Chronic rupture of pectoralis major muscle: A case report

Kronična ruptura musculus pectoralis majora: Prikaz slučaja

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Abstract. ***Aim:*** To present a surgical technique and postoperative management of chronic pectoralis major rupture. ***Case report:*** We describe a male patient of 32 years after weight lifting injury. The MRI showed a rupture in the tendon with retraction to slightly laterally to the mid-axillary line. The patient was treated operatively and returned to non-restrictive way of life after six months. ***Conclusion:*** Chronic cases of pectoralis major rupture can be successfully treated. The present patient is fully recovered and he resumed activities (weightlifting) as before the injury. Non-surgical treatment is associated with a much more frequent loss of power and the inability to return to sports.

Key words: allograft; pectoralis major muscle; rupture

Sažetak. ***Cilj:*** Predstaviti kiruršku tehniku i postoperativni tretman kronične rupture musculus pectoralis major. ***Prikaz slučaja:*** Prikazujemo pacijenta starog 32 godine, muškarca, nakon ozljede zadobivene tijekom dizanja utega. Magnetna rezonanca je pokazala rupturu tetive s retrakcijom lateralno od središnje aksilarne linije. Pacijent je operiran i nakon šest mjeseci nastavio je svoj prijašnji način života. ***Zaključak:*** Kronični slučajevi rupture m. pectoralis major mogu se uspješno liječiti. Naš pacijent se u potpunosti oporavio i nastavio baviti aktivnostima (dizanje utega) kao i prije ozljede. Nekirurško liječenje je povezano s mnogo češćim gubitkom snage i nemogućnošću ponovnog bavljenja sportom.

Ključne riječi: pectoralis major; presadak; ruptura

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INTRODUCTION

Injuries of the pectoralis major muscle are rare events. The cause is mostly weight lifting or push-ups. Such injuries often lead to the aesthetic and functional failure. It usually manifests haematoma in the pectoral muscle and axillary region, loss of the anterior axillary fold, and finally loss of the muscle contour. After withdrawal of haematoma, muscle deformity remains. Sometimes the patients feel pain and muscle cramps. They also sense the loss of strength, primarily inability to execute push-ups[1,2].

Rupture of the pectoralis major in athletes is usually an indication for surgical treatment. Non-surgical treatment is associated with a much more frequent loss of power and the inability to return to sports.

Anatomy and physiology

The pectoralis major can be divided into two anatomical and functional parts – clavicular and sternal. The insertion site is the lateral lip of the bicipital groove on the humerus. This muscle is a strong adductor and internal rotator of the humerus. It contributes to the extension in the position of anteflexion, and vice versa. It is innervated predominantly by the lateral pectoral nerve (C5-C6), less with the middle and medial (C8-TH1) pectoral nerves. Irrigation comes from the pectoral branch of the thoracoacromial artery[1-2].

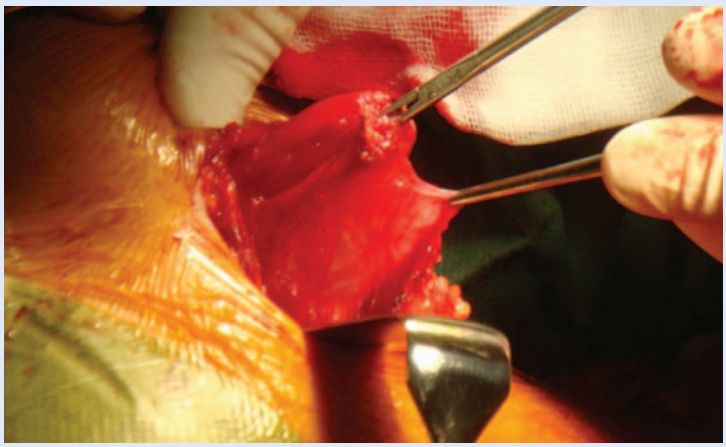

Figure 1. Ruptured tendon of the pectoralis major muscle

Figure 2. Prepared semitendinosus graft

CASE REPORT

The patient (male), aged 32, visited the surgery a year and a half after the injury. The injury occurred when lifting weights on the bench. He felt a rupture and there was a haematoma in the axillary region. After resolving acute symptoms, aesthetic defect and weakness in certain movements and activities remained. The patient was advised to do an MRI, which showed a rupture in the tendon with retraction slightly laterally to the mid-axillary line (Figure 1).

Review of surgical treatment

The patient was placed in a beach chair position. Incision was made in the lower part of the deltopectoral groove. The tendon of the pectoralis major was retracted, mobilized, and with strong tension we failed to get closer than 3 cm from its insertion site on the lateral part of the bicipital groove. Then we decided to take the semitendinosus tendon from the right leg, and prepared it as quadruple graft (Figure 2).

Then we placed two titanium anchors to the insertion site on the humerus (Corkscrew 5 x 15.5 mm; Arthrex Inc., Naples, Florida). The tendon graft is sewn with 4 stitches (FiberWire#2; Arthrex Inc., Naples, Florida), and then in a series of 4 stitches tightened to the intraossal anchors. This produced the adequate tension (Figure 3-5).

