

Self-assessment

Self-assessment questions

Case 1

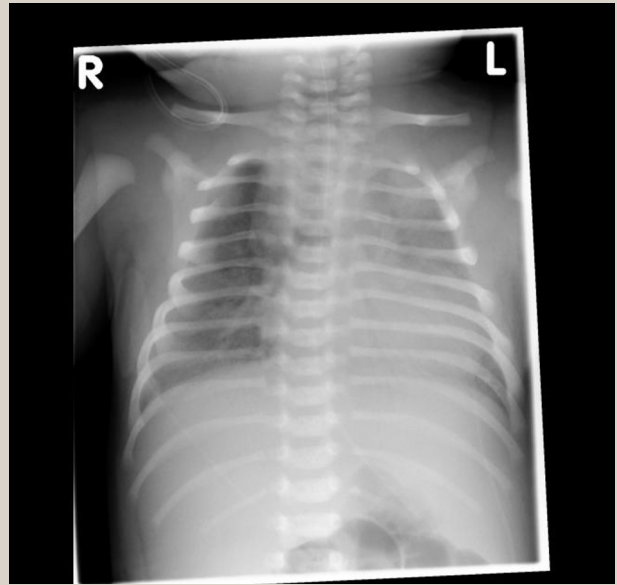
A term infant was admitted to the neonatal unit on day one of life with respiratory distress. He was delivered by normal vaginal delivery following an unremarkable pregnancy. There were no risk factors for sepsis and he was born in good condition. No resuscitation was required at delivery. At one hour of age, he was noted to be tachypnoeic, grunting, with subcostal and intercostal recession.

1. What is the most likely cause? Select ONE from the list below
 - a. Congenital Heart Disease
 - b. Pulmonary Hypoplasia
 - c. Surfactant deficient lung disease
 - d. Tracheo-oesophageal fistula
 - e. Neonatal sepsis
 - f. Transient Tachypnoea of the Newborn
 - g. Pneumothorax
 - h. Meconium aspiration

Following transfer to the neonatal unit, he had a respiratory rate of 70–80 breaths per minute and oxygen saturations of 88–90% on air with worsening respiratory distress.

2. Which investigations would you like to perform next? Select THREE options from the list below.
 - a. Echocardiogram
 - b. Blood cultures, Full blood count, C-Reactive Protein
 - c. Cerebral Function Monitoring
 - d. Chest X-ray
 - e. Pre and post ductal saturations
 - f. Capillary Blood Gas
 - g. Lumbar puncture

Supplemental oxygen was initially commenced via low flow nasal cannula. A peripheral venous cannula was sited and intravenous antibiotics administered. A chest X-ray was arranged and shown below.



Airway, breathing, circulation assessment was undertaken. Supplemental oxygen was initially commenced via nasal cannula, however in view of worsening respiratory distress and respiratory acidosis, Humidified High Flow Nasal Cannula (HHFNC) delivery was commenced. Blood pressure and capillary refill time were within normal limits.

3. What is the most likely pathogen? Select ONE answer from below.
 - a. Listeria
 - b. Chlamydia
 - c. Group B Streptococcus
 - d. Herpes Simplex
 - e. Haemophilus Influenzae
 - f. Pneumococcus

Case 2

A 3 month old baby was admitted to the paediatric unit with a history of poor weight gain and tachypnoea. She was born at 39+1 weeks gestation by normal vaginal delivery following an unremarkable pregnancy. Her birth weight plotted on the 75th centile, but had gradually drifted down to the 9th centile where it plotted on the day of admission. Her mother had concerns that her work of breathing had increased over the previous few days, she struggled to feed and was only able to take 40 mls of milk per feed. She had not been coryzal or pyrexial. On examination she was pink and well perfused with normal heart sounds and normal femoral pulses. There was moderate subcostal and intercostal recession and head bobbing. Auscultation of the chest revealed reduced air entry

Eliana Panayiotou BSc MBBS MRCPCH is a Paediatric ST6 at Addenbrookes Hospital, Cambridge, UK.

K P Ramesh MBBS MRCP Ireland (Paeds) MRCPCH is a Paediatric Consultant at Hinchingbrooke Hospital, Cambridgeshire, UK.

on the right with no added sounds. Heart sounds were normal. Her abdomen was soft and a 1–2 cm liver edge was palpable. A chest X-ray was performed and is shown below.



1. What is the most likely cause for the chest X-ray appearances? Select ONE option.
 - a. Right tension pneumothorax
 - b. Left sided empyema
 - c. Left sided collapse and consolidation
 - d. Right sided Congenital pulmonary airway malformation (CPAM)
 - e. Right sided congenital diaphragmatic hernia

The patient remained tachypnoeic with a respiratory rate of 60 breaths per minute. Her heart rate was 146 beats per minute, blood pressure 112/72, temperature 36.6 C and Saturations 97% on air. Her CXR was discussed with the radiology team and further investigations arranged.

2. What further investigations would you like to perform? Select THREE investigations from the list below.
 - a. Echocardiography
 - b. Full blood count
 - c. Blood culture
 - d. Renal Ultrasound
 - e. Blood film
 - f. Chest ultrasound
 - g. High resolution CT chest
 - h. C-reactive protein

She was referred to tertiary services for ongoing investigation and management and was admitted for nasogastric feeding and input from the dietetic team to optimise growth prior to arrangements being made for definitive treatment.

Her parents were anxious about the outcome and prognosis for this condition and ask about what would happen if it was left untreated.

3. What complications would you expect from this condition if it was left untreated? Select ONE option from the list below
 - a. Recurrent pneumonia, pneumothorax, malignant transformation
 - b. Malignant transformation, bronchiectasis, asthma
 - c. Empyema, pneumothorax, asthma

- d. Recurrent lower respiratory tract infections, asthma, pneumonitis

Case 3

A 14 year old male presented to the accident and emergency department following sudden onset right sided chest pain while at rest. The pain radiated to the right shoulder, arm and neck and was scored at a severity of 9/10. There was no history of trauma. Following the onset of pain he experienced difficulty breathing. He had been fit and well and was very active, taking part in a variety of sporting activities. There were no previous chest problems up until 4 months previously where he presented to his GP with similar symptoms, although to a lesser severity. He did not smoke. There is no dysmorphism and no significant family history of note. An urgent chest X-ray was requested and is shown below.



1. What is the most likely cause in this case? Select ONE from the list below.
 - a. Primary spontaneous tension pneumothorax
 - b. Pneumothorax secondary to connective tissue disease (e.g. Marfan Syndrome, Ehlers Danlos Syndrome)
 - c. Traumatic pneumothorax
 - d. Recurrent pneumothorax secondary to underlying lung pathology

He was tachypnoeic, hypoxic and looked unwell. Auscultation of his chest revealed reduced air entry on the right. High flow oxygen had been commenced on arrival into the department at 15L via a non-rebreathe mask. Four months previously he had presented to his GP with mild chest pain and difficulty in breathing. A CXR at this time revealed a small right sided apical pneumothorax. No treatment was required and it resolved spontaneously.

2. How should be the next step in managing this patient? Select ONE from the list below
 - a. Admit to paediatric ward for observation
 - b. Right sided chest drain insertion

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