CONGENITAL ABSENCE OF THE PECTORAL MUSCLES

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The four patients described in this paper exhibit congenital absence of the pectoral muscles in varying degree, and illustrate many points of interest. Three of them were observed during routine and special medical examinations of approximately 15,000 elementary school children, and one was a pre-school child in hospital: it is interesting to note that Scheslinger, according to Rector¹, discovered five cases in 54,000 patients.

Case 1 was discovered during the examination of a boy aged ten, the second of four children, who complained of cough: he is under observation as a tuberculosis contact. The sterno-costal portion of the left pectoralis major and the left pectoralis minor are both missing. Although not previously noted, this is believed to be a congenital defect. The clavicular head of the pectoralis major is well developed and arises from the inner half of the clavicle; the deltoid is not hypertrophied (fig. 1). When the arms are extended above the head, a well-marked fold of skin running vertically across the axilla to the second left rib and interspace can be seen and in

Fig. 1.
the fold fibrous tissue can be felt deep to the skin: whether this is simply fascia or a vestigial or degenerated muscle is not known. He suffers no functional disability. X-ray examination of the chest reveals no bony abnormalities; he shows no other congenital defects and none are known in other members of his family.

Case 2 in a girl aged fourteen, the eldest of six, was first detected during a routine school medical examination five years ago; the general musculature and subcutaneous fat are well developed and when the child is at rest the defect is hardly evident though the skin of the left anterior axillary fold is puckered up, and the left breast is slightly elevated. Almost the whole of the sterno-costal portion of the left pectoralis major is missing and though it is difficult to be certain of this, the left pectoralis minor appears also to be absent. The persistent part of the major muscle is well developed and is attached at its proximal end to the inner third of the clavicle and the inner end of the first rib. There is no abnormal skin fold in the axilla and the deltoid is not hypertrophied (fig. 2). The child suffers no functional disability and seems otherwise normal. No congenital defects are known in the other members of the family.

Case 3 in a boy aged four, the younger of two children, was found during his stay in hospital. He suffered from septic pharyngitis and tonsillitis following pneumonia and the muscles generally were markedly atonic. The parents had previously observed that 'there was something one-sided about his chest.' The left pectoralis minor is absent, and of the major muscle only the clavicular head, arising from the inner third of the clavicle, and a slip attached to the inner end of the first rib persist. There is no functional disability, scoliosis or hypertrophy of the deltoid, and there is no abnormal skin fold in the axilla (fig. 3). No other congenital defects have been observed in him and none are known in other members of his family.

Case 4 is in a girl now aged five years, the third of five children. The mother states that 'the labour was precipitate and the right side of the chest was noticed soon after birth to be sunken in, and this side has never developed as the other has done.' She suffered from whooping cough as a baby and has bronchitis. The defect is obvious at a glance (fig. 4). The sterno-costal portion of the right pectoralis major and the right pectoralis minor are missing. There is a distinct indentation in the upper and outer part of the right chest in front and here the second and third ribs feel almost as if fractured. The clavicular head of the pectoralis major is well developed and arises from the middle third of the clavicle (a similar attachment of this part of the muscle has been observed clinically in normal children). When it is made to contract, a fold of skin can be seen beneath it suggesting the presence of underlying muscle, though none can be felt. The right nipple is elevated. When the right arm is extended above the head a fold of skin, in which can be felt what appears to be fibrous tissue, is evident on the right side extending from the axilla to the second intercostal space near the sternum. The child is otherwise well developed and she suffers no functional disability; there is no scoliosis and no hypertrophy of the deltoid. No other congenital defects can be found in her and none are known in the other members of the family. The skiagram (fig. 5) shows the deformity and narrowing of the upper part of the chest due to abnormality of the second and third ribs, the bony parts of which are ill developed, thin and short, that of the second rib being particularly short; it appears that ossification of the bodies of these ribs has failed anteriorly. No other skeletal defects are shown.
Discussion

Congenital absence or defect has been recorded of many muscles, the most frequently affected being the pectorals (Bing\(^2\)). The apparent frequency with which these are affected as compared with other muscles has been in part ascribed to ease of ascertainment during routine clinical examination\(^3\), but, as defects of the pectorals usually cause little or no functional disability and are often unnoticed by the patients or relatives—in only two of the present four cases had the relatives observed any abnormality—their comparative frequency may be even greater than Bing suggested. Such abnormalities are almost invariably partial and also unilateral: in the majority of cases the sterno-costal part of the pectoralis major and the whole of the pectoralis minor are absent; fewer show absence of the sterno-costal part of the pectoralis major alone, and only one case of absent pectoralis minor alone (detected in a man during mastectomy) has been described\(^4\). There may be associated abnormalities of the upper ribs or of the breast and nipple on the affected side, and sometimes other congenital defects co-exist. Scoliosis may be present. When only the clavicular portion of the pectoralis major persists it is, as a rule, together with the deltoid, much hypertrophied\(^3\), and generally the patient suffers little or no incapacity. Alstead\(^5\) described in his case, a fold of skin running across the axilla of the affected side suggesting the existence of a vestigial muscle. According to Rector\(^1\) only one instance of the defect as an hereditary or familial manifestation has been recorded. In diagnosis the possibility of muscular dystrophy has to be remembered.

Lewis\(^6\), from studies of the development of the pectoral muscles in human embryos, believed that a partial explanation of the abnormalities found in them may lie in a failure of the pectoral muscle mass to attach itself to the ribs or clavicle; he attributed the frequent association of absence of the pectoralis minor with absence of the sterno-costal portion of the pectoralis major to their early fusion (prior to differentiation).

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REFERENCES

2. Bing, R., Virchow's Arch., Berlin, 1902, CLXX, 175.