Medical Academy named after S.I.Georgievsky of Vernadsky

CRIMEA FEDERAL UNIVERSITY

- TOPIC – **Phylogenetic Disorders of Respiratory System**
- SUBJECT – **MEDICAL BIOLOGY**

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LA1-191 B

Phylogenetic disorders of respiratory system

Introduction

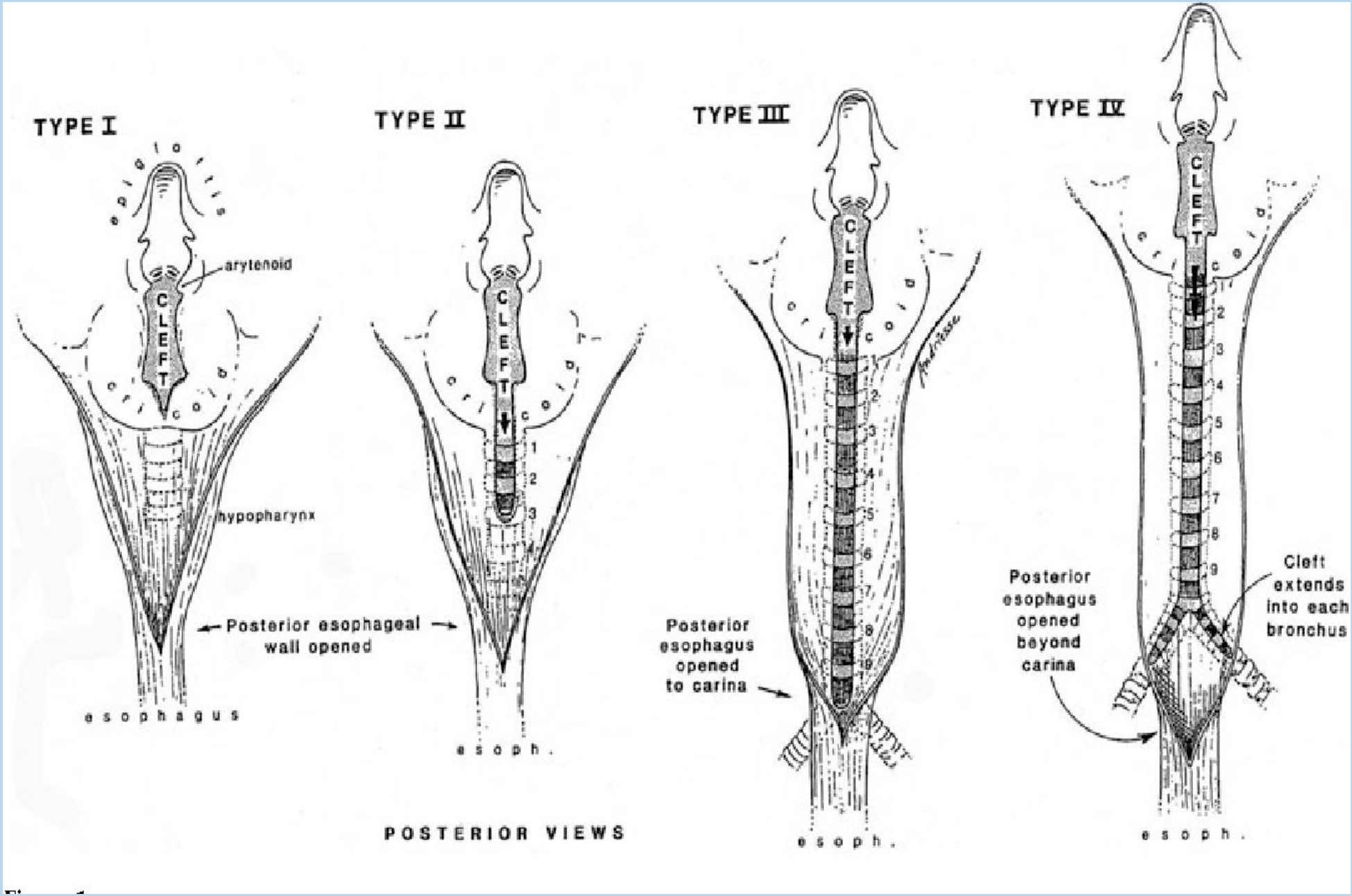
Abnormalities of the respiratory system include not only lung development but also the upper respiratory tract, the supporting musculoskeletal system and the vascular and neural system. In addition, some respiratory problems arise from prematurity of birth or difficulty with the birth process itself.

