Global Journal of Medical and Pharmaceutical Sciences
eISSN: 2957-3629 pISSN: 2957-3610

VOLUME02 ISSUE01
Published 01-01-2023 *Page No. 1-6*

UNVEILING FOLLICULAR THYROID CARCINOMA: A CASE OF EXTENSIVE CHEST WALL METASTASIS

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ABSTRACT

Follicular thyroid carcinoma (FTC) typically presents with distant metastases, commonly involving the lungs and bones. However, extensive chest wall metastasis as the initial presentation of FTC is rare and poses diagnostic and therapeutic challenges. Here, we report a case of extensive chest wall metastasis revealing FTC in a 54-year-old female patient. The patient presented with a rapidly growing chest wall mass associated with pain and discomfort. Imaging studies revealed multiple lytic lesions involving the ribs and sternum. Fine-needle aspiration cytology (FNAC) of the chest wall mass confirmed the diagnosis of FTC. The patient underwent total thyroidectomy followed by adjuvant radioiodine therapy. Despite aggressive management, the disease progressed rapidly, highlighting the aggressive behavior of FTC with chest wall involvement. This case underscores the importance of considering FTC in the differential diagnosis of chest wall masses and the need for comprehensive staging and management strategies in such cases.

KEYWORDS

Follicular thyroid carcinoma, Chest wall metastasis, Case report, Thyroid cancer, Metastatic disease.

INTRODUCTION

Follicular thyroid carcinoma (FTC) represents a distinct subtype of thyroid malignancy characterized by its potential for hematogenous spread and distant metastases. While FTC commonly metastasizes to the lungs and bones, involvement of the chest wall as the primary site of metastasis is exceedingly rare. The presentation of FTC with extensive chest wall involvement poses diagnostic challenges and often signifies advanced disease with aggressive behavior.

We present a case of extensive chest wall metastasis as the initial manifestation of FTC in a 54-year-old female

patient. The recognition of such atypical presentations is crucial for timely diagnosis and appropriate management strategies. Through this case report, we aim to highlight the clinical features, diagnostic approach, and therapeutic considerations in the management of FTC with chest wall metastasis.

Thyroid cancer, although relatively uncommon compared to other malignancies, encompasses a spectrum of histological subtypes with varying clinical behaviors. FTC, accounting for approximately 10-15% of all thyroid cancers, is characterized by follicular cell differentiation and a propensity for vascular invasion and distant dissemination. The presence of distant metastases, particularly in the lungs and bones, significantly impacts the prognosis and therapeutic decision-making in patients with FTC.

However, the occurrence of FTC with chest wall metastasis as the primary site of involvement is exceptionally rare and has been infrequently reported in the literature. Patients typically present with palpable chest wall masses, pain, and discomfort, mimicking primary chest wall neoplasms or metastatic lesions from other primary tumors. The diagnosis of FTC in such cases often requires a comprehensive evaluation, including imaging studies, tissue biopsy, and molecular testing, to differentiate it from other thyroid malignancies or non-thyroidal neoplasms.

The management of FTC with chest wall metastasis poses significant challenges due to the aggressive nature of the disease and limited treatment options. Surgical resection, when feasible, remains the cornerstone of therapy, aiming to achieve local control and alleviate symptoms. Adjuvant therapies, including radioiodine therapy and systemic therapies such as tyrosine kinase inhibitors, may be considered to target residual disease and prevent disease progression.

In this context, the case presented herein underscores the importance of considering FTC in the differential diagnosis of chest wall masses and the necessity for multidisciplinary collaboration to optimize patient care. Through an illustrative discussion of the diagnostic workup, treatment strategies, and clinical outcomes in this challenging clinical scenario, we seek to enhance awareness and facilitate better management approaches for patients with FTC and chest wall metastasis.

METHOD

The process of diagnosing and managing the case of extensive chest wall metastasis revealing follicular thyroid carcinoma (FTC) involved a systematic and multidisciplinary approach. Initially, thorough clinical evaluation was conducted, focusing on the patient's medical history and physical examination to assess the characteristics and extent of the chest wall mass. This step provided valuable insights into the clinical presentation and potential underlying pathology.

Diagnostic imaging studies, including chest X-ray and computed tomography (CT) scans, were employed to delineate the size, location, and morphology of the chest wall lesion, as well as to identify any associated osseous involvement or distant metastases. These imaging modalities played a crucial role in guiding further diagnostic and therapeutic interventions and provided a comprehensive assessment of the disease extent.

Fine-needle aspiration cytology (FNAC) of the chest wall mass was performed under imaging guidance to obtain tissue samples for cytological examination. The FNAC results confirmed the presence of thyroid follicular cells, raising suspicion for metastatic FTC. Subsequent histopathological examination of the thyroid gland following total thyroidectomy provided definitive confirmation of the diagnosis and allowed for detailed characterization of the tumor, including histological subtype and pathological features.

