Author's response to reviews

Title: Incomplete joint side tear of the subscapularis tendon with a small fragment in an adolescent tennis player: A case report

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Author's response to reviews: see over
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Dear Professor Takeshi Muneta,
The SMARTT Editorial Team


We are most grateful to you and the reviewers for the helpful comments on the original version of our manuscript. We have taken all these comments into account and submit, herewith, a revised version of our paper.

We have addressed all the comments by reviewers 1, 2, and 3, as indicated on the attached pages, and we hope that the explanations and revisions of our work are satisfactory.

We hope that the revised version of our paper is now suitable for publication in the SMARTT journal, and we look forward to hearing from you at your earliest convenience.

Yours sincerely,
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We are grateful to reviewer 1 for the critical comments and useful suggestions that have helped us to improve our paper considerably. As indicated in the responses that follow, we have taken all these comments and suggestions into account in the revised version of our paper.

Comments by reviewer 1.

Comment #1
The authors should decide whether this episode is injury or not and mention that.
Response
I agree that this episode is injury. But, this injury is not so obvious. It is a minor trauma. He was skeletally immature patient. He was susceptible to avulsion injury caused by repeated tennis strokes before injury.

Comment #2
It was hard to understand the present history from L5 (Before injury).
Response
This case is different from previous reports. He did not see a doctor when he suffered the injury. He continued to participate in competitive tennis and experienced pain during follow-through phase of the forehand shot for 4 years since he felt the pain first. But, his pain was gradually increased. He saw a family doctor and stopped playing tennis 1 month prior to his visit to our hospital. And then, he was referred to us.

Comment#3
P3L5? The authors mentioned “internal rotation” was it abducted or at side?
Response
He experienced pain upon internal rotation with an elevation of the arm.

Comment#4
P4L2. The authors should describe more information about the image findings 3DCT and MRI separately.
Response
We added more information about them separately in a new manuscript.

Comment#5
P4L4. The authors should comment the treatment strategy based on the preoperative findings.

Response
Even though it was an avulsion fracture, we intended to remove the bony fragment, because it was very small and repair the tendon.

Comment#6
P4L13. The authors described “a mattress suture”. However Fig4-D appeared that the subscapularis was repaired side to side, because the suture knot is observed from inside the joint.

Response
The two threads protruding from the area where the anchor was inserted were inserted through the only deep surface of the subscapularis tendon. Therefore, the suture knot is observed from inside the joint. It was not repaired side to side.

Comment#7
P4L20. The outcome after surgery is missing the information regarding ROM, strength and sports performance.

Response
We added more information about the outcome after surgery including UCLA score.

Comment#8
P5L5. The authors mentioned “the pain hampered his performance for over 4 years; however, since he maintained his muscle strength, he was able to play tennis after the injury despite the pain.” It was just the author’s speculation. No evidence.

Response
I agree with what you point out. I deleted these sentences.
We are grateful to reviewer 2 for the critical comments and useful suggestions that have helped us to improve our paper considerably. As indicated in the responses that follow, we have taken all these comments and suggestions into account in the revised version of our paper.

Comments by reviewer 2.

Comment #1
The title is supposed to be inappropriate. The fragment was too small for titling an avulsion fracture of the lesser tuberosity. “Incomplete joint side tear of the subscapularis tendon with a small fragment in a tennis player” is supposed to be proper for the title of this article.
Response
The fragment was a part of the lesser tuberosity. But, it was very small. I agree that avulsion fracture of the lesser tuberosity may be inappropriate as a title. I changed the title as follows.
“Incomplete joint side tear of the subscapularis tendon with a small fragment in an adolescent tennis player: A case report”

Comment #2
Information regarding preoperative physical findings is insufficient.
Response
We added more information about preoperative range of motion, painful phase, pain provocation test, joint laxity test, and joint instability test. A clinical test for subscapularis tendon was already described as the result of lift-off test.

Comment #3
The authors should show preoperative and postoperative clinical evaluation score such as UCLA score.
Response
We showed preoperative and postoperative UCLA score.

Comment #4
Why did it take so long time (2 years) to return to tennis?
Response
The postoperative course was good. But, his preparation for the college entrance
examination interrupted his sport activity for a while.

Comment#5
Discussion about the etiology of this injury was insufficient. There is a possibility of an antero-superior impingement during follow-through phase, besides a avulsion injury on contraction of the subscapularis during take-back or on hitting a ball. A casual relationship with posterior shoulder tightness and poor stroke kinesis should be mentioned.

Response
He had limited range of motion in horizontal adduction both before and after surgical treatment. He could have posterior shoulder tightness. Therefore, I understand the possibility of his poor kinesis and an antero-superior impingement.
We are grateful to reviewer 3 for the critical comments and useful suggestions that have helped us to improve our paper considerably. As indicated in the responses that follow, we have taken all these comments and suggestions into account in the revised version of our paper.

Comments by reviewer 3.

Comment #1
It cannot be neglected that the bony fragment is an avulsion fracture from lesser tuberosity or free bony fragment entrapped by surrounding connective tissues.
Response
I could agree with you, if the injury was in an acute condition. But, this case was chronic condition over 4 years. Moreover, the avulsed fracture was very small. It was not so easy to diagnose correctly. Finally, CT, MRI, and arthroscopic findings confirmed the diagnosis of the avulsed injury of the deep surface of the subscapularis tendon.

Comment #2
As there is evidence that the most isolated avulsion fractures of the lesser tuberosity are caused by fall or extremely strenuous sport activities, the authors should discuss this as an additional possible factor to explain the discrepancy between our study and the previous studies, especially about the history and mechanism of injury, and the size and shape of the bony fragment. In the absence of this information, the authors cannot mention that “avulsion fracture of the lesser tuberosity caused by repeated tennis strokes, without a true trauma.”
Response
This case is avulsion fracture of the only deep surface of the subscapularis tendon. The bony fragment was an oval shape and approximately 7mm in the major axis. CT and MRI revealed that the fracture site was a medial part of the lesser tuberosity. Although the patient was skeletally immature patient, he had overused his shoulder before injury. Moreover, he had posterior tightness, which may cause altered kinematics and lead to development antero-superior internal impingement during follow-through phase. He must have been susceptible to injury caused by repeated tennis strokes before injury. He suffered from an avulsion injury on contraction of the subscapularis during take-back or on hitting a ball, with minor trauma.
Comment#3
It would be helpful if the authors showed more slices of conventional CT scan, not 3D-CT, including the bony fragment and the abnormal feature on the lesser tuberosity, which convinced to know where the bony fragment had come from.

Response
Computed tomography (CT) in the internal rotation with an elevation of the arm was performed. Unfortunately, we could not confirm the small bony fragment and the lesser tuberosity in a same slice because of the distinct position. But, conventional CT revealed an irregularity and osteosclerotic change at the medial edge of the lesser tuberosity. Moreover, 3D-CT revealed a bony fragment located between the humeral head and the scapular glenoid in the position for pain provocation.

Comment#4
More detailed information about operative findings, including the insertion of the subscapularis tendon or the relation between the tendon and a bone fragment, should be needed, to clarify the pathological condition such as impingement, malunion, or muscle weakness.

Response
We could not confirm the insertion site of the deep surface of the subscapularis tendon as a fracture site, because the area was very small and covered with fibrocartilage. However, the small bony fragment was originally inserted in the deep surface of the subscapularis tendon.