The functional part of the respiratory system, the alveoli, continue to develop the postnatal period and through childhood

Major Disorders

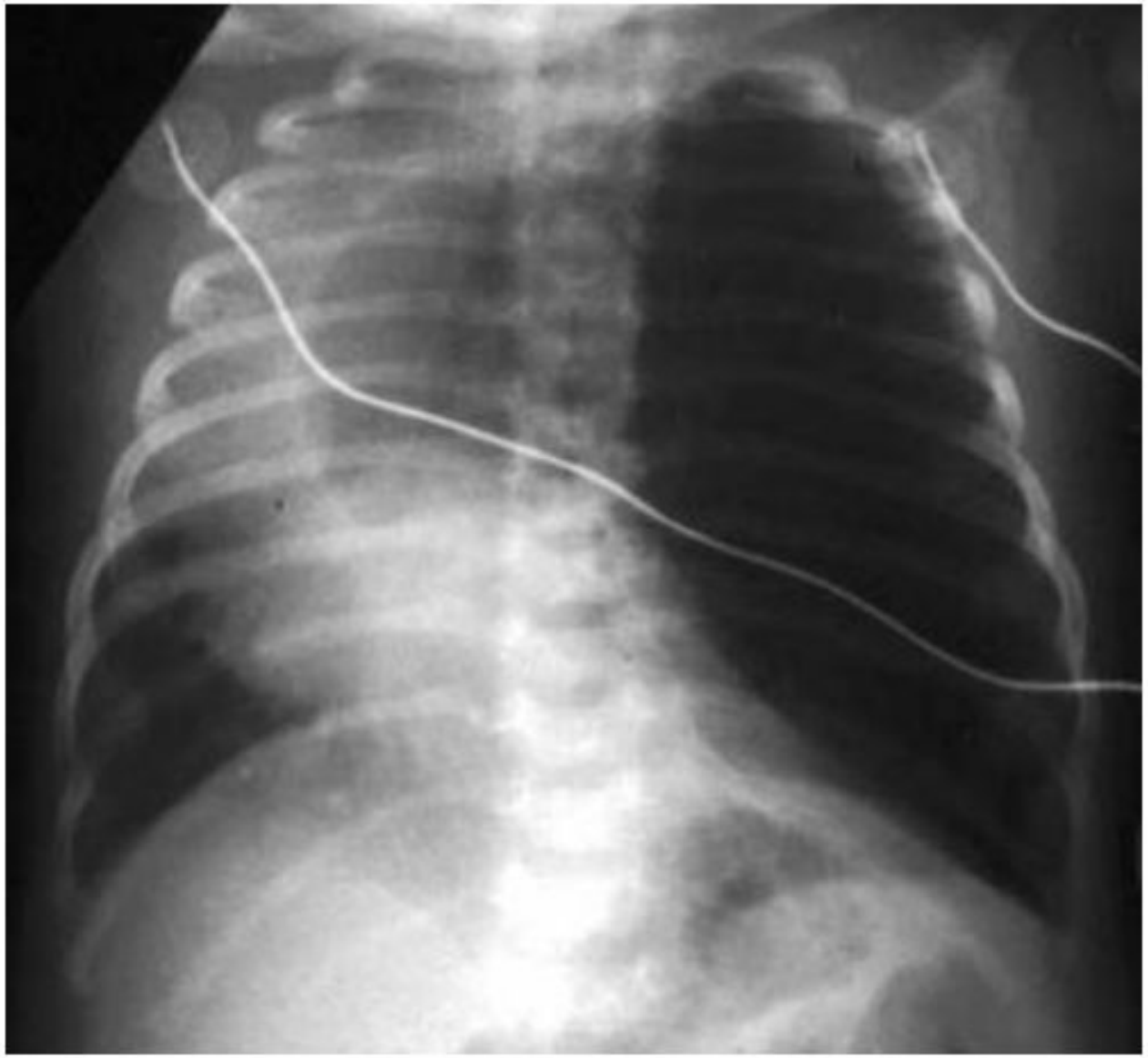
Cleft Laryngeal-tracheo- oesophageal cleft

A rare foregut abnormality allowing digestive tract and the airway to communicate causing chronic cough, aspiration and respiratory distress.


