

Delayed Repair Of Pectoralis Major Tendon Rupture Using Hamstring Autograft And Bioabsorbable Interference Screw

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Financial Disclosure Statement

- Juan Pablo Aguado Fernández, Orthopaedic Surgeon
- Alberto Caballero, MD
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- We have no financial conflicts to disclose

Purpose

Pectoralis major tendon ruptures are produced in the transition of an eccentric load to a concentric muscular contraction. Most of them are caused in the bench press weightlifting at the gym, but also in some hard manual work. Surgical repair is recommended by all authors, especially for people involved in sport and work activities that require full shoulder strength. We report a case of complete humeral tendon avulsion treated surgically 2 years after the injury



Material and Methods



A 25 years old male patient was seen 2 years after sustaining an injury in his left non dominant shoulder while lifting a large weight. He had a visible and palpable defect in the axillary fold and weakness on resisted shoulder adduction and internal rotation confirmed in isokinetic strength test.

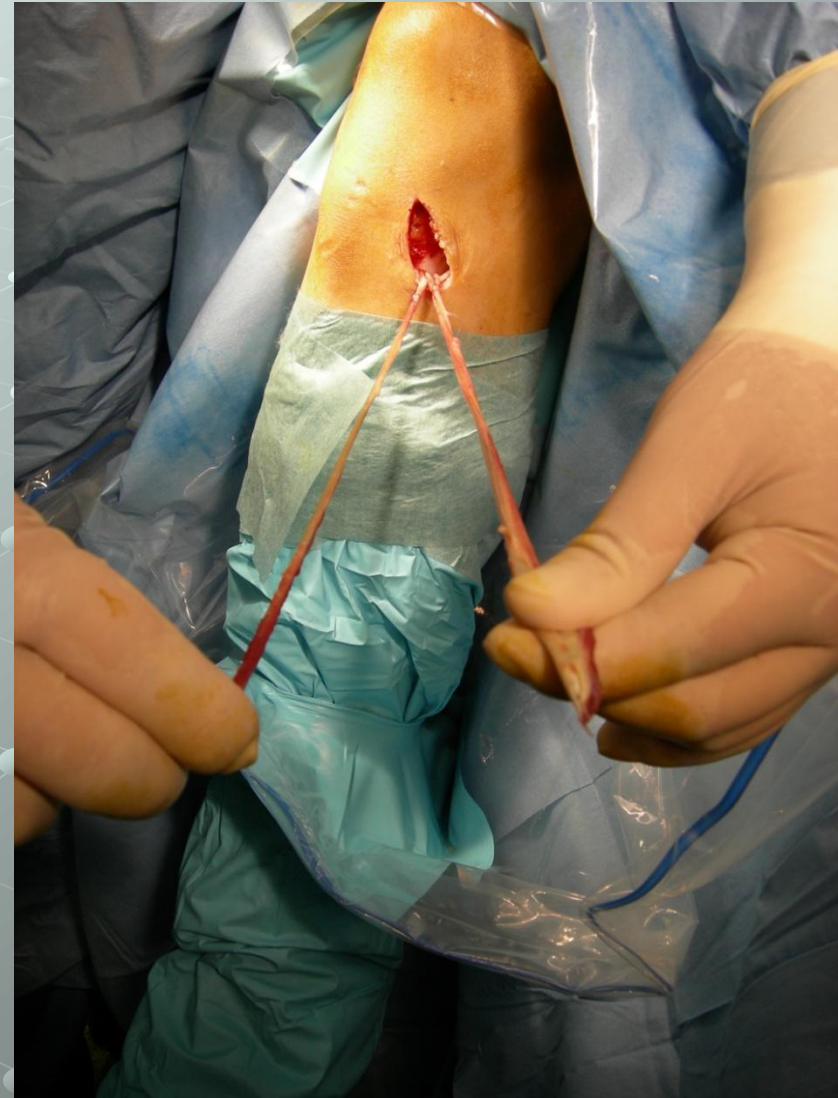


At surgery a complete rupture of the pectoralis major tendon was identified. Despite circumferential mobilization of the muscle, anatomic direct repair to the humerus with the arm at the side was not possible (Fig. 1)

