Turkish Archives of Otorhinolaryngology
Turk Arch Otorhinolaryngol

Laryngeal Metastasis of Prostate Adenocarcinoma-A Case Report

Case Report

Ahmet Ömer İkiz[1], Ömer Faruk Zengin[1], Sülen Sarıoğlu[2], Nuri Karabay[3], Özhan Özdoğan[4], Oğuz Çetinayak[5]

[1]Dokuz Eylül University Faculty of Medicine, Department of Otorhinolaryngology, İzmir, Türkiye
[2]Dokuz Eylül University Faculty of Medicine, Department of Pathology, İzmir, Türkiye
[3]Dokuz Eylül University Faculty of Medicine, Department of Radiology, İzmir, Türkiye
[4]Dokuz Eylül University Faculty of Medicine, Department of Nuclear Medicine, İzmir, Türkiye
[5]Dokuz Eylül University Faculty of Medicine, Department of Radiation Oncology, İzmir, Türkiye

Abstract

Metastases to the larynx from distant primary malignancies are quite rare, but they should be considered in the differential diagnosis of submucosal laryngeal lesions. An 80-year-old male presented to our clinic with complaints of productive cough and hoarseness. Videolaryngoscopy revealed submucosal fullness in the right hemilarynx, pushing the right band ventricle mucosa medially and causing evident narrowing of the airway. Histopathological evaluation and immunohistochemical staining of the endolaryngeal submucosal biopsy specimen, obtained from the right ventricular fold, was diagnosed as laryngeal metastasis of prostate adenocarcinoma. This case is presented due to the scarcity of laryngeal metastases from prostate adenocarcinoma and is discussed in the context of literature.

Keywords: Larynx, metastasis, prostate, head and neck, hormonotherapy, case report

ORCID IDs of the authors:
A.Ö.İ. 0000-0002-1636-9457
Ö.F.Z. 0009-0003-4633-8525
S.S. 0000-0003-4877-3064
N.K. 0000-0002-1059-5517
Ö.Ö. 0000-0002-3357-4778
O.Ç. 0000-0002-8823-8341

Cite this article as: *İkiz AÖ, Zengin ÖF, Sarıoğlu S, Karabay N, Özdoğan Ö, Çetinayak O. Laryngeal metastasis of prostate adenocarcinoma-a case report. Turk Arch Otorhinolaryngol. [Epub Ahead of Print]*

Corresponding Author:
Ömer Faruk Zengin, MD;
drfrkzngn@gmail.com

Received Date: 16.07.2025
Accepted Date: 01.08.2025
Epub: 02.09.2025

DOI: 10.4274/tao.2025.2025-7-3

Introduction

Prostate carcinoma is known as the most prevalent malignancy affecting the male population. Metastatic lesions from prostate adenocarcinoma are reported at different rates according to their histopathological subtypes. The most common (7-40%) distant metastases are bone metastasis, while head and neck metastases of prostate cancer are uncommon (1). Metastases to the larynx from distant sites are most commonly caused by tumors such as malignant melanoma and renal adenocarcinoma while reported laryngeal metastases of prostate adenocarcinoma are uncommon (2,3). In this report, we present a case who presented to our clinic with hoarseness, productive and persistent cough complaints and was diagnosed with metastatic prostate adenocarcinoma to the larynx.

Case Report

An 80-year-old male patient without significant comorbidities was initially followed for benign prostatic hyperplasia

and underwent a prostate biopsy, which was reported as Gleason score 7 prostate adenocarcinoma.

During the same time interval, he was evaluated at another otolaryngology department because of hoarseness and cough starting after a recent upper respiratory tract infection. After clinical evaluation, due to the persistence of widespread edematous appearance in endolaryngeal structures, microlaryngoscopy and biopsy were performed. The histopathological evaluation of the biopsy was reported as edematous mucosa without further specific findings.

As there were no signs of improvement, the patient presented to our clinic for further evaluation. During the ear, nose, and throat examination, a 1.5 cm, hard and palpable lymphadenopathy was identified at level three of the right side of the neck; and a submucosal fullness in the right hemilarynx, pushing the right band ventricle mucosa medially; evident narrowing of the airway was also observed during videolaryngoscopy. Computed tomographic images demonstrated a locally invasive mass lesion with partial destruction of the thyroid cartilage and obliteration of the right pyriform sinus (Figures 1 and 2).