TYPE I
epiglottis
arytenoid
CLEFT
hypopharynx
Posterior esophageal wall opened
esophagus
TYPE II
CLEFT
esoph.
TYPE III
CLEFT
Posterior esophagus opened to carina
esoph.
TYPE IV
CLEFT
Posterior esophagus opened beyond carina
Cleft extends into each bronchus
esoph.
POSTERIOR VIEWS

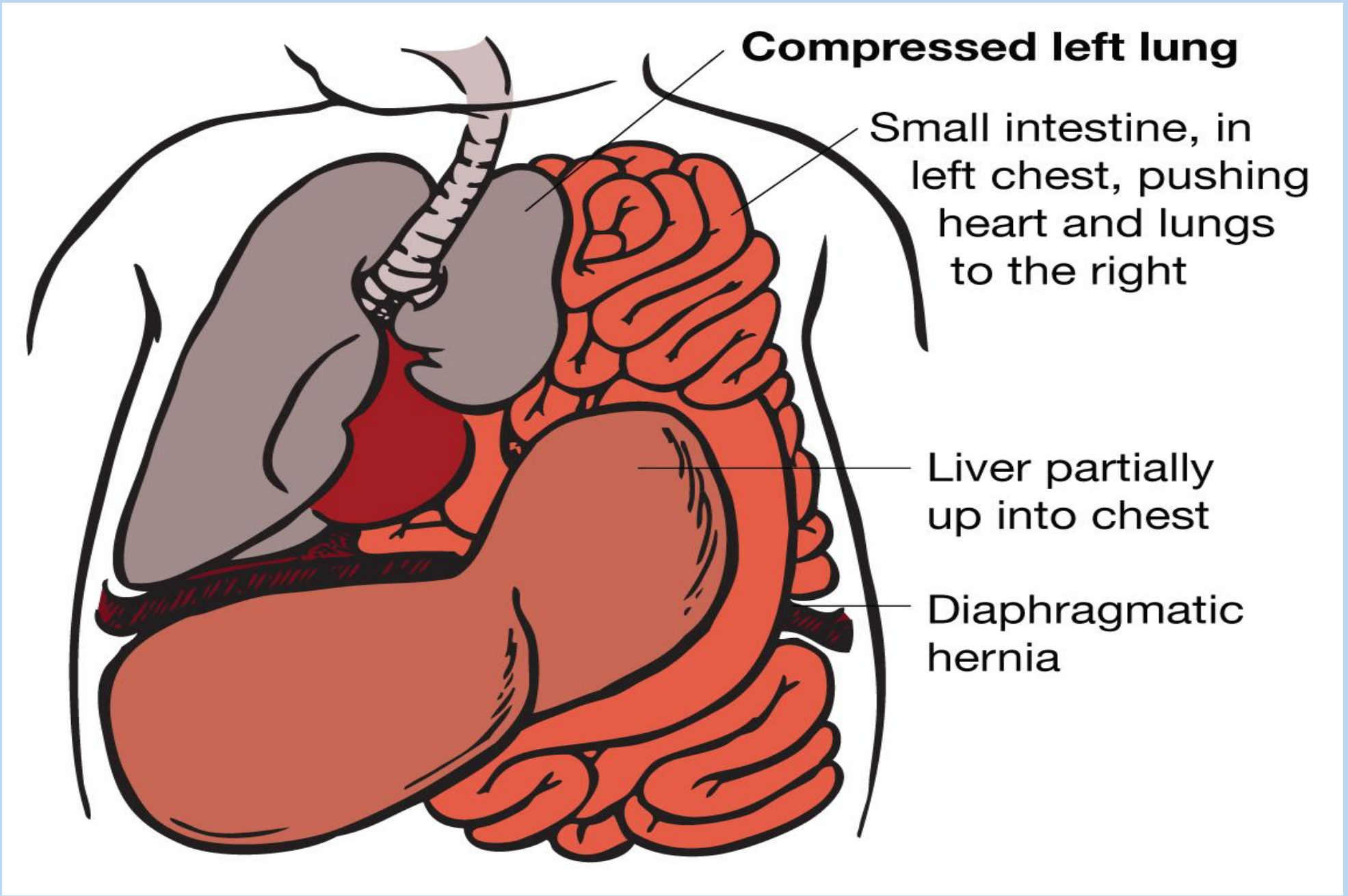
Lobar Emphysema

There is an overinflated left upper lobeThere is a collapsed lower lobe The left lung is herniating across the mediastinum



