

Pectoralis Major Tear: An Unusual and Rare Presentation

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What to Learn from this Article?

MRI is the mainstay for diagnosing pectoralis major tear early surgical intervention has very good outcome.

Abstract

Introduction: The pectoralis major is a very powerful muscle that forms the chest prominence and. It moves the shoulder forward and across your chest. It is best known as the muscle that you develop with the bench press exercise in gymnasium. The pectoralis major attaches to the humerus bone and is divided into two parts. The upper part is known as the “clavicular head” and the lower part the “sternal head,” based on their origins from the clavicle and sternal bones, respectively. Ruptures of the pectoralis major muscle are becoming more common due to the increase in power sports weight training.

Case Report: A 25-year-old male presented to Out Patient Department with bruising and swelling over the anterior wall of left axilla. The patient was engineer and amateur weight lifter. Clinically, the swelling was tender, and movements of left arm were restricted. Muscle tear was suspected and hence magnetic resonance imaging (MRI) was advised which showed tear of tendon of pectoralis major muscle. The patient was treated surgically and has got full range of movements of the arm.

Conclusion: MRI is the mainstay for diagnosing pectoralis major tear. The earlier a repair is performed the easier the surgery and the better the outcome of surgery.

Keywords: Pectoralis major, tear, weight lifting.

Introduction

Rupture of the pectoralis major is a rare injury that was first described by Patissier [1] in 1822 in Paris, followed by Letenneur [2] in 1861. Tears of the pectoralis major are rare and typically affect otherwise healthy individuals. Most lesions are located at the musculotendinous junction and result from violent, eccentric contraction of the muscle, such as during bench press [3]. The pectoralis major muscle is not essential for normal daily shoulder function but is important for strenuous activities. Patients who wish to return to active athletic and manual activities are likely to benefit from surgical repair.

Case Report

A 25-year-old male presented to Out Patient Department with bruising and swelling over the anterior wall of left axilla. The patient was an engineer by occupation and amateur weight lifter. While doing his routine workout in the gym, the patient experienced severe pain and tearing sensation over the left side of the chest. Clinically, there was bruising, ecchymosis, swelling, altered anterior axillary fold crease, tenderness, and restriction of movements of left arm (Fig. 1). Muscle tear was suspected and hence magnetic resonance imaging (MRI) was advised (Fig. 2) which showed tear of tendon of pectoralis major muscle. The patient was

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Author's Photo Gallery



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treated surgically by taking osseous sutures and reattaching the tendon to humerus. The arm was immobilized for 2 weeks. Active elbow and wrist exercises were started as soon as pain subsided. At 2 months follow-up patient had full range of movements (Fig. 3).

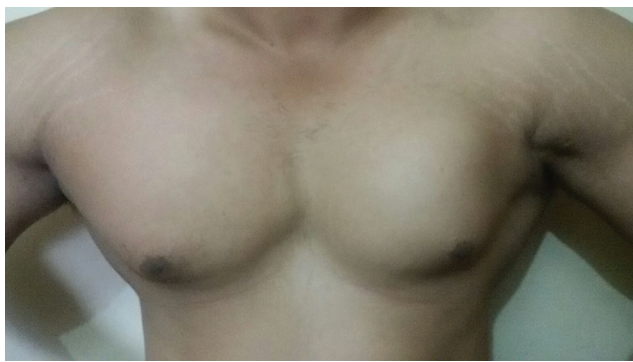


Figure 1: Clinical photograph.

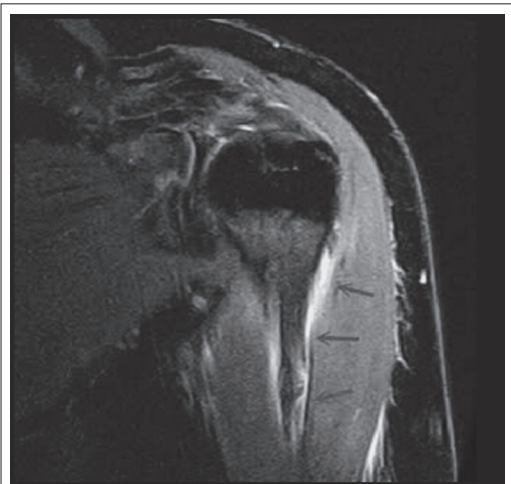


Figure 2: Magnetic resonance imaging showing tear.

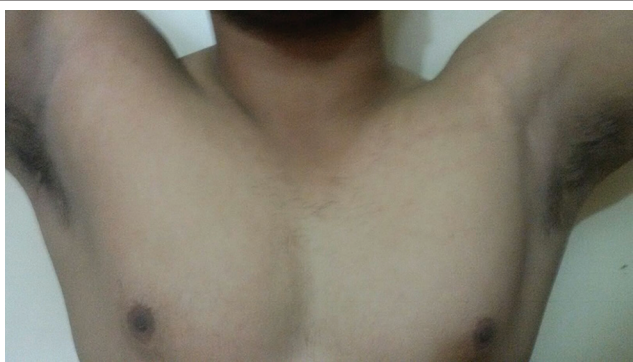


Figure 3: Full range of movements.

