MOLECULAR FINDINGS:

BRAF, RET protooncogene and NRAS were negative. KRASA146 mutation in Exon4 was found in both tumors.

DISCUSSION:

Papillary carcinoma thyroid (PTC) is the most common histological subtype of thyroid cancer (75–80%). It is derived from the follicular cells of the endoderm and produces thyroglobulin and thyroid hormones.(2) The medullary thyroid carcinomas(MCT) comprise 5-10% of all thyroid carcinoma. It originates from the calcitonin producing parafollicular C cells which are further derived from the neural crest via the ultimobranchial body. MTC is a neuroendocrine tumour and secretes calcitonin and other peptide hormones.(3) Cases with PTC and MTC presenting together in the same primary tumor, termed a 'mixed medullary and follicular thyroid carcinoma' (MMFTC), represent the simultaneous occurrence of rare and distinctly different entities. Lamberg et al. first reported MTC with PTC in 1981(4) Concurrence of medullary and papillary carcinoma represents less than 1% of all thyroid malignancies [5]. We report a case with concurrent MTC and PTC having features of a collision tumour with a normal thyroid parenchyma between them. Clinical course of this kind of tumour is not well known subject.

PTC is often accompanied by lymphocytic thyroiditis. There are no data in literature of the association of MTC and lymphocytic thyroiditis (6).

Mutations of the BRAF, RAS or RET genes are found in nearly 70% of PTC cases.(8)

MTC can be either familial (25%) or sporadic (75%), and in both cases, proto-oncogene RET exerts a crucial role in its oncogenesis. Virtually, all familial cases (>98%) present germline RET mutations. In sporadic cases, RET is mutated in 44% and RAS genes (mainly HRAS and KRAS) are mutated in 13% of cases (9) The BRAF V600E mutation is the most representative type of mutation in PTC. RET proto-oncogenes cause tyrosine kinase activation by point mutations or gene rearrangements, promoting tumorigenesis in MTC and PTC . RET gene mutations also have the potential to induce PTC, while causing hereditary MTC. It can also be speculated that mutations of both BRAF and RET lead to the simultaneous onset of MTC and PTC . (1). We aimed to evaluate in our case the presence of RET,RAS and BRAF gene mutation of both carcinoma components, MTC and PTC, to better understand the genesis of this rare collision tumour. KRAS mutation was found in both components but no previous study was found with similar results.