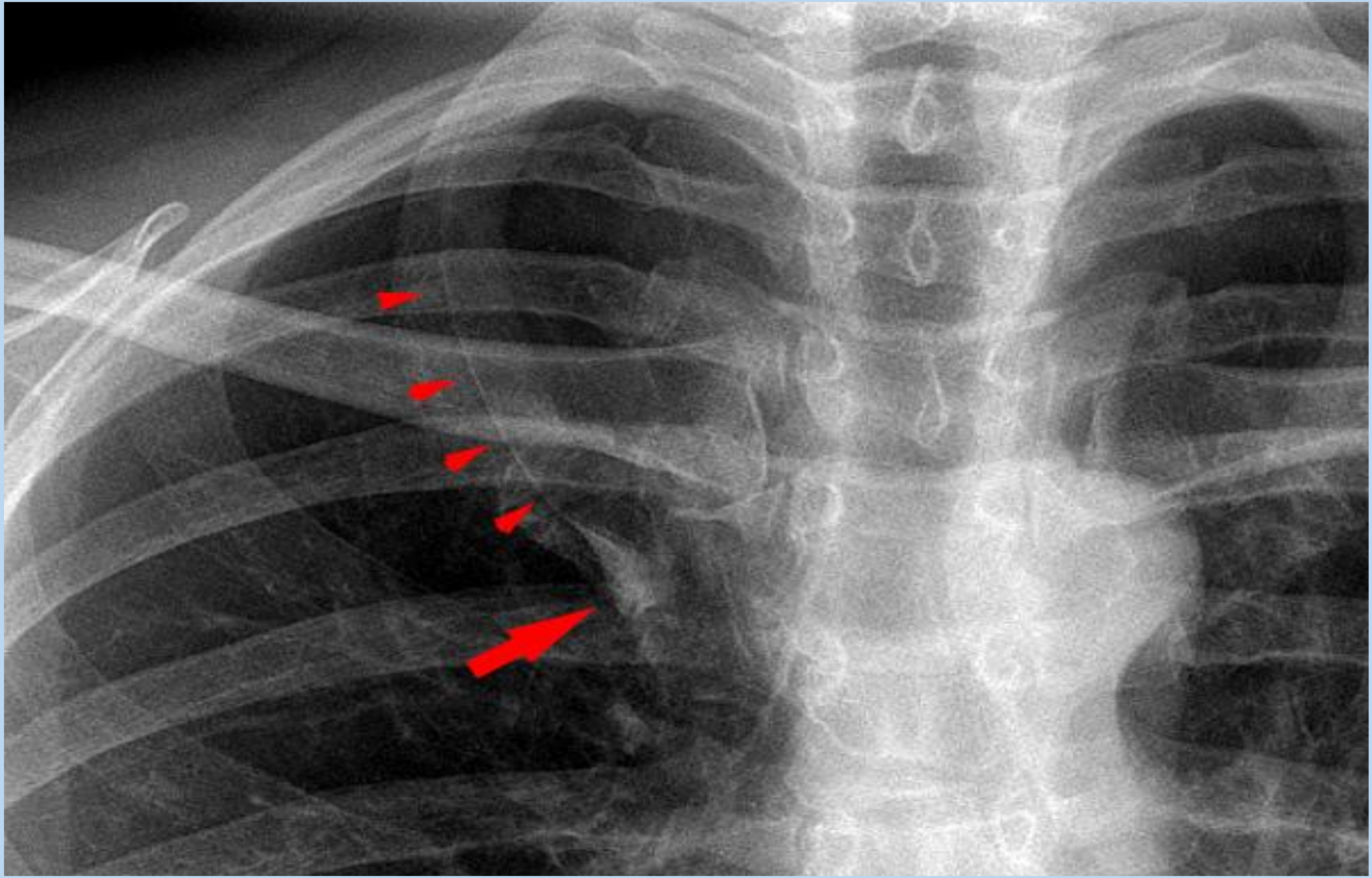
Congenital Diaphragmatic hernea

Failure of the pleuroperitoneal foramen (foramen of Bochdalek) to close allows viscera into thorax, most common (80-85%) on the left side of diaphragm. Intestine, stomach or spleen can enter the pleural cavity, compressing the lung.


