Volume 4, Issue 3, 2026

Frontier in Medical & Health Research

ISSN: (e) 3007-1607 (p) 3007-1593

SIMULTANEOUS OCCURRENCE OF PAPILLARY AND MEDULLARY THYROID CARCINOMA: A CASE REPORT

Danyal Zahoor[*1], Amna Khan[2], Muhammad Naseem Baloch[3], Saba Qaisar[4]

[*1]*Assistant Professor, Department of General Surgery, Jam Ghulam Qadir Government Hospital, Hub*
[2]*Postgraduate trainee, Department of General Surgery, Dr Ruth K.M Pfau Civil Hospital Karachi*
[3]*Professor, Department of General Surgery, South City Hospital, Karachi*
[4]*Assistant Professor, Department of General Surgery, Jinnah Medical and Dental College, Karachi*

DOI: https://doi.org/10.5281/zenodo.19124281

Keywords
Thyroid carcinoma, medullary thyroid carcinoma, papillary thyroid carcinoma, thyroid gland, malignancy.

Article History
Received: 20 January 2026
Accepted: 05 March 2026
Published: 20 March 2026

Corresponding Author: *
Danyal Zahoor

Abstract

BACKGROUND: *Simultaneous occurrence of medullary and papillary carcinoma in thyroid gland occurs in only 1% of cases.*

CASE PRESENTATION: *We present a case of a 28 years old female patient with no previous history of radiation to head and neck and no family history of carcinoma with an asymptomatic neck swelling for 4 years. The FNAC was suspicious of MTC. Patient underwent total thyroidecomy and modified radical neck dissection. Histopathology reported MTC and PTC as collision tumour.*

CONCLUSION: *Recognition of concurrent medullary and papillary thyroid carcinoma is important for appropriate management and folow up.*

INTRODUCTION:

Malignant tumors of the thyroid gland mainly arises from follicular cells. Almost 90% of these tumors are classified as differentiated thyroid carcinomas. Papillary thyroid carcinoma and follicular thyroid carcinoma are included in this category. Papillary thyroid carcinoma constitutes the majority of differentiated thyroid carcinoma cases [1]. Another rare type of primary thyroid tumor arising from parafollicular cells is medullary carcinoma of thyroid accounting for 3-5% of all thyroid malignancies [2]. PTC and MTC have always been considered different from each other in terms of their incidence, cell origin and histopathological features [3]. The concurrent occurrence of both in the same patient is rare. It is believed that this rare form of thyroid carcinoma develops randomly from two different types of cells. However, possibility of both tumors originating from a common origin cannot be completely excluded [2]. Hence it requires further investigations. Here we present a case of a 28 years old female patient with concurrent medullary and papillary thyroid carcinoma in different lobes of thyroid gland.

CASE PRESENTATION:

28 years old female patient with no history of prior radiation to the head and neck and no family history of carcinoma was evaluated for asymptomatic neck swelling. Physical examination showed a multinodular goiter with well demarcated nodules measuring about 5cm in its largest dimension in left lobe and two nodules in

Frontier in Medical & Health Research

ISSN: (e) 3007-1607 (p) 3007-1593

the right lobe. The swelling moved with swallowing and was not attached to underlying structures or overlying skin. Enlarged lymph nodes were present in anterior cervical chain on right side. The patient's FNAC result was suspicious for medullary thyroid carcinoma. Serum levels of free tri-iodothyroinine, free thyroxine, thyroid stimulating hormone, calcium, phosphorus and parathyroid hormone were normal. Urinary levels of vanyl mandelic acid and catecholamines were within normal range. However, serum calcitonin level was increased to 550pg/ml (normal range 0-11.5). Ultrasound neck revealed a 48mm solid hypoechoic nodule in the left thyroid lobe. Two lesions were also detected in the right thyroid lobe. Aspiration cytology of lymph node reported features consistent with Medullary thyroid carcinoma. The patient underwent total thyroidectomy and right modified radical neck dissection. Histopathological examination revealed medullary carcinoma in left lobe while the larger lesion in right lobe also showed medullary carcinoma. Smaller lesion in the right lobe was identifid as Papillary carcinoma of the classic subtype. Metastasis of papillary carcinoma classic subtype was observed in 1 out of 6 lymphnodes. Five lymph nodes were involved by medullary carcinoma. The pathological staging was PT2N1bM0. Two weeks postsurgery, the patient underwent whole-body PET-CT scan, which confirmed no metastasis to other sites. Following total thyroidectomy, the patient was prescribed Levothyroxine 50 µg/day orally and scheduled for regular follow-up Ultrasound neck, serum levels of TSH, FT3, FT4, TG, and calcitonin (CT) levels.

DISCUSSION:

The concurrent occurrence of medullary thyroid carcinoma and papillary thyroid carcinoma is rare in the same thyroid gland [2]. Mixed tumor and collision tumor are the two main forms in which they co-exist. Two different histological cell types are present within the same neoplastic nodule in case of mixed tumors. However in collision tumors, two components occur in different locations within the thyroid gland [4]. In our case, the findings were consistent with the collision tumor since the neoplastic nodules were located in different areas separated by non-neoplastic thyroid parenchyma. The coexistence of MTC and PTC as a collision tumor is rare. Only a small number of cases have been reported in literature [5]. Such tumors are reported frequently in females during the fifth to seventh decade of life [6].

