

Review began 12/19/2022

Review ended 12/25/2022

Published 12/29/2022

© Copyright 2022

Kolagatla et al. This is an open access article distributed under the terms of the Creative Commons Attribution License CC-BY 4.0., which permits unrestricted use, distribution, and reproduction in any medium, provided the original author and source are credited.

# Colorectal Adenocarcinoma Metastasis to the Hard Palate: An Uncommon Site of Metastasis for a Common Malignancy

Sandhya Kolagatla <sup>1</sup>, Rewanth Katamreddy <sup>2</sup>, Jonathan Piercy <sup>1</sup>, Subramanya shyam Ganti <sup>3</sup>, Nagabhishek Moka <sup>4</sup>

1. Internal Medicine, Appalachian Regional Healthcare, Whitesburg, USA 2. Internal Medicine, St. Michael Medical Center, Newark, USA 3. Internal Medicine/Pulmonary Critical Care, Appalachian Regional Healthcare, Harlan, USA 4. Oncology/Hematology/Internal Medicine, Appalachian Regional Healthcare, Hazard, USA

**Corresponding author:** Nagabhishek Moka, nagabhishek@yahoo.com

## Abstract

Colorectal adenocarcinoma (CRC) most commonly metastasizes to the peritoneum, liver, lung, and bone. Metastasis to the oral cavity is uncommon. Here, we report the case of a 74-year-old man who presented with a few months of chewing and swallowing difficulty, shoulder pain, and weight loss of 30 pounds. On oral exam, he was noted to have a 5 cm fixed hard palate mass. Primary hard palate malignancy was initially suspected. Biopsy of the mass confirmed adenocarcinoma with an immunohistochemical pattern suggestive of colorectal origin. He was later found to have extensive skeletal metastasis. Palliative radiotherapy to the hard palate region was initiated, followed by palliative systemic chemotherapy. We have found only three other published cases of rectal adenocarcinoma with hard palate metastasis.

**Categories:** Pathology, Oncology, Oral Medicine

**Keywords:** adenocarcinoma of colon, oral biopsy, occult metastases, oral potentially malignant lesion, oral cavity metastasis, hard palate, colorectal cancer

## Introduction

Metastasis from distant primary tumors comprises 1-3% of oral region malignancies. The most common primary tumors that metastasize to the oral mucosa are lung, liver, breast, and kidney cancers. Metastasis to the oral region can involve bony or soft tissues. The mandible is a common site for bony oral metastasis, though the gingiva is the most common site, and the tongue is the second most common site for soft tissue oral metastasis. Metastasis to the oral region can be the initial presentation of an undiagnosed malignancy [1].

The most common sites for colorectal adenocarcinoma (CRC) metastasis are the liver, lungs, and bones [2]. CRC metastasis to the oral cavity occurs in less than 1% of cases. We have found only a few case reports published of CRC metastasis to the hard palate [3-5]. In this case report, we present a patient with a hard palate mass as an initial presentation of metastatic colorectal adenocarcinoma.

## Case Presentation

A 74-year-old male presented to the office with right shoulder pain and trouble chewing and swallowing for the preceding few months. Past medical history was significant for stage IIIB rectal adenocarcinoma treated with concurrent chemotherapy and radiation followed by further chemotherapy and surgery three years back. He had a total 50-pack-a-year history of smoking but quit five years earlier. A review of systems revealed a 30-pound weight loss and generalized musculoskeletal pain.

Examination of his oral cavity revealed a protruding, 5 cm diameter mass in the roof of his mouth on the palate (Figure 1).

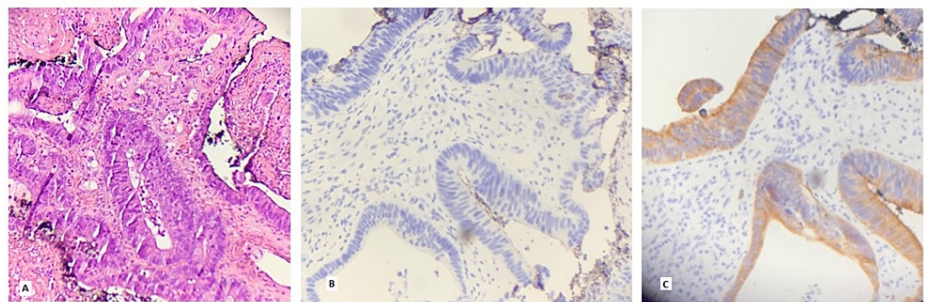
### How to cite this article

Kolagatla S, Katamreddy R, Piercy J, et al. (December 29, 2022) Colorectal Adenocarcinoma Metastasis to the Hard Palate: An Uncommon Site of Metastasis for a Common Malignancy. Cureus 14(12): e33082. DOI 10.7759/cureus.33082