Compressed left lung
Small intestine, in left chest, pushing heart and lungs to the right
Liver partially up into chest
Diaphragmatic hernia

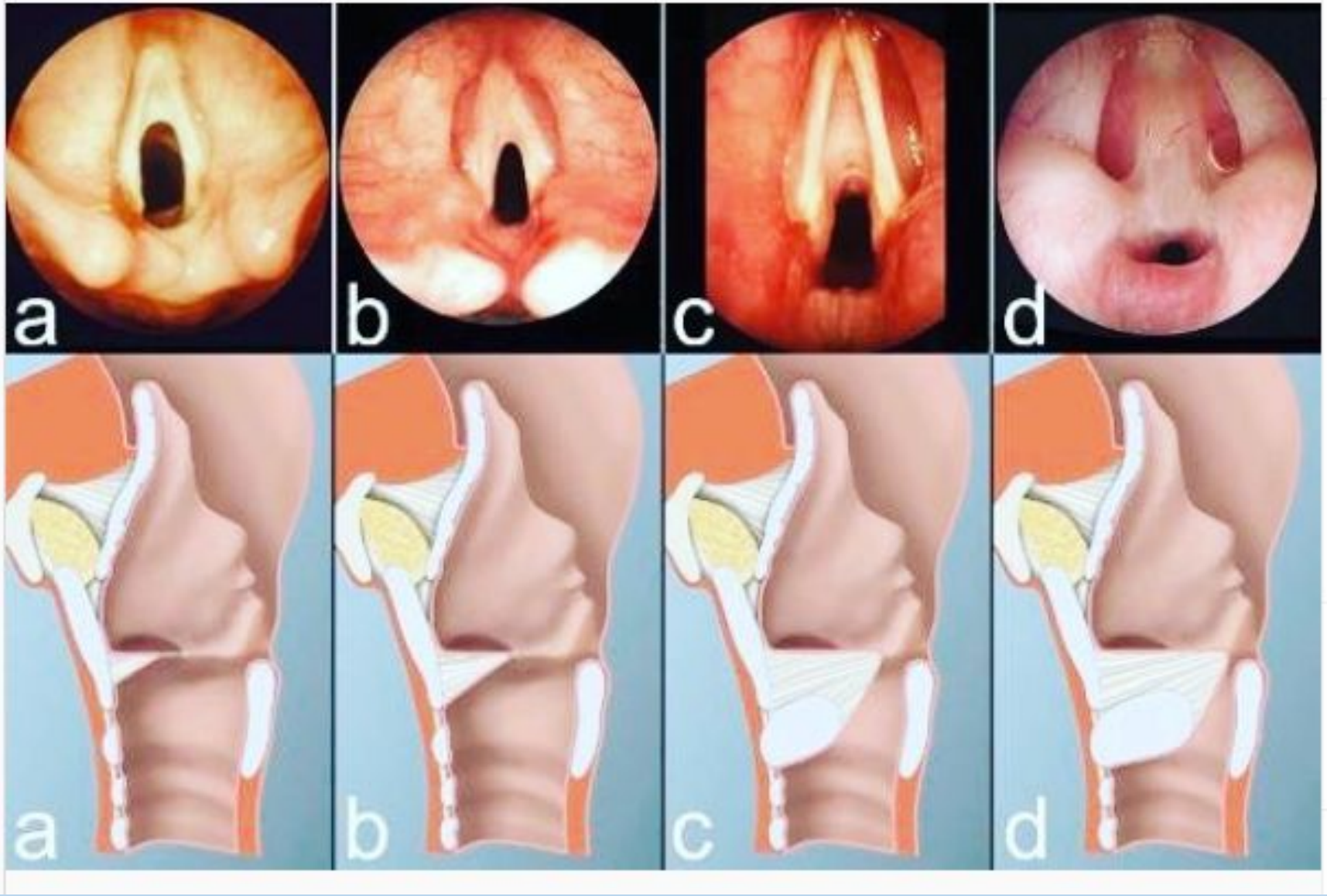
Azygos Lobe

The right lung upper lobe expands either side of the posterior cardinal. There is also some course variability of the phrenic nerve in the presence of an azygos lobe



Congenital Laryngeal Web

Laryngeal abnormality due to embryonic (week 10) incomplete recanalization of the laryngotracheal tube during the fetal period. Rare abnormality occuring mainly at the level of the vocal folds (glottis).


