

# Cardiac Metastases: An Unusual Site for Colon Cancer Metastases

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## Abstract

The heart is an uncommon site for metastases from any primary source. Carcinoma colon metastasized to heart is a rare event and has been least reported. To our knowledge, only a few cases have been reported in the entire literature over the last 20 years. We present the case of a young lady with a known case of colon carcinoma who presented with breathlessness. Further evaluation revealed metastatic involvement of the heart. Different therapies like FOLFIRI, capecitabine maintenance, and Panitumumab were tried, with initial improvement but later disease progression, intolerance to Regorafenib, and shift to supportive care.

**Key Words:** cardiac metastases, carcinoma colon, folfox chemotherapy

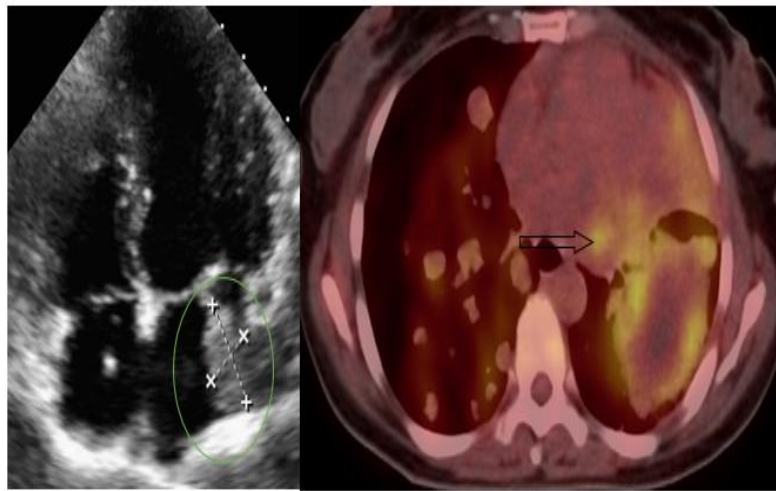
## Introduction

Secondary cardiac neoplasms are uncommon, and primary neoplasms are even rarer [1,2]. The most commonly involved primary tumors for cardiac metastasis are carcinoma of the lung, breast, lymphoma, and malignant melanoma [3]. Metastatic cardiac involvement most often occurs in end stage of the malignant disease, associated with wide spread tumor spread, and is generally diagnosed during autopsy. According to a previous literature review, the incidence of cardiac metastasis is highly variable, ranging from 1.4% to 7.2% in recent autopsy series [3–5]. To our knowledge, only a few cases of cardiac metastasis from colorectal cancer have been reported [6–12], and in most cases, diagnosis occurs during autopsy, as patients often present with non-specific symptoms.

## Case Presentation

We present the case of a 41-year-old female with a known history of Carcinoma sigmoid colon who underwent total colectomy, and histopathology suggested moderately differentiated adenocarcinoma. She subsequently received 12 cycles of adjuvant FOLFOX based chemotherapy. After a 2-year period of monitoring, the disease progressed to the liver and lungs; she underwent treatment with FOLFIRI-based chemotherapy, followed by continued capecitabine maintenance for 12 cycles.

After 8 months of treatment, she developed complaints of cough with expectoration and breathlessness. A chest X-ray revealed multiple rounded radio-opaque lesions scattered in bilateral lung parenchyma, and 2D echocardiography demonstrated left atrial (LA) enlargement with an irregular echogenic and inhomogeneous mass lesion (3 x 2 cm with area of 6 cm<sup>2</sup>) arising from lateral wall of Left atrium

