

An Unusual Subcutaneous Metastasis from Anaplastic Thyroid Carcinoma: A Case Report

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ABSTRACT

Background: Anaplastic thyroid carcinoma (ATC) is a rare and highly aggressive malignancy with a high risk of early metastatic dissemination. Cutaneous and subcutaneous metastases are uncommon. We report an unusual case of an isolated subcutaneous abdominal wall metastasis followed by isolated mediastinal nodal progression, both managed with local treatment.

Case presentation: A 70-year-old woman underwent thyroidectomy for clinically staged T4aN0M0 thyroid carcinoma. Initial biopsy showed papillary thyroid carcinoma, whereas the thyroidectomy specimen demonstrated coexisting papillary and anaplastic carcinoma components. The anaplastic component was positive for CK8/18 and negative for thyroglobulin and p53. Adjuvant chemoradiotherapy consisted of IMRT to 70 Gy in 35 fractions with seven weekly cycles of carboplatin. Three months after treatment, CT revealed an isolated 14.5-mm subcutaneous mass in the left lateral abdominal wall. Biopsy confirmed anaplastic carcinoma with an immunophenotypic profile concordant with the thyroid anaplastic component. The lesion was completely resected. Three months later, PET/CT revealed an isolated 15-mm hypermetabolic mediastinal lymph node in station 4R (Barety region; SUVmax 6.8). The lesion was subsequently treated with SBRT to 56 Gy in eight fractions.

Conclusion: This case illustrates an uncommon pattern of sequential oligometastatic ATC. Careful pathological assessment, close surveillance, multidisciplinary decision-making, and individualized local treatment may be considered in selected patients with limited metastatic disease.

Keywords: Anaplastic thyroid carcinoma; Papillary thyroid carcinoma; Subcutaneous metastasis; Oligometastatic disease; Stereotactic body radiotherapy.

INTRODUCTION

Anaplastic thyroid carcinoma (ATC) is an uncommon but highly aggressive thyroid malignancy, accounting for approximately 1–2% of thyroid cancers and characterized by rapid local progression and early distant dissemination. Despite advances in multimodal management and molecularly targeted therapies, prognosis remains poor, particularly in patients presenting with advanced or metastatic disease. Current management recommendations emphasize rapid multidisciplinary assessment and integration of surgery, radiotherapy, systemic treatment, and molecularly targeted therapy when appropriate. [1,2]

Recent reviews have highlighted the evolving molecular landscape of ATC and the increasing importance of molecular profiling for treatment selection, particularly in patients with advanced disease. [2,3]

ATC most frequently metastasizes to the lungs, bones, and other visceral sites. Cutaneous and subcutaneous metastases are considerably less common. Autopsy data have demonstrated extensive metastatic dissemination in ATC, although the distribution of metastatic sites is heterogeneous. [4]

Cutaneous metastases from thyroid carcinoma are rare overall and are generally associated with advanced disease. [5] Several case reports have specifically described cutaneous or soft-tissue metastases from ATC, including abdominal wall and thoracic skin involvement. [6–9] A systematic review also highlighted unusual metastatic sites and the possibility of prolonged survival in selected patients treated with multimodal approaches. [10]

We report a patient with an unusual clinical course characterized by an isolated 14.5-mm subcutaneous abdominal wall metastasis detected three months after completion of adjuvant chemoradiotherapy, successfully treated by complete surgical excision, followed by an isolated mediastinal nodal relapse treated with SBRT.

CASE PRESENTATION

A 70-year-old woman with a medical history of ischemic heart disease under treatment was referred to our institution for management of thyroid carcinoma. Her geriatric assessment was favorable, with a G8 score of 16. Thyroid function was euthyroid.

The patient initially presented with a thyroid goiter. Thyroid biopsy demonstrated papillary thyroid carcinoma. Importantly,

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the initial biopsy did not identify an anaplastic component. The tumor was clinically staged as T4aN0M0, and the patient underwent thyroidectomy with lymph node dissection, achieving a pT4N0, R0 resection.