Since simultaneous occurence of MTC and PTC accounts for less than 1% of thyroid tumors, standardized treatment guidelines are limited [7]. Some authors suggest treating both as a separate tumor. Others suggest that the treatment should be guided by the more aggressive component. Total thyroidectomy with neck dissection is the primary treatment for both tumours. Adjuvant Radioactive iodine therapy should be considered if PTC component shows high risk features. However studies have reported that adjuvant therapy doesnot significantly affect the outcome [8,9]

Long term follow up is required in these cases. To detect recurrence, monitoring of serum calcitonin and thyroglobulins levels is recommended. If the tumour marker rises, imaging studies are recommended [10]. The prognosis of the disease mainly depends upon the stage of MTC [8]. Some studies suggest that patients with co-existing MTC and PTC may have a better prognosis than MTC alone [11]. Large prospective studies with molecular analysis are required to explain this unusual presentation of thyroid carcinoma [12].

CONCLUSION:

Simultaneous appearance of papillary and medullary carcinoma in the same thyroid gland is rare entity. An accurate diagnosis is necessary for appropriate management guided primarily by more aggressive tumour component.

AUTHOR CONTRIBUTIONS:

Danyal Zahoor: Conceptualization, literature review, final approval of the manuscript.

Amna Khan: Writing original draft and final approval of the manuscript.

Frontier in Medical & Health Research

ISSN: (e) 3007-1607 (p) 3007-1593

Muhammad Naseem Baloch: Patient treatment, editing of the draft and final appoval of the manuscript.
Saba Qaisar: Literature review and final approval of the manuscript.

CONSENT:
Written informed consent was obtained from the patient for publication of this case report.

ABBREVIATIONS:
MTC: Medullary Thyroid Carcinoma
PTC: Papillary Thyroid Carcinoma

CONFLICT OF INTEREST:
None to declare

REFERENCES:
1- Hao Z, Cui H, Li Y, Wu W, Wang Y, Dan H, Lou L, Wang H, Zhao P. Simultaneous occurrence of papillary thyroid carcinoma, medullary thyroid carcinoma, and lymphoma: A case report. Medicine. 2024 Aug 16;103(33):e39363. DOI: 10.1097/MD.0000000000039363
2- Fallahi P, Patrizio A, Stoppini G, Elia G, Ragusa F, Paparo SR, Balestri E, Mazzi V, Botrini C, Varricchi G, Ulisse S. Simultaneous occurrence of medullary thyroid carcinoma and papillary thyroid carcinoma: a case series with literature review. Current Oncology. 2023 Nov 30;30(12):10237-48. doi.org/10.3390/curroncol30120745
3- Gadong LC, Crisostomo T. Simultaneous occurrence of papillary carcinoma and medullary carcinoma. Journal of the ASEAN Federation of Endocrine Societies. 2019 Nov 9;34(2):226. doi: 10.15605/jafes.034.02.16
4-Thomas VP, George R. Collision tumors of the thyroid: Review of literature and report of a case of papillary–Follicular collision tumor. Thyroid Research and Practice. 2018 May 1;15(2):60-4. DOI: 10.4103/trp.trp_6_18
5- Dikbas O, Duman AA, Guvendi GF. Medullary thyroid carcinoma and papillary thyroid carcinoma in the same patient as a collision tumour. Case Reports in Endocrinology. 2019;2019(1):4038628. doi.org/10.1155/2019/4038628
6-Gogna S, Goldberg M, Samson D, Gachabayov M, Felsenreich DM, Azim A, Dong XD. Medullary thyroid cancer in patients older than 45—Epidemiologic trends and predictors of survival. Cancers. 2020 Oct 26;12(11):3124. doi.org/10.3390/cancers12113124
7- De Falco N, Agresti M, De Falco M, Sperlongano P, Moccia G, Luongo P, Cece A, Bove F, Miele F, Allaria A, Torelli F. Simultaneous Medullary and Papillary Thyroid Carcinomas: Personal Experience Report and Literature Review. Journal of Clinical Medicine. 2025 Feb 19;14(4):1382. doi.org/10.3390/jcm14041382
8-Abdullah AM, Ali RM, Salih KM, Mohammed KK, Kakamad FH, Salih AM. Synchronous occurrence of papillary thyroid microcarcinoma, medullary thyroid carcinoma and Hashimoto thyroiditis in a single thyroid: A case report with literature review. International Journal of Surgery Case Reports. 2022 Apr 1;93:106888. doi.org/10.1016/j.ijscr.2022.106888
9- Gupta AK, Saurabh A, Bajpai H, Kumari N, Soni A. Thyroid collision tumor comprising of papillary and follicular carcinoma: A diagnostic and therapeutic conundrum. Indian Journal of Otolaryngology and Head & Neck Surgery. 2025 Mar;77(3):1607-14. doi.org/10.1007/s12070-024-05314-2
10- Shi Y, Cheng Y, Zhang S, Liu L, Gu J. Synchronous occurrence of papillary thyroid carcinoma and medullary thyroid carcinoma in the setting of Hashimoto's thyroiditis: a case report with literature review. Gland Surgery. 2025 Jul 28;14(7):1406. doi: 10.21037/gs-2025-141

Frontier in Medical & Health Research

ISSN: (e) 3007-1607 (p) 3007-1593

11-Zhang D, Yang M, Zhang X, Wang C, Li K, Wang H, Chi H, Sui C, Dionigi G, Sun H. Thirty synchronous medullary and papillary thyroid carcinomas. Frontiers in endocrinology. 2023 Mar 31;14:1153248. doi.org/10.3389/fendo.2023.1153248

12-Castillo SS, Rincón MA, Colorado DA, Trujillo Sr DA, Lomba AA, Sierra-Castillo S, Rincón Sr MA, Aristizabal-Colorado D, Trujillo DA, Lomba Sr AA. Coexisting medullary and papillary thyroid carcinomas: a case of dual neoplasia with a high risk of misdiagnosis. Cureus. 2024 Oct 16;16(10). Doi: 10.7759/cureus.71581