Annals of Clinical Case Reports

Research Article
Published: 21 Feb, 2022

A Case of Anaplastic Thyroid Carcinoma

Lucy Tomb[1], Jeffrey Mimbs[2], Vinay Krupadev[3] and Marlowe Maylin[4]*

[1]Department of Medicine, Tulane University, USA

[2]Department of Anesthesia, Tulane University, USA

[3]Department of Internal Medicine & Pediatrics, Tulane University, USA

[4]Department of Internal Medicine, Tulane University, USA

Abstract

Anaplastic thyroid carcinoma is a rare diagnosis with a high rate of mortality and universally poor prognosis. The disease process usually progresses quickly from diagnosis and often management consists primarily of palliative and hospice care. In this report, we discuss a case of anaplastic thyroid carcinoma in a patient presenting with a rapidly growing neck mass. This case demonstrates the quick and aggressive progression of this cancer. Currently, treatment for anaplastic thyroid carcinoma is limited and remission is rare. More research is needed in the future to improve treatment and prognosis of this devastating cancer.

Background

Anaplastic thyroid carcinoma is a rare but deadly form of thyroid cancer that carries a dismal prognosis. Although anaplastic thyroid carcinoma accounts for only 2% to 3% of all thyroid malignancies, median survival time is 5 months and less than 20% of patients survive past the first year after diagnosis [1,2]. Given the aggressiveness of the disease, all anaplastic thyroid cancers are automatically staged as stage IV [3]. From here, further staging is determined by the degree of spread. A stage IVa is a malignancy confined to the thyroid gland itself while stage IVb is characterized by invasion to local lymph nodes, muscles, or tissue in close proximity to the thyroid gland [3]. Stage IVa and IVb tumors may be treated using a multimodal approach consisting of radiation, chemotherapy, and surgical excision [4]. Stage IVc tumors however have distant metastases and are considered terminal [3]. These patients may opt for palliative care or choose to pursue experimental treatment in clinical trials [4]. Anaplastic thyroid cancer's penchant for rapid invasion is the most significant reason why it is associated with such high rates of mortality. 90% of patients have adjacent tissue infiltration at the time of diagnosis and 20% to 50% of patients already have distant metastases at the time of detection [2]. Of those who seek care, 75% eventually develop distant metastases and the majority of anaplastic thyroid carcinoma patients are not candidates for surgical resection [5]. In many patients, careful airway monitoring is needed due to the potential for local tracheal impingement and a tracheostomy may be required to protect a patient's airway for longer term treatment [6]. The following case highlights the rapid progression of a patient with anaplastic thyroid carcinoma admitted to the floor for airway management and pain control. Her hospital course highlights just how aggressive this malignancy progresses and the heartbreaking speed with which patients decline.

Objectives

- Highlight the rapid progression of anaplastic thyroid carcinoma in an elderly patient.
- Discuss the multimodal approach to treatment and relative poor prognosis for patients with metastatic disease.
- Bring to light the need for aggressive airway management and pain control in patients with terminal disease.

Methods

A 63 year old female with a history of rheumatoid arthritis, chronic obstructive pulmonary disease, and hyperlipidemia presented to the emergency department complaining of a 4 week history of worsening left anterior neck pain. On physical exam swelling was noted at this region and the patient's vitals showed a slightly elevated temperature and tachycardia with a heart rate of 111. The patient's TSH was slightly low at 0.035, free T4 normal, T3 low, and her complete blood

OPEN ACCESS

Correspondence:
Vinay Krupadev, Department of Internal Medicine & Pediatrics, Tulane University, USA, Tel: 7406294774; E-mail: vkrupadev@tulane.edu

Received Date: *17 Jan 2022*
Accepted Date: *14 Feb 2022*
Published Date: *21 Feb 2022*

Citation:
Tomb L, Mimbs J, xKrupadev J, Maylin M. A Case of Anaplastic Thyroid Carcinoma. Ann Clin Case Rep. 2022; 7: 2126.

ISSN: 2474-1655

Copyright *© 2022 Vinay Krupadev. This is an open access article distributed under the Creative Commons Attribution License, which permits unrestricted use, distribution, and reproduction in any medium, provided the original work is properly cited.*

count was significant for a leukocytosis of 29.5 and thrombocytosis of 601. A CT scan of her neck showed a large heterogeneous left thyroid lobe mass concerning for a necrotic tumor *vs.* acute thyroiditis. The patient met sepsis criteria upon initial evaluation and was started on empiric antibiotics and IV fluids. Laryngoscopy in the emergency department was concerning for left vocal cord paralysis secondary to the mass but there was no airway compromise noted when the patient first presented. The patient was complaining of severe pain so an aggressive pain regimen was started and an ear, nose, and throat specialist was also consulted to assess whether the patient was a candidate for surgery.

Results

Shortly after admission to the floor, a biopsy of the thyroid mass was obtained via fine needle aspiration. The oncology team was consulted for possible malignancy management and although the patient's white blood cell count improved with fluids and antibiotics, they noted that such a high leukocytosis at the time of initial presentation was a poor prognostic indicator for thyroid malignancy. Five days after the patient first presented, she began experiencing respiratory distress and a repeat CT now showed the mass had grown and was causing tracheal deviation. The patient was stepped up to the medical ICU and an emergent tracheostomy was performed. The results of the patient's thyroid biopsy came back positive for malignancy showing poorly differentiated carcinoma consistent with anaplastic thyroid cancer. The tumor cells were positive for AE1/AE3 and negative for S100 and TTF1. Her pain medication regimen also required frequent up titration as the mass grew and quickly progressed from scheduled tylenol and toradol with occasional opiates for breakthrough pain, to a Dilaudid PCA with scheduled fentanyl patches. ENT, Oncology, and Radiation Oncology were all consulted and had extensive meetings with the patient and family regarding possible treatment options. A PEG tube was also placed for enteral nutrition. After multidisciplinary discussions with the treatment team, the patient and her family came to a mutual decision to forego treatment and return home with hospice care. The patient's total hospitalization course from the time of first presentation to the day of discharge with hospice care was just 15 days. Because the patient opted to forego all surgical, radiation, and chemotherapy options further imaging to evaluate for metastases was not done.

