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Short reports

Bilateral clicking ribs

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ABSTRACT Congenital abnormalities of the ribs, including slipping or clicking rib, are well recognised but rarely give rise to symptoms. Slipping rib has previously been described as a unilateral condition. We report an unusual case of symptomatic bilateral slipping ribs treated successfully by surgery.

Congenital abnormalities of the thoracic skeleton are common and variation in the number, configuration, and joints of the lower ribs are well recognised.¹ Amongst these anatomical variations the condition of slipping or "clicking" ribs has been recognised as a unilateral condition in a small number of patients.^{2,3} We report a case of bilateral clicking ribs.

Case report

An otherwise healthy 38 year old woman gave a seven year history of "clicking" at the right costal margin; similar symptoms developed on the left side two years later. Flexion of the thoracic spine caused transient pain at the costal margins and a sensation of clicking.

There was no dyspnoea, cough, or other respiratory symptom and no history of chest trauma or of respiratory disease. Her two pregnancies had been uneventful. She appeared to be sensible and was not overweight, and physical examination showed nothing remarkable. There were no abnormal physical signs on examination of the lungs and no abnormalities of spine or sternum. Both costal margins could be grasped easily between finger and thumb and the ribs made to roll over each other. This palpable "slipping" produced the clicking sensation experienced by the patient. Radiological investigations, including costal views, were unhelpful.

In view of the troublesome and persistent nature of her symptoms surgery was undertaken. Both costal margins were exposed through bilateral oblique incisions. The seventh, eighth, ninth, and tenth ribs on both sides were normal,

though the corresponding slips of origin of the diaphragm were small. The anterior ends of the ribs were capped with hyaline cartilage that had no connection with either the sternum or the adjacent ribs above and below. Excision of the anterior ends of these "floating" ribs was followed by complete resolution of the patient's symptoms.

Discussion

Although congenital abnormalities of the ribs and costal cartilages are more common than is usually appreciated,^{1,4} many are unrecognised as the patient is symptomless or fails to seek medical attention for what are often only minor symptoms. Routine chest radiography occasionally discloses a bifid anterior rib end, which can be mistaken for an intrapulmonary opacity.⁵

Of the many rib variants described,¹ that of "slipping" rib has received intermittent attention over the years. The condition has been obscured by the multiple descriptive terms given to what is undoubtedly the same underlying condition—namely, slipping ribs,² clicking ribs,³ nerve trapping,⁶ and the rib tip syndrome.⁷ Each of these reports has described unilateral abnormalities only.

Although osteoarthritis of costochondral and sternochondral junctions may give rise to crepitus and clicking in later life, clicking in younger patients is claimed to be caused by a replacement of the normal interchondral joints between ribs seven, eight, and nine⁷ by the fibrous bands that normally unite the cartilage of the ninth and tenth ribs.^{8,9}

It has been suggested that stretching of these fibrous bands is responsible for slipping,⁷ and that this stretching may occur with chest trauma, respiratory disease, pregnancy, and childbirth. The resulting increase in rib mobility permits slipping to occur, with consequent distortion of the intercostal nerve.

Our patient had had two pregnancies before the onset of symptoms, but she gave no history of chest injury and had no evidence of respiratory disease. At operation we found no trace of any fibrous bands. The seventh, eighth, ninth, and tenth ribs were floating, being anatomically similar to the normal eleventh and twelfth ribs.

Evolutionary anatomy may explain the anomalies in this case. Ascent of the evolutionary tree has been accompanied by a progressive loss of rib elements, from a pair attached to each vertebral body (as in primitive tetrapods) to a pair

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attached predominantly to thoracic vertebrae only. Amphibian costal elements do not reach the midline anteriorly. Full attachment is achieved, directly or indirectly, only in reptiles and mammals.¹⁰ It is tempting to speculate that the condition in our patient may represent partial arrest of development of the thoracic cage at the stage before union of the costal elements with the midline ventral sternal plate and with the neighbouring ribs above and below.

Possible therapeutic options include advising tolerance of the discomfort, periodic infiltration of local anaesthetic, and surgery to produce fixation of the abnormal ribs or, as in this case, to excise them. Precise indications for surgery cannot be stated. The few published data on this condition suggest that it may be beneficial to those with persistent or troublesome symptoms. Our experience with this patient supports this view.

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