

Anaplastic Thyroid Carcinoma Mimicking Cervical Tuberculosis: A Case Report

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Introduction:

Cancer and tuberculosis are two common diseases that affect health worldwide. They affect various organs and typically present with different clinical manifestations. However, these two diseases can sometimes present with unusual but similar clinical manifestations, leading to misdiagnosis of cancer and tuberculosis [1]. The thyroid gland is not spared from this risk of diagnostic error. It is more common for thyroid tuberculosis to be misdiagnosed as thyroid cancer than the opposite [2,3] In fact, Thyroid tuberculosis is a great mimicker and diagnostic chameleon and is prone to be diagnostic as thyroid carcinoma [2,3]. However, it is very rare for thyroid cancer to present as cervical tuberculosis. To our knowledge, only three cases of thyroid carcinoma initially manifesting as a neck abscess have been reported [4,5,6]. In this report, we describe a very rare case of an adult who presented with symptoms resembling cervical tuberculosis and pathological results ultimately revealed anaplastic thyroid carcinoma.

Case report:

A 65-year-old patient presented to our service with a left-sided basi-cervical swelling that had been evolving for 4 months. The swelling had progressively increased in size over the last 2 months, causing dysphagia. The swelling was 8 cm in diameter, with indistinct margins, immobile during swallowing, and had both indurated and soft areas. It was fistulized to the skin.

The blood count showed hyperleukocytosis of 13,600 cells/mm³ (85% neutrophils, with lymphopenia: 8.5% lymphocytes, i.e., 1,200/mm³), normocytic normochromic anemia with a hemoglobin level of 9.3 gr/dl, and platelets of 307,000/mm³. CRP was high at 69 mg/L.

Cervical computed tomography showed a necrotic mass in the left lobe of the thyroid compressing the airway, communicating with a second necrotic mass in the subcutaneous tissue of the anterolateral cervical region, extending to the left sternocleidomastoid muscle. This mass was fistulized to the skin and initially suggested cervical tuberculosis (**Fig 1**).

When the subcutaneous mass was punctured and incised, pus and whitish material resembling caseous tuberculosis were discovered. The biopsies of the fistula margins and the abscess wall concluded a non-specific granulomatous lesion. Acid-fast bacilli (AFB) PCR was negative.

For 15 days, the patient received antibiotics intravenously. A regression of local inflammatory signs and biological inflammatory syndrome were noted. However, the mass increased in size, softened, and friable tumor tissue showed up at the permeation orifice.

A second biopsy of this tissue revealed an anaplastic thyroid carcinoma. Immunohistochemical analysis showed tumor cells expressing keratin, EMA, and PAX8 diffusely and intensely. Tumor cells were focally positive for TTF1 (**Fig 2**).

A second computed tomography showed tumor growth in the left thyroid mass invading the esophageal wall, prevertebral plane, and covering more than half of the circumference of the left internal carotid artery. Suspect bilateral jugulo-carotid lymph nodes had also appeared (**Fig 3**).

Both a PET scan and a thoraco-abdomino-pelvic computed tomography did not reveal any distant hypermetabolic foci. Following a multidisciplinary consultation meeting, the patient was referred for radiochemotherapy due to the inoperability of the tumor.

Discussion:

Although tuberculosis and cancer are two completely different diseases, they can present with unusual but similar symptoms that may overlap and mimic each other. In fact, misdiagnosis of cancer and tuberculosis has been reported in various organs, such as the lungs, liver, breast, bones, and even the thyroid gland [1]. It is more common for thyroid tuberculosis to be misdiagnosed as thyroid cancer than the opposite [2,3]. Many cases of thyroid tuberculosis wrongly diagnosed as thyroid cancer have been associated with pressure symptoms such as dysphagia [16], dyspnea, and recurrent laryngeal nerve palsy [17], raising suspicion of malignancy. However, it is very unusual for thyroid cancer to present as cervical tuberculosis. In our case, tuberculosis was suspected due to the insidious progression of the cervical swelling, the appearance of cutaneous fistula with the discharge of pus and whitish material reminiscent of tuberculous caseum as well as the central necrosis of the mass on CT scan while taking into consideration the high prevalence of tuberculosis in the country.

Anaplastic thyroid carcinoma represents approximately 2% of all thyroid cancers [7]. It is a particularly dreaded form of cancer due to its extreme aggressiveness and poor prognosis. It most commonly in the elderly, with a mean age distribution between 60 and 79 years and is slightly more common among women (1.5 - 2 ratio) [7].