Histological examination of the thyroidectomy specimen demonstrated coexisting papillary thyroid carcinoma and an anaplastic carcinoma component. Immunohistochemical analysis of the undifferentiated component showed positivity for cytokeratin 8/18 (CK8/18) and negativity for thyroglobulin and p53.

Following discussion at the head and neck multidisciplinary tumor board, adjuvant concurrent chemoradiotherapy was recommended.

The patient received intensity-modulated radiotherapy (IMRT) to a total dose of 70 Gy in 35 fractions. Concurrent systemic treatment consisted of seven weekly cycles of carboplatin at an AUC of 1.5. Treatment was completed in January 2026. Acute treatment-related toxicity was limited to grade 1 cervical radiation dermatitis and grade 1 dysphagia. No severe acute toxicity was observed.

Three months after completion of chemoradiotherapy, the patient underwent her first clinical and radiological assessment. Contrast-enhanced thoracic, abdominal, and pelvic computed tomography (CT) revealed a 14.5-mm subcutaneous soft-tissue lesion in the left lateral abdominal wall. The lesion was round and relatively well circumscribed, with irregular contours and contrast enhancement. No other suspicious metastatic lesion was identified [Figure 1].

The case was discussed at a multidisciplinary tumor board, and a biopsy of the abdominal wall lesion was performed. Histological examination demonstrated anaplastic carcinoma. Immunohistochemical examination showed CK8/18 positivity and negativity for thyroglobulin and p53. This immunophenotypic profile was concordant with that of the anaplastic component identified in the thyroidectomy specimen.

The lesion was therefore considered an isolated subcutaneous metastasis from the anaplastic thyroid carcinoma component.

The patient underwent complete surgical excision of the subcutaneous lesion with adequate oncologic margins. Following surgery, she remained clinically and radiologically stable.

Three months after surgical resection, positron emission tomography/computed tomography (PET/CT) revealed a hypermetabolic mediastinal lymph node measuring approximately 15 mm in station 4R (Barety region), with a maximum standardized uptake value (SUVmax) of 6.8. No other hypermetabolic lesion was identified.

The case was reviewed by the thoracic multidisciplinary tumor board. Given the patient's age, good clinical status, and limited disease burden, local ablative treatment was considered appropriate. Stereotactic body radiotherapy (SBRT) was therefore performed for the mediastinal lesion.

The patient received 56 Gy in eight fractions, with treatment planning respecting the relevant organ-at-risk dose constraints. SBRT was completed in August 2026 without significant acute toxicity. At the most recent clinical assessment, the patient remained under clinical and radiological surveillance [Figure 3].

DISCUSSION

ATC represents one of the most aggressive human malignancies. Its clinical behavior is characterized by rapid local progression, early metastatic dissemination, and limited therapeutic options. Contemporary management emphasizes rapid multidisciplinary assessment and integration of surgery, radiotherapy, systemic therapy, and molecularly directed treatment when appropriate. [1–3]

The pathological findings in the present case require careful interpretation. The initial thyroid biopsy demonstrated papillary thyroid carcinoma, whereas the thyroidectomy specimen subsequently demonstrated the coexistence of papillary and