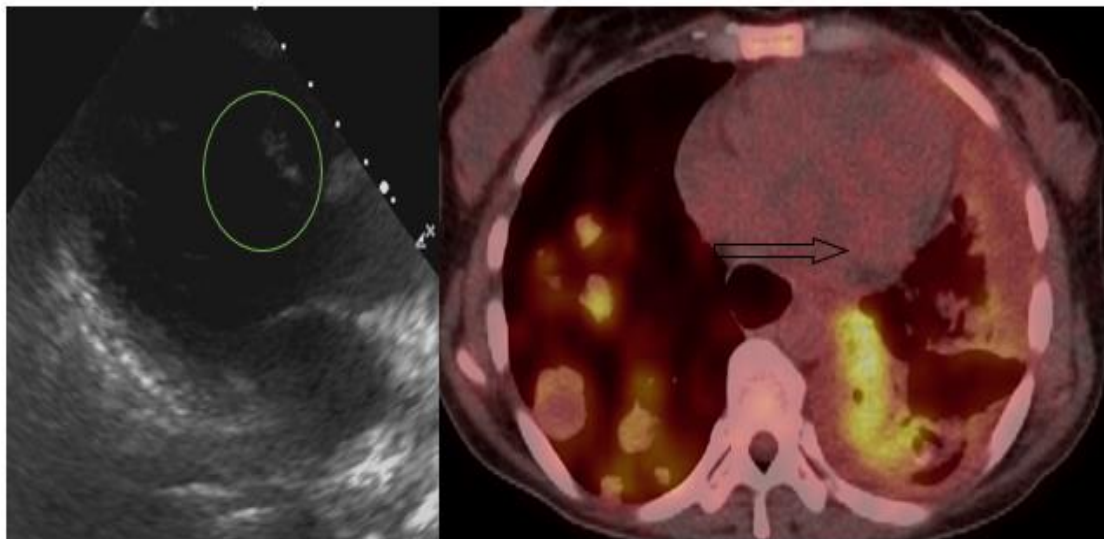


**Figure 1a: 2D ECHO shows a moderate sized mass arising from lateral wall of Left atrium**

**Figure 1b: Fused FDG PET/CT axial image shows metabolic activity in left atrium and metabolically active bilateral lung metastases.**

(image 1a). PET-CT scan revealed metabolically active multiple pulmonary nodules, liver lesions and retroperitoneal lymph nodes, and a left atrial mass (Image 1b). Serum CEA was 686 ng/ml and CT-guided biopsy from the liver lesion was suggestive of metastatic adenocarcinoma. Molecular testing revealed MMR proficiency and wild type KRAS/NRAS/BRAF. She was

treated with FOLFIRI based chemotherapy and Panitumumab. Following 6 cycles of treatment, the patient exhibited disease response on PET CT, resulting in a subsequent reduction in the size of the cardiac lesion and improved symptoms. An echocardiogram demonstrated regression of the cardiac disease



**Figure 2a: 2D ECHO shows significant decrease in size of mass almost negligible in comparison to previous mass.**

**Figure 2b: Fused FDG PET/CT axial image shows metabolically active bilateral lung metastases with regression of the left atrial mass.**

(Figure 2a) and absence of previously observed cardiac activity (Figure 2b). After completing the 10th cycle, disease progression was evident, characterized by the presence of liver lesions, lung lesions, and bony disease.

She was started on Regorafenib on progression but discontinued due to poor tolerance, transitioning the patient to best supportive care.

## Discussion

Colonic cancer metastasizes through hematogenous or lymphatic routes; the most commonly involved sites are lymph node, liver, lung and bones. Spleen, thyroid gland, spermatic cord, and skeletal muscles are unusual location and have been reported previously [13,14].

Cardiac metastasis from any malignancy is rare, but it can manifest in carcinoma of the lung, breast, lymphoma, and malignant melanoma (3). Metastasis may occur via lymphatic, hematogenous, or potential direct extension from adjacent tissue.

The incidence of cardiac metastases reported in literature is highly variable, ranging from 2.3% and 18.3% [15]. The actual incidence of cardiac metastatic disease may be underestimated because it is often clinically silent and missed during the initial evaluation of the primary malignancy as there presenting signs and symptoms may vary, depends on the location of tumor deposit. Potential manifestations are dyspnea, hypotension and features of congestive heart failure, malignant pericardial effusion, infarction and arrhythmias. However, in the majority of the reported cases, approximately 90% of the patients, cardiac metastasis remains asymptomatic and is only detected during autopsy. Our patient exhibited respiratory symptoms and was diagnosed with left atrial metastasis detected via 2D Echocardiography and PET scan, with symptoms directly attributed to the cardiac involvement.

