

PAWĘSKA, Wojciech, DOMINIK, Hanna and DOMINIK, Barbara. Anaplastic thyroid cancer with life-threatening symptoms in an older female - a case report. *Journal of Education, Health and Sport*. 2023;41(1):117-122. eISSN 2391-8306. DOI <http://dx.doi.org/10.12775/JEHS.2023.41.01.009> <https://apcz.umk.pl/JEHS/article/view/45095> <https://zenodo.org/record/8218421>

The journal has had 40 points in Ministry of Education and Science of Poland parametric evaluation. Annex to the announcement of the Minister of Education and Science of 17.07.2023 No. 32318. Has a Journal's Unique Identifier: 201159. Scientific disciplines assigned: Physical Culture Sciences (Field of Medical sciences and health sciences); Health Sciences (Field of Medical Sciences and Health Sciences). Punkty Ministerialne z 2019 - aktualny rok 40 punktów. Załącznik do komunikatu Ministra Edukacji i Nauki z dnia 17.07.2023 Lp. 32318. Posiada Unikatowy Identyfikator Czasopisma: 201159. Przypisane dyscypliny naukowe: Nauki o kulturze fizycznej (Dziedzina nauk medycznych i nauk o zdrowiu); Nauki o zdrowiu (Dziedzina nauk medycznych i nauk o zdrowiu).

© The Authors 2023.

This article is published with open access at Licensee Open Journal Systems of Nicolaus Copernicus University in Torun, Poland

Open Access. This article is distributed under the terms of the Creative Commons Attribution Noncommercial License which permits any noncommercial use, distribution, and reproduction in any medium, provided the original author (s) and source are credited. This is an open access article licensed under the terms of the Creative Commons Attribution Non commercial license Share alike.

(<http://creativecommons.org/licenses/by-nc-sa/4.0/>) which permits unrestricted, non commercial use, distribution and reproduction in any medium, provided the work is properly cited.

The authors declare that there is no conflict of interests regarding the publication of this paper.

Received: 14.07.2023. Revised:30.07.2023. Accepted: 06.07.2023. Published: 08.08.2023.

## Anaplastic thyroid cancer with life-threatening symptoms in an older female - a case report

### Authors

1. Wojciech Pawęska MD, District Hospital, Krakowska 31 32-700 Bochnia, Poland, ORCID: 0009-0007-0836-4983, [wojciech.paweska@gmail.com](mailto:wojciech.paweska@gmail.com)
2. Hanna Dominik MD, University Hospital of Zielona Gora, Zyty 26 65-046 Zielona Gora, Poland, ORCID:0000-0003-0371-2276, [hania.dominik31@gmail.com](mailto:hania.dominik31@gmail.com)
3. Barbara Dominik MD, PhD, University Hospital of Zielona Gora, Zyty 26 65-046 Zielona Gora, Poland, ORCID:0000-0002-3926-3583, [barbaradominik48@gmail.com](mailto:barbaradominik48@gmail.com)

### Corresponding author

Wojciech Pawęska MD, District Hospital, Krakowska 31 32-700 Bochnia, Poland

ORCID: 0009-0007-0836-4983

+48 535 298 631

[wojciech.paweska@gmail.com](mailto:wojciech.paweska@gmail.com)

### ABSTRACT

**Introduction:** Anaplastic thyroid cancer, also called undifferentiated, is an uncommon and highly aggressive thyroid neoplasm that usually occurs in patients above 60 years of age (mean 65 years). Incidence is about 1-2 cases per million persons a year. <sup>[1]</sup> It accounts for 1-2% of thyroid cancer cases and probably develops from previously differentiated thyroid neoplasms. <sup>[1]</sup> Mutations of TP53 gene are most common and exist in 17-80% of patients. Other frequently mutated genes are RAS, BRAF and  $\beta$ -catenin. <sup>[3]</sup> The metastatic spread tends to occur through hematogenous and lymphatic pathways. The neoplasm presents as a rapidly enlarging neck mass that can cause

compression on the neck structures giving symptoms such as dysphagia and dyspnea. Patients with established diagnosis of anaplastic thyroid cancer have very poor prognosis. Mean survival time of patients after confirmed diagnosis is 3 to 6 months and 5-year survival rate is estimated to be 5-14%. [2]

**Aim:** The aim of this study is to portray the clinical presentation, course and complications of a patient suffering from anaplastic thyroid cancer. This case report includes performed procedures and implemented treatment.

**Description of the case:** We present a case of an 87-year-old female that was admitted to the hospital with a large thyroid mass, symptoms of dysphagia, dyspnea and significant weight loss. Clinical picture was suspicious of anaplastic thyroid cancer. Further workup included laboratory testing, imaging and FNA biopsy. Surgical procedure of tracheostomy was conducted due to life-threatening dyspnea with consecutive patient's monitoring in Intensive Care Unit. After achieving clinically stable state the patient was transferred to Clinical Department of Radiotherapy where palliative radiotherapy was initiated.

