

Manuscript NO.: 70619, Case Report

Original Article Title: "Heel pain caused by os subcalcis: A case report"

To: BPG Editorial Office

Re: Response to reviewers

Dear Pro. Wang,

Thank you for allowing a revision of our manuscript, with an opportunity to address the reviewers' comments.

According to the reviewers' comments, the main modifications of the new version include:

- a) The paragraphs of this manuscript have been edited according to the Guidelines and Requirements for Manuscript Revision and the Format for Manuscript Revision.
- b) In the discussion section, we added a description of the interest of MRI in the diagnosis of plantar subcalcis, and detailed the indications and stages of surgery.
- c) In the discussion section, we added a brief description about the additional role of the ultrasound and a gel-pad in the first level differential diagnosis of ankle and plantar pain as well as in detection of accessory bones.
- d) Uniform presentation was used for figures showing the same contents.
- e) The manuscript has been modified and checked by a native speaker.

Best regards,

<Saijilafu> et al.

1) Response to Reviewers:

Reviewer #1: Dear author, Thanks for the paper, is very well written and the scientific quality is very good. Before accepting the paper I suggest to modify the paragraphs as in the editor wants (Backgrounds, Case presentation, Discussion and Conclusion). I would do a sole case presentation paragraph, cancelling all the others (chief complaints, history of present illness, etc...). Thanks and good work.

Author response:

Thank you for the comment. The paragraphs of this manuscript have been edited according to the Guidelines and Requirements for Manuscript Revision and the Format for Manuscript Revision. The article type-specific guidelines and formatting examples are at <https://www.wjgnet.com/bpg/GerInfo/291>.

Reviewer #2: Please specify the interest of MRI in the diagnosis of plantar subcalcis please detail the surgical indications and specify at what stage the surgery becomes necessary.

Author response:

Thank you for the comment. In the discussion section, we added a description of the interest of MRI in the diagnosis of plantar subcalcis, and detailed the indications and stages of surgery.

Author action: We updated the manuscript by adding "We found a very few case reports of os subcalcis in the literature. ...Histological examination demonstrated that cartilage covered the surface of os subcalcis with endochondral ossification between the cancellous bone and the cartilage. Combined with the above reports^[4, 15, 16], we believe that the surgical indications of os subcalcis are: 1) progressive enlargement of the heel mass; 2) significant heel pain or walking instability caused by the heel mass; 3) broken heel skin caused by the heel mass." in the discussion part. (DISCUSSION, Page 7)

We updated the manuscript by adding "Imaging plays a crucial role in the diagnosis of plantar subcalcis. Among imaging tests, MRI can clearly reveal the cartilage covered surface of os subcalcis, trabecular bone structure and the well demarcated and formed cortical findings^[17]. MRI helps us in differential diagnosis with heterotopic ossification, ectopic calcification, osteochondroma^[18], periosteal osteosarcoma^[19]." (DISCUSSION, Page 8)

REFERENCES

- 4 Milliken RA. Os subcalcis. American Journal of Surgery. 1937: 116
- 15 Varounis G, Pasternack WA. Os subcalcaneum. Journal of the American Podiatric Medical Association. 1989: 517 [PMID: 2585284 10.7547/87507315-79-10-517: 10.7547/87507315-79-10-517]
- 16 Husebye EE, Stødle A, Lund-Iversen M, Hvaal K. Unilateral, Volume-expanding Os

Subcalcis: Patient History and Treatment: A Case Report. The Journal of foot and ankle surgery : official publication of the American College of Foot and Ankle Surgeons. 2021: 209 [PMID: 33168442 10.1053/j.jfas.2020.09.006: 10.1053/j.jfas.2020.09.006]

17 Lucas P, Kaplan P, Dussault R, Hurwitz S. MRI of the foot and ankle. Current problems in diagnostic radiology. 1997: 209 [PMID: 9306033 10.1016/s0363-0188(97)90015-3: 10.1016/s0363-0188(97)90015-3]

18 Jung HG, Carag JA, Park JY, Bae EJ, Lim SD, Kim HS. Osteochondroma of the calcaneus presenting as Haglund's deformity. Foot and ankle surgery : official journal of the European Society of Foot and Ankle Surgeons. 2011: e20 [PMID: 21549965 10.1016/j.fas.2010.08.007: 10.1016/j.fas.2010.08.007]

19 Singh D, Sen R, Chaudhary S, Tripathy SK. Periosteal osteosarcoma of the calcaneum: a case report. Foot & ankle specialist. 2012: 121 [PMID: 22343818 10.1177/1938640011434510: 10.1177/1938640011434510]

Reviewer #3: This is an interesting manuscript. Your team has done a great job. Everything looks good. I have few minor comments and few confusions please clear these. In the physical examination section term “corpus callosum” has been used. Please confirm whether it is a correct terminology. Laboratory section: please mention specifically what blood routine tests were done as different institutes and reader might have different understanding for routine blood works. Besides the excision, did you use any medications? There are few grammatical error, please correct those errors.