## Conclusion

In conclusion, cardiac metastasis in colonic cancer is rare; an incidental finding of cardiac metastasis is likely to be increased by prompt investigation. Long-term survival can be achieved by early diagnosis and timely interventions. This case report provides valuable insights to the current body of literature, emphasizing the uncommon occurrence of cardiac metastases as a site for metastatic colon cancer.

## Declaration of patient consent

The authors certify that they have obtained all appropriate patient consent forms. In the form, the patient has given her consent for her clinical images and other clinical information to be reported in the journal. The patients understand that their names and initials will not be published and due efforts will be made to conceal their identity, but anonymity cannot be guaranteed.

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## Conflicts of interest

Authors have no conflict of interest.

## References

- Lam KY, Dickens P, Chan AC. (1993). Tumors of the heart. A 20-year experience with a review of 12,485 consecutive autopsies. *Arch Pathol Lab Med.* 117(10):1027–1031.
- Löffler H, Grille W. (1990). Classification of malignant cardiac tumors with respect to oncological treatment. *Thorac Cardiovasc Surg.* 38 Suppl 2:173–175.
- Klatt EC, Heitz DR. (1990). Cardiac metastases. *Cancer.* 1990 Mar 15;65(6):1456–1459.
- Mukai K, Shinkai T, Tominaga K, Shimosato Y. (1988). The incidence of secondary tumors of the heart and pericardium: a 10-year study. *Jpn J Clin Oncol.* 18(3):195–201.
- Bussani R, De-Giorgio F, Abbate A, Silvestri F. (2007). Cardiac metastases. *J Clin Pathol.* 1;60(1):27–34.
- Teixeira H, Timóteo T, Marcão I. (1997). [Cardiac metastases from a colonic tumor]. *Acta Med Port.* 10(4):331–334.
- Lord RV, Tie H, Tran D, Thorburn CW. (1999). Cardiac metastasis from a rectal adenocarcinoma. *Clin Cardiol.* 22(11):749.
- Oneglia C, Negri A, Bonora-Otoni D, Gambarotti M, Bisleri G, et al. (2005). Congestive heart failure secondary to right ventricular metastasis of colon cancer. A case report and review of the literature. *Ital Heart J Off J Ital Fed Cardiol.* 6(9):778–781.
- Koizumi J, Agematsu K, Ohkado A, Shiikawa A, Uchida T. (2003). Solitary cardiac metastasis of rectal adenocarcinoma. *Jpn J Thorac Cardiovasc Surg Off Publ Jpn Assoc Thorac Surg Nihon Kyobu Geka Gakkai Zasshi.* 51(7):330–332.
- Numata K, Urata N, Nakayama Y, Ju M, Tanaka A, et al. (2022). Solitary Cardiac Metastasis from Colorectal Cancer: A Case Report. *Case Rep Oncol.* 15(3):798–803.
- Tsujii Y, Hayashi Y, Maekawa A, Fujinaga T, Nagai K, et al. (2017). Cardiac metastasis from colon cancer effectively treated with 5-fluorouracil, leucovorin, and oxaliplatin (modified FOLFOX6) plus panitumumab: a case report. *BMC Cancer.* 17(1):152.
- Tomiyaama T, Shijimaya T, Sano Y, Kobayashi S, Fukui T, et al. (2021). Large Metastatic Cardiac Tumor from Ascending Colon Cancer with Autopsy. *Case Rep Gastroenterol.* 2;15(2):703–708.
- Bigot P, Goodman C, Hamy A, Teyssedou C, Arnaud JP. (2008). Isolated splenic metastasis from colorectal cancer: report of a case. *J Gastrointest Surg Off J Soc Surg Aliment Tract.* 12(5):981–982.
- Kulkarni N, Khalil A, Bodapati S. (2022). Skeletal muscle metastasis from colorectal adenocarcinoma: A literature review. *World J Gastrointest Surg.* 14(7):696–705.
- Cardiac metastases - PubMed [Internet].



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