lung three lobes while left lung 2 lobes .**

**4 - Respiratory tract divided to upper respiratory tract ( nose , sinuses ) , Lower respiratory tract include (Larynx , trachea , bronchi , bronchioles , alveoli ) .**

**Diaphragm : The main muscular organ of the respiratory system .**

**Pleura : Is a membrane lined chest cavity and covered the lungs , it is a serous membrane .**

**Larynx : 1 - ( Voice box ) houses of vocal cords . 2 - it is a passage way for air between the pharynx above and the trachea below .**

**3 - Its diameter 4 – 5 cm , larynx lined by ciliated columnar epithelium except for the focal folds .**

**Cartilages of larynx :**

**1 – Thyroid cartilage : ( Adam”s apple ) in males larger than females .**

**2 - Epiglottis : Large spoon shaped , elastic cartilage , during swallowing close esophagus .**

**3 - Cricoid cartilage 4 - Arytenoid cartilage**

**5 - Corniculate cartilage 6 – Cuneiform cartilage**

**Trachea : 1 – Long tube connect larynx to the bronchi .**

**2 - Trachea is made up of rings of cartilages ( C – shaped )**

 **Lined by mucous membrane which is ciliated columnar epithelium with goblet cells .**

**Brochi : (Bronchus) : branches from trachea primary and secondary bronchi then tertiary , these connect bronchioles .**

**No gas exchange take place in bonchioles .**

**Alveoli : air sac or air spaces where gas exchange occur in its surface .**

**Note : Adult inhalation per minute 12 – 20 .**

* **Smoking , Necotine and carbon precipitated on the inner surface of alveoli .**
* **Percent of lung tumors in smoker’s higher than non smoker’s .**

**Diseases : most common diseases of respiratory system :**

 **1 - Pneumonia ; inflammation of lungs**

 **2 - Bronchitis : Inflammation of bronchitis .**

 **3 - Asthma : Hypersensatinon of the bronchi in response to allergen .**

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