

# Metastatic sigmoid adenocarcinoma to the larynx: a case report and updated literature review

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## Abstract

Metastatic laryngeal cancers are rare and usually indicate advanced disease once they are present; we described a case of a 60 years old male patient with stage IV colorectal cancer (CRC) who presented to our clinic with dysphonia; further workups showed metastatic CRC.

## Metastatic sigmoid adenocarcinoma to the larynx: a case report and updated literature review

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*Short title: Metastatic sigmoid adenocarcinoma to the larynx*

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## Informed Consent

Written informed consent was obtained from the patient to publish this report in accordance with the journal's patient consent policy.

## ABSTRACT

Metastatic laryngeal cancers are rare and usually indicate advanced disease once they are present; we described a case of a 60 years old male patient with stage IV colorectal cancer (CRC) who presented to our clinic with dysphonia; further workups showed metastatic CRC.

### Key Clinical Message

Dysphonia is a known speech-related symptom in patients with cancer; patients must be evaluated promptly and managed accordingly.

*Keywords: Colorectal adenocarcinoma; Laryngeal metastasis; secondary laryngeal tumors; Dysphonia*

### INTRODUCTION

Colorectal cancer (CRC) is the world's third most common cancer. (1) The incidence of CRC is variable among high and low-income countries due to lifestyle differences and early detection in screening programs of premalignant lesions or polyps, the presentation of colorectal cancer is variable depending on the involved location across the colon with more than 50% of the patients die from their CRC cancer, metastasis is usually present in 20% at the time of diagnosis, most commonly identified site of metastasis is Liver, Lungs, and brain respectively, however, no clear information about the exact percentage of each metastasis as staging system usually stage them as stage IV without clarifying the involved sites. (2-6) Metastatic laryngeal cancers represent less than 1% of all laryngeal malignancies, with Skin melanoma and Renal cell carcinoma being the most common primary cancers to metastasize to the larynx as reported by fertile et al. in 1988, however, a recent review of the English literature showed that colorectal cancer metastasis to the larynx is the most common and compromise quarter of 41 cases. (3, 5) Dysphonia is the term used to describe any impairment or alteration of the voice with hoarseness; primarily, it is due to vocal muscle irregular oscillation owing to underlying muscle tension or dysfunction, incomplete closure of glottis on vocalization, or pressure effect exerted on the vocal folds by mass or tumor. (4)

### CASE PRESENTATION

A 60-year-old Caucasian male patient, known to have Diabetes Mellitus (DM) type II on oral hypoglycemic agents and obstructive sleep apnea on continuous positive airway pressure CPAP, the patient was diagnosed with moderately differentiated sigmoid adenocarcinoma Stage IV (with distant metastasis to liver and lung at the time of presentation, the patient was treated with definitive chemotherapy with (FOLFOX/Panitumumab regimen, he finished 12 cycles then maintenance therapy with 5FU/ Panitumumab), the patient was referred to ENT outpatient clinic due to hoarseness of voice for 2 weeks duration, and 18 months after his primary cancer diagnosis, there was no compressive respiratory or swallowing difficulties.

Physical examination showed unremarkable oral cavity, throat, nose, and ears; neck examination revealed no palpable lymphadenopathy. Fiberoptic examination showed paralyzed right vocal cord with left vocal cord compensation; no masses or lesions were noted along the upper aerodigestive tract. The computerized tomography (CT) scan with contrast is shown in (figure I), which confirms the presence of the known distant lung and liver metastasis.

Open surgical biopsy was taken from the right cricoid cartilage, and histopathology (Figure II) confirmed the metastatic sigmoid adenocarcinoma of the right cricoid cartilage. A. Fibrous tissue infiltrated by adenocarcinoma, B. H&E x 200. Bone infiltrated by adenocarcinoma, C. Immunohistochemical stain CDX2, and D. Immunohistochemical stain with CK20.

The patient was managed from the ENT side by awake tracheostomy and continued to his course of palliative treatment; 8 months after the laryngeal metastasis diagnosis, the patient passed away due to cancer complications.

Neck CT scan with contrast demonstrating destructive right laryngeal mass destroying the cartilage and causing luminal narrowing with extra laryngeal extension (Figure I), Chest and abdomen CT with intravenous contrast showing multiple lung nodules of varying sizes (red arrows), also multiple lesions on the liver can be noted largest being marked with the yellow circle.

