

Robotic Resection of Mediastinal Parathyroid Masses

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Background

- Hyperparathyroidism is a condition in which the parathyroid glands oversecrete parathyroid hormone resulting in hypercalcemia
- Treatment involves cervical parathyroidectomy, but in the rare case of a mediastinal gland more invasive approaches may be needed
- This study evaluates the outcomes of a robotic approach for mediastinal parathyroid gland resection

Methods

- After IRB approval, a retrospective review of the thoracic surgery database was performed from June 2011-July 2021 for robotic mediastinal mass resections
- 46 cases were found that fit that criteria, 4 of which were mediastinal parathyroid gland resections
- Patient charts were reviewed to evaluate complications and success rates for robotic resection procedure

Results

Patient	Operative Time	Estimated Blood Loss (mL)	PostOp Complications	Length of Stay
1	194	10	None	2
2	230	11	None	1
3	115	50	None	2
4	130	25	Yes	2

Patient 4 experienced one postsurgical complication post-op, going into atrial fibrillation with RVR. Patient was given metoprolol and sinus rhythm returned after 9 min.

Patient did not require longer inpatient time post-procedure as a result of the complications. Postoperative prognosis does not seem impacted by these complications.

Table 1: Operative Time, Blood Loss, Presence of Complications, and Length of Stay

Results

- All four patients presented preoperatively with hyperparathyroidism with preoperative PTH levels ranging from **162-416** pg/mL (normal: 9-77pg/dL)
- Postoperative PTH levels returned to normal with ranges from **6-59** pg/mL.
- All four patients presented preoperatively with hypercalcemia with preoperative Ca levels ranging from **11.1-12.6** mg/dL (normal: 8.4-10.4 mg/dL)
- Postoperative Ca levels returned to normal with ranges from **8.2-10.1** mg/dL

0 Intraoperative complications

1 Postoperative complication

0 Recurrence of hyperparathyroidism

0 Recurrence of hypercalcemia

Patient	PreOp PTH (pg/mL)	PostOp PTH (pg/mL)	% Decrease from Baseline
1	259	36	86
2	162	19	88
3	416	59	86
4	180	6	97

Table 2: Procedure Success at the Level of Parathyroid Hormone

Results

Patient	PreOp Ca (mg/dL)	PostOp Ca (mg/dL)	% Decrease from Baseline
1	11.1	9.6	14
2	11.6	9.3	20
3	12.6	10.1	20
4	11.7	8.2	30

Table 2: Procedure Success at the Level of Serum Calcium

Conclusions & Limitations

- After review, it appears that robotic approach to resecting mediastinal parathyroid glands is a safe and effective approach.
- Procedure success was indicated by normalization of PTH levels post-procedure with no recurrence seen at a mean of 26 months post-op.
- Single observed complication was temporary a-fib, a common occurrence after non-robotic surgical procedures. Patient pre-operative risk factors may have contributed.
- Future studies will compare robotic and conventional open approaches with other minimally invasive procedures to evaluate differences in patient outcome.
- Limitations to this study include scarcity of data, with only four cases documented of robotic mediastinal parathyroid resection.

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