a
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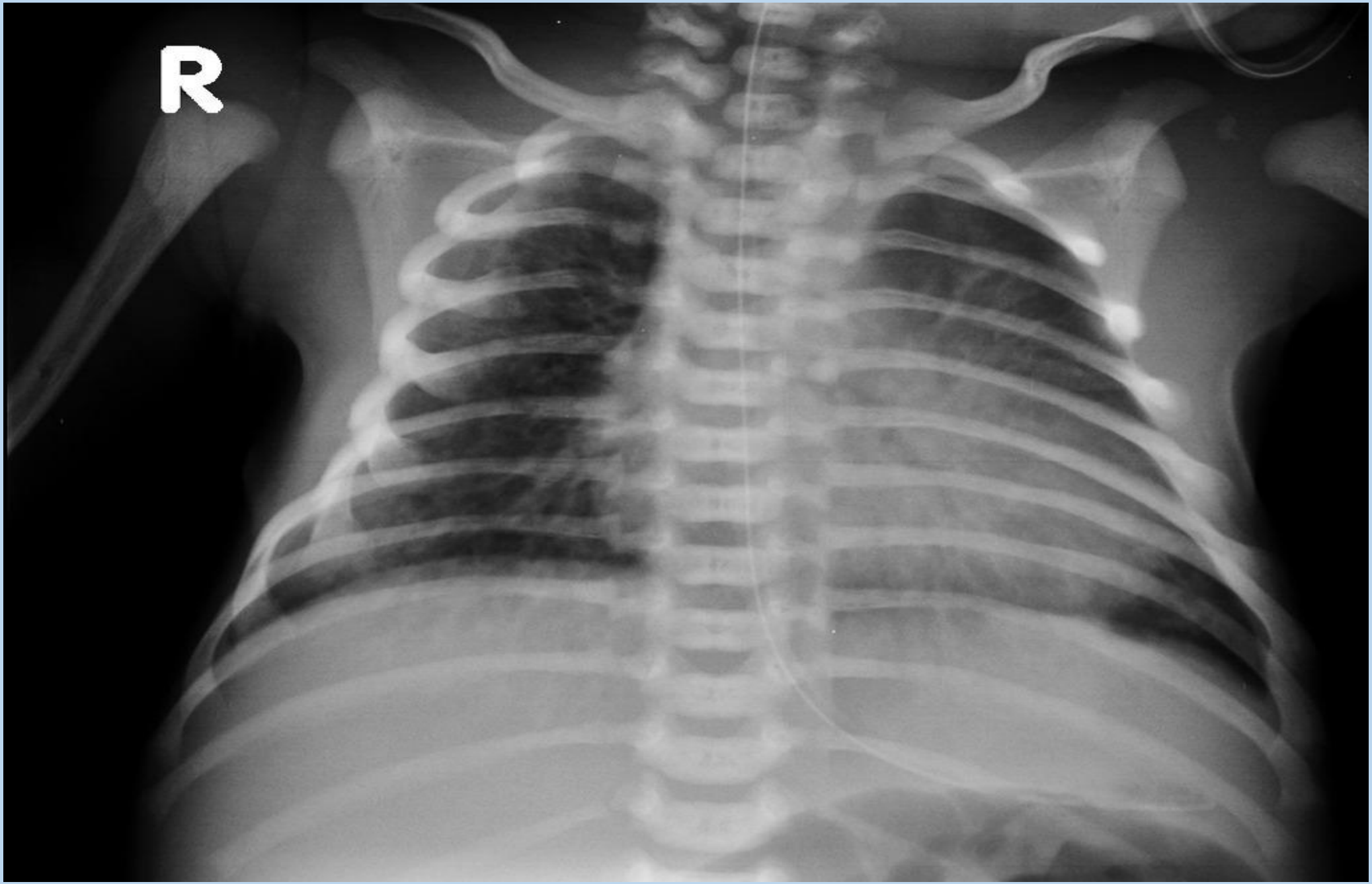
Meconium Aspiration Syndrome