## DISCUSSION

While the local extension of hypopharyngeal and thyroid tumors to the larynx is common, metastatic laryngeal involvement remains rare; since fertile et al. in 1987, a 13 laryngeal metastasis was reported in the English literature from Colo-rectal cancer, and by Zenga et al. in 2016 colorectal was the most common primary site for laryngeal metastasis followed by renal and prostate cancer 6 cases each, then 5 cases of skin melanoma, the remaining cases were secondary to lung, bone, breast, thyroid, liver and female genital tract cancers. (3)

Trans-glottic glottic involvement was the most common compromising about 40% of the reported cases, followed by supraglottic area, then subglottic in less than 10% of the true vocal cords were involved, about 70% of the cases were reported in males, with the median age of 59 years, initial presentation in more than 60% was Dysphonia, the median time to laryngeal metastasis diagnosis was 3 years. (3)

The treatment modalities for secondary laryngeal metastasis vary depending on the stage of the disease, the number of the metastatic focus, and the involvement of other organs; in a case reported by Therasma et al. in 2008, the laryngeal metastasis was managed with organ preservation surgery as the patient was in remission from his primary cancer with no other organ involvement. (7) Another case by Marioni et al. was managed with total laryngectomy due to extensive laryngeal involvement, and local control was controlled at the time of laryngeal diagnosis. (8) Puxeddu et al., Sano et al., and Ta et al. managed their patients with a tracheostomy to protect the airway from local disease advancement. (9-11) In other cases, reported the local control of the disease was achieved by laser excision by Nd-YAG laser and CO<sub>2</sub> Laser. (5, 12) Summary of laryngeal metastasis secondary to colorectal cancer is summarized in table 1.

Due to unfamiliarity with secondary laryngeal cancers, there is no census of the treatment guidelines; treatment options depend on the stage at the time of diagnosis, solitary laryngeal involvement, or the presence of other metastatic focus; however, it is thought that laryngeal cancer is still under-reported, as one post-mortem study reported by Prescher et al. showed laryngeal involvement in 6 autopsies out of 6 patients with prostate cancer and Horny and Kaiserling found 10 out of 14 patient with hematopoietic malignancy found to have laryngeal metastasis. (13, 14) Incidental laryngeal metastasis without symptoms is also evident, as reported by Xia et al. when a PET CT (positron emission tomography-computed scan) was done for an elevated AFP (Alfa fetoprotein) showed increased uptake in the larynx. (15)

## CONCLUSION

Any laryngeal lesion in patients with malignancy or high-risk factors for malignancy should be worked out promptly to avoid any delay in diagnosis and management; even though secondary laryngeal malignancy is rare, micro-metastasis and subclinical disease is evident; however, laryngeal cancer metastasis indicates advance disease and poor prognosis, but intervention aims to avoid any respiratory distress or direct mortality from airway obstruction.

### Declarations

### Ethics approval and consent to participate

The article describes a case report. Therefore, no additional permission from our Ethics Committee was required.

### Availability of data and material

All data generated or analyzed during this study are included in this published article.

### Competing interests

The authors declare that they have no competing interests.

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## Authors' contributions

AAA, AJN, RH, BW, SH, HHA: Data Collection, Literature Search, Manuscript Preparation

All authors read and approved the final manuscript

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### Figure legends

Figure 1 - Neck, Chest, and Abdomen CT with contrast showing (A. Right-sided laryngeal mass involving and destroying the laryngeal cartilages with luminal narrowing and extra laryngeal extension, B. widely scattered variable-sized (4-10 mm) pulmonary metastatic nodules, C. Demonstration of multiple extensive hepatic metastatic involvement)

Figure 2 – Findings of A. H&E x 40., B. H&E x 200. C. CDX2, and D. CK20.

**Table 1 – summary of cases of colon cancer from 1987 -2022**

	Author	Age/Sex	Country	Initial presentation	Involved site	Management
1990	Cavicchi et al (16)	59/Female	Italy	Dysphonia	Subglottic	Mass ex
1996	Nicolai et al (12)	69/Male	Italy	Dysphonia	Glottic	Radiati
		53/Female		Dyspnea	Subglottic	Local r
		58/Female		Dyspnea	Subglottic	Local r
		65/Male		Dysphonia + respiratory distress	Glottic	Tracheo
1997	Puxeddu et al (9)	65/Male	Italy	Dysphonia + respiratory distress	Glottic	Tracheo
1998	Hilger et al (17)	73/Female	United Kingdom	Biphasic stridor	Glottic	Tracheo
2005	Sano et al (10)	81/Female	Japan	Dysphonia and Dyspnea	Subglottic	Tracheo
2006	Marioni et al (8)	78/Female	Italy	Neck swelling	Glottic	Total la
2007	Ramanathan et al (18)	51/Male	Malaysia	Dysphonia	Glottic	Palliati
2011	Ta et al (11)	60/Male	USA	Dyspnea	Subglottic	Tracheo
2014	Therasma et al (7)	54/Male	Japan	Dysphonia	Subglottic	Partial
2016	Zenga et al (3)	52/Male	USA	Incidental by PET CT	Glottic	Tracheo
2017	Heyes et al (5)	56/Female	UK	Shortness of breath	Subglottic	Local e
2022	Present case	60/Male	Qatar	Dysphonia	Glottic	Tracheo