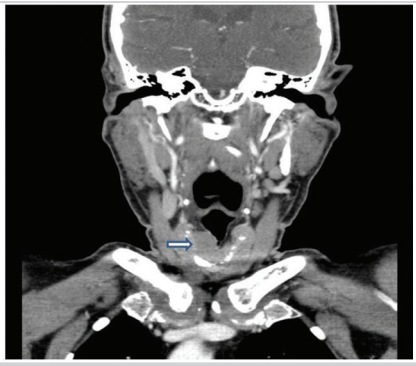

Figure 1. Computed tomography of the neck with contrast in the preoperative period (coronal image). The mass is shown by a white arrow

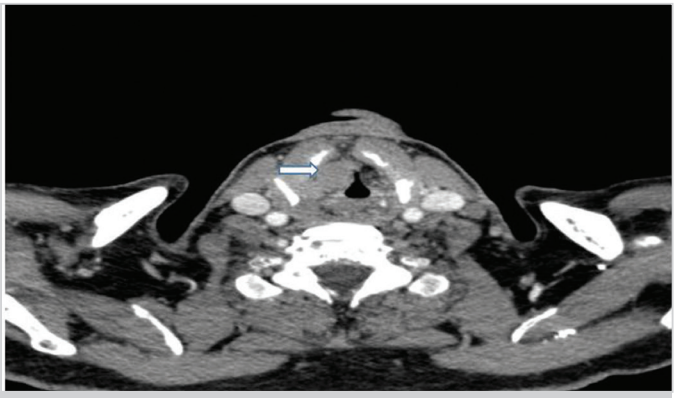

Figure 2. Computed tomography of the neck with contrast in the preoperative period (axial image). The mass is indicated by a white arrow

Microlaryngoscopy was performed under general anesthesia and numerous deep-located biopsies were taken from the indurated submucosal mass lesion after incising the right band ventricle mucosa (Figure 3). Histopathological and immunohistochemical evaluation of the biopsy samples revealed prostate-specific acid phosphatase (PSAP) and cytokeratin 5/6 negative, and prostate-specific antigen (PSA) positive high grade epithelial malignant tumor consistent with metastatic prostate adenocarcinoma (Figures 4 and 5). Gallium-68 prostate-specific membrane antigen positron emission tomography-computed tomography (PET/CT) identified the primary lesion in the prostate left lobe and widespread metastases in the right hemilarynx, right cervical level II and left cervical level VB lymph nodes and bony structures (left clavicle, vertebrae C3-T10-L4, bilateral pelvis, sacroiliac joint, anterolateral fifth and sixth costa). Lumbosacral CT findings also revealed sclerotic metastatic foci in the vertebrae, which are also consistent with the metastatic prostate carcinoma.

The patient was discussed by the Dokuz Eylül University-Head and Neck Cancer Group and hormone therapy with androgen-deprivation therapy (ADT) was initiated. ADT

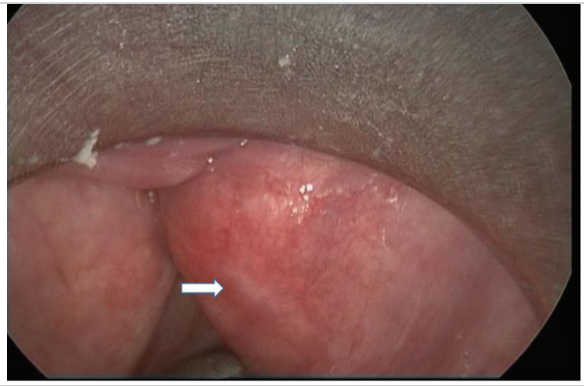

Figure 3. Direct laryngoscopic photograph illustrating submucosal mass lesion in the right band ventricle as shown by the white arrow

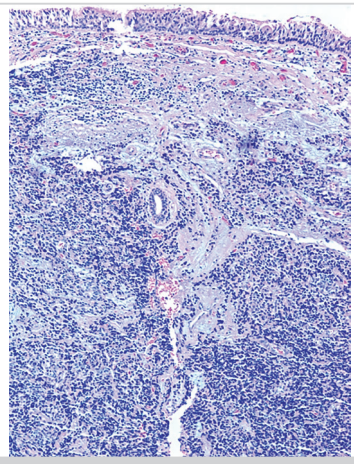

Figure 4. Submucosal malignant tumor (H&E, original magnification x10) - Reprinted with permission (4)-
H&E: Hematoxylin and eosin

had a significant impact on the patient's laryngeal findings and a near-complete response was achieved (Figures 6 and 7). The patient survived for 42 months after diagnosis and eventually died of distant metastases' progression during the follow-up period. Informed consent was obtained from the patient for publication.

