A myoplasia congenita, or “classic distal arthrogryposis,” is the most common disorder among the congenital, non-progressive, multiple joint contractural conditions named arthrogryposis. The cause remains unknown, and it occurs sporadically. Abnormal neurological examination indicates that movement in utero was diminished as a result of an abnormality of the central or peripheral nervous system, the motor end plate, or muscle. The absence of central neural pathology indicates the origin in akinetic fetal condition. Three weeks are enough to cause muscle weakness and joint fibrosis. Joint contractures in myoplasia are often rigid and refractory to nonoperative treatment such as passive stretching. Surgery is focused on each patient’s need respecting adaptive maneuvers to accomplish daily tasks. We present a case in which pectoral major muscle had no strength for pinching; a trapezius muscle transfer was planned to obtain an interbrachial pinch useful for grasping.

CASE REPORT

A 13-year-old male patient was admitted to our outpatient clinic with complaints of common amyoplasia joints deformity, difficulty walking partially solutioned by knee casting, and, above all, upper limb movement restrictions, asking for improvements.

After physical examination no muscles were available in the upper limb, including a weak pectoralis major muscle. To obtain a basic dorsal wrist pinch, shoulder adduction and internal rotation were needed and muscle transfer was planned.

Bilaterally upper trapezius muscle fibers were detached from the lateral third of the clavicle and sutured to pectoralis major muscle’s tendon at the humeral head. The incision is performed on the deltopectoral crease; then, the upper trapezius muscle is disinserted of the clavicle and transferred subcutaneously. The attachment to the pectoralis major muscle tendon is performed with nonabsorbable suture (Fig. 1).

A bandage to impede shoulder movements was maintained for 1 month and then rehabilitation was started. After 3 months an effective and useful interbrachial pinch using dorsal wrists’ surfaces was obtained allowing the child to grasp medium-sized objects.

DISCUSSION

In these patients, upper limb posture is as follows: shoulder is in adduction and internal rotation, the elbow is extended, forearm pronated, wrist in flexion and hand...
in ulnar deviation, digits are flexed and stiff, and thumb clasped. In the lower limbs, hips can be dislocated, knees extended, and club feet are usually present. The neurological function is normal.1–3

Classic operative treatment consists in early arthrolysis of affected joints and surgeries focused to each patient’s need respecting adaptive maneuvers to accomplish daily tasks.2

Often, grasping is obtained by the so-called brachio-thoracic pinch in which patient adducts the humerus against thorax, scissoring upper limbs to grasp objects. This movement is allowed by pectoralis major muscle, usually available in these patients and expendable to restore active elbow flexion.4

When pectoralis major is unavailable or not strong enough, pinching is not possible.

In this case a new transfer using trapezius is presented to overcome the problem.

The trapezius muscle is widely used to restore upper extremity movements such as shoulder abduction in brachial plexus injuries.5 The upper portion of the trapezius muscle is inserted into the lateral third of the clavicle. The contraction of these fibers elevates the scapula.

RESULTS

With this technique the patient is able to adduct the arms and pinch medium- and large-sized objects. (Video Graphic 1; See video, Supplemental Digital Content 1, which shows the shoulder adduction achieved, http://links.lww.com/PRSGO/A410.)

Transferring upper trapezius muscle to pectoralis major tendon seems to be a good option for amopylasia congenital patients with no shoulder adduction function. Upper trapezius is strong enough and is very simple to rehabilitate.

PATIENT CONSENT

Parents or guardians provided written consent for the use of the patient’s image.

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