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# Traumatic tear of the pectoralis major muscle during military parachute jumping

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A tear of the pectoralis major (PM) muscle is a rare injury that is prevalent in men between 20 and 40 years of age and those in a military profession.<sup>1,2</sup>

In a 26-year-old soldier, an incorrectly attached parachute harness led to unintentional hyperabduction of the left arm, resulting in rupture of the PM tendon.

To provide support, the parachute belts are fixed from behind. However, in this case, the belt on the left side was applied asymmetrically, running under—instead of above—the upper arm, which caused jerky hyperabduction of the left arm as the belt straightened when the soldier jumped to parachute down.

The soldier visited the emergency room of the local civilian hospital complaining of pain in the anterior shoulder region, which restricted movement of the arm. Because the initial clinical diagnosis was a tear of the long biceps tendon, conservative therapy was recommended. In the following days, the soldier looked in the mirror and noticed that the left pectoralis muscle was deformed. Because of his deformed left pectoralis muscle and persistent pain, he decided to visit his troop doctor. At first glance, the MRI diagnosis did not support a PM rupture. He visited our clinic 2 weeks after visiting his troop doctor. The de novo evaluation of the first MRI scan confirmed the diagnosis as well as dehiscence of the PM tendon measuring approximately 4 cm.

On clinical examination, the patient expressed pain when pressure was applied to the PM tendon on the humeral side. Furthermore, medial displacement of the muscle and cranial displacement of the nipple were observed during contraction (*figure 1*). In the functional tests, adduction and anteversion were painful and less pronounced in a lateral comparison. The sonograph showed a haematoma at the expected tendon insertion.

Open surgery was performed using the Pec Button Repair Kit with 3 buttons (Arthrex, Naples, Florida) (*figure 2*). After surgery, the soldier's shoulder was confined to a shoulder immobiliser for 6 weeks, thereby preventing abduction and external rotation. Then, as the soldier's pain was relieved, passive mobilisation was initiated followed by active-assisted mobilisation with physiotherapy 3 weeks later. Twelve weeks postoperatively, full range of motion (ROM) was nearly restored. At the 6-month follow-up, full ROM was regained, and he started strength training. At the 12-month follow-up, full ROM and full strength were completely restored, and the soldier had returned to duty without any limitations.

In summary, the patient had a very good outcome with no limitations in strength or ROM. Nevertheless, the first diagnosis of a more common biceps tendon tear was incorrect, thereby delaying treatment. As power sports and sports requiring rapid change in direction of the upper body (eg,

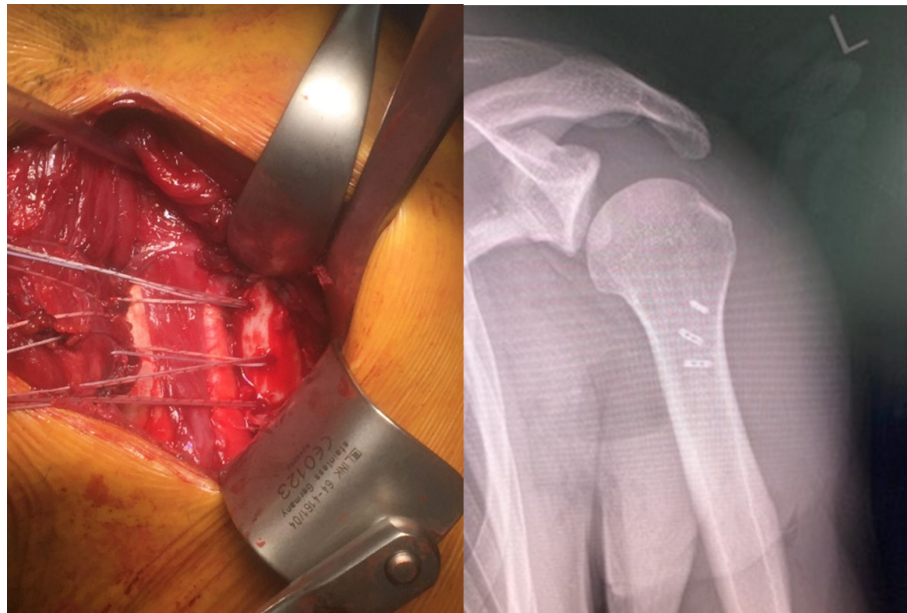


**Figure 1** Illustration of the inspector's findings with a positive 'nipple sign' on the left side, and a higher nipple on the pathological side.



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**Figure 2** (A) Presentation of the intraoperative situs after reinforcement of the tendon with three fibre wire pairs. (B) X-ray showing three monocortical drill holes in the humerus.

wakeboarding) become increasingly popular, the incidence of PM tears is likely to increase.<sup>1</sup> In soldiers, the diagnosis is made by troop physicians on the basis of trauma mechanisms and clinical findings.<sup>3</sup>

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