# Collision thyroid tumors among patients diagnosed with thyroid carcinomas

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## Introduction

Collision thyroid tumors are defined as independent and histologically distinct tumors that coexist within the thyroid gland (1-3).

Collision thyroid tumors are rare and their prevalence is unknown.

The aim of the current study was to assess the prevalence of collision thyroid tumors among patients with thyroid tumors and describe their characteristics.

## Material and Methods

A retrospective, registry-based study was performed by reviewing the electronic medical records of the Department of Endocrinology, Ippokratio General Hospital of Thessaloniki, Greece.

All patients with thyroidectomy and thyroid cancer diagnosis were assessed to detect the prevalence of collision thyroid tumors.

Patients were included in our study if they had a thyroid cancer diagnosis, after thyroidectomy. Patients were excluded from analysis if a histopathological report was not available.

## Results

In total, 305 patients (n=305) were diagnosed with thyroid cancer. Two hundred sixteen (n=216) patients were diagnosed with papillary thyroid carcinoma, 35 patients (n=35) were diagnosed with follicular thyroid carcinoma, 41 patients (n=41) were diagnosed with medullary thyroid cancer and 13 patients (n=13) were diagnosed with anaplastic thyroid carcinoma.

From the 305 patients, collision thyroid tumors were only found in 3 patients (prevalence of collision thyroid tumors: 0.98%). All three patients were female.

The first patient presented with multinodular goiter with calcifications. The initial FNA showed Hurthle Cell Carcinoma, whereas pathology findings revealed co-existence of myeloid and papillary (2-focal) thyroid cancer. RET testing was negative.

The second patient presented with primary hyperparathyroidism and it was unilateral lobectomy that revealed micro-papillary thyroid cancer co-existing with micro-myeloid thyroid cancer. RET testing was negative.

The third patient underwent thyreoidectomy due to rapid increase of the nodule's size although the initial FNA was negative for malignancy. Pathology findings revealed co-existence of myeloid and papillary (2-focal) thyroid cancer and genetic testing for RET was positive for the polymorphisms G691S in exon 11 and S904S in exon 15.

Of note, the first patient was also diagnosed with bilateral adrenal incidentalomas whereas the second with bilateral adrenal hyperplasia and the third with unilateral adrenal incidentaloma.

## Conclusion

Collision thyroid tumors are a rare finding in patients diagnosed with thyroid carcinomas. It has been suggested that activation of a common tumorigenic pathway takes place, however existing evidence is limited.

## References

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