Discussion

While rare, anaplastic thyroid carcinoma is one of the most deadly diseases in the world with only 12% of patients surviving past two years [1]. Factors that are believed to influence survival include age, size of tumor, invasion of disease at presentation, and gender [2,5]. As demonstrated in this case, anaplastic thyroid carcinoma usually presents with rapidly enlarging neck mass and often with increasing respiratory compromise [1,2,6]. The typical neck mass associated with anaplastic thyroid carcinoma is low anterior painful, hard, and may be fixed to underlying structures [1,6]. Less frequently, anaplastic thyroid carcinoma is found incidentally in a thyroid nodule [5]. Patients may also present with compressive symptoms including vocal cord paralysis, hoarseness, cough, dyspnea, and dysphagia [1]. Regional node metastasis is common and often appreciable on physical exam [1,5]. Diagnosis of anaplastic thyroid carcinoma can be confirmed with Fine Needle Aspiration (FNA) of mass or lymph nodes in 90% of cases [2,4,5]. In cases where FNA results are equivocal, core or open biopsy should be performed [2,4]. It is crucial to distinguish anaplastic thyroid carcinoma from lymphoma or medullary thyroid carcinoma, both conditions with much more favorable outcomes [2,5]. Immunohistochemistry is helpful in distinguishing anaplastic thyroid carcinoma from other diagnoses. Though there are multiple genes thought to play a role in the development of anaplastic thyroid carcinoma, DNA and RNA analyses are not required for diagnosis or treatment [4]. Management of anaplastic thyroid carcinoma should include gross tumor resection whenever possible; complete resection is associated with both prolonged disease-free survival and overall survival and quality of resection is a significant prognostic factor [1,2,6]. Primary surgical management should only be delayed by imminent threatening disease in other parts of the body, which could include brain or spine metastases [4]. Non-surgical modes of treatment can be valuable, especially when combined with surgical management. The majority of patients with anaplastic thyroid carcinoma either present with or develop distant metastases making systemic chemotherapy crucial to long term survival in many patients [5,7]. While most anaplastic thyroid carcinomas are largely radio resistant, palliative radiotherapy has been shown to be beneficial in some patients [4,5]. In many patients, including the one presented in this case, airway management is an immediate concern. It is recommended that tracheostomy is avoided except in cases of impending airway compromise. In cases where there is not an immediate concern for airway compromise, humidity, rest, and short-term corticosteroids are recommended for airway management [4]. Surgical debulking can also remove tumor blocking airway [1]. Because of the often rapid progression of disease, a conversation about goals of care and discussing palliative care among treatment options is important [4]. Palliative care and hospice teams can improve end-of-life care for patients with a diagnosis of anaplastic thyroid carcinoma [1].

Conclusion

As discussed above, anaplastic thyroid carcinoma is a rare yet devastating diagnosis. The patient discussed in this case demonstrated the rapid progression of disease that many with this diagnosis face. Currently, treatment options for anaplastic thyroid carcinoma are limited and the prognosis is catastrophic. Investigation into new therapies is necessary in the future to alter the outcomes in these patients. Attention should also be paid to palliative therapies to improve quality of life and pain management in patients with the rapidly progressing diagnosis. In this case report, we demonstrated a patient who was diagnosed with anaplastic thyroid carcinoma after presenting with a rapidly enlarging painful anterior neck mass. After discussions with a multidisciplinary care team the patient and her family opted to forego treatment and she was discharged home with hospice care a mere 15 days after presentation to the hospital. Her case demonstrates the devastating speed at which anaplastic thyroid carcinoma can advance.

References

1. Imaiem F, Kashyap S, Naing PT. Anaplastic thyroid cancer. In: StatPearls [Internet]. Treasure Island (FL): StatPearls Publishing; 2021.
2. O'Neill JP, Shaha AR. Anaplastic thyroid cancer. Oral Oncol. 2013;49(7):702-6.
3. "Thyroid Cancer Stages." Thyroid cancer: Early diagnosis, detection, screening, American Cancer Society.
4. Smallridge RC, Ain KB, Asa SL, Bible KC, Brierley JD, Burman KD, et al. American Thyroid Association guidelines for management of patients with anaplastic thyroid cancer. Thyroid. 2012;22(11):1104-39.

5. Pasieka Janice L. Anaplastic thyroid cancer. Curr Opin Oncol. 2003;15(1):78-83.

6. Neff RL, Farrar WB, Kloos RT, Burman KD. "Anaplastic Thyroid Cancer". Endocrinol Metab Clin North Am. 2008;37(2):525-38, xi.

7. Pornthep K, Pimpika C, Patravoot V, Supawan L, Watchareeporn T, Cattleya T, et al."Survival benefit of intervention treatment in advanced anaplastic thyroid cancer". Int J Surg Oncol. 2021;2021:5545127.