



# Case #52

NAME Educational Activities Committee

Case provided by:

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1 2  
CENTIMETERS

3 4 5 6  
Cat. No. 09-016

INCHES

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1. The decedent is a 70-year-old man with a history of hypertension, coronary artery disease, and heart failure status post cardioverter-defibrillator implantation five years prior. He presented with worsening cough, fatigue, and 30 pound weight loss over the past few months. Chest CT showed multiple bilateral pulmonary nodules suspicious for metastatic disease with superimposed pneumonia. A large, heterogenous right thyroid nodule was also identified on imaging. He was intubated due to worsening respiratory function and his hospital course was complicated by pneumothorax and hemodynamic instability. A fine needle aspirate of the thyroid nodule demonstrated anaplastic thyroid carcinoma. Due to poor prognosis, the patient was transitioned to comfort care and extubated.

At autopsy, multiple Pax-8 positive metastatic tumors were identified in the lungs, kidneys, adrenal glands, and mesenteric lymph nodes. Dissection of the heart revealed a lesion in the right atrium as seen above. Which of the following explanations is most likely?

- Complication of thoracostomy (chest tube placement)
- Complication of cardioverter-defibrillator implant
- Metastatic thyroid carcinoma
- Reperfusion injury following acute myocardial infarction
- Myocardial contusion resulting from chest compressions

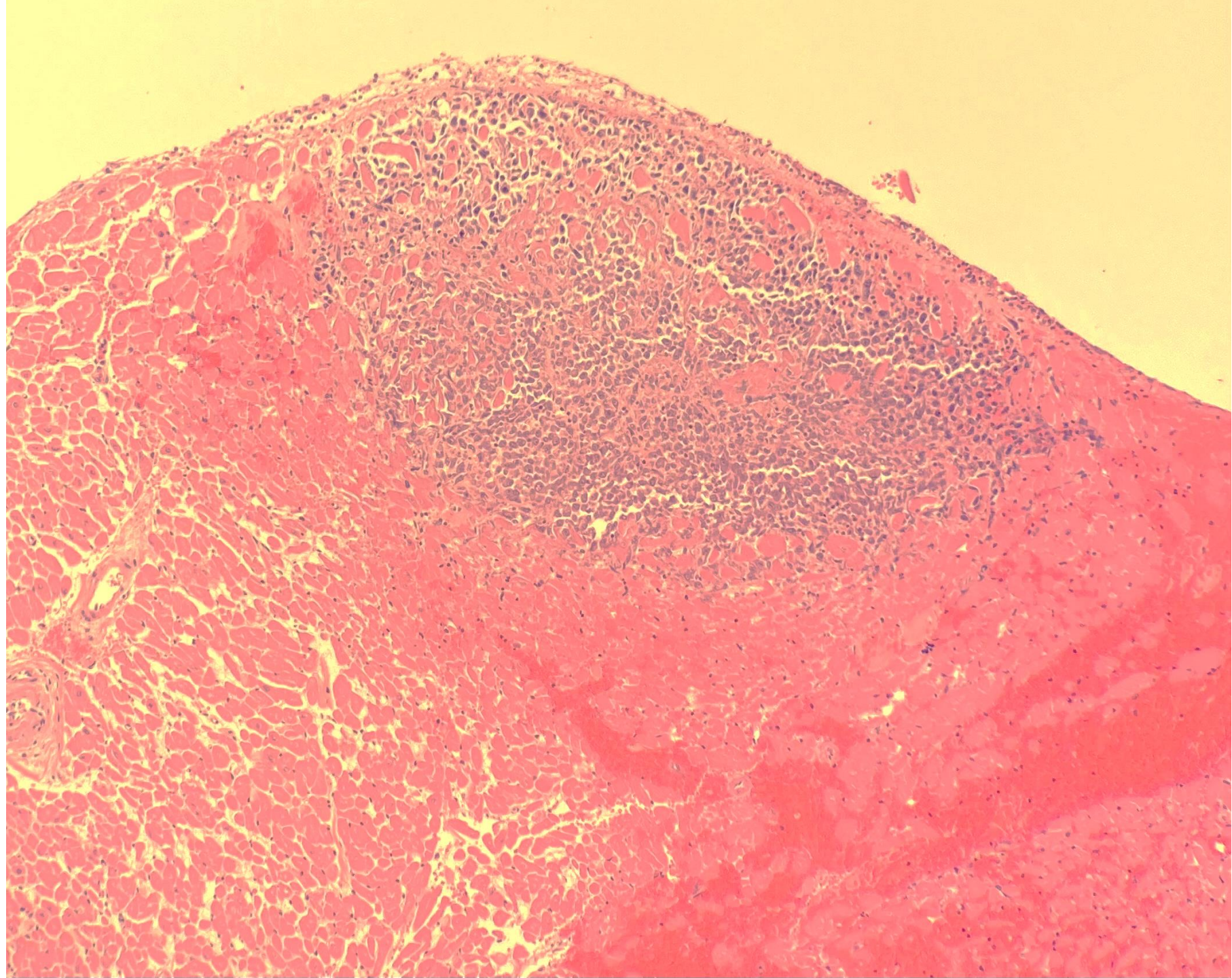
Answer...

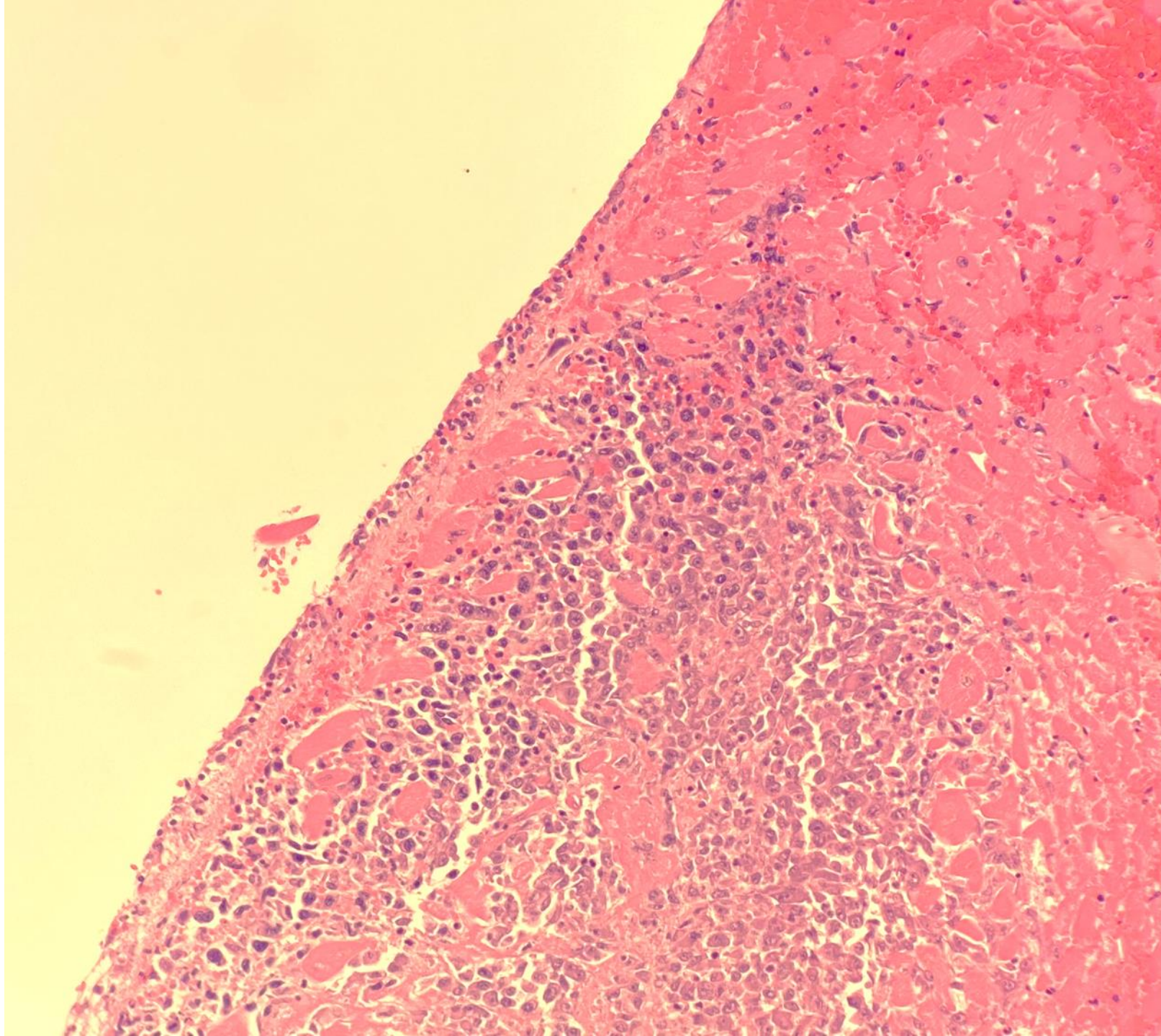
## C. Metastatic thyroid carcinoma – (CORRECT ANSWER, 12.63 % of responses)

We thought this was something to share because:

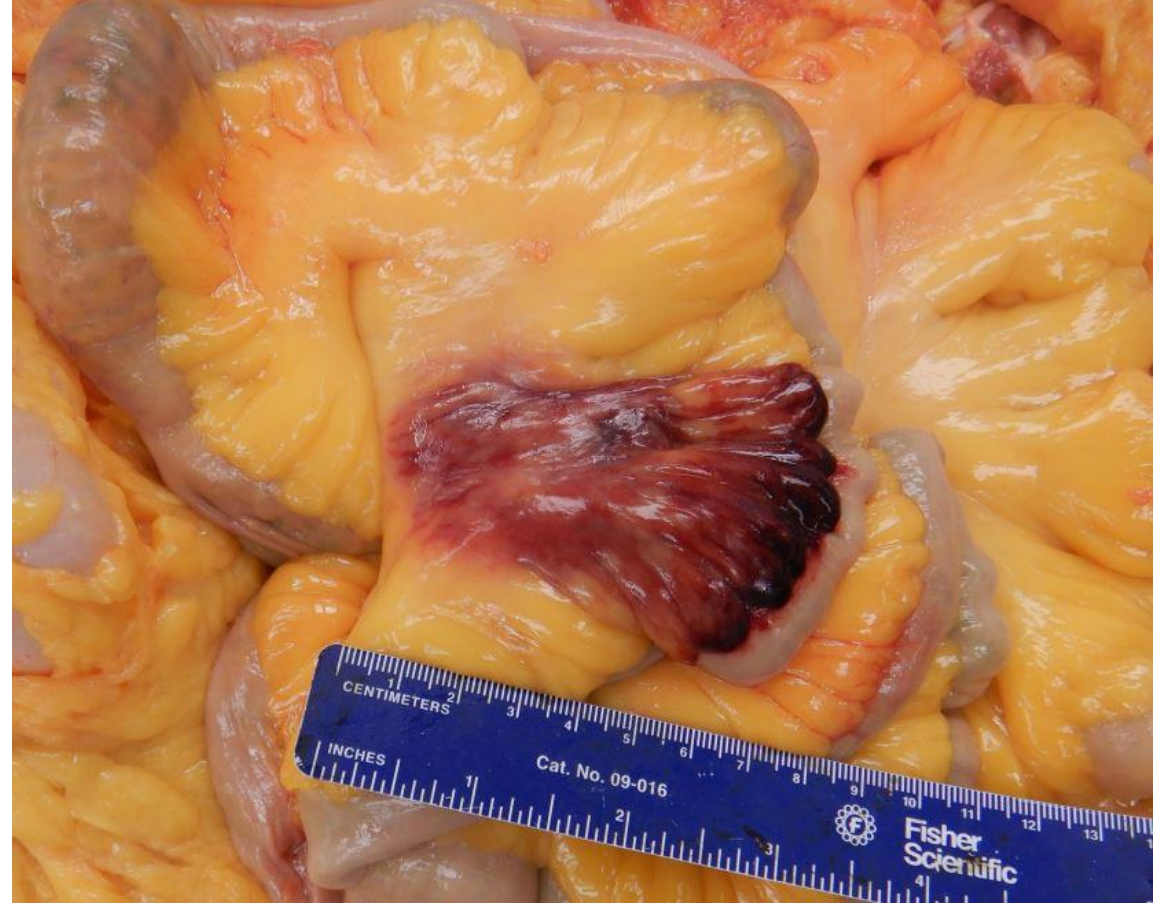
