Brief communication · Thoracic non-oncologic
Remodelling acquired chest wall deformity after removal of a large axillary lipoma

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Abstract

Acquired chest wall deformities are rarely encountered. Most of them result from pathologic process within the thorax, chest wall disease, iatrogenic deformities or post-traumatic. We present a case of a huge axillary mass deforming the chest wall. Surgery treated a well-encapsulated lipoma. Six months postoperatively, the chest wall restored to normal shape with active respiratory physiotherapy. This is the first reported case of spontaneous ‘remodelling’ of the chest wall without surgery.

Keywords: Acquired chest wall deformity; Benign chest wall tumour; Lipoma

1. Case report

A 21-year-old man, without medical history, was admitted in our department because he was having pain in the right arm and axillary region for one year. The clinical examination revealed an axillary mobile mass deforming the chest wall. To note, 10 years before the chest X-ray was normal. At admission, the CT-scan and MR imaging showed compression of the subclavian vessels and brachial plexus but no invasions of the rib cage (Fig. 1). At operation, the mass was easily resected and it was confirmed to be a benign lipoma [1]. The postoperative course was uneventful and the drain left in place was removed on the 2nd postoperative day. The patient was discharged on the 4th postoperative day with analgesic prescription and active respiratory physiotherapy. As usual, one month later he had a postoperative check-up. The control chest X-ray was identical with the postoperative one, the loss of volume of the right hemithorax still being present (Fig. 2, left side). He left our region shortly after because of his scholarship plans. We recommended him to continue the respiratory physiotherapy and to have a clinical and radiological check-up six months postoperatively. Five years later, end of university program, he showed us his X-ray at six months (Fig. 2, right side). Curiously, there was no more chest wall deformity.

2. Discussion

Recently, we published an ‘Images in cardio-thoracic surgery’ of a huge axillary lipoma deforming the chest wall [1]. In the follow-up period, the rib cage returned to normal shape after six months, so it was obvious for us that this case deserved a full description. Moreover, extensive researches done via PubMed failed to find a similar report.

Acquired chest wall deformities are rarely encountered. Most of them result from pathologic process within the thorax, chest wall disease, iatrogenic deformities or post-traumatic [2]. Generally, surgery is (indicated) according to the pathologic process and usually, it corrects the problem. Our case is different. It started like a primary benign lipoma of the chest wall. The natural course of benign tumours show progressive enlargement, usually apparent in both physical and radiographic examination. When ignored it provokes compression of the surrounding tissues but no invasion. Wide resection is the treatment of choice. In our case, surgery treated the benign tumour (no recurrence at 5 years) but did not correct immediately the rib cage. Perhaps the long-standing compression of lipoma (>1 year, since the beginning of the symptoms), did not allow rapid recovery of the rib cage. The mechanisms of remodelling chest wall are difficult to explain. For example, in emphysematous thorax, doing lung reduction surgery somehow corrects the barrel shape form of the chest wall. Passive weight of the chest wall and absence of hyper-inflated lung combined with the re-established elastic recoil of the lung correct the deformity. The forces act from outside to inside. In our case, the forces had to be in opposite direction. One example is the traumatic flail chest. A patient, respiratory compromised, needing mechanical ventilation with positive end-expiratory pressure correct his flail chest, the forces acting from inside to outside. But our deformity solved spontaneously. In fact, the respiratory process gives the solution [3]. In inspiration, diaphragm contraction enlarges all thoracic diameters. Constant and repetitive contractions of the external inter-
costal, try to pull up the ribs. Doing active exercise in respiratory physiotherapy, mobilises the accessory muscle of inspiration (sternocleidomastoid and scalenes) that further tract upward the first two ribs. Expiration is passive but the positive intra-thoracic pressure can ‘pull’ out the deforming ribs. This positive pressure is increased with active physiotherapy. Finally, the rib cage of our young man corrected itself.

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References