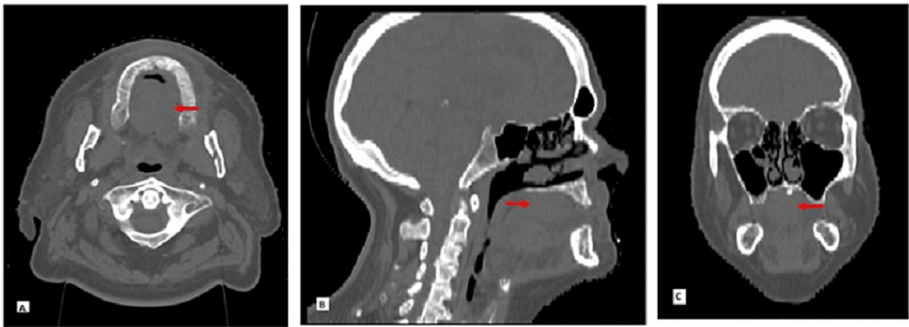
**FIGURE 1: Oral cavity exam: protruding and hard mass (red arrow) arising from roof of the mouth**

Biopsy of the hard palate mass revealed adenocarcinoma with extensive tumor necrosis (Figure 2A), with immunohistochemical staining of cytokeratin 7 negative (Figure 2B) and cytokeratin 20 positive (Figure 2C).



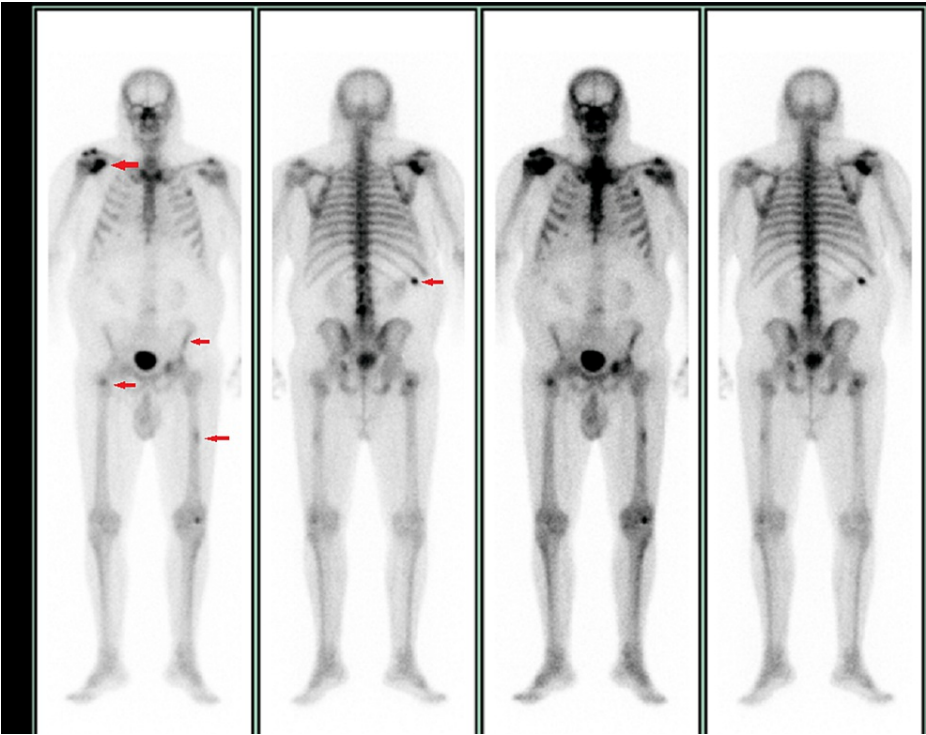
**FIGURE 2: Hard palate mass core biopsy histopathology: (A) Hematoxylin and eosin stain demonstrating tumor cells in glandular formation (adenocarcinoma) with tumor necrosis; (B) Tumor cells negative for cytokeratin (CK) 7 stain; (C) Tumor cells positive for CK 20 stain.**

Next-generation sequencing was positive for KRAS oncogene mutation and negative for BRAF and microsatellite instability. Endoscopy and colonoscopy did not reveal intraluminal malignancy. A computed tomography scan showed a 5 cm hard palate mass with bony destruction (Figure 3).



