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LEFT-SIDED PECTORAL MUSCLE AGENESIS IN AN 8-YEAR-OLD GIRL: CT FEATURES OF POLAND SYNDROME

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ABSTRACT

Poland syndrome comprises a variable spectrum of unilateral pectoral muscle and ipsilateral upper-limb abnormalities. We report an 8-year-old girl referred for evaluation of left shoulder and upper chest asymmetry that had become more noticeable with growth. She had no pain or functional limitation, and the left hand was smaller than the right. Computed tomography demonstrated non-visualization of the sternal and abdominal heads of the left pectoralis major muscle together with absence of the left pectoralis minor muscle. The combination of unilateral pectoral muscle agenesis and ipsilateral upper-limb asymmetry supported the diagnosis of Poland syndrome. This case illustrates the value of cross-sectional imaging in defining the muscular component of the condition and correlating it with subtle clinical asymmetry.

KEYWORDS

Poland syndrome; pectoralis major; pectoralis minor; muscle agenesis; computed tomography

MAIN ARTICLE

INTRODUCTION

Poland syndrome is characterized by unilateral hypoplasia or agenesis of the pectoralis major muscle, most consistently involving its sternocostal component. Associated findings may involve the pectoralis minor and other muscles of the chest wall, as well as the ipsilateral breast, ribs, shoulder girdle, arm, and hand [1,2]. The clinical phenotype is variable; mild muscular forms may become apparent only as the child grows, whereas more extensive forms are recognized earlier because of thoracic or upper-limb abnormalities [1,3].

The diagnosis is primarily clinical. Imaging confirms and maps the muscular abnormality and may identify associated skeletal or visceral findings. Ultrasound is recommended as a first-line modality in children, while computed tomography provides clear comparative assessment of the pectoral muscles and thoracic structures when cross-sectional evaluation is performed [1,4,5]. We describe the clinical and CT findings in a child with left-sided pectoral muscle agenesis and ipsilateral hand asymmetry.

CASE REPORT

An 8-year-old girl was referred for evaluation of left shoulder and upper chest asymmetry that had become more noticeable with growth. She reported no pain and had no functional limitation. Clinical examination showed asymmetry of the left upper anterior chest and shoulder region. The left hand was smaller than the right, without further documented characterization of the digits.

Computed tomography of the shoulder girdle and upper chest demonstrated non-visualization of the sternal and abdominal heads of the left pectoralis major muscle. The left pectoralis minor muscle was also not identified. These findings produced asymmetric soft-tissue coverage of the anterior chest wall. No additional osseous abnormality was documented in the available examination report. The combined clinical and imaging findings were consistent with Poland syndrome.

DISCUSSION

The defining feature of Poland syndrome is unilateral hypoplasia or absence of the pectoralis major muscle, particularly the sternocostal head [1,2]. The clavicular component may be preserved, and the pectoralis minor may be absent or hypoplastic. Additional involvement of the serratus anterior, latissimus dorsi, deltoid, or other shoulder-girdle muscles has also been described [2,4]. The present case demonstrates involvement of both the sternal and abdominal portions of the left pectoralis major muscle and the ipsilateral pectoralis minor muscle.

Upper-limb findings span a broad spectrum, from subtle size asymmetry to brachydactyly and symbrachydactyly [1,6]. In this patient, the only documented limb finding was a smaller left hand. This should be reported descriptively rather than classified as a specific digital malformation in the absence of detailed morphologic or radiographic assessment. The association between unilateral pectoral muscle agenesis and ipsilateral hand asymmetry supports a unified developmental pattern.

Clinical examination remains central to diagnosis. Contraction of the pectoral muscles, for example by pressing the palms together in front of the chest, can accentuate asymmetry of the anterior axillary fold [1]. Imaging is valuable when the clinical abnormality is subtle, when the muscular extent requires clarification, or when associated thoracic anomalies are suspected. On CT, direct side-to-side comparison demonstrates the presence, thickness, and distribution of the pectoralis major and minor muscles and can simultaneously evaluate the ribs, sternum, scapulae, and thoracic cavity [3,5].

The radiologic differential diagnosis of unilateral anterior chest-wall soft-tissue deficiency includes acquired muscular atrophy, sequelae of trauma or surgery, thoracic asymmetry related to scoliosis or osseous deformity, and localized soft-tissue disorders [1]. Recognition of the characteristic pattern of selective unilateral pectoral muscle absence, interpreted together with the clinical examination, prevents misclassification as an acquired lesion or soft-tissue mass.

For a comprehensive radiologic assessment, the report should specify which portions of the pectoralis major are present, describe the pectoralis minor and other visible chest-wall muscles, and examine the ipsilateral ribs, sternum, clavicle, scapula, breast or nipple region, and upper limb whenever included in the field of view [1,3,4]. In this case, CT primarily established the muscular component of the diagnosis, while the smaller ipsilateral hand provided clinical correlation.

CONCLUSION

In a child with progressive unilateral shoulder and upper chest asymmetry, careful comparison of the pectoral muscles can establish the anatomic basis of the deformity. Non-visualization of the sternal and abdominal heads of the left pectoralis major muscle together with absence of the left pectoralis minor muscle, associated with a smaller ipsilateral hand, supported the diagnosis of Poland syndrome in this patient. A structured assessment of the chest wall and upper limb is important to document the complete phenotypic spectrum without assigning unsupported abnormalities.

FIGURES

Figure 1. Axial CT image through the upper chest demonstrating asymmetric anterior chest-wall musculature, with non-visualization of the left pectoral muscles. The right side provides an internal comparison. R, right; L, left.

DECLARATIONS

Consent. Written informed consent for publication of this case and the anonymized images was obtained from the child's legal guardians.

Conflicts of interest. The authors declare no conflicts of interest.

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