**Author’s response to reviews**

**Title:** Background: The purpose of the present study was to investigate the accuracy of Ultrasound (US), conventional X-Ray (CX) and Computed Tomography (CT) to estimate the total count, localization, morphology and consistency of Calcium deposits (CDs) in the rotator cuff. Methods: 151 patients that underwent arthroscopic removal of CDs in the rotator cuff US, CX and CT was performed preoperatively. In all procedures: (1) total CD counts were determined, (2) the CDs appearance in each image modality was correlated to the intraoperative consistency and (3) CDs were localized in their relation to the acromion using US, CX and CT. Results: Using Ultrasound 158 CDs, using Computed Tomography 188 CDs and using Conventional X-Ray 164 CDs were identified. Reliable localization of the CDs was possible with all used diagnostic modalities. CT revealed 49% of the CDs to be septated, out of which 85% were uni- and 15% multiseptated. CX was not suitable for prediction of CDs consistency. US r

**Authors:**

Kaywan Izadpanah (izadpanah@me.com)
Martin Jaeger (martin.jaeger@uniklink-freiburg.de)
Dirk Maier (dirk.maier@uniklink-freiburg.de)
Norbert P Südkamp (norbert.sudkamp@uniklink-freiburg.de)
Peter Ogon (peter@ogon.ws)

**Version:** 4  **Date:** 4 September 2014

**Author’s response to reviews:** see over
Response to Reviewer comments:

Reviewer 1s Report:

Major Compulsory Revisions

**Surgical Procedure:**

- Did you ever use any imaging modalities during operation?
- If so, which one and in how many cases, or was the preop planing according to Ogon’s sectors always sufficient

Response

- In the Result section the paragraph: “Removal of the calcium deposits was possible through the lateral approach that was planed on the base of the US in all patients.”

  Into

  “Removal of the calcium deposits was possible through the lateral approach that was planed on the base of the Ogon sectors in all patients.”

  And

  “During the procedure no imaging modalities were used.” was added at the end of the paragraph.

**Results first paragraph:**

- The mean operation time... irrelevant for the paper

Response

- Sentence was deleted from the paragraph.

**Discussion first paragraph:**

- About 30%... and next two lines- relevant citations are Missing

Response

- Citations have been introduced

**Conclusion:**

Do you recommend to perform a CT scan in cases with deposits without sound shadow, or is it just helpful to know?

Response
We believe that determination of the morphology and the consistency of CDs is important for preoperative planning. This is especially true if the treatment modality might be needling.

Therefore we changed the conclusions from:

“US and CX are sufficient for preoperative planning of CD removal with regards to localization and prediction of consistency if the deposits present with full sound extinction. This is the case in the majority of the patients. **However, in patients with missing sound extinction only CT can reliably predict the consistency of the deposits.** Satellite deposits or septations are regularly present, which is of importance if complete CD removal is aspired. “

“US and CX are sufficient for preoperative planning of CD removal with regards to localization and prediction of consistency if the deposits present with full sound extinction. This is the case in the majority of the patients. **However, in patients with missing sound extinction CT can be recommended if CDs consistency of the deposits should be determined.** Satellite deposits or septations are regularly present, which is of importance if complete CD removal is aspired. “
Reviewer 2s Report:

This is my review on the article entitled „Preoperative Planning of Calcium Deposit Removal in Calcifying Tendinitis of the Rotator Cuff – Possible Contribution of Computer Tomography, Ultrasound and Conventional X-Ray“. The study presents interesting results regarding preoperative diagnostics in calcific tendinitis of the rotator cuff. The article is well written with a sound methodology. In my opinion it is suitable for publication as it presents interesting and important results.

However I have the following remarks:

Minor essential revisions:

**Abstract:**

-line 32: Please correct spelling mistakes

Response

- Corrected from Reliable to Reliable

line 43 + 44: The sentence „careful attention has to be given during CD removal to small satellite deposits or septations that can be found regularly“ cannot be concluded by your results. You did not correlate the presence of satellite deposits with clinical outcome and the necessity of complete calcium removal is controversially discussed.

Response

- As proposed below the sentence in the „Conclusions“ have been changed into: „Satellite deposits or septations are regularly present, which is of importance if complete CD removal is aspired.“

**Background:**

- Please add blanks before citations throughout the text

Response

- Blanks have been introduced before all citations throughout the manuscript

**Methods:**

- line 97: Here you state „all patients“ and later on you write that some of the patients did not have outlet view radiographs. Please state in the Methods sections how many patients received all radiographs and how many received the X-ray in your institution.
As stated all patients recievd an true ap and outlet view. However, only about 52 % recievved the images at our institution with an standardized outlet view. Only these patients were included into the subgroup analyzes of the localization to exclude the influence of projections for the investigation from other institutions.

This was already stated in the Discussion:

“However, it has to be pointed out that only 52% of all patients had a standardized outlet view at the senior authors institution with standardized positioning. Only these patients were included in this subgroup analyzes in order to exclude the influence of projections for the investigation from other institutions.”

In the method sections the sentence:

All patients underwent a conventional radiographic examination consisting of a “true ap view” in internal and external rotation (Figure1) and an outlet views. About 52% of the images were obtained in the seniors authors institution.” and

„Only patients imaged at our institution were included in this subgroup analyzes in order to exclude the influence of projections as images from other institutions were not taken with the same standard.“ were added.

- line 106: Please change to computed tomography throughout the text

Blanks have been introduced before all citations throughout the manuscript

**Results:**

- Headline has different style

**Response**

Fond was changed

**Discussion:**

Here you extensively discuss the importance of identifying satellite deposits and their removal respectively. You should also include in your discussion that there are plenty of studies showing that a (complete) removal oft he deposits is not necessary [1-5].

**Response**

The following paragraph was added.

„ It has to be pointed out that the need of complete intraoperative removal of the CDs might not be necessary as several studies could show that either secondary resorption of the deposits develop or there exists no direct correlation between removal and clinical outcome {Gleyze:1997wv}{Hofstee:2007cm}{Postel:1997uq}{Schiepers:2000vv}{Tillander:1998uz}. However, the authors believe penetration of the CDs might propagate postoperative resorption of deposits.”
Conclusions:

- line 270: I would recommend to change „Above this careful attention has to be drawn to satellite deposits or septations as they are present regularly and should be addressed to assure complete CD removal.“ To e.g. „It has to be noted that satellite deposits or septations are regularly present which is of importance if complete CD removal is aspired.“

Response

As proposed in the „Conclusions“ have been changed into: „Satellite deposits or septations are regularly present, which is of importance if complete CD removal is aspired.“