**FIGURE 3: Non-contrast CT of sinuses and face: (A) Transverse section, (B) Sagittal section, and (C) Coronal section demonstrating hard palate mass (red arrow) with bony destruction**

A three-phase whole-body technetium bone scan showed increased uptake in the right proximal humerus, scapula, right proximal femur, left mid femur, left acetabulum, and right 10th rib that was suspicious for metastasis (Figure 4).



**FIGURE 4: Three-phase whole-body technetium bone scan demonstrating increased uptake in right proximal humerus, scapula, right proximal femur, left mid femur, left acetabulum, and right 10th rib (red arrows).**

A percutaneous endoscopic gastrostomy (PEG) tube was necessary to provide nutrition and medication. He completed palliative radiation therapy of 2100 centigray (cGy) to the hard palate mass. He was started on 5-fluorouracil (bolus of 400 mg/m<sup>2</sup> IV, infusional dose of 2400 mg/m<sup>2</sup> IV), leucovorin calcium (calcium folinate) 400 mg/m<sup>2</sup> IV, irinotecan 180 mg/m<sup>2</sup> IV (FOLFIRI), and bevacizumab 5 mg/kg IV every 14 days. He tolerated chemotherapy well, except for anticipated diarrhea, which was controlled with loperamide, as needed. Over the next few weeks, his oral symptoms improved, and he was able to increase his oral intake. He declined any further treatment for personal reasons. He succumbed within six months of diagnosis.

## Discussion

Colorectal adenocarcinoma most commonly occurs in patients older than 60 years. It is the third most common carcinoma in the world [6]. Approximately 20% of patients with CRC have metastasis on presentation [7]. Oral metastasis is not a common site for the deposition of metastatic cells.

The symptoms of oral metastasis vary based on their exact location. Oral metastasis commonly presents with swelling, dysphagia, dysarthria, odynophagia, and bleeding similar to primary oral malignancies [8]. Metastatic lesions to the oral cavity can be misdiagnosed as benign lesions or primary oral squamous cell carcinoma [9]. Metastatic deposits to the oral cavity are usually not high on the list of differential diagnoses of an oral lesion; as such, diagnosis of the occult malignancy is often delayed. Biopsy of the oral lesion is the gold standard for making the diagnosis.

When a metastatic deposit in the oral cavity is suspected, computed tomography of the chest, abdomen, and pelvis can be used to identify the occult primary malignancy. Positron electron transmission (PET) scanning with fluorodeoxyglucose (FDG) can be considered for specific cases of unknown primary [10]. Serum tumor markers can be helpful in certain cases to identify the primary malignancy but should be obtained in the right clinical setting because of lack of specificity [11].

The most common immunohistochemistry (IHC) pattern for CRC is positive for CK 20 and negative CK 7, but the pattern can be variable [12]. Autopsy studies demonstrated the histological subtype of CRC as a predictive variable for the metastatic site, although the mechanism is not well understood [13]

Treatment for oral metastases depends on the primary tumor type and the extent of tumor spread. A substantial majority of oral metastatic lesions are part of the extensive spread of malignancy, in which case systemic therapies must be pursued. Palliative radiotherapy for metastatic oral lesions can help alleviate local symptoms [14].

Prognosis is generally poor with CRC oral metastasis with an average survival of seven months in a retrospective study [1]. Longer survival is possible when the metastatic lesion is isolated and can be approached surgically. Early nutritional assessment and individually tailored support are key in patients with either primary or metastatic oral lesions [15].

## Conclusions

In this case, a hard palate mass was the initial presentation of widespread metastatic CRC. Although this is a rare finding, metastatic tumor deposits from an occult malignancy must be considered when evaluating a palate mass. Histopathological and relevant imaging studies must be considered to evaluate distant primary malignancies. Treatment of these findings depends on the primary tumor type and the extent of the metastasis, and should include nutritional and symptomatic support.

## Additional Information

### Disclosures

**Human subjects:** Consent was obtained or waived by all participants in this study. **Conflicts of interest:** In compliance with the ICMJE uniform disclosure form, all authors declare the following: **Payment/services info:** All authors have declared that no financial support was received from any organization for the submitted work. **Financial relationships:** All authors have declared that they have no financial relationships at present or within the previous three years with any organizations that might have an interest in the submitted work. **Other relationships:** All authors have declared that there are no other relationships or activities that could appear to have influenced the submitted work.