The patient was discharged from the hospital the second day by wearing shoulder orthosis and with prohibition of movements. After 2 weeks, we removed the sutures and initiated pendulum exercises of his right shoulder several times a day, as well as exercises for the elbow and the hand. This was followed by dosed exercises with increase in the volume of mobility, with the greatest caution in external rotation and abduction. Active assisted

exercise was started after 4 weeks, and exercises against light resistance after 3 months. A complete return to the non-restrictive way of life was achieved at 6 months. At follow-up examination after 6 months, the patient noted no aesthetic deficit and reported a subjective feeling of normal strength in his right hand. He returned to normal training and sports activities.

DISCUSSION AND CONCLUSION

The present patient is fully recovered and has resumed activities (weightlifting) as before the injury. Our clinical success is in correlation with the available literature. As literature suggests, a rupture of the pectoralis major in athletes is usually an indication for surgical treatment. Non-surgical treatment is associated with a much more frequent loss of power and the inability to return to sports. Clinical results of chronic ruptures are slightly worse than acute. Yet, in chronic ruptures good or excellent result can be expected in most cases unless there is retraction of the tendon medially to the mid-axillary line, and in cases of rupture in the muscle belly. In chronic ruptures, there is usually retraction of the tendon and the graft must be used to adequately reconstruct the tendon[3-6].

Conflicts of interest statement: The authors report no conflicts of interest.

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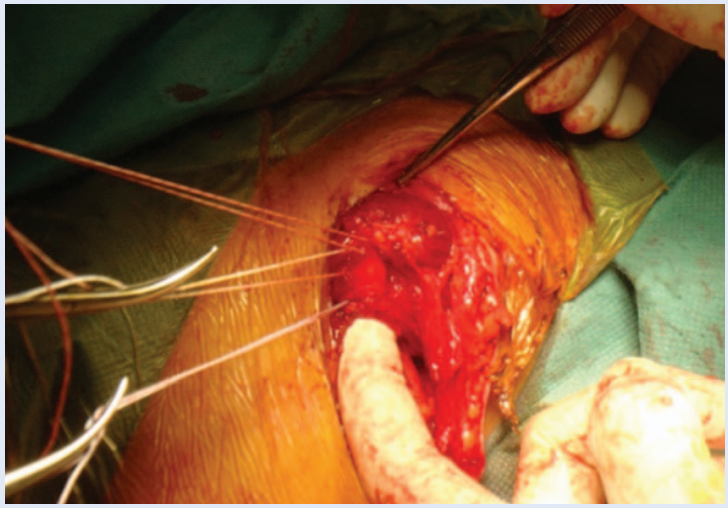

Figure 3. Sutures in the pectoralis tendon stump

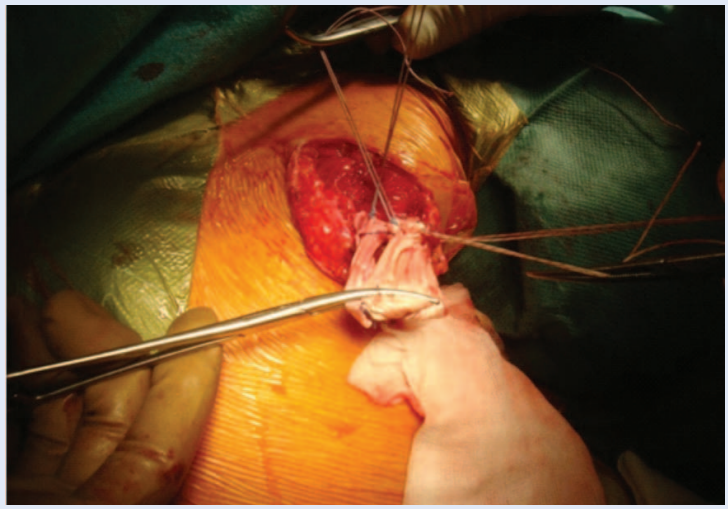

Figure 4. Attached and sutured semitendinosus graft to pectoralis major stump

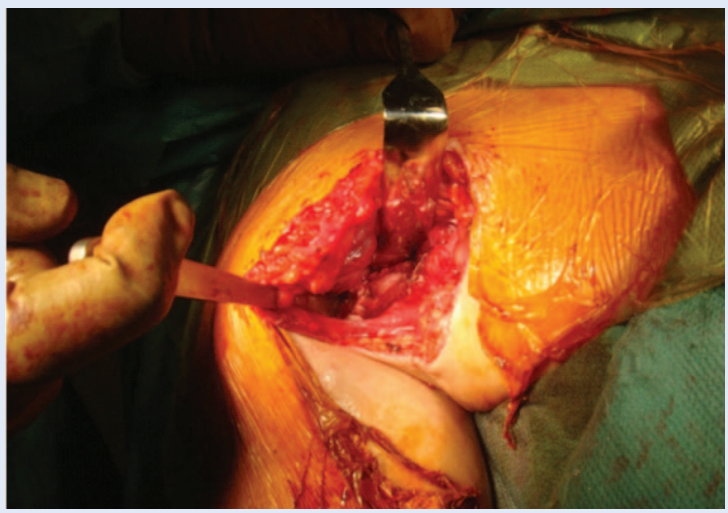

Figure 5. Reconstructed tendon fixed to the humerus