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Commentary

Deformation of the anterior thoracic wall

HAZEL SCARLETT

Editorial Office, Orthopaedics Trauma Surgery and Related Research, Poland

Address for correspondence:

Hazel Scarlett, Editorial Office, Orthopaedics Trauma Surgery and Related Research, Poland

orthotraumasurg@journalres.com

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Abstract

Chest wall abnormalities are a group of congenital disorders that can appear as a single occurrence, in combination with other congenital anomalies, or as part of a genetic syndrome. From infancy to puberty, negative impacts might arise, ranging from life-threatening diseases to psychosocial cosmetic issues. There is no universally accepted classification for abnormalities of the chest wall. The goal of this article is to evaluate the most frequent congenital chest wall abnormalities that have been described from the perspective of general thoracic surgery. To recapitulate the important points of this complicated spectrum of disorders, they are pectus excavatum, pectus carinatum, Poland syndrome, sterna clefts, ectopia cordis, Jeunes syndrome, and Jarcho Levin syndrome. The function of the interprofessional team in the diagnosis and evaluation of this illness will also be discussed.

INTRODUCTION

Chest wall abnormalities are a group of congenital diseases that encompass a wide range of conditions. These can occur on their own or in conjunction with extra-thoracic abnormalities and hereditary disorders. From infancy to puberty, negative impacts might arise, ranging from life-threatening diseases to psychosocial cosmetic issues. Medical care, surgical repair, and genetic counselling are the cornerstones of treatment. Repair alternatives are numerous and complicated from a surgical standpoint; thus, a patient's age and gender, as well as surgery timing and prosthetic materials and graft selection, are all aspects that influence the decision-making process. From the perspective of general thoracic surgery, the goal is to evaluate the most frequent chest wall abnormalities. Because of their rarity, chest wall abnormalities are disliked among the general public. Because of the syndromic environment of these disorders, patients' education should focus on hereditary abnormalities; consequently, genetic counselling is essential for all patients and families so that the genetic risks of chest wall deformities may be understood. Patient education is determined on a case-by-case basis, with special care paid to disease prognosis and, if appropriate, post-operative rehabilitation. Hypoventilation is caused by chest wall abnormalities, such as kyphoscoliosis, which is caused by a decrease in chest wall compliance due to the limitation of the chest wall induced by the aberrant spinal curvature. As a result, the work of breathing tends to be greater than usual. Muscle exhaustion and alveolar hypoventilation result as a result of this. Furthermore, due to its mechanical disadvantage, the malformation of the chest wall is

likely to contribute to the diaphragm's inadequate performance. In fact, Lisboa and colleagues examined transdiaphragmatic pressures in nine kyphoscoliosis patients and found a link between inspiratory muscle weakening and subsequent ventilatory failure.

Chest wall deformities are a broad group of congenital diseases that can present with a variety of phenotypes and clinical manifestations, ranging from life-threatening conditions to psychosocial cosmetic concerns, and require medical attention from prenatal to adulthood. For these reasons, chest wall deformities workup and management is a difficult task that necessitates the collaboration of a multidisciplinary team. The disciplines involved in the management of chest wall malformations include medical genetics, maternal-fetal medicine, neonatologist, paediatric, and neonatal critical care, paediatric surgery, cardiothoracic surgery, plastic surgery, orthopaedic surgery, and psychology. Level 1 evidence is lacking for many disorders due to their low occurrence. There are meta-analyses available for pectus malformations; they focus on the differences between the Nuss technique and the modified Ravitch treatment with level III evidence. Because of the limited prevalence, management advice for Poland syndrome, sternal deformities, Jeunes, and Jarcho Levyn syndrome are based on case reports.

There is no universally accepted classification for abnormalities of the chest wall. In addition, therapy options are tailored to the individual, and there is no one-size-fits-all strategy. As a result, understanding chest wall abnormalities is critical for providing integrated interprofessional care to these patients.