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Case Report

Pectus carinatum

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ABSTRACT

Pectus carinatum is an uncommon congenital anomaly. Surgical correction for the deformity is infrequently sought but is usually very rewarding. There are three types of the deformity, viz. chondro-gladiolar, chondro-manubrial and the lateral variety, of which the latter is the most rare. We present a fifteen year girl who had pectus carinatum of the lateral variety involving the left second to the eighth costo-chondral junctions. The indication for surgical intervention was purely aesthetic. Subperichondrial excision of the lateral halves of the affected costal cartilages and shaving of the adjacent ribs was done. The post-operative recovery was uneventful and the deformity was corrected satisfactorily.

KEY WORDS

Congenital, Thoracic wall, Abnormalities

INTRODUCTION

Pectus carinatum, a congenital protrusion of the anterior chest wall, is an uncommon deformity. Surgical consultation is usually sought at adolescence when the patient becomes aware about its presence or due to related lung complications. Restoration of the chest wall contour by surgery is very rewarding. We present a 15 years girl who reported with such a deformity and underwent satisfactory correction at our centre.

CASE REPORT

A 15 year old girl presented with an abnormal protrusion involving the left side of her anterior chest-wall since birth. The deformity had been increasing for the past one year. She did not have any shortness of breath, recurrent respiratory tract infections or palpitations. Locally, there was a protrusion deformity involving the left side of her anterior chest wall in the parasternal region involving the second to eighth costal cartilages [Figures 1 and 2]. There was no mediastinal shift clinically. There was no scoliosis or any other spinal deformity. Cardiovascular and respiratory systems were normal. ECG was also normal. Lateral view of the chest radiograph showed an abnormal protrusion of the second to eighth costal cartilages in the parasternal region. A CT scan of the chest confirmed that the deformity was involving the costal cartilages as well as the costochondral junctions [Figure 3].

The patient was planned for surgical correction. Through a midline sternal incision, a skin flap was raised on the left side till the entire deformity was exposed. Sternal attachments of the pectoralis major muscle were erased to expose the second to eighth costochondral junctions. Perichondrium was incised on the mid-anterior surface and the cartilages were dissected subperichondrially. Lateral halves of the second to eighth costal cartilages were excised.

