Author’s response to reviews

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

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Dear B. Richter :

I want to thank you very much for your comments and questions. The answer is as follows :

1. Did you also perioperatively measure the level of serum calcium and did you included an intra- and postoperative measurement of parathormone in your algorithm? If not, why not?

   Serum calcium levels were measured before surgery in all cases, and also monitored after surgery in functional parathyroid cyst cases.

2. Did you included a bi-lateral exploration for additional, non-detected parathyroidal cysts within surgery?

   No bilateral exploratory surgery was performed in these cases. On the one hand, in three functional cyst cases, the preoperative localization of the cyst was made clear, and the intraoperative detection of parathyroid hormone also suggests complete resection. On the other hand, in 29 cases of nonfunctional parathyroid cyst, some preoperative positioning is clear, most are occasionally found in thyroidectomy.

3. Is there any information about a different incidence of parathyroid cysts in case of primary, secondary or tertiary hyperparathyroidism, or in the case of recurrence of elevated systemic PTH?

   Functional cystic parathyroid tumors are uncommon and occur in only 1–2% of cases of hyperparathyroidism. (Clark OH. Am J Surg. 1978 Mar;135(3):395-402.) According to our
experience based on more than 200 cases of primary hyperparathyroidism over the last seven years, the incidence of functional parathyroid cyst is about 3.0% (unpublished data). Only one case reports revealed a giant, calcified, cystic, hyperplastic mediastinum parathyroid gland in a patient with secondary hyperparathyroidism. (Seltzer SE, Balikian JP, Birnholz JC, Hargreaves H, Cartier P, Herman PG. Giant hyperplastic parathyroid gland in the mediastinum--partially cystic and calcified. Radiology. 1978 Apr;127(1):43-4.) There are no statistical reports of incidence of parathyroid cysts in secondary case, tertiary hyperparathyroidism case, or recurrence of elevated systemic PTH case.

4. Are there any data in the literature about a possible relation between parathyroid cysts and the evolution of hyperplasia or neoplasia of parathyroid glands?

We have described the relevant literature in the second section of this article discussion section. “One is that this cyst may be caused by a vestigial remnant of the third or fourth branch or the persistence of the Kürsteiner canals (3). Another is that the PC may be formed from the paralytic adenoma infarct and degeneration or by the development of multiple microcapsules in normal parathyroid tissue (9).” There are no reports on the exact mechanism of the evolution of parathyroid cyst with hyperplasia and adenoma formation.

5. Are there any data about a possible relation between cysts of the parathyroid and thyroid gland?

At present, there are only ectopic intrathyroidal parathyroid cysts. No other reports of possible relationships between PC and thyroid have been described. To date, eight intrathyroidal PCs cases have been reported in the literature, of which five are functional functional PCs cases. (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).

Best regards,

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