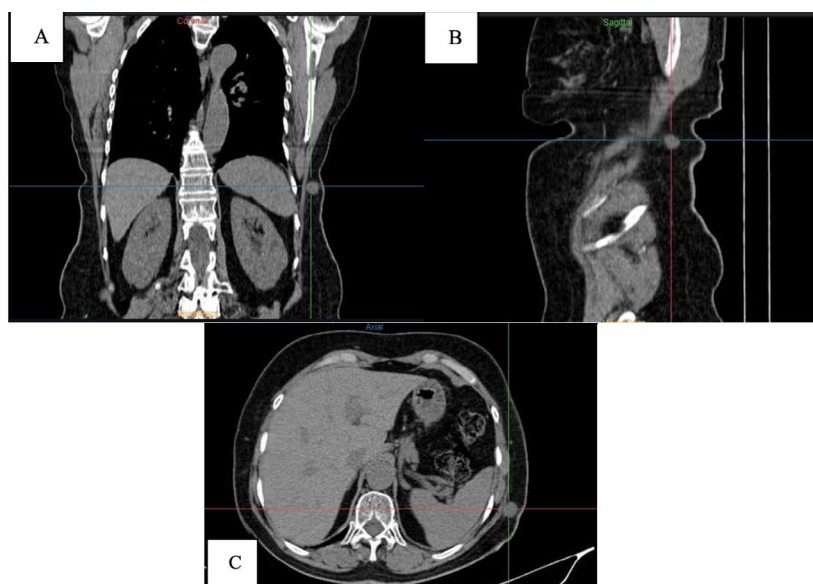


Figure 1: Contrast-enhanced thoracic, abdominal, and pelvic CT showing the 14.5-mm subcutaneous soft-tissue lesion in the left lateral abdominal wall.

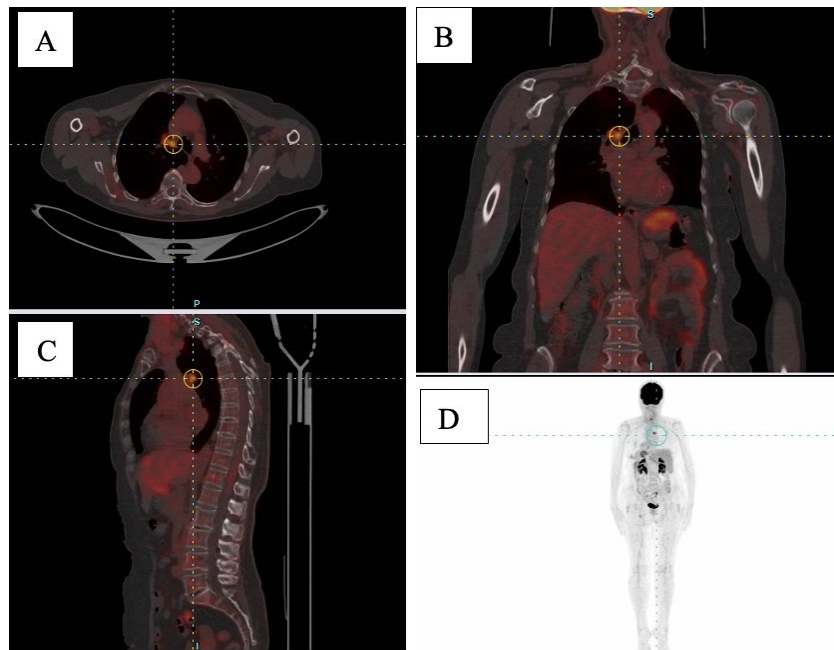


Figure 2: PET/CT showing the isolated hypermetabolic mediastinal lymph node in station 4R (Barety region), with an SUVmax of 6.8.

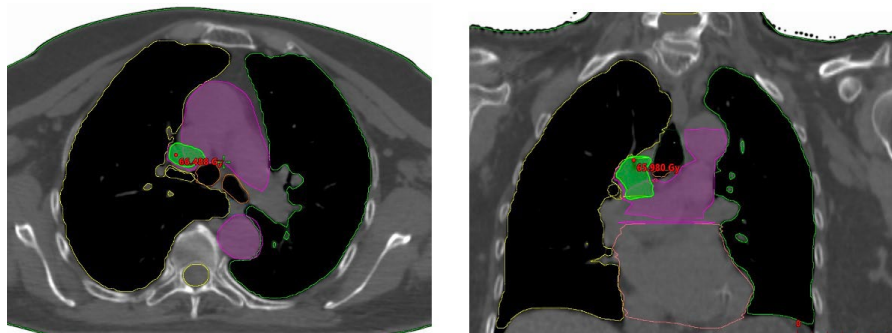


Figure 3: SBRT treatment-planning images for the lymph node in station 4R (Barety region), showing delineation of the target volume and adjacent organs at risk.

anaplastic components. Because the initial biopsy was limited in sampling, the available findings do not establish a temporal transformation from papillary carcinoma to anaplastic carcinoma. The pathological evidence instead supports the coexistence of the two components in the thyroidectomy specimen.