**Keywords:** anaplastic thyroid carcinoma, undifferentiated thyroid carcinoma, thyroid cancer, dysphagia, dyspnea, thyroid mass

## **CASE REPORT**

An 87-year-old woman was admitted to the department of Internal Diseases in Clinical Hospital of Zielona Góra on 27.05.2023 due to quickly deteriorating health state, increasing periodical dyspnea (also nocturnal) and dysphagia. She had lost 10kg of bodyweight in 6 weeks. Physical examination revealed large neck mass displacing larynx and trachea to the left. Anaplastic thyroid carcinoma was suspected. Anamnesis was significant for essential arterial hypertension and hypothyroidism, both well-controlled with medications. Patient was also previously treated for endometrial cancer in 2020, which included total hysterectomy with bilateral salpingo-oophorectomy and subsequent radiotherapy.

**Laboratory tests** showed increased CEA of 5,1 (normal range 0,0 - 3,0) and high BUN of 30,6 (normal range 9,0 - 22,0), TSH was within a normal range.

**Chest RTG** revealed:

- 10mm focal lesion in superior segment of left lung,
- 13mm lesion rising suspicion of being metastatic in right middle lung field,
- poorly demarcated, suspicious opacifications in right lower lung field.

**Abdominal ultrasound** did not show any abnormalities.

**Ultrasound-guided FNA** biopsy of the thyroid gland revealed clumps of remarkably atypical cell. Microscopic image corresponded with malignant tumour lesion (category VI in The Bethesda System).

**CT of the neck with contrast enhancement showed** <sup>[fig.1.1]</sup>:

On right side of the neck extensive inhomogeneous tumorous lesion measuring 76x52x85mm with features of necrosis, probably emerging from the thyroid. Tumour substantially oppressing larynx and oesophagus and displacing them to the left side. Glottis lumen dislocated to the left by 20mm. Tumour causes modeling of hyoid bone forward and to the left. It grows to the postcricoid region displacing larynx and upper trachea slightly forward. It causes significant narrowing of lower throat's lumen. Right cervical vessels are displaced to the right, right cervical vein at the level of tumour is constricted and occluded. Tumour infiltrates right thyroid cartilage plate. There is a suspicious right supraclavicular lymph node measuring 10mm in short axis.

In the internal diseases ward the patient received oxygen therapy, fluids, steroids, nebulisation with budesonide, fenoterol and ipratropium. Despite treatment, patient's dyspnea was constantly getting worse, measured saturation oscillated around 90%. Airway endoscopy showed compression and displacement of the larynx. Due to compression, visualization of rima glottidis was not possible. After consultation with anaesthesiologist and laryngologist, decision of performing tracheostomy in operating room conditions was made due to life-threatening dyspnea. Patient was informed about the risk and transmitted to the operating room on 04.06.2023. Procedure was uneventful and after it the patient was monitored at ICU where she did not report any complaints. She received analgesic treatment and antibiotic perioperative prophylaxis. She was transferred back to the Internal Diseases department on the same day in a stable clinical state. Due to constantly rising leukocytosis with neutrophilia empirical antibiotic therapy with ceftriaxone i.v. was initiated.

After consultations with surgeon and laryngologist the patient was excluded from radical surgical treatment due to poor prognosis. On 14.06.2023 patient was transferred in a stable clinical state to Clinical Department of Radiotherapy where palliative radiotherapy was initiated.

*Figure 1. Large mass emerging from thyroid compressing the airways.*



## **DISCUSSION**

Anaplastic thyroid carcinoma remains a significant challenge for modern medicine in terms of treatment and prognosis. <sup>[10]</sup> Despite numerous research ongoing throughout recent years, a lot is still to be done to prolong patients' lives as current treatment methods remain suboptimal. <sup>[4]</sup>

Treatment depends on staging and genetic profile of cancer cells. Radical surgical resection is often impossible due to highly aggressive nature of the tumour and invasion of surrounding tissues. Personalized immunotherapy and biological drugs bring hope for future as they target individual genetic profile of cancer cells. Unfortunately, they still remain in phase of clinical trials. <sup>[5,6]</sup> Palliative treatment usually includes radiotherapy and chemotherapy. <sup>[8]</sup>

Tracheostomy still remains a life-saving procedure when symptoms of nearby tissue compression become life-threatening. Physicians dealing with this type of tumour should always have in mind that the most common cause of death in patients with anaplastic thyroid carcinoma is suffocation. <sup>[8]</sup>

Differential diagnosis should include Riedel thyroiditis (also called invasive fibrous thyroiditis). It presents similarly upon physical examination - a hard mass extending to local structures like trachea and oesophagus but has different dynamics and epidemiology. Another diseases during differential diagnosis are primitive lymphoma of thyroid gland, large cell lymphoma and metastatic cancers. <sup>[9]</sup> The treatment should include multidisciplinary approach with surgeon, laryngologist, oncologist, anaesthesiologist and psychologist for the best possible outcome and improving life-quality.