Fig. 1

Fig.2

The semitendinosus tendon of the homolateral knee was obtained to be sutured to the pectoralis muscle stump (Fig. 2)



Two appendixes of two bundles tendon each were created measuring 3 cm in length (Fig. 3)

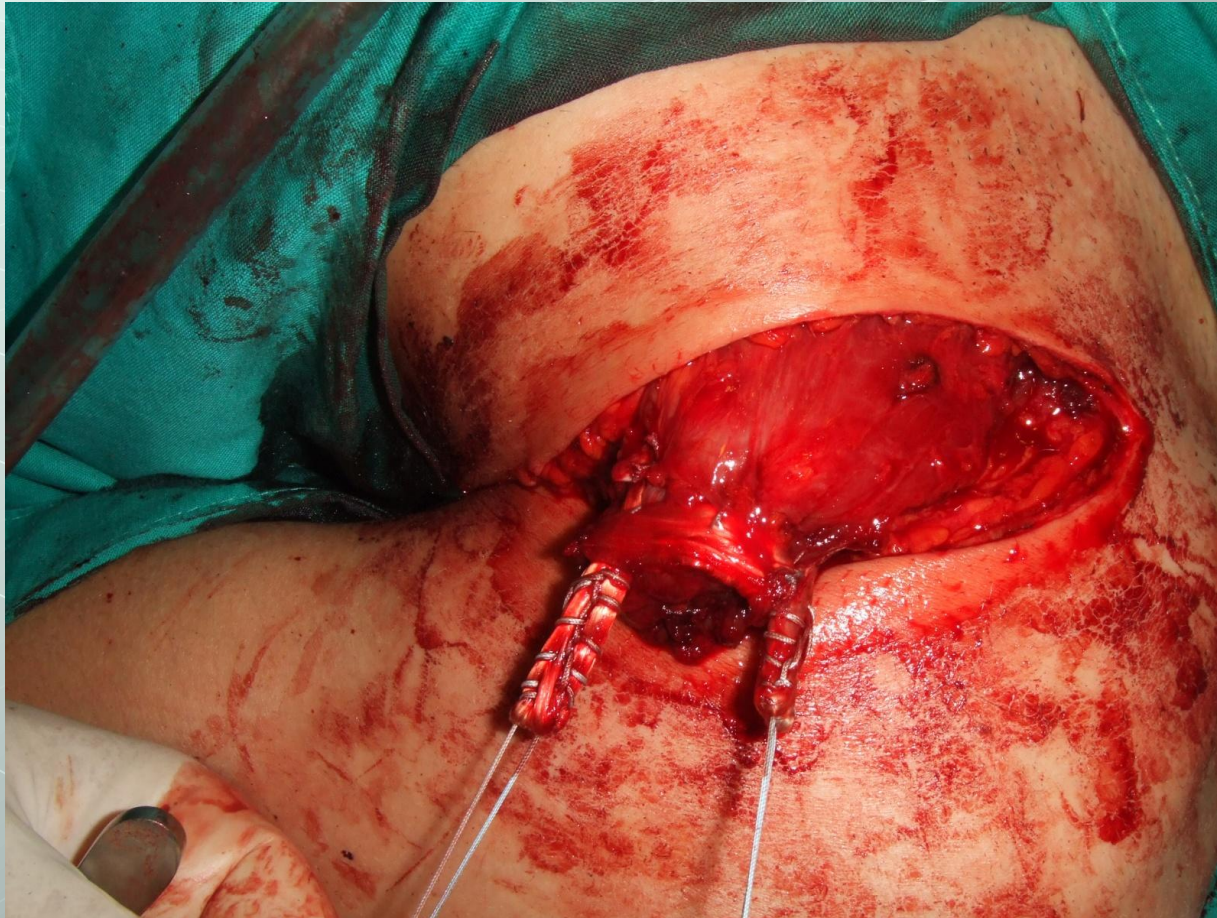


Fig. 3

Fig. 4

Using the Biotenodesis System (Arthrex, Inc., Creekside Boulevard, Naples, FL), these tendinous appendixes were fixed into bone holes with bioabsorbable interference screws at the anatomic insertion of the muscle (Fig. 4)
The patient was immobilized with a sling for 6 weeks