The immunohistochemical profile of the anaplastic component was characterized by CK8/18 positivity and thyroglobulin negativity. The same profile was observed in the subsequent abdominal wall lesion, supporting its relationship to the anaplastic component identified in the thyroidectomy specimen.

Distant metastatic spread is common in ATC and can involve multiple organs. In an autopsy series of 45 patients, Bešić and Gazić demonstrated extensive metastatic dissemination, with the lungs, intrathoracic lymph nodes, and cervical lymph nodes being the most frequently involved sites. [4] However, unusual metastatic sites can also occur.

Cutaneous metastases from thyroid carcinoma are uncommon. Dahl et al. described thyroid carcinoma metastatic to the skin and emphasized its association with disseminated disease. [5] Specific cases of ATC with abdominal or soft-tissue involvement

have been reported. Lim et al. described an abdominal cutaneous mass as an initial manifestation of ATC. [6] Altinay et al. reported diffuse thoracic skin metastases, while Danialan et al. described a cutaneous metastasis with spindle-cell morphology. [7,8] Hassan et al. reported widespread soft-tissue metastases from ATC. [9]

Abdominal cutaneous involvement has therefore been reported previously. [6] The clinical interest of the present case lies in the combination of a small, solitary subcutaneous abdominal wall metastasis detected early after adjuvant treatment, complete surgical resection, and subsequent management of isolated mediastinal progression with SBRT.

A systematic review by Mirabile et al. highlighted unusual metastatic sites in ATC and described selected patients with prolonged survival despite metastatic disease. [10] Importantly, the review included a case of isolated subcutaneous recurrence that was radically resected, with prolonged disease-free survival thereafter.

These observations suggest that, although ATC generally has a poor prognosis, a subset of patients with limited metastatic disease may undergo individualized local treatment.

The subsequent clinical course of our patient further illustrates the importance of repeated disease assessment. Three months after resection of the abdominal wall metastasis, PET/CT revealed a single mediastinal lymph node in station 4R, with no additional metastatic disease.

In this setting of limited progression, the multidisciplinary team selected SBRT as a local ablative treatment. The role of stereotactic radiotherapy in metastatic ATC remains an emerging area. A recent prospective single-center experience and systematic review evaluated stereotactic radiotherapy for metastatic ATC and reported local tumor control and symptom relief with manageable toxicity, while emphasizing the limited evidence base and the need for careful patient selection. [11]

However, the available evidence remains limited, with small cohorts and heterogeneous treatment settings. SBRT should therefore be individualized according to disease distribution, previous treatments, expected toxicity, organ-at-risk constraints, and patient-related factors. [1,11]

The present case illustrates how local treatments may be integrated into an individualized multidisciplinary strategy when metastatic disease is limited and technically amenable to local control.

Another important aspect of contemporary ATC management is molecular characterization. Recent literature emphasizes the

increasing importance of rapid molecular testing and targeted treatment, particularly in advanced disease. [2,3] Molecular results were not available in the present case and therefore cannot be incorporated into the therapeutic interpretation.

The favorable clinical course observed so far should also be interpreted cautiously. Although the patient has undergone complete resection of the subcutaneous metastasis and SBRT to the isolated mediastinal lesion, longer follow-up is required before any conclusion regarding durable disease control can be made.

CONCLUSIONS

This case describes an unusual metastatic pattern of anaplastic thyroid carcinoma characterized by an isolated small subcutaneous abdominal wall metastasis occurring shortly after adjuvant chemoradiotherapy, followed by isolated mediastinal nodal progression.

The case emphasizes the importance of careful pathological assessment, close imaging surveillance, multidisciplinary decision-making, and consideration of local treatment for selected patients with limited metastatic disease. Complete surgical excision of the isolated subcutaneous metastasis followed by SBRT for subsequent isolated mediastinal progression provided an individualized approach to disease control. Further follow-up is required to determine the durability of this response.

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