

Complications after pediatric thyroidectomy: lymph node dissection is a risk factor for permanent hypocalcemia

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INTRODUCTION

Thyroidectomy is a treatment option in some benign thyroid disorders and the definitive treatment for thyroid cancer. Data on postoperative complications and long-term health consequences are important for better counseling of pediatric patients and their parents.

AIM

To evaluate the frequencies of short- and long-term complications, and their risk factors in pediatric patients (0-18 years) who underwent a thyroidectomy in a tertiary children's hospital.

METHOD

A retrospective single center study was performed including all pediatric patients who underwent a thyroidectomy between January 2013 and February 2020.

Postoperative complications evaluated in this study were transient and permanent hypocalcemia, transient and permanent recurrent laryngeal nerve (RLN) injury, postoperative hemorrhage and keloid formation.

Hypocalcemia was only evaluated in patients who underwent a total or completion thyroidectomy.

RESULTS

48 patients were included in this study: mean age 14.6 years, 37 females (77.1%).

29 (60.0%) total thyroidectomies and 19 (40.0%) hemithyroidectomies were conducted. 12 patients underwent a thyroidectomy because of thyroid carcinoma, 36 patients because of a benign thyroid disorder.

Table: Postoperative hypocalcemia in pediatric patients who underwent a total thyroidectomy

	Rapid resolved hypocalcemia (n)	Transient hypocalcemia (n)	Permanent hypocalcemia (n)
All patients (n = 29)	3	10	6
Total thyroidectomy only (n = 20)	3	7	0
Graves' disease (n = 12)	3	4	0
Other benign (n = 6)	0	3	0
Thyroid carcinoma (n = 2)	0	0	0
Total thyroidectomy plus lymph node dissection in metastatic thyroid carcinoma (n = 9)	0	3	6

Table: Postoperative complications in pediatric patients who underwent a thyroidectomy

	Transient RLN (n)	Permanent RLN (n)	Postoperative hemorrhage (n)	Keloid (n)
All patients (n = 48)	4	1	0	8
Total thyroidectomy only (n = 20)	1	0	0	3
Graves' disease (n = 12)	1	0	0	2
Other benign (n = 6)	0	0	0	1
Thyroid carcinoma (n = 2)	0	0	0	0
Total thyroidectomy plus lymph node dissection in metastatic thyroid carcinoma (n = 9)	1	0	0	2
Hemithyroidectomy because of benign thyroid disorder (n = 18)	2	1	0	3
Hemithyroidectomy because of thyroid carcinoma (n = 1)	0	0	0	0

Risk factors for postoperative complications

Permanent hypocalcemia was only observed in patients who underwent a thyroidectomy because of thyroid cancer.

Additional lymph node dissection was associated with permanent postoperative hypocalcemia (OR 76.14, 95%CI [3.49-458.98], (p<0.05)).

Patients who underwent a thyroidectomy because of thyroid cancer seemed to have a higher risk of permanent postoperative hypocalcemia compared to patients with a benign thyroid disorder (OR 43.73, 95%CI [2.11-904.95], (p<0.05)). This risk seems to be attributed to the performance of the additional lymph node dissection.

CONCLUSIONS

Permanent postoperative complications after thyroidectomy are rare in pediatric patients undergoing a thyroidectomy without lymph node dissection.

Permanent hypocalcemia occurs more frequently after thyroidectomy in pediatric patients with additional lymph node dissection because of thyroid cancer.

Reducing the occurrence of permanent hypocalcemia should be an important goal, especially in pediatric thyroid cancer patients, as this may improve long-term quality of life.

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