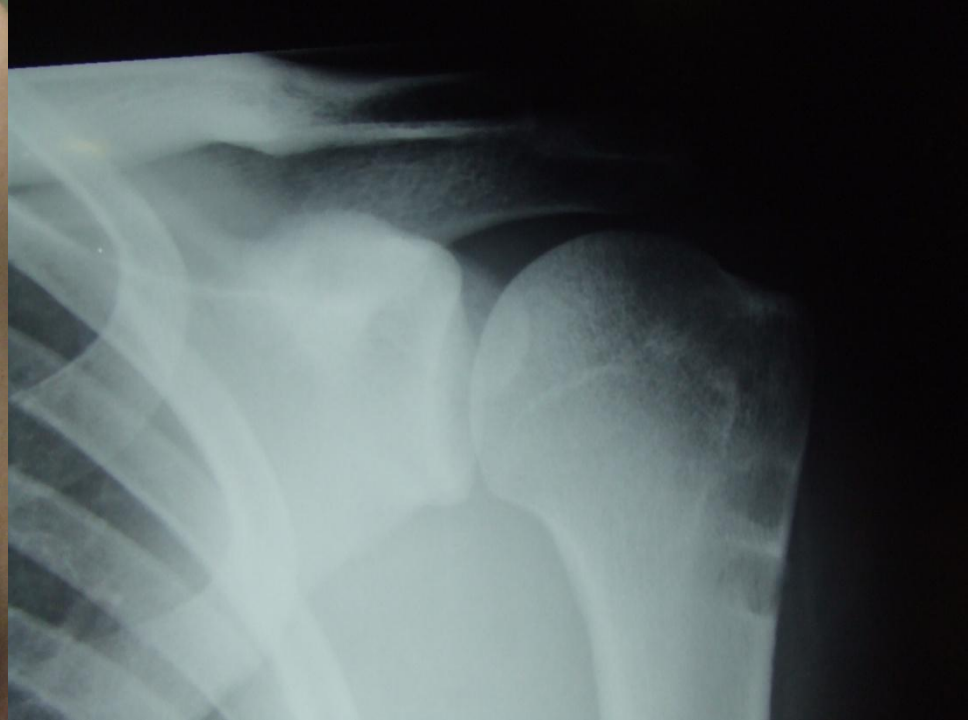
Results

At 6 weeks full range of motion was allowed.
At 3 months, he returned to work and sport activities gradually.

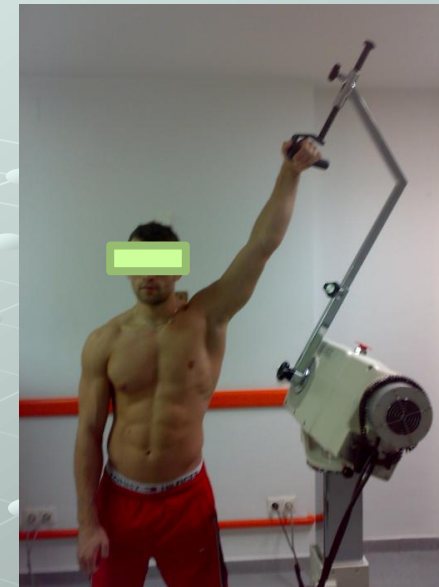
At 6 months, he reached his previous level and carried out work and sports requiring right shoulder strength without restrictions.

At 10 months of surgery a new isokinetic strength test was made showing a great improvement with results almost equal to unaffected side.

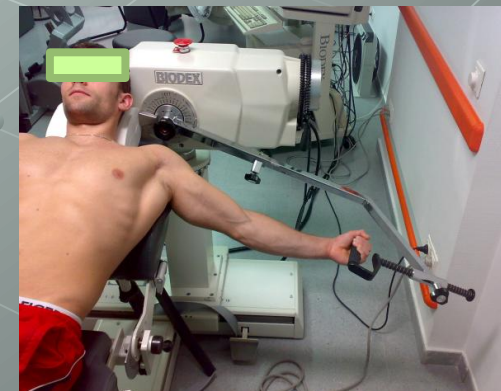
He is very satisfied with the cosmetic appearance as well, because there is no difference in muscle contour and axillary fold with the right side