Anaplastic carcinoma is thought to arise from a terminal dedifferentiation of preexisting carcinomas of the thyroid follicular cell. This association has long been suggested by the consistent observation of coexisting follicular or papillary thyroid carcinomas with anaplastic carcinoma [8]. The classic presentation of anaplastic thyroid carcinoma is a rapidly growing large goiter or nodule that is firm to the touch and fixed to underlying structures [9]. Signs of local-regional invasion are common, including inspiratory dyspnea, dysphonia due to recurrent laryngeal nerve paralysis, dysphagia, and cervical pain. More than 80% of patients have cervical lymph node metastasis at presentation, and 20 to 50% have systemic metastasis [10].

Case reports of unusual presentations of anaplastic thyroid carcinoma include possible bradycardia due to compression of the vagus nerve [11], superior vena cava syndrome [12], thyrotoxicosis [13], acute Horner syndrome [14], leukocytosis from granulocyte colony-stimulating factor secretion and ball valve-type respiratory obstruction [15]. The presentation of anaplastic thyroid carcinoma mimicking cervical tuberculosis is very unusual and may be the first case reported in the literature.

Even the rare similar cases reported in the literature were thyroid carcinomas mimicking the presentation of cervical abscess rather than tuberculosis [4,5,6]. In fact, Loh TL et al. [4] reported a rare case in 2018 of anaplastic thyroid carcinoma mimicking a thyroid abscess in a 52-year-old patient. Fine needle aspiration cytology was negative for malignancy. An incision and drainage were performed and histopathology result of a proximal isolated enlarged lymph node biopsied revealed metastatic carcinoma. Thyroid biopsy confirmed anaplastic thyroid carcinoma. Mahattanapreut et Al. [5] Reported in 2021 a case 67-year-old patient presented with a large abscess involving the retropharyngeal space, oro-hypopharynx, larynx, and left lobe of the thyroid gland with multiple lymphadenopathies with cystic necrosis. The patient underwent incision and drainage of the abscess and necrotic tissue samples were sent for histopathology. Papillary thyroid carcinoma was found in the pathology of the necrotic tissue with lymph node metastasis. Lin et al. [6]

conducted a study on the incidence of head and neck cancers presenting initially as deep neck infections. Among the 81 patients with deep neck infections, 4 were found to have underlying cancers, including papillary thyroid carcinoma, nasopharyngeal carcinoma, hypopharyngeal carcinoma, and Hodgkin's lymphoma.

To distinguish between the infectious process and malignancy, fine needle aspiration cytology should be performed [18]. However, cytological examination of the cystic lesions of malignancy might yield a false negative result because of the dilutional effect of cystic fluid. In our case, even the biopsy of the abscess wall was initially negative. This can be attributed to the abundance of inflammatory cells, as the presence of a few atypical clusters of cells may go unnoticed [18].

The literature supporting specific guidelines for the treatment of anaplastic thyroid cancer is limited. Therapeutic options include surgery, radiation, and systemic therapy [19]. Similarly, incision and drainage of the cervical abscess underlying the tumor is part of the treatment, although it may seed the tumor into the soft tissues of the neck and skin as loculations are broken down, and encourage the dissemination of carcinoma cells [18].

Surgical removal of this rapidly progressing cancer is often not possible due to either extensive local disease or synchronous metastatic disease. Total thyroidectomy has been reported to increase survival rates in highly selected cases; however, cervical and mediastinal disease must be minimal [20].

The most critical aspect of therapy is controlling the local spread of the disease and its associated symptoms. Although anaplastic thyroid cancer has been considered radioresistant compared to other malignancies, several studies have shown that radiotherapy can effectively control local disease and alleviate symptoms in some cases [21]. Lastly, systemic therapy can be used to reduce the overall disease burden, although contemporary chemotherapy regimens have not been proven to affect overall survival. Anaplastic thyroid carcinoma is known for its poor prognosis. The 5-year survival rate is less than 10%, and the average survival is 6 to 8 months regardless of treatment [19].

Conclusion:

In conclusion, anaplastic thyroid carcinoma is an extremely aggressive form of thyroid cancer that can present with atypical clinical manifestations, leading to misdiagnosis. In this case report, we highlight a rare case of anaplastic thyroid carcinoma mimicking cervical tuberculosis, which underscores the importance of considering uncommon etiologies in the differential diagnosis of necrotic neck masses. Given the poor prognosis of these tumors, such an atypical presentation should not delay the diagnostic and, especially, therapeutic management of such aggressive cancers.

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