

0103 - POSTSURGICAL HYPOPARATHYROIDISM IN PEDIATRIC DIFFERENTIATED THYROID CANCER: INCIDENCE, CLINICAL COURSE, AND ASSOCIATED RISK FACTORS

Mode: Research paper

Thematic Unit: Thyroid

Thematic Unit 2: Phosphocalcic Metabolism

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Background/Objectives: Postsurgical hypoparathyroidism is one of the most common complications of thyroid surgery in pediatric differentiated thyroid cancer (DTC), causing significant morbidity and long-term treatment burden. However, data on its incidence, clinical course, and associated risk factors in children remain limited. The aim of this study is to characterize postsurgical hypoparathyroidism in pediatric DTC.

Methods: This retrospective descriptive cohort study included pediatric DTC patients who underwent total thyroidectomy with central neck dissection at a tertiary referral center from 2015 to 2025, with at least one year of follow-up. Lateral neck dissection was performed when indicated. Perioperative PTH was measured at baseline and 5 and $\pm$ 60min intraoperatively according to institutional protocol. Hypoparathyroidism was defined as PTH $\leq$ 16 pg/mL at 5 or 60 minutes, or postoperative hypocalcemia ($\leq$ 8 mg/dL); cases requiring calcium and calcitriol beyond 12 months were classified as permanent. Demographic, clinical, biochemical, intraoperative, and histopathologic variables were compared among patients with permanent, transient, or no postsurgical hypoparathyroidism.

Results: Fifty-one patients were included: median age was 13.8 years (range 8.4–19.2), 75% (38) were female, and 90% (46) were pubertal. Autoimmune thyroid disease was present in 51% (26), papillary carcinoma in 94% (48), and 84% (43) received radioactive iodine ablation. Lateral neck dissection was performed in 43% (22), including unilateral in 27.5% (14) and bilateral in 15.7% (8). Eleven patients (21.6%) did not develop hypoparathyroidism, 32 (62.7%) had transient hypoparathyroidism with a median duration of 58 days (range 9–330), and 8 (15.7%) had permanent hypoparathyroidism. Three-group comparison (no hypoparathyroidism vs. transient vs. permanent) showed no significant differences in pre-operative demographic, clinical or tumor variables. Among patients with any hypoparathyroidism versus none, the only significant predictor was the number of intraoperatively visualized parathyroid glands (median 3 vs. 4; $p=0.035$). No predictors distinguished transient from permanent hypoparathyroidism, and logistic regression did not identify predictors of permanent disease, likely due to limited statistical power ($n=8$).



Conclusion: Postsurgical hypoparathyroidism was frequent in this pediatric DTC cohort, while permanent disease affected a smaller proportion, consistent with the upper range of previous reports. A greater number of intraoperatively visualized parathyroid glands was associated with lower risk of postoperative hypoparathyroidism. Larger multicenter studies are needed to better define risk factors for persistent disease.