Meconium is the gastrointestinal contents that accumulate in the intestines during the fetal period. Fetal stress in the third trimester, prior to/at/ or during parturition (birth) can lead to premature meconium discharge into the amniotic fluid and sunsequent ingestion by the fetus and damage to respiratory function. Damage to placental vessels meconium myonecrosis may also occur. meconium is formed from gut and associated organ secretions as well as cells and debris
from the swallowed amniotic fluid. Meconium accumulates during the fetal period in the large intestine (bowel). It can be described as being a generally dark colour (green black) , sticky and odourless. Normally this meconium is defaecated
(passed) postnatally over the first 48 hours and then transitional stools from day 4.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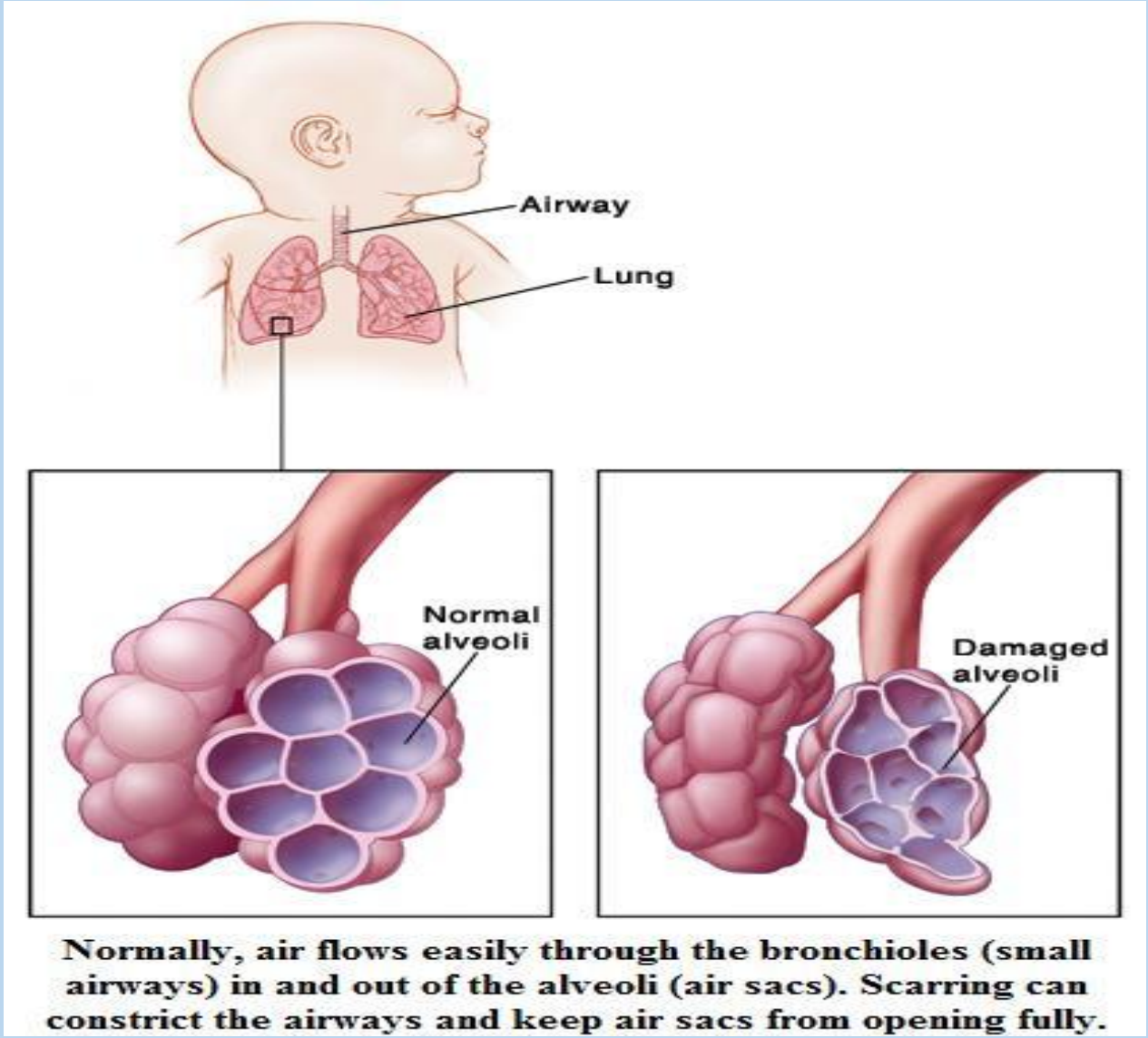
Surfactant metabolism disorder

Surfactant metabolism dysfunction is a condition where pulmonary surfactant is insufficient for adequate respiration. Surface tension at the liquid-air interphase in the alveoli makes the air sacs prone to collapsing post expiration.

