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Abstract #1159

DIFFUSE SCLEROSING PAPILLARY CARCINOMA IN A PEDIATRIC PATIENT WITH INTRA-UTERINE DIAGNOSTIC XRAY EXPOSURE

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Objective: The relationship between occurrence of childhood cancer and intrauterine exposure to radiation is well known. We describe a case of diffuse sclerosing papillary carcinoma (PTC) in a pediatric patient exposed to diagnostic radiation in utero.

Methods: Clinical presentation, including radiation history and outcome, was reported.

Case Presentation: A 14 year old male was referred for a thyroid cancer consultation in 2008. His history was notable for a rapidly growing thyroid mass during the preceding 3 months and in utero exposure to radiation, in the form of multiple xrays and CT scans, at 12 weeks gestation as a result of maternal multiple trauma due to a car accident. A total thyroidectomy with bilateral central, level 7 and right modified neck dissection for a rapidly growing thyroid mass was performed. Pathology revealed multifocal, bilateral, moderately differentiated, diffuse sclerosing PTC 8.6 cm in greatest dimension. The tumor was not encapsulated, with vascular invasion and extensive extrathyroidal extension. Metastases were positive in 32 of 36 lymph nodes sampled. Post-operative unstimulated thyroglobulin (Tg) by RIA and Tg antibody (TgAb) were 137 (0-39 ng/mL) and 4183 (0-100 IU/mL), respectively. Ultrasound (US), PET/CT and post I-131 treatment scan revealed abnormal nodes but no distant metastases. To date, he has had an additional right neck dissection for poorly differentiated PTC lymph node metastases, a total of 340 mCi of I-131, and has persistently positive unstimulated Tg and TgAb at 9.2 (<40 ng/mL) and 36 (<1.0 IU/mL) respectively, without evidence of structural disease.

Discussion: Diffuse sclerosing PTC occurred in this pediatric patient exposed to diagnostic radiation in utero. His clinical course was notable for locally aggressive behavior of the PTC and biochemically persistent disease. A causal relationship between the timing and quantity of the radiation exposure and the development of a rare variant of PTC in this patient was suspected.

Conclusion: The relationship between radiation exposure and PTC is well known. Case control studies have documented an increased risk of childhood cancer in those exposed to radiation over 10 mSv in utero. Although radiation exposure to the developing fetus rarely occurs, consideration should be given for close monitoring of in utero radiation exposed patients for the development of PTC.