Isokinetic strength test in DIAGONALS



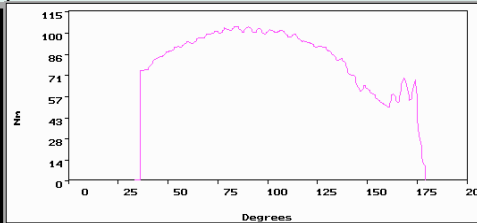
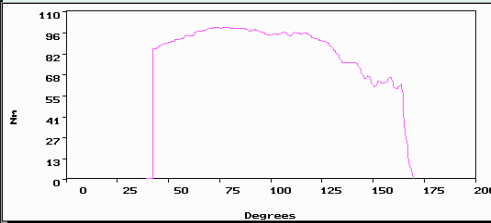
Isokinetic strength test of ADDUCTION IN SUPINE



UNNAFECTED right side

8-11-07 Peak Torque: **99,3 Nm**

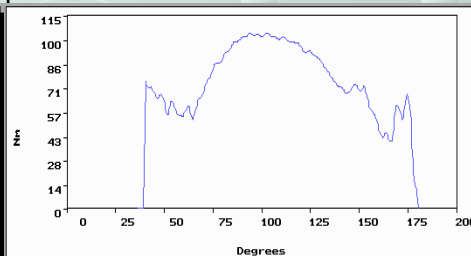
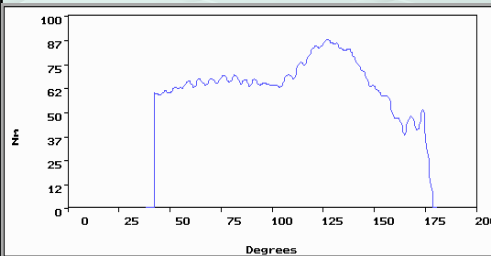
28-10-08 Peak Torque: **104,3 Nm**



AFFECTED left side

8-11-07 Peak Torque: **87,3 Nm**

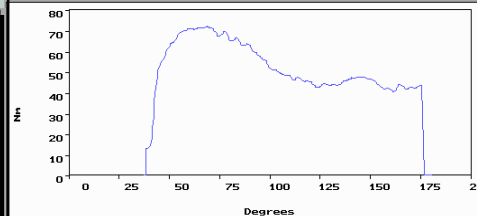
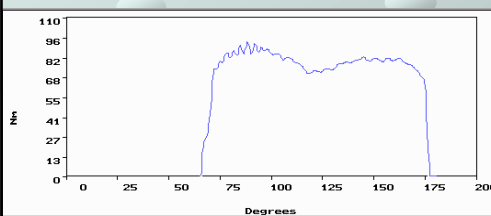
28-10-08 Peak Torque: **104,3 Nm**



UNNAFECTED right side

8-11-07 Peak Torque: **103,7 Nm**

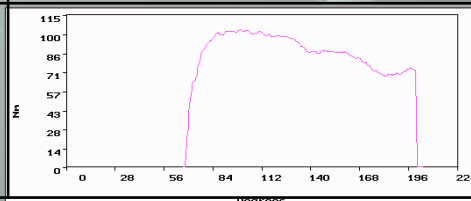
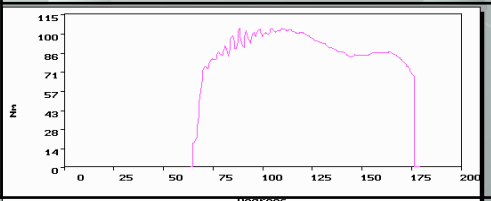
28-10-08 Peak Torque: **108,3 Nm**



AFFECTED left side

8-11-07 Peak Torque: **62,1 Nm**

28-10-08 Peak Torque: **97,4 Nm**



Conclusion

- ☆ We recommend surgical treatment for the ruptures of the pectoralis major tendon in all cases, but especially if full function and strength recovery is required.
- ☆ In cases of chronic ruptures in which direct repair to bone can't be achieved, a tendon augmentation technique must be performed.
- ☆ We present this technique using semitendinosus tendon in order to create cylindrical extensions of the tendon stump that can be attached to bone holes with bioabsorbable interference screws.
- ☆ In the case presented, the results are excellent, regaining cosmesis, function and strength.

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