## References

1. Hirshberg A, Shnaiderman-Shapiro A, Kaplan I, Berger R: Metastatic tumours to the oral cavity - pathogenesis and analysis of 673 cases. *Oral Oncol*. 2008, 44:743-52. [10.1016/j.oraloncology.2007.09.012](https://doi.org/10.1016/j.oraloncology.2007.09.012)
2. Riihimäki M, Hemminki A, Sundquist J, Hemminki K: Patterns of metastasis in colon and rectal cancer. *Sci Rep*. 2016, 6:29765. [10.1038/srep29765](https://doi.org/10.1038/srep29765)
3. Sugimoto A, Hiramatsu S, Wang E, Aomatsu K: Hard palate metastasis from rectal adenocarcinoma. *Clin J Gastroenterol*. 2022, 15:708-11. [10.1007/s12328-022-01630-8](https://doi.org/10.1007/s12328-022-01630-8)
4. Spinelli G: Metastatic infiltration of adenocarcinoma of the rectum in hard palate: report of a case and a review of the literature. *Oral Oncol Extra*. 2006, 42:206-9. [10.1016/j.OOE.2005.12.002](https://doi.org/10.1016/j.OOE.2005.12.002)
5. Dalirsani Z, Mohtasham N, Samiee N: Metastasis of colon adenocarcinoma to maxillary gingiva and palate. *Iran J Otorhinolaryngol*. 2020, 32:327-31.
6. Sung H, Ferlay J, Siegel RL, Laversanne M, Soerjomataram I, Jemal A, Bray F: Global Cancer Statistics 2020: GLOBOCAN estimates of incidence and mortality worldwide for 36 cancers in 185 countries. *CA Cancer J Clin*. 2021, 71:209-49. [10.3322/caac.21660](https://doi.org/10.3322/caac.21660)
7. Siegel RL, Miller KD, Goding Sauer A, et al.: Colorectal cancer statistics, 2020. *CA Cancer J Clin*. 2020, 70:145-64. [10.3322/caac.21601](https://doi.org/10.3322/caac.21601)
8. Neville BW, Day TA: Oral cancer and precancerous lesions. *CA Cancer J Clin*. 2002, 52:195-215. [10.3322/canjclin.52.4.195](https://doi.org/10.3322/canjclin.52.4.195)

9. Rutkowska M, Hnitecka S, Nahajowski M, Dominiak M, Gerber H: Oral cancer: the first symptoms and reasons for delaying correct diagnosis and appropriate treatment. *Adv Clin Exp Med*. 2020, 29:735-43. [10.17219/acem/116753](https://doi.org/10.17219/acem/116753)
10. Zhu L, Wang N: 18F-fluorodeoxyglucose positron emission tomography-computed tomography as a diagnostic tool in patients with cervical nodal metastases of unknown primary site: a meta-analysis. *Surg Oncol*. 2013, 22:190-4. [10.1016/j.suronc.2013.06.002](https://doi.org/10.1016/j.suronc.2013.06.002)
11. Chorost MI, Lee MC, Yeoh CB, Molina M, Ghosh BC: Unknown primary. *J Surg Oncol*. 2004, 87:191-203. [10.1002/jso.20099](https://doi.org/10.1002/jso.20099)
12. Al-Maghrabi J, Emam E, Gomaa W: Immunohistochemical staining of cytokeratin 20 and cytokeratin 7 in colorectal carcinomas: four different immunostaining profiles. *Saudi J Gastroenterol*. 2018, 24:129-34. [10.4103/sjg.SJG\\_465\\_17](https://doi.org/10.4103/sjg.SJG_465_17)
13. Hugen N, van de Velde CJ, de Wilt JH, Nagtegaal ID: Metastatic pattern in colorectal cancer is strongly influenced by histological subtype. *Ann Oncol*. 2014, 25:651-7. [10.1093/annonc/mdt591](https://doi.org/10.1093/annonc/mdt591)
14. Biller LH, Schrag D: Diagnosis and treatment of metastatic colorectal cancer: a review. *JAMA*. 2021, 325:669-85. [10.1001/jama.2021.0106](https://doi.org/10.1001/jama.2021.0106)
15. Sandmael JA, Sand K, Bye A, Solheim TS, Oldervoll L, Helvik AS: Nutritional experiences in head and neck cancer patients. *Eur J Cancer Care (Engl)*. 2019, 28:e13168. [10.1111/ecc.13168](https://doi.org/10.1111/ecc.13168)