Discussion

Prostate carcinoma is the most common malignancy in men and a significant cause of cancer-related mortality following lung carcinomas (1). Prostate carcinoma metastases mostly target regionally the lymph nodes and distantly the bones (7-40%), particularly the vertebrae. Head and neck metastases are relatively uncommon (1.5%). Although larynx metastases are very rare, the most common metastatic locations among head and neck sites are the brain, the dura and the supraclavicular lymph nodes (3-6).

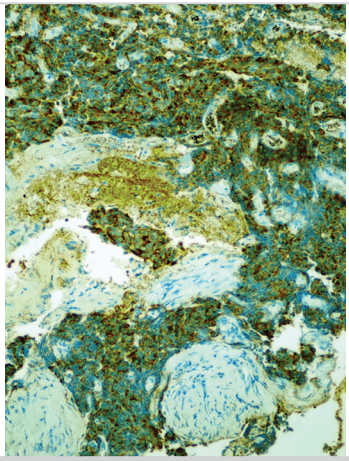

Figure 5. PSA expression in malignant cells and perineural invasion (PSA IHC, original magnification x20) - Reprinted with permission (4)-
PSA: Prostate-specific antigen, IHC: Immunohistochemistry

Figure 6. Computed tomography of the neck with contrast after ADT (coronal image) showing minor exophytic residual tumor with almost complete response to therapy
ADT: Androgen-deprivation therapy

Majority of distant laryngeal metastases arise from malignant melanoma, renal cell carcinoma, and carcinomas of the breast, lung, and colon. Only six per cent of laryngeal metastases originate from prostate carcinoma (1,2,7). Although laryngeal metastases of distant organ malignancies are uncommon due to the cartilaginous structure of the larynx skeleton, age-related ossification of the laryngeal cartilage may increase the risk of metastasis (3). Prescher et al. (2) reported that a very high incidence (97%) of bone metastases was observed in an autopsy series of patients with advanced prostate carcinoma. Theories put forth on the pathophysiology of laryngeal metastases due to prostate carcinoma in the same study were the unification of micrometastases to the hematopoietic region of the ossified cartilage and the invasion of the cartilage lamina or its spread between the perichondrium/periosteum and the laryngeal skeleton. Consequently, these tumors developing in the area far from the laryngeal lumen tend to cause late symptoms (3,8).

Although the clinical course of larynx metastasis of prostate cancer is mostly asymptomatic in the early period, in literature, voice changes at later stages are reported as the most common clinical complaint. Our case also presented with hoarseness as the initial symptom, which is consistent with the literature; however, cough which was not reported before, was also a symptom (1,8).

Cross-sectional imaging techniques like CT, magnetic resonance imaging, and PET/CT are useful for diagnosis, but the definitive diagnosis is made by histopathological and appropriate immunohistochemical evaluation with PSA and PSAP. Although NKX3.1 immunohistochemical staining is highly sensitive for detecting metastatic prostate adenocarcinoma, it hadn't been used in our patient's diagnostic work-up (9).

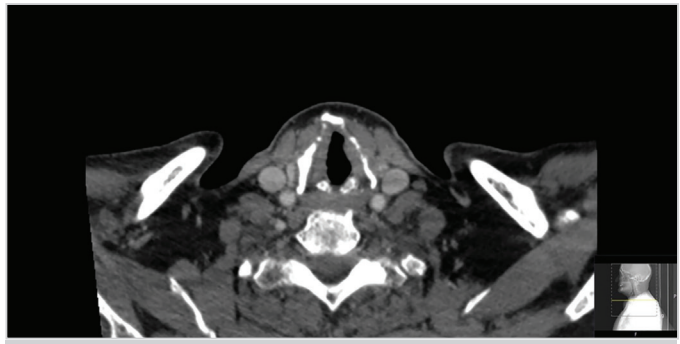

Figure 7. Computed tomography of the neck with contrast after ADT (axial image) showing almost complete response to therapy
ADT: Androgen-deprivation therapy

A review conducted by van der Toom et al. (10) stated that PSA was not expressed in 5-10% of metastatic prostatic carcinomas and PSAP was not expressed in 16-23%.

ADT has considerably extended the expected lifespan of advanced prostate carcinoma patients. In addition, palliative radiotherapy is used in patients with distant bone metastases, particularly those involving the vertebrae. Also, laryngectomy is proposed as an option in patients with solitary laryngeal metastasis (3).

