Author’s response to reviews

Title: Resection of a medial meniscal cyst using a posterior trans-septal approach: a case report

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Author’s response to reviews: see over
Dear Editor:

Enclosed, please find the revised manuscript entitled "Arthroscopic treatment of a medial meniscal cyst using a posterior trans-septal approach: a case report" with a point-by-point description of the changes I made.

The authors are Tsuyoshi Ohishi, Eiji Torikai, Daisuke Suzuki, Tomohiro Banno, Yosuke Honda. There are 15 pages of text including figure legends and 3 figures.

We would be grateful if the manuscript could be reviewed again and considered for publication in *Sports Medicine Arthroscopy Rehabilitation Therapy Technology*.

I confirm all authors have seen and agree with the contents of the revised manuscript and confirm the work has not been submitted or published elsewhere in whole or in part. Each author certifies that his or her institution has approved the human protocol for this investigation, that all investigations were conducted in conformity with ethical principles of research, and that informed consent was obtained.

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Sincerely,

Corresponding Author: Tsuyoshi Ohishi M.D., Ph.D.
To reviewer 1:
Thank you for your useful comments.
I have addressed the issues you raised and added sentences that you suggested.

General comment
1) To the question if there was a communication between meniscus and the cyst:
Answer: Figure 1-D was enlarged and the communication tracts between the horizontal tear inside the meniscus and the cyst were indicated by white arrows (Figure 1-D and page 4, line 6-7).
2) To the order to reorganize the Discussion section and edit again the Discussion section:
Answer: The discussion part has been amended as you suggested.

Background
1) To reviewer’s comment to Line 3:
Mink’s classification was used for the meniscal tear. That paper is added in the reference section (Ref. No.4).

Case report
1) To reviewer’s comment to Line 1-2:
The nature of his pain was restated as “transient right popliteal pain when standing after squatting and while descending stairs.” (line 1-2 from the top of the Case report section).
2) To reviewer’s comment to Line 2-3:
The patient has no remarkable background possibly related to knee osteoarthritis. I inserted “jobless” to the description of the patient. (page 3, line 1 in the Case report section)
3) To reviewer’s comment to Line 4-5:
I restated it as “No swelling, warmness, erythema, tenderness (including the medial joint line) or hydrops was found around the knee.” (page 3, line 5 from the top of the Case report section to line 7)
4) To reviewer’s comment to Line 5-6:
No, he did not have pain during manual instability tests. I inserted, “He did not have pain during manual instability tests.” (page 3, line 7 from the top of the Case report section to line 8)
5) To reviewer’s comment to Line 17-19:
I described the trans-septal portal technique that we modified from previously reported methods in the case report section as follows: “Starting the procedure for making a trans-septal portal, the posteromedial and posterolateral portals were created according to the approach reported by Ahn et al [5]. After making a posterolateral portal, a rod with a sheath was inserted through the posterolateral portal to the septum. Pushing the sheath into the septum, the arthroscope was then inserted into the posteromedial portal. While maintaining the view of the medial side of a septum, a 1.5-3.0 mm Kirschner wire was pushed into the septum through the sheath from the posterolateral portal and then the septum was perforated. The Kirshner wire was pushed 2 or 3 times into the septum to enlarge the initial hole so that the switching rod could easily pass through the septum. Then, the switching rod was inserted from the posterolateral portal to the posteromedial portal via the trans-septal portal. Once the trans-septal portal was created, the arthroscope and instruments are easily interchangeable through the two posterior portals according to the posterior “back and forth” approach presented by Louisia et al [6].” (page 4, line 15 – page 5, line 7)

Discussion
I organized the Discussion section as you mentioned.

a) The uniqueness and importance of this case: first paragraph (page 6, line 1-2 from the top of the Discussion section).

b) Clinical advantage of this portal technique: second paragraph (page 6, line 3 from the top of the Discussion section to page 7, line 4).

c) Possible indication of this technique: third paragraph (page 7, line 5 to line 14).

d) Clinical significance of this case: fourth and fifth paragraph (page 7, line 15 to page 9, line 1).

e) Limitation: final paragraph (page 9, line 2 to 11).

1) To reviewer’s comment to Line1-13 :
I summed up the previously reported method for treatment of the meniscal cyst as follows: “For the treatment of a meniscal cyst, previous reports recommended either a partial meniscectomy with cyst decompression under arthroscopy or open cystectomy with a repair of the meniscus capsular attachment [3].” (page 7, line 15-17)

2) To reviewer’s comment to Line13 :
I specified the problem as follows “Almost all meniscal cysts are accompanied by some meniscal tear, including grade 2 lesions judged by MRI, although it is not obvious on the surface of the meniscus. In such cases as ours, an open cystectomy
is recommended according to the therapeutic options for meniscal cysts [3]. However, substantial damage in the surrounding soft tissue, especially damage to the posterior capsule, at the popliteal fossa could be unavoidable by an open procedure since the lesion is deep under the skin and is not palpable on the skin.” (page 7, line 17 to page 8, line 3)

3) To reviewer’s comment to Line13-18:
I emphasized the importance of this case report as you suggested as follows: “Such evidence would indicate that meniscal cysts like our case are not rare and will increasingly be found. Popliteal pain in our patient might not be caused by a grade 2 meniscal tear but by impingement of the meniscal cyst between the posterior femoral condyle and posterior edge of the tibia since the patient felt pain after squatting down. A symptomatic meniscal cyst with an asymptomatic grade 2 meniscal tear should be treated by arthroscopic procedure without harming the meniscus.” (page 8, line 16 to page 9, line 1)

4) To reviewer’s comment to Line18-29:
I described the clinical use of this trans-septal technique and other possible uses of this technique as follows: “In our case, a posterior trans-septal approach was employed for the resection of the meniscal cyst as this approach allows an operator to identify the posterior edge of the medial meniscus, the septum and PCL and to treat the lesions involving those structures easily.” (page 6, line 11 to line 14) and “To date, articles on arthroscopic posterior trans-septal approaches for PCL reconstruction, suture of the posterior horn of the medial meniscus or posterior capsules and excision of ganglion cysts derived from the septum have been reported [8-12]. We have also used this posterior trans-septal approach to perform synovectomy of the posterior capsule, resection of the posterior horn of the medial meniscus, resection of PCL ganglion, and resection of free bodies in the posterior cavity.” (page 7, line 5 to 10)

5) To reviewer’s comment to Line29-30:
Already mentioned in the Discussion section. (page 6, first paragraph in the Discussion section)

6) To reviewer’s comment to Line30-39:
I mentioned recurrence as a limitation. I stated in the last paragraph as follows: “Recurrence of meniscal cysts has been reported although long-term results of selective partial menisectomy with cyst decompression were satisfactory in previous papers [1,18]. Hulet et al. reported 11 out of 105 lateral meniscal cysts recurred after arthroscopic partial menisectomy followed by cyst decompression with an
average 5-year follow-up [18]. They concluded that the reason for recurrence was mainly attributed to inadequate menisectomy performed so as not to damage the healthy part of the meniscus. Very few papers reported long-term results of meniscal cysts that were excised without managing the torn meniscus under arthroscopy [15]. Our case needs to be followed up for a long period since menisectomy was not performed at all so as to completely preserve meniscal function.” (page 9, line 2- line 11). I omitted the last sentence.
To reviewer 2:

Thank you for your useful comments.
I restated and added sentences that you suggested.

1) The title was modified to “Arthroscopic treatment of a medial meniscal cyst using a posterior trans-septal approach: a case report”

2) First sentence in the abstract was changed to “Arthroscopic partial menisectomy followed by cyst decompression is currently recommended for treatment of a meniscal cyst. However, it is doubtful whether partial menisectomy should be performed on cysts communicating with the joint in cases without a meniscal tear on its surface since meniscal function will be sacrificed.” (page 2, line 1-4 in the Abstract section)

3) Mink’s classification was used for grading of the meniscal tear. We stated Mink’s classification in case report section and added that paper in the reference section (Ref. No.4). Also, the grading number II was changed to 2 because the original paper reported by Crues et al. used “2” instead of “II”.

4) The follow-up period was included (page 2, last line in the Abstract).

5) Those 3 papers were referred to in the discussion section and added in the reference section (Ref. No.1, 14 and 15).

6) The sentence was restated as “An operator might hesitate to perform partial resection of an intact meniscus in communication with a cyst since meniscal function could be sacrificed.” (page 3, line 4-6)

7) Actually, the patient felt pain “when standing after squatting and while descending stairs” instead of “at or after deep knee flexion”. (page 3, line 2 from the top in the Case report)

8) This was a simple mistake. Thank you. I changed to “instability” (page 3, line 7 from the top in the case report).

9) Mink’s classification was used. I mentioned this in the case report section (page 4, line 2) and also referred (Ref. No.4).

10) Thank you for pointing it out. I used “MRI” instead of “magnetic resonance image” (page 5, line 15).

11) I added the follow-up period in the last sentence in the case report section as “The patient’s popliteal pain also disappeared completely during the 9-month follow-up period.” (page 5, last sentence in Case report section)

12) I stated the possible complications of this technique and how we can avoid possible
complications in the discussion section as follows: "This technique is quite useful for accessing the posterior compartment of the knee, however the operator should bear in mind the risk of popliteal neurovascular injury when making a trans-septal portal. We have modified previously reported techniques to make a safe trans-septal portal. To avoid neurovascular complications, we always perforate the septum with a sheathed Kirschner wire in the lateral to medial direction while monitoring the tip of the Kirschner wire from the posteromedial portal since the popliteal neurovascular bundle is placed just posterior and lateral to the septum. We have used this approach for access to posterior lesions in 95 knee cases and there have been no neurovascular complications from this procedure." (page 6, line 15 from the top of the discussion section to page 7, line 4)

13) The explanation for the recurrence of the meniscal cyst is stated as follows: "Recurrence of meniscal cysts has been reported although long-term results of selective partial menisectomy with cyst decompression were satisfactory in previous papers [1,18]. Hulet et al. reported 11 out of 105 lateral meniscal cysts recurred after arthroscopic partial menisectomy followed by cyst decompression with an average 5 year follow-up [18]. They concluded that the reason for recurrence was mainly attributed to inadequate menisectomy performed so as not to damage the healthy part of the meniscus. Very few papers reported on the long-term results of meniscal cysts that were excised without managing the torn meniscus under arthroscopy [15]. Our case needs to be followed up for a long period since menisectomy was not performed at all so as to completely preserve meniscal function." (page 9, line 2 – 11)

14) The advance of use of the posterior trans-septal approach over anterior portals with a posteromedial portal in addition was stated as follows: "Resection of a meniscal cyst involving the septum is difficult by the intercondylar approach from two anterior portals even with a posteromedial portal in addition for managing the procedure. Although the use of a 70-degree arthroscope can help the visualization of the posterior compartment, the whole area of the septum cannot be visualized since the camera head of an arthroscope is too near the septum from an anterior intercondylar approach. Although the septum can be viewed clearly from the posteromedial portal, it is cumbersome to manage the instruments to excise the cyst from anterior portals or from an additional posteromedial portal. In our case, a posterior trans-septal approach was employed for the resection of the meniscal cyst as this approach allows an operator to identify the posterior edge of the medial meniscus, the septum and PCL and to treat the lesions involving those structures
easily. " (page 6, line 3 · 13)