Bronchopulmonary dysplasia

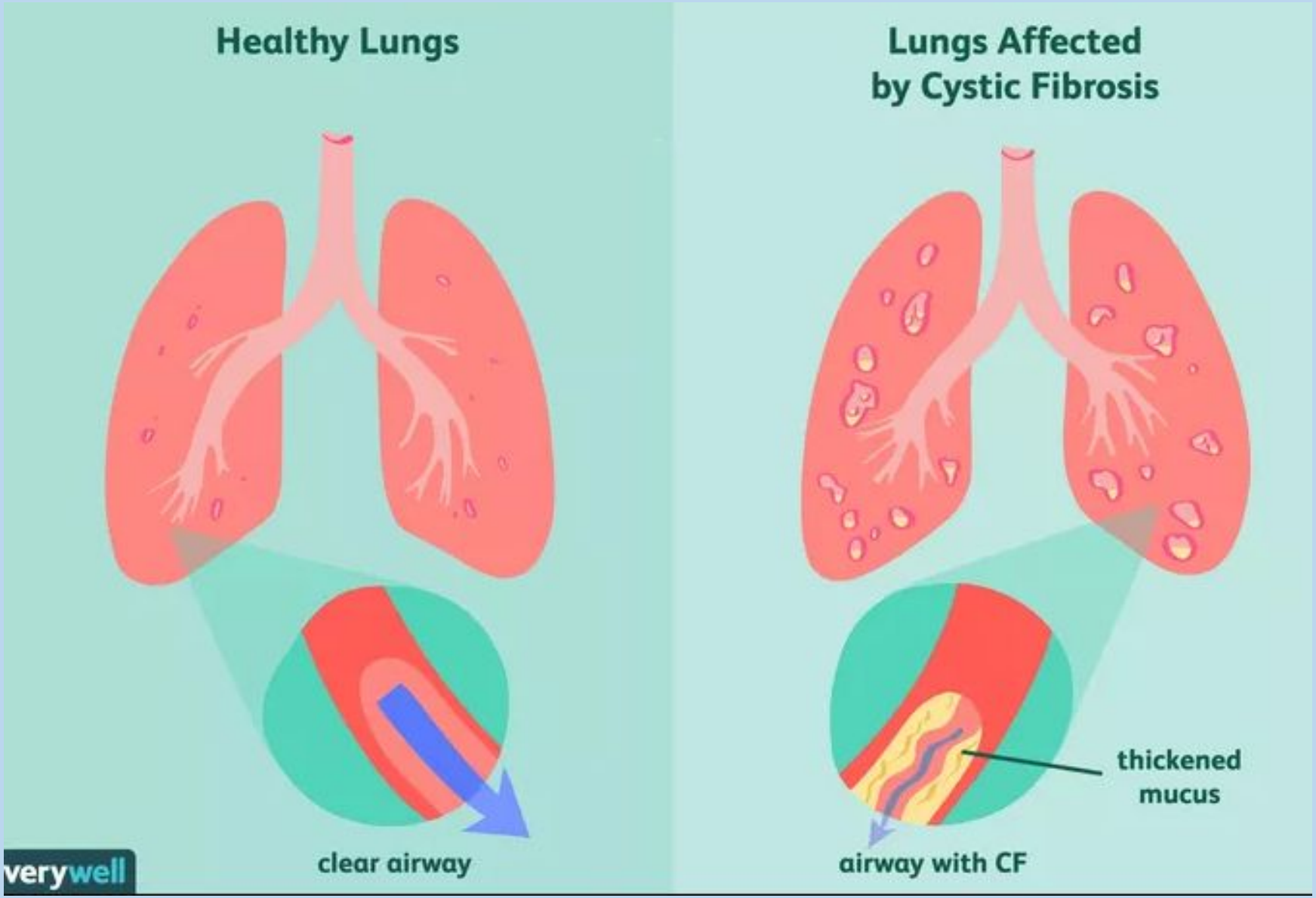
A chronic lung disease which can occur following premature birth and related lung injury. The definition of bronchopulmonary dysplasia (BPD) has in recent years changed from a severe lung injury and associated
repair, to more of a disruption of lung growth in older infants. Most infants who develop BPD are born more
than 10 weeks before their due dates, weigh less than 1,000 grams (about 2 pounds) at birth, and have breathing problems. Infections that occur before or shortly after birth also can contribute to BPD.



Normally, air flows easily through the bronchioles (small airways) in and out of the alveoli (air sacs). Scarring can constrict the airways and keep air sacs from opening fully.

Cystic fibrosis

Fibrosis (CF) is a serious genetic disease due to abnormal chloride channel synthesis cystic fibrosis transmembrane conductance regulator, CFTR), the impact occurs postnatally. Mucus accumulates mainly in the passages of the lungs and in the pancreas.


Healthy Lungs
Lungs Affected
by Cystic Fibrosis
clear airway
thickened
mucus
airway with CF
verywell


THANK YOU
...for your