

Peer Review File

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Reviewer A:

Comment 1: It would be useful to expand the discussion on intravagal parathyroid adenoma (to clarify whether this patient had an intravagal parathyroid adenoma – was the vagus nerve identified ? away from the adenoma ?) In “classical” intravagal parathyroid adenoma, the parathyroid is really intra-vagal and necessitates nerve dissection, which was possibly not the case in this situation but which should be mentioned for parathyroid adenoma located in the carotid sheath.

Reply 1: This is a valuable point to distinguish. In this case we did identify the vagus nerve with nerve stimulator and visually as being separate from the adenoma. We did not have to dissect the adenoma from the nerve as it was not adherent to it. This is now noted in the revised manuscript.

Changes in the Text: We have expanded the discussion on both the previous literature demonstrating intravagal adenoma resection as well as the location of the parathyroid relative to the vagus nerve in our case (which was non-adherent). Modifications can be found on Page 3, Line 20-22; Line Page 5, Line 2-4; and Page 7, Line 4-6.

Reviewer B:

Comment 1:

Superior parathyroid glands tend to descend posteriorly, and ectopic are more commonly found in posterior locations, including the vagus nerve and carotid sheath. Inferior parathyroid glands tend to descend more anteriorly, along the thyrothymic tract, and ectopic glands are more commonly found anteriorly, including the superior (anterior) mediastinum and aortopulmonary window. I suspect the ectopic gland was most likely a superior parathyroid adenoma, although without identification of a normally located gland (either superior or inferior) it is difficult to be certain. My concern with this paper that it demonstrates a lack of understanding of the embryological origins of ectopic parathyroid tissue, which is particularly relevant when a previous failed operation has been performed.

Reply 1: This point about the embryological origins of the superior and inferior parathyroid glands is correct and an important distinction to consider when dissecting the neck. We have now clarified this point in the discussion of the revised manuscript.

Changes in the Text: We have added a discussion regarding the embryologic origins of the parathyroids glands in the revised discussion.

Comment 2: I am also unconvinced of the benefit of ICG-assisted confirmation of a well localised gland in a previously unexplored neck.

Reply 2: This was a well-localized adenoma confirmed with multiple modalities pre-operatively in a previously unexplored neck. However, literature has demonstrated that carotid sheath involvement in and of itself contributes to difficult localization intraoperatively, especially in distinguishing ectopic tissue from critical structures like vagus nerve. This intraoperative modality was helpful although not critical for resection in this case but could be more critical in other cases of parathyroid adenomas within the carotid sheath in previously unexplored necks. Prior to surgical approach, even with strong preoperative localization, it is hard to determine how well distinguished the ectopic tissue will be, therefore knowledge of use of this modality can be critical in more difficult cases in similar localizations to this.

Changes in the Text: We have added a sentence in the 4th paragraph of the discussion regarding the utility of ICG in this case and this is highlighted in red.