In our patient, ADT caused an almost complete structural response to laryngeal metastasis, with complete resolution of the patient's laryngeal symptoms, and afterwards, it was possible to control the progression of vertebral metastases with external beam radiotherapy. Although the patient died of distant metastasis after 42 months during the follow-up period, the patient's quality of life was considerably increased due to control of laryngeal metastasis and preservation of laryngeal functions with ADT and avoidance of tracheotomy until his demise.

Conclusion

In summary, metastasis from distant sites should always be kept in mind in the differential diagnosis of laryngeal submucosal lesions presenting with voice disturbances, difficulty in breathing, stridor or cough; especially in patients with a history of malignancy. Correct sampling with incision of the mucosa and obtaining adequate submucosal tissue samples is a prerequisite for precise diagnosis. Histopathological evaluation with appropriate immunohistochemical staining is a key factor for definitive diagnosis. As represented in our case, laryngeal metastasis of prostate adenocarcinomas may yield an excellent response to ADT, and it should be the first line of treatment modality when considering more invasive options such as laryngectomy and even tracheotomy.

Ethics

Informed Consent: Informed consent was obtained from the patient for publication.

Footnotes

Authorship Contributions

Surgical and Medical Practices: A.Ö.İ., Ö.F.Z., O.Ç., Concept: A.Ö.İ., Design: A.Ö.İ., O.Ç., Data Collection and/or Processing: A.Ö.İ., N.K., Analysis and/or Interpretation: S.S., N.K., Ö.Ö., Literature Search: Ö.F.Z., Writing: A.Ö.İ., Ö.F.Z., S.S.

Conflict of Interest: The authors declare that they have no conflict of interest.

Financial Disclosure: The authors declare that this study has received no financial support.

Main Points

- Metastases to the larynx from distant primary malignancies are quite rare, but they should be considered in the differential diagnosis of submucosal laryngeal lesions.
- Correct sampling by incision of the mucosa and obtaining adequate submucosal tissue samples is a prerequisite for precise diagnosis of laryngeal submucosal lesions.
- Androgen-deprivation therapy has considerably increased the life expectancy of patients with advanced prostate cancer.

References

1. Rybalova I, Kirsch CFE, Choe JK, Kasimis BS. Metastatic prostate cancer presenting with hoarseness. Grand Rounds. 2005; 5: 28-33. [Crossref]
2. Prescher A, Schick B, Stütz A, Brors D. Laryngeal prostatic cancer metastases: an underestimated route of metastases. Laryngoscope. 2002; 11: 1467-73. [Crossref]
3. Katime EE, Khurana JS, Arosarena OA. Prostate cancer metastatic to the larynx: a case report. Ear Nose Throat J. 2012; 91: 1-3. [Crossref]
4. Toper MH, Sarioglu S, Skálová A. Biomarkers in head and neck carcinomas. Sarioglu S, Sagol O, Aysal A, editors. Biomarkers in Carcinoma of Unknown Primary. Cham: Springer; 2022.p.67-98. [Crossref]
5. Olvera M, Delgado M, Vázquez M, Zavala J, Macedo V, Puentes M. Unusual presentation of prostate cancer metastatic to the cricoid cartilage and oral cavity. Case Rep Med. 2018; 2018: 5207204. [Crossref]
6. Gao J, Myuran T, Chaurasia M. Metastasis of prostate carcinoma to the thyroid cartilage presenting with airway obstruction. BMJ Case Rep. 2021; 14: 240396. [Crossref]
7. Bosco S, Prijs K, Licata J, Schwartz SA, Lesser R. A unique case of metastatic prostate carcinoma to the subglottis. Ear Nose Throat J. 2024; 103: 730-2. [Crossref]
8. Ng SJ, Sinha AK, Loi HY, Khor LK. Asymptomatic metastasis to cricoid from prostate carcinoma: an incidental finding detected on 18F-choline PET/CT. Jpn J Radiol. 2015; 33: 298-301. [Crossref]
9. Gurel B, Ali TZ, Montgomery EA, Begum S, Hicks J, Goggins M, et al. NKX3.1 as a marker of prostatic origin in metastatic tumors. Am J Surg Pathol. 2010; 34: 1097-105. [Crossref]
10. van der Toom EE, Axelrod HD, de la Rosette JJ, de Reijke TM, Pienta KJ, Valkenburg KC. Prostate-specific markers to identify rare prostate cancer cells in liquid biopsies. Nat Rev Urol. 2019; 16: 7-22. [Crossref]