Discussion

The pectoralis major muscle is the large muscle in front of the chest wall. There are two parts of the pectoralis muscle, the pectoralis major, and the pectoralis minor. The pectoralis major is the larger of the two and works to push the arms in front of the body, such as in a bench press exercise. Although ruptures remain rare, the injury has become more prevalent in the past 30 years as the numbers of both recreational and professional athletes have increased.

These injuries generally occur during forceful activities. Almost half of all pectoralis major ruptures occur during weightlifting, particularly during a bench press maneuver. It is known that steroid use can weaken the tendon, and this is thought to be a contributing factor in many pectoralis major muscle ruptures. However, these injuries can certainly occur in patients who have never used steroids [4].

The mechanism of injury of a pectoralis major rupture is either due to direct injury or indirect trauma due to extreme muscle tension or a combination of both. Several studies have reported an increased incidence of injuries because of excessive muscle tension rather than direct trauma [5, 6, 7, 8].

The technique for surgical repair varies from suturing the tendon to the periosteum [9], to the remaining tendon [7] or clavi-pectoral fascia [10]. Osseous fixation can be achieved through drill holes [9, 11, 12] barbed staples [13] and anchors [14].

Early surgical repair of distal pectoralis major tendon ruptures and an accelerated rehabilitation protocol provide reliable restoration of shoulder function and strength, allowing an early return to sports and functional activity. Outcomes after early primary repair have generally been superior to those of delayed repair [5, 15].

Conclusion

We believe MRI scanning is important in accurately determining the severity and the site of injury, which aids preoperative planning. The earlier a repair is performed the easier the surgery and the better the outcome of surgery.

Clinical Message

Weight lifters should be instructed on proper bench press technique. The most important considerations are to limit the distance the bar is lowered and to narrow the grip of the hands to the bar. Lowering the bar all the way to the chest, or widening the grip on the bar, increases the stress on the muscle and increases the chance of a pectoralis injury.

References

1. Patissier P. *Traite Des Maladies Des Artisans*. Paris: Jean-Baptiste Bailliére; 1882. p. 162-4.
2. Lettenneur M. Rupture sous-cutanie muscle grand pectoral. *Inform Sect Med J* 1861;52:202-5.
3. Garrigues GE, Kraeutler MJ, Gillespie RJ, O'Brien DF, Lazarus MD. Repair of pectoralis major ruptures: Single-surgeon case series. *Orthopedics* 2012;35(8):e1184-90.
4. Available from: <http://www.pectear.com/pectears/pectear.htm>.
5. Bak K, Cameron EA, Henderson IJ. Rupture of the pectoralis major: A meta-analysis of 112 cases. *Knee Surg Sports Traumatol Arthrosc* 2000;8(2):113-9.
6. Kannus P, Józsa L. Histopathological changes preceding spontaneous rupture of a tendon. A controlled study of 891 patients. *J Bone Joint Surg Am* 1991;73(10):1507-25.
7. Manjarris J, Gershuni DH, Moitoza J. Rupture of the pectoralis major tendon. *J Trauma* 1985;25(8):810-1.
8. Wolfe SW, Wickiewicz TL, Cavanaugh JT. Ruptures of the pectoralis major muscle. An anatomic and clinical analysis. *Am J Sports Med* 1992;20(5):587-93.
9. McEntire JE, Hess WE, Coleman SS. Rupture of the pectoralis major muscle. A report of eleven injuries and review of fifty-six. *J Bone Joint Surg Am* 1972;54(5):1040-6.
10. Liu J, Wu JJ, Chang CY, Chou YH, Lo WH. Avulsion of the pectoralis major tendon. *Am J Sports Med* 1992;20(3):366-8.
11. Kretzler HH Jr, Richardson AB. Rupture of the pectoralis major muscle. *Am J Sports Med* 1989;17(4):453-8.
12. Park JY, Espiniella JL. Rupture of pectoralis major muscle. A case report and review of literature. *J Bone Joint Surg Am* 1970;52(3):577-81.
13. Egan TM, Hall H. Avulsion of the pectoralis major tendon in a weight lifter: Repair using a barbed staple. *Can J Surg* 1987;30(6):434-5.
14. O'Donoghue DH. *Treatment of Injuries to Athletes*. 3rd ed. Philadelphia, PA: Saunders; 1976.
15. Aärmaa V, Rantanen J, Heikkilä J, Helttula I, Orava S. Rupture of the pectoralis major muscle. *Am J Sports Med* 2004;32(5):1256-62.

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