### **Declarations**

### **Funding**

This research did not receive any specific grant from funding agencies.

### **Author contributions**

Conceptualization, H.D. and W.P.; Methodology B.D.; Validation, H.D. and B.D; Formal Analysis, H.D and W.P.; Investigation, W.P. and B.D; Resources, H.D. and B.D.; Data Curation, H.D., W.P.; Writing – Original Draft Preparation, H.D., W.P.; Writing – Review & Editing, H.D. and W.P.; Visualization, B.D.; Supervision, H.D and W.P.; Project Administration, B.D.

### **Conflicts of interest**

The authors have no known competing financial interests or personal relationships that could have appeared to influence the work reported in this manuscript.

### **Institutional Review Board Statement**

Not applicable.

### **Informed Consent Statement**

Informed consent was obtained from all subjects involved in the study.

### **Data availability**

The data have not been made public, but are kept with the authors, if necessary.

### **Ethics approval**

Written informed consent for publication was obtained from the patient. We complied with the policy of the journal on ethical consent.

## References:

1. Chintakuntlawar AV, Ryder M, Bible KC. Anaplastic Thyroid Cancer and Primary Thyroid Lymphoma. Elsevier; 2021: p. 246-254.e3
2. Chintakuntlawar AV, Foote RL, Kasperbauer JL, Bible KC. Diagnosis and Management of Anaplastic Thyroid Cancer. *Endocrinol Metab Clin North Am*. 2019 Mar;48(1):269-284. doi: 10.1016/j.ecl.2018.10.010. PMID: 30717908.
3. Reddi H, Kumar A, Kulstad R. Anaplastic thyroid cancer – an overview of genetic variations and treatment modalities. *Advances in Genomics and Genetics*. 2015;5:43-52 <https://doi.org/10.2147/AGG.S53448>
4. Maniakas A, Zafereo M, Cabanillas ME. Anaplastic Thyroid Cancer: New Horizons and Challenges. *Endocrinol Metab Clin North Am*. 2022 Jun;51(2):391-401. doi: 10.1016/j.ecl.2021.11.020. Epub 2022 May 4. PMID: 35662448.
5. Smith N, Nucera C. Personalized therapy in patients with anaplastic thyroid cancer: targeting genetic and epigenetic alterations. *J Clin Endocrinol Metab*. 2015 Jan;100(1):35-42. doi: 10.1210/jc.2014-2803. PMID: 25347569; PMCID: PMC4283016.
6. Julie A. Sosa, Rossella Elisei, Barbara Jarzab, Jai Balkissoon, et al. Randomized Safety and Efficacy Study of Fosbretabulin with Paclitaxel/Carboplatin Against Anaplastic Thyroid Carcinoma. *Thyroid*. Feb 2014.232-240.<http://doi.org/10.1089/thy.2013.0078>
7. Bible KC, Kebebew E, Brierley J, Brito JP, et al.. 2021 American Thyroid Association Guidelines for Management of Patients with Anaplastic Thyroid Cancer. *Thyroid*. 2021 Mar;31(3):337-386. doi: 10.1089/thy.2020.0944. Erratum in: *Thyroid*. 2021 Oct;31(10):1606-1607. PMID: 33728999; PMCID: PMC8349723.
8. Xu J, Liao Z, Li JJ, Wu XF, Zhuang SM. The Role of Tracheostomy in Anaplastic Thyroid Carcinoma. *World J Oncol*. 2015 Feb;6(1):262-264. doi: 10.14740/wjon899w. Epub 2015 Feb 14. PMID: 29147413; PMCID: PMC5649943.
9. Neff, R.L., et al., Anaplastic thyroid cancer. *Endocrinol Metab Clin North Am*, 2008. 37(2): p. 525-38, xi.
10. Maniakas A, Dadu R, Busaidy NL, et al. Evaluation of Overall Survival in Patients With Anaplastic Thyroid Carcinoma, 2000-2019. *JAMA Oncol*. 2020;6(9):1397–1404. doi:10.1001/jamaoncol.2020.3362
11. Davies L, Welch HG. Increasing incidence of thyroid cancer in the United States, 1973-2002. *JAMA*. 2006 May 10;295(18):2164-7. doi: 10.1001/jama.295.18.2164. PMID: 16684987.