

## TEACHING FILE

### Rapid respiration

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**Case Report:** - A sixteen-month-old boy presented with fever, cough and cold since 7 days. On examination, the child's respiratory rate is 56/min with rapid, small breaths and inspiration is prolonged with chest going in at time of inspiration and abdomen bulging with inspiration with intercostals and substernal retractions.

#### What is the respiratory pathology?

**Expert's opinion:** - This child has increased respiratory rate with shallow and rapid breathing suggestive of tachypnea. Inspiration is markedly affected with chest indrawing occurring at time of inspiration instead of expansion of chest. Tachypnea is a sign of hypoxia (poor oxygenation) as a result body tries to get in more oxygen by taking in more rapid and shallow breaths. Expiration does not seem to be a problem in this child as expiration is passive, thus carbon dioxide seems to be washing out of the body

ditions that lead to hypoxia are pneumonia, bronchiolitis and pleural effusion (pathology is in lung parenchyma at the level of alveoli (pneumonia) or bronchioles (bronchiolitis) or pleura (pleural effusion).

If expiration is prolonged, it suggests an obstruction in bronchi or airways (bronchial asthma), which leads to carbon dioxide retention and thus expiration becomes an active process.

Thus, this child has a pneumonia, bronchiolitis or pleural disease. Chest indrawing is a sign of pneumonia due to severe disease. In bronchiolitis, the chest is hyper inflated and the child has tachypnea with retractions but not indrawing. Pleural effusion also has a localized bulge with decreased chest movements on the affected side. Thus, this child has a severe pneumonia. On investigation, the child was found to have bilateral mid and lower zone pneumonia.

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