Author's response to reviews

Title: Spontaneous rupture of the long head of the biceps tendon in a hypothyroid female patient: A case report

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COVER LETTER – reply to reviewers

Do you believe it is the first report of this kind in the literature?

We haven’t found any similar case report in the literature. For the clinical and laboratory findings we hypothesized that a direct association between hypothyroism and biceps rupture could be existed in the presented case although we haven’t performed histological examination to prove our hypothesis as the patient refused surgical intervention.

Will it significantly advance our understanding of a particular disease etiology or drug mechanism?

It will help to understand some of the orthopaedic manifestations of hypothyroidism especially tendinitis and tendon ruptures.

Is it an original case report of interest to a particular clinical specialty of medicine or will it have a broader clinical impact across more than one area of medicine?

It will have a broader clinical impact in two specialties (endocrinology and orthopaedics), and both the orthopaedic surgeon and endocrinologist would be aware of this rare condition

Reply to Reviewer 1

Thank you very much for your comments. There were no compliance issues or some other factors for the TSH to go so high. The manuscript has been edited by native English speaking editors (Edanz Group Global Ltd, reference number: G1511-12403-Panagopoulos)

Reply to reviewer 2

We do not believe that biceps rupture in this particular patient was a coincidence.

The range of manifestations of myxedema includes stiffness, joint pain, joint swelling, CPPD deposition disease, popliteal cysts, ligamentous laxity and flexor tendon sheath thickening. Apart from the relationship between thyroid hormone action and collagen metabolism, a recent study demonstrated the presence of thyroid hormone receptors (TR) in healthy and pathologic tendons thus suggesting a possible role in the proliferation and apoptosis of human tenocytes. In vitro, THs
enhance tenocyte growth and counteract apoptosis in healthy tenocytes isolated from tendon in a **dose** and **time-dependent manner**. These results reinforce the concept of a physiological action of THs in the homeostasis of tendons, providing a possible mechanism whereby hypothyroidism may lead to tendon tears. There was not found any other cause for this spontaneous rupture of the long head of the biceps tendon. This happened in the acute onset of severe hypothyroidism and the symptoms have relieved after euthyroidism. The message is very important. All clinicians have to know that in severe hypothyroidism may appear complications from the entire body. The real fact is that we know a lot of them, but very rare a new one is present.