CASE REPORT

Unusual cause of pleuritic chest pain in a child

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SUMMARY

We present the case of a 5-year-old boy with hereditary multiple exostoses who presented with left-sided pleuritic chest pain. A CT scan of the chest revealed an intrathoracic exostosis in close association with the heart.

BACKGROUND

Although intrathoracic rib osteochondromas are rare they should be considered in any child with hereditary multiple exostoses (HME) and a new diagnosis of chest pain.

CASE PRESENTATION

We present the case of a 5-year-old boy who is a long-standing patient of the senior author. His father requested an urgent clinic appointment with the senior author because of an insidious onset of left-sided chest pain. When asked to describe the pain the child described it as like 'a little stab in the chest with every breath'. The father described that the child would cry out in pain if he coughed or sneezed. The child pointed to the site of the pain with a single finger. He indicated a site just lateral to his left nipple. There was no palpable osteochondroma at this site. There were small palpable osteochondromas elsewhere on his ribs. There were also multiple osteochondromas palpable elsewhere.

INVESTIGATIONS

A chest X-ray was performed and this appeared to show an osteochondroma arising from the left fifth rib. A CT scan was performed and this confirmed that an osteochondroma arising from the fifth rib extended into the lung parenchyma in close association with the heart (figures 1 and 2).

TREATMENT

The child has been transferred to the paediatric surgical team at Leicester Children's Hospital for excision.

DISCUSSION

The most common causes of pleuritic chest pain in a child are infection-related such as pneumonia, pleurodynia (associated with coxsackievirus B) and bronchitis. Pleuritic chest pain may also be due to pulmonary complications of haematological diseases such as sickle cell disease or lower respiratory airway diseases such as asthma and cystic fibrosis.¹

HME or diaphyseal aclasis is a genetically heterogeneous autosomal dominant bone condition, with an estimated incidence of 1/50 000. Its characteristic osteochondromas (exostoses) have been found in almost every bone of the body apart from the

Figure 1 Chest CT axial view.

calvaria.² Although the exostoses are benign, the majority of patients are diagnosed before the age of 10 years, usually because they have sought medical attention due to pain and/or skeletal deformity depending on the location of the bony lesions.³ Long bones of the appendicular skeleton are the most commonly affected sites. Rib exostoses are rare, accounting for ~1–2% of osteochondromas.⁴

Patients with a solitary rib osteochondroma are usually asymptomatic and typically have no relevant family history. Multiple rib osteochondromas normally only occur in patients with HME.⁴ Complications of HME may be divided into cosmetic deformity, caused by exostoses exerting direct extrinsic pressure on adjacent bones, or growth disturbances, caused by abnormal bone remodelling as exostoses disrupt the normal growth of the physal plates leading to limb discrepancy. Common complications include ulnar shortening with secondary radial bowing, valgus deformity of the hip and knee, radial head dislocation at the elbow and tibio-talar tilt at the ankle.^{2 4}

Figure 2 Chest CT three-dimensional reconstruction.

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Rib exostoses rarely progress to complications but have been reported in the literature to cause spontaneous pneumothorax, haemothorax and pericardial effusion.^{4–7} Common presenting symptoms include pleuritic chest pain and shortness of breath. It is proposed that the symptoms arise from mechanical irritation to soft tissues such as the sharp margins of the exostosis damaging the pleura directly and leading to a pneumothorax. Respiration causes constant friction between the exostoses and the pleura, leading to chronic inflammation and dilated blood vessels which are more vulnerable to rupturing spontaneously and thus causing haemothorax.^{4–6} An Iranian case report described multiple rib exostoses in a 7-year-old boy, which lead to sleep disruption and cosmetic deformity.⁸

Learning points

- ▶ Osteochondromas most commonly occur on the long bones of the appendicular skeleton; however, they have been described on almost every bone in the body (except the calvaria).
- ▶ Although they are rare osteochondromas of the ribs do occur.
- ▶ If rib osteochondromas grow into the thoracic cavity then they can cause significant intrathoracic complications.

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Contributors GY wrote the report. AL assisted with advice and reconstructing the three-dimensional CT images. MDL edited and partially rewrote the report.

Competing interests None declared.

Patient consent Obtained.

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