Figure 1: Lateral view of the deformity

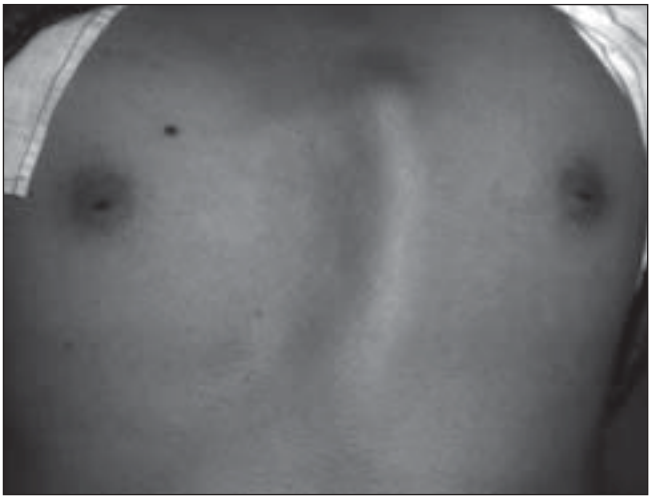

Figure 2: Frontal view of the deformity

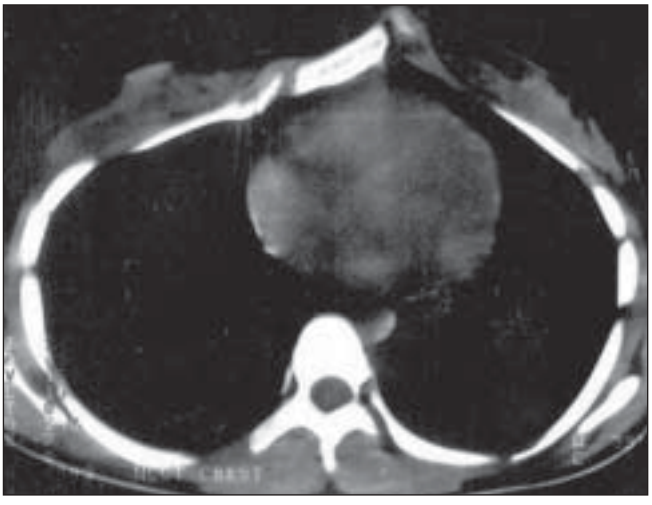

Figure 3: Plain CT scan of the chest showing the deformity

The residual bony deformity at the costochondral junctions was corrected by shaving the medial ends of the ribs obliquely by an oscillating saw. The posterior perichondrium was preserved throughout. There was no chest wall instability nor was the pleural cavity breached inadvertently. Perichondrium was then sutured to allow growth of costal cartilages in proper alignment. Deformity was corrected completely following the procedure. The erased pectoralis major muscle was reattached. Post-operative recovery was uneventful [Figure 4]. Post-operative radiograph and plain CT scan of the chest showed satisfactory correction of the deformity.

DISCUSSION

Pectus carinatum or pigeon breast is a congenital protrusion deformity of the chest wall. This name is derived from a Latin word that means chest with a keel. It is an uncommon entity[1, 2] for which surgical intervention, though infrequently sought[2, 3, 4], is very rewarding. It is six times less frequent than pectus excavatum [5].

The exact aetiology is unknown. However, there are many theories propounded. Overgrowth of costal cartilages with forward protrusion of manubrium, gladiolus and xiphoid is the most accepted one. There may be an association with other conditions like Marfan's syndrome, Poland syndrome or scoliosis. None of these were present in our patient.

The deformity may present at birth but is usually evident in mid-childhood. However, it becomes most prominent during the adolescent growth spurt and most children are brought between eleven to fifteen years of age. Males are four times more affected than females.[5] There are three types of the deformity, namely, chondromanubrial, chondrogladiolar and a lateral variety which is rare.[6] In the latter, it is the protrusion of costal cartilages which dominates the clinical picture. Our patient belonged to this

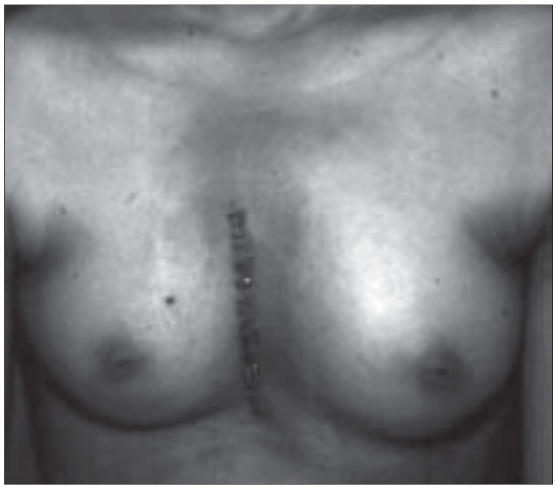

Figure 4: Post-operative view showing the correction of the deformity

type. Most patients are asymptomatic and present for aesthetic correction. But in some, owing to a rigid chest wall with an anteroposterior diameter which is almost fixed in full inspiration, arterial hypoxaemia and consequent cor pulmonale may develop. As the lungs lose compliance, the incidence of emphysema and frequency of respiratory infections increases. Patients may present with retarded growth, exertional dyspnoea, asthma, palpitations and chronic dyspepsia.

Treatment is essentially surgical. However, in a motivated, skeletally immature child with a mild deformity, dynamic chest compressors and braces can be tried with success.[7] The long-term prognosis of non-surgical treatment is still unknown. Surgical correction can be either open or endoscopic. Classically, to minimise recurrence, surgery is undertaken only at fifteen to sixteen years of age, when maximum growth has occurred and the deformity can be safely and predictably corrected [1]. If operated in early childhood, there is a high recurrence rate due to over-growth of regenerating costal cartilages.[1,2,5] However, recently, it has been reported that endoscopic correction in pre-school children is equally effective.[8] In addition, at this age, skin quality and tone improves the ease of costal dissection as compared to adults.

Many operations are described. The principles being resection of abnormal costal cartilages, carefully preserving the entire perichondrium and avoiding entrance into the pleural space.[2] Sternal osteotomy may be required. Complications are few and include pneumothorax, atelectasis, wound infection, local tissue necrosis and hypertrophic scar or keloid formation. Post-operatively, costal cartilage regeneration from perichondrial sheaths is rapid, and the chest becomes stable within four to ten weeks.[1,2] As a result, for that period, contact sports should be avoided. Results of operative repair for pectus carinatum are quite rewarding in correcting a socially disabling chest wall deformity.

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