DICER1 and Associated Conditions: Identification of At-risk Individuals and Recommended Surveillance Strategies—Letter
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Schultz and colleagues have proposed surveillance guidelines for children and adults with confirmed DICER1 mutations (1). These were developed in response to increased recognition of pathogenic germline DICER1 mutations, a hereditary cancer predisposition syndrome that conveys an increased risk of developing characteristic neoplasms, particularly in early childhood. We are writing specifically with respect to the thyroid surveillance recommended by Schultz and colleagues.

The recommendation is to perform thyroid ultrasound from age 8, repeated every 2 to 3 years, or sooner if clinically warranted and that all thyroid nodules undergo fine-needle aspiration (FNA). Thyroidectomy is not recommended, even in the setting of multinodular goitre, citing the typically indolent nature of most thyroid nodules and cancer in this group. We suggest that in some scenarios, thyroidectomy may be warranted, without preoperative FNA.

We report a previously well 10-year-old male, with a confirmed pathogenic germline DICER1 variant. He presented with a large multinodular goitre causing significant airway obstructive symptoms. Thyroid ultrasound showed at least 10, predominantly solid nodules (largest 31 mm), and no cervical lymphadenopathy. Total thyroidectomy was performed to relieve his airway symptoms. No preoperative FNAs were undertaken. Histopathology revealed multiple nodules including at least two with vascular invasion, confirming well-differentiated thyroid carcinomas. The finding of underlying malignancy resulted in anxiety for the family, as there is a younger brother also with the DICER1 variant.

Rutter and colleagues (2) describe two DICER1-positive siblings of the index cases who had multinodular goitres removed prophylactically, one of whom was found to have papillary thyroid cancer histologically. Khan and colleagues (3) established DICER1 mutations carry a 16- to 24-fold increased risk of differentiated thyroid cancer, and Wasserman and colleagues (4) found DICER1 mutations in 10% of cases of adolescent papillary thyroid cancer. In addition, the potential for insidious progression of benign multinodular disease to well-differentiated thyroid cancer in these patients has recently been described (3). When considering the younger sibling of our case, his cumulative risk for developing goitre is estimated at 13% by age 20 years (3). Given the possibility of an inconclusive FNA in the pediatric population (5), we believe thyroidectomy may be warranted in individuals with confirmed DICER1 and asymptomatic multinodular goitre without undergoing FNA, particularly when there is significant familial concern or potential to default from surveillance. Furthermore, while thyroid malignancy associated with DICER1 mutations is typically described as indolent, delays in definitive management may confer higher risk. Any surgical approach should take into account possible malignancy, as well as the specific risks of thyroid surgery, including the postoperative burden of lifelong thyroid hormone replacement therapy.

Disclosure of Potential Conflicts of Interest
No potential conflicts of interest were disclosed.

Received September 2, 2018; revised October 4, 2018; accepted December 13, 2018, published first March 1, 2019.

References