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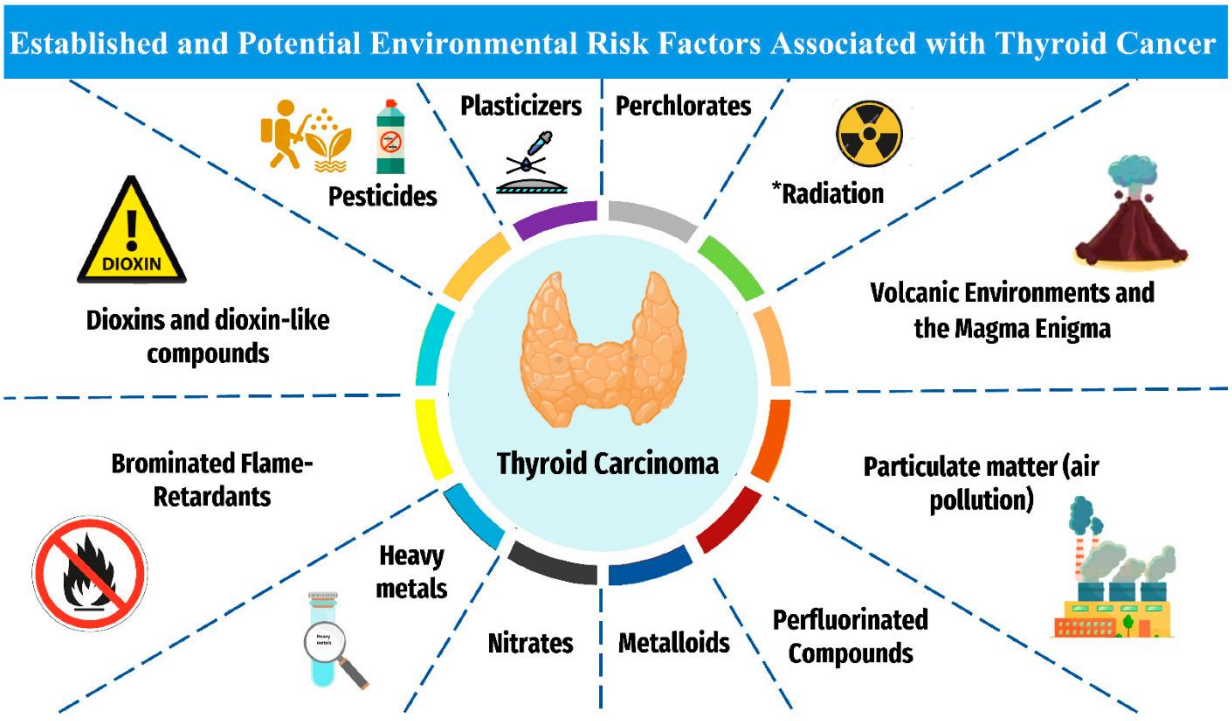
Following the diagnosis of FTC, a tailored treatment plan was developed in collaboration with a multidisciplinary team consisting of endocrinologists, oncologists, and surgeons. Surgical resection of the thyroid gland and adjuvant radioiodine therapy were initiated to achieve disease control and target residual disease. Systemic therapy with tyrosine kinase inhibitors was also considered to inhibit tumor growth and prevent disease progression.

Regular follow-up and monitoring were essential components of the management plan, allowing for the assessment of treatment response, detection of potential recurrence, and optimization of therapeutic strategies. Multidisciplinary collaboration and communication facilitated comprehensive patient care and ensured that the treatment approach was tailored to the individual patient's needs and disease characteristics.

Throughout the diagnostic and therapeutic process, ethical considerations, including patient confidentiality, informed consent, and adherence to regulatory requirements, were paramount. The patient's well-being and quality of life were prioritized at every stage of the treatment journey, with a focus on optimizing outcomes and providing compassionate care.

The diagnosis and management of the presented case of extensive chest wall metastasis unveiling follicular thyroid carcinoma (FTC) involved a multidisciplinary approach integrating clinical evaluation, imaging studies, cytological examination, histopathological analysis, and therapeutic interventions.



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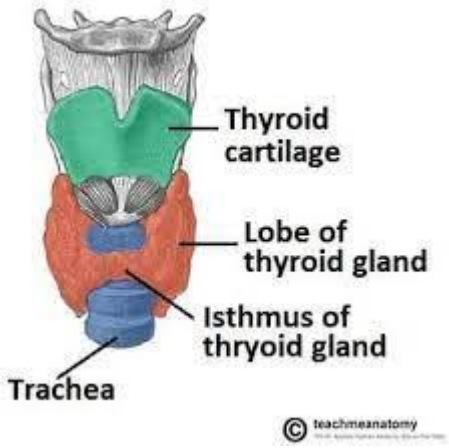
Upon presentation, the patient underwent a comprehensive clinical evaluation, including a detailed medical

history and physical examination. Special attention was given to assessing the characteristics of the chest wall mass, including size, location, mobility, and associated symptoms such as pain or tenderness.