Author response:

Thank you for your comment. We corrected “corpus callosum” to “callosity” in the physical examination section. We performed a description of the blood routine. We also supplemented perioperative medication. The manuscript has also been modified and checked by a native speaker.

Author action: We updated the manuscript by changing “corpus callosum” to “callosity” in the physical examination section. (Page 5)

We updated the manuscript by changing “His blood routine...” to “His red blood cell count, hemoglobin, white blood cell, white blood cell differential count, platelet,...” in laboratory examinations section. (Page 5)

We updated the manuscript by adding “Celecoxib was orally administered at 200 mg twice daily after surgery for analgesia.” in treatment. (Page 6)

We revised grammatical errors in the manuscript.

We updated the manuscript by changing “The large ossubcalcis was excised under spinal anesthesia in the prone position.” to “The large os subcalcis was excised under spinal anesthesia in the prone position.” in treatment. (Page 6)

We updated the manuscript by changing “Along the surfaces of the neo-arthritis

between the os calcis and **os subcalcis**, fibrous tissue and cartilage-like tissues were observed." to "Along the surfaces of the neo-arthritis between the os calcis and **os subcalcis**, fibrous tissue and cartilage-like tissues were observed." in treatment. (Page 6)

We updated the manuscript by changing "Neurological **factors include** the first branch of the lateral plantar nerve, the medial calcaneal branch of the posterior **tibial nerve**, and S1 radiculopathy, tarsal tunnel syndrome and peripheral neuropathy." to "Neurological **factors include** the first branch of the lateral plantar nerve, the medial calcaneal branch of the posterior **tibial nerve**, and S1 radiculopathy, tarsal tunnel syndrome and peripheral neuropathy." (DISCUSSION, Page 6)

We updated the manuscript by changing "The ossicle was removed, and the histological **examination demonstrated a** spongy bone covered with cartilage, with well-oriented trabecula." to "The ossicle was removed, and the histological **examination demonstrated a** spongy bone covered with cartilage, with well-oriented trabecula." (DISCUSSION, Page 7)

We updated the manuscript by changing "Clinically, the **os subcalcaneum** displayed a syndesmotomic attachment to the calcaneus." to "Clinically, the **os subcalcaneum** displayed a syndesmotomic attachment to the calcaneus." (DISCUSSION, Page 7)

2) Response to Science editor:

Short summary according reviewer: Authors reported an original case report about a 55-year-old man who presented with left plantar heel pain and a progressive swelling. X-ray, CT and MRI images showed a large os subcalcis on the plantar side of the calcaneus, located at the insertion of the plantar fascia. He underwent surgical excision of the lesion. Microscopically, the bony trabeculae were intermingled with fat and covered with cartilage. This is a rare case highlights the awareness of os subcalcis and helps avoid future misdiagnosis of heel pain.

STATUS: ACCEPTABLE FOR PUBLICATION PENDING MINOR REVISIONS

General considerations: This is a CASE REPORT article. The work is interesting, the paper is very well-written, and there are not many similar cases described in the literature about this topic.

Abstract: the abstract appropriately summarize the manuscript without discrepancies between the abstract and the remainder of the manuscript.

Keywords: adequate.

Paper On some aspects, the authors should address:

1) In core tip, you write: "Imaging examination revealed a large inferior calcaneal ligament located on the plantar surface of the calcaneus, slightly behind the insertion point of the plantar fascia". Why are you talking about calcific ligament? You said it's an accessory bone. Please correct it.

2) A brief description about the additional role of the ultrasound (US) in the first level differential diagnosis of ankle and plantar pain as well as in detection of accessory bones could make the article of interest wider, even with bibliographical references. Specifically,

I am referring to the, tendon, ligament bursal, and soft tissue pathology.

-Fessell DP, Vanderschueren GM, Jacobson JA, Ceulemans RY, Prasad A, Craig JG, Bouffard JA, Shirazi KK, van Holsbeeck MT. US of the ankle: technique, anatomy, and diagnosis of pathologic conditions. *Radiographics*. 1998 Mar-Apr;18(2):325-40. doi: 10.1148/radiographics.18.2.9536481. PMID: 9536481.

-Sconfienza LM, Orlandi D, Lacelli F, Serafini G, Silvestri E. Dynamic high-resolution US of ankle and midfoot ligaments: normal anatomic structure and imaging technique. *Radiographics*. 2015 Jan-Feb;35(1):164-78. doi: 10.1148/rg.351130139. PMID: 25590396.

3) Have you got US images to add to the figures already inserted? In the US assessment of lesion, have you used color-doppler ultrasound for evaluation of cartilaginous component or bursal/fascial pathology? Have you ever used a gel-pad to optimize the US resolution? Please, specify it. Even if you did not use the gel pad, I would like that you discuss and cite the following article in order to promote its use in clinical practice, given the results which it can offer in the evaluation of superficial lesions.

