Author’s response to reviews

Title: Parathyroid cysts: experience of a rare phenomenon at a single institution

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Dear Rene Fahrner and Reviewers:

Thank you for your letter and for the reviewers’ comments concerning our manuscript entitled "Parathyroid cysts: experience of a rare phenomenon at a single institution" (BSUR-D-17-00306R1). Those comments are all valuable and very helpful for revising and improving our paper, as well as the important guiding significance to our researches. We have studied comments carefully and have made correction which we hope meet with approval. Revised portion are marked in red in the paper. The main corrections in the paper and the responds to the reviewer’s comments are as flowing:

Niccolo Petrucciani (Reviewer 1): I appreciated this article, reporting data on a series of patients with parathyroid cysts. I have some comments:

1. May you please detail the surgical technique in the Methods section?

The surgical procedure involves a cystectomy alone or combined with thyroidectomy through a middle-access incision under the effect of general anesthesia. Briefly, the patient is positioned with the neck extended, and a 3- to 5-cm collar-type incision is made; two skin flaps are created by dissecting them away from the strap muscles, and the thyroid capsule is approached by splitting the strap muscles along the midline. According to the preoperative location and by exposing the lower pole of the thyroid and dissecting the superficial fascia, the PC will be found. To avoid injury of the recurrent laryngeal nerve, the surrounding fascia was dissociated along the cyst wall, the vessels were cut with an ultrasonic scalpel, and the cyst was removed and sent off for pathological examination. Two mediastinal PCs were removed using videothoracoscropy. The corresponding conventional thyroidectomy was performed for the concomitant thyroid diseases.
(e.g., malignant or benign nodules). Intraoperative serum PTH (IOPTH) was measured 10 min after the excision of 3 functional PCs.

2. May you please detail the indications for thyroidectomy, and if any association between PC and thyroid disease was present?

In this cohort, the indications for thyroidectomy include nodules with suspected malignant sonographic features, nodules confirmed as malignant by fine needle aspiration cytology (FNAC), and benign nodules that are larger than 3 cm in diameter. Although most of the PCs are accompanied with thyroid nodules in this cohort, it may be difficult to speculate that the occurrence of PC is associated with thyroid disease. To date, there have been eight intrathyroidal PC cases reported in the literature (Ahmad MM, Almohaya M, Almalki MH, Aljohani N. Intrathyroidal Parathyroid Cyst: An Unusual Neck Mass. Clin Med Insights Endocrinol Diabetes. 2017 Mar 16;10:1179551417698135). No other reports of possible relationships between PC and thyroid disease have been described.

3. You said that you had no complications: did you have cases of postoperative hypocalcemia? Which was your protocol concerning calcium administration in the postoperative period?

Transient hypocalcemia was observed in 2 out of 3 cases with FPCs in postoperative 24h, and remitted in postoperative 1w period.

Our protocol concerning calcium administration in the postoperative period are as follows. Serum calcium was measured in the postoperative 24 h for all of the cases and at 48 h, 72 h and 1 w for FPC cases. Calcium was administered intravenously in postoperative hypocalcemia functional parathyroid cyst (FPC) cases, and 2-3 days later, it was changed to oral calcium for 3 months. For nonfunctional parathyroid cysts (NFPCs), it is generally not routine to use calcium supplementation after surgery.

4. What do you recommend for postoperative surveillance in the postoperative period?

All of the patients with PC underwent reexamination of the neck ultrasound, blood PTH and serum calcium once a year except for the FPC patients, whose blood PTH and serum calcium were examined in the postoperative 3 month period.

5. May you detail data about hospital stay?

The median hospital stay was 5 days (range: 3-8 days).

6. Diagnosis was wrong in all non functional cases (except 3 having PTH assay during FNA). Did you have experimented radiologists? How can we improve the diagnosis in nonfunctional cases, maybe with other imaging modalities? Please detail this topic in the discussion.
Indeed, in the diagnosis of PC, we lack of experienced radiologists. In this cohort, we realized from the following three aspects that the diagnosis of NFPC can be improved. First, from the imaging features of the lesions, almost all were free echo (ultrasound) or low density (CT), and there were no parenchymal tissue features. Second, most of the lesions are located under the lower pole of the thyroid gland. Third, in the laboratory examination, iPTH was detected in the ultrasound-guided puncture solution.

6. English should be improved.

Thanks to the our magazine's recommendation, we chose to use our affiliates Nature Research Editing Service for professional help in revising this manuscript to allow a revised version to be published in BMC Surgery.

Special thanks to you for your good comments.

Marco Ettore Allaix (Reviewer 2): Please highlight in the main text all changes you have reported in the cover letter according to the reviewer's comments.

According to the reviewer's comments, we have made correction which we hope meet with approval. Revised portion are marked in red in the paper.

We tried our best to improve the manuscript and made some changes in the manuscript. These changes will not influence the content and framework of the paper. And here we did not list the changes but marked in red in revised paper. We appreciate for Editor and Reviewers’ warm work earnestly, and hope that the correction will meet with approval.

Once again, thank you very much for your comments and suggestions.

Best wishes,

Zhili Yang, M.D.