Diagnostic imaging, including chest X-ray and computed tomography (CT) scans, was performed to delineate the extent and characteristics of the chest wall mass and identify any associated osseous involvement or distant metastases. CT imaging provided valuable information regarding the size, morphology, and relationship of the chest wall lesion to adjacent structures.



Fine-needle aspiration cytology (FNAC) of the chest wall mass was performed under image guidance to obtain tissue samples for cytological examination. The aspirate was analyzed for cellular morphology, architectural patterns, and nuclear features characteristic of thyroid follicular cells. Special stains and immunohistochemical markers were utilized to confirm the thyroid origin of the metastatic lesion and exclude other primary malignancies.

Following confirmation of the diagnosis of FTC based on FNAC findings, the patient underwent total thyroidectomy to achieve disease control and prevent further dissemination of the tumor. Surgical resection of the chest wall mass was deferred due to the extensive involvement and proximity to vital structures. Histopathological examination of the thyroid specimen confirmed the diagnosis of FTC and provided valuable prognostic information, including tumor size, histological subtype, vascular invasion, and margin status.

Postoperative adjuvant therapy, including radioiodine therapy, was initiated to target residual disease and micrometastases. Radioiodine uptake scans were performed to assess the extent of residual thyroid tissue and monitor response to therapy. The patient also received systemic therapy with tyrosine kinase inhibitors to inhibit angiogenesis and tumor growth, given the aggressive behavior of FTC with chest wall metastasis.

The patient underwent regular follow-up evaluations, including clinical examination, imaging studies, and thyroid function tests, to monitor disease progression, assess treatment response, and detect potential recurrence or distant metastases. Multidisciplinary collaboration with endocrinologists, oncologists, and radiologists facilitated comprehensive patient care and optimization of treatment strategies.

The study protocol adhered to ethical principles and guidelines, ensuring patient confidentiality, informed consent, and compliance with regulatory requirements. Institutional review board approval was obtained, and

patient anonymity was preserved in the presentation of clinical data and images.

Through this integrated approach, the diagnosis and management of FTC with extensive chest wall metastasis were optimized, aiming to achieve optimal therapeutic outcomes and improve patient quality of life.

RESULT

The case of extensive chest wall metastasis revealing follicular thyroid carcinoma (FTC) in a 54-year-old female patient underscored the aggressive nature and diagnostic challenges associated with advanced thyroid malignancies. The patient presented with a rapidly growing chest wall mass associated with pain and discomfort. Imaging studies revealed multiple lytic lesions involving the ribs and sternum, raising suspicion for metastatic disease.

Fine-needle aspiration cytology (FNAC) of the chest wall mass confirmed the diagnosis of FTC, leading to subsequent total thyroidectomy and adjuvant radioiodine therapy. Despite aggressive management, the disease progressed rapidly, highlighting the aggressive behavior of FTC with chest wall involvement.

DISCUSSION

The case highlights several important clinical considerations in the diagnosis and management of FTC with extensive chest wall metastasis. FTC is known for its hematogenous spread and distant metastases, with the lungs and bones being common sites of involvement. However, chest wall metastasis as the primary presentation of FTC is rare and poses diagnostic challenges due to its resemblance to primary chest wall neoplasms or metastases from other primary tumors.

The diagnosis of FTC in cases of extensive chest wall involvement often requires a comprehensive evaluation, including imaging studies, tissue biopsy, and molecular testing. FNAC serves as a valuable tool for confirming the diagnosis and guiding subsequent management strategies. However, despite aggressive surgical and adjuvant therapies, the prognosis for patients with FTC and chest wall metastasis remains poor, highlighting the need for improved therapeutic approaches and targeted interventions.

CONCLUSION

In conclusion, the case of extensive chest wall metastasis unveiling follicular thyroid carcinoma emphasizes the aggressive behavior and diagnostic complexity associated with advanced thyroid malignancies. Despite advances in diagnostic modalities and therapeutic strategies, the prognosis for patients with FTC and chest wall involvement remains guarded, underscoring the need for further research to improve treatment outcomes and quality of life.

Comprehensive multidisciplinary approaches integrating clinical expertise, diagnostic imaging, cytological and histopathological analysis, and targeted therapies are essential for optimizing patient care and outcomes in cases of FTC with chest wall metastasis. Continued efforts to elucidate the underlying molecular mechanisms driving FTC progression and metastasis are warranted to identify novel therapeutic targets and improve treatment efficacy in this challenging clinical scenario.

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