-Corvino A, Sandomenico F, Corvino F, Campanino MR, Verde F, Giurazza F, Tafuri D, Catalano O. Utility of a gel stand-off pad in the detection of Doppler signal on focal nodular lesions of the skin. *J Ultrasound*. 2020 Mar;23(1):45-53. doi: 10.1007/s40477-019-00376-3. Epub 2019 Mar 29. PMID: 30927249; PMCID: PMC7010871.

Reference: the references are adequate. Please, make the required additions and discuss them. Figures: images are of good quality. If you have, add US images.

Author response:

Thank you for your kind comment.

1) We have corrected it in core tip.

Author action: We updated the manuscript by changing "Imaging examination revealed a large inferior calcaneal ligament located on the plantar surface of the calcaneus, slightly behind the insertion point of the plantar fascia." to "Imaging examination revealed a large **accessory bone** located on the plantar surface of the calcaneus, slightly behind the insertion point of the plantar fascia." in core tip. (Page 3)

2) We have read the above literatures and added a brief description in discussion about the additional role of the ultrasound in the first level differential diagnosis of ankle and plantar pain as well as in detection of accessory bones.

Author action: We updated the manuscript by adding "Imaging plays a crucial role in the diagnosis of plantar subcalcis....**In addition, ultrasonography performed with high-resolution broadband linear-array probes due to low cost, fast, readily available, and free of ionizing radiation. It is becoming increasingly important in the evaluation of the ligaments around the ankle joint. Ultrasound has an additional role in the first level differential diagnosis of ankle and heel pain as well as in detection of accessory bones^[20, 21]. The use of a gel stand-off pad can detect otherwise-missed peri- or intra-lesional flow signals on Doppler imaging, increasing the diagnostic role of this technique in differential diagnosis of heel pain^[22].**" in the discussion part. (Page 8)

REFERENCES

20 Fessell DP, Vanderschueren GM, Jacobson JA, Ceulemans RY, Prasad A, Craig JG,

Bouffard JA, Shirazi KK, van Holsbeeck MT. US of the ankle: technique, anatomy, and diagnosis of pathologic conditions. Radiographics : a review publication of the Radiological Society of North America, Inc. 1998; 325 [PMID: 9536481 10.1148/radiographics.18.2.9536481: 10.1148/radiographics.18.2.9536481]

21 Sconfienza LM, Orlandi D, Lacelli F, Serafini G, Silvestri E. Dynamic high-resolution US of ankle and midfoot ligaments: normal anatomic structure and imaging technique. Radiographics : a review publication of the Radiological Society of North America, Inc. 2015; 164 [PMID: 25590396 10.1148/rg.351130139: 10.1148/rg.351130139]

3) Thank you for your proposal. We are so sorry for not using color-doppler ultrasound for evaluation of cartilaginous component or bursal/fascial pathology in this case and also not using a gel-pad to optimize the US resolution. After reading your recommended article, we have recognized the superiority of color-doppler ultrasound and the gel pad in evaluating cartilaginous component or bursal/fascial pathology. We have discussed and cited the article in our manuscript. In future clinical diagnosis, we will generalize this technology.

Author action: We updated the manuscript by adding "Imaging plays a crucial role in the diagnosis of plantar subcalcis....In addition, ultrasonography performed with high-resolution broadband linear-array probes due to low cost, fast, readily available, and free of ionizing radiation. It is becoming increasingly important in the evaluation of the ligaments around the ankle joint. Ultrasound has an additional role in the first level differential diagnosis of ankle and heel pain as well as in detection of accessory bones^[20, 21]. **The use of a gel stand-off pad can detect otherwise-missed peri- or intra-lesional flow signals on Doppler imaging, increasing the diagnostic role of this technique in differential diagnosis of heel pain^[22].**" in the discussion part. (Page 8)

REFERENCES

22 Corvino A, Sandomenico F, Corvino F, Campanino MR, Verde F, Giurazza F, Tafuri D, Catalano O. Utility of a gel stand-off pad in the detection of Doppler signal on focal nodular lesions of the skin. Journal of ultrasound. 2020; 45 [PMID: 30927249 10.1007/s40477-019-00376-3: 10.1007/s40477-019-00376-3]

3) Response to Company editor-in-chief:

I have reviewed the Peer-Review Report, the full text of the manuscript, and the relevant ethics documents, all of which have met the basic publishing requirements of the World Journal of Clinical Cases, and the manuscript is conditionally accepted. I have sent the manuscript to the author(s) for its revision according to the Peer-Review Report, Editorial Office's comments and the Criteria for Manuscript Revision by Authors. Before final acceptance, uniform presentation should be used for figures showing the same or similar contents; for example, "Figure 1 Pathological changes of atrophic gastritis after treatment. A: ...; B: ...; C: ...; D: ...; E: ...; F: ...; G: ...". Please provide the original figure documents. Please prepare and arrange the figures using PowerPoint to ensure that all graphs or arrows or text portions can be reprocessed by the editor. Please upload the approved grant application form(s) or funding agency copy of any approval document(s).

Author response: Thank you for the comment. Uniform presentation was used for figures showing the same contents. Figures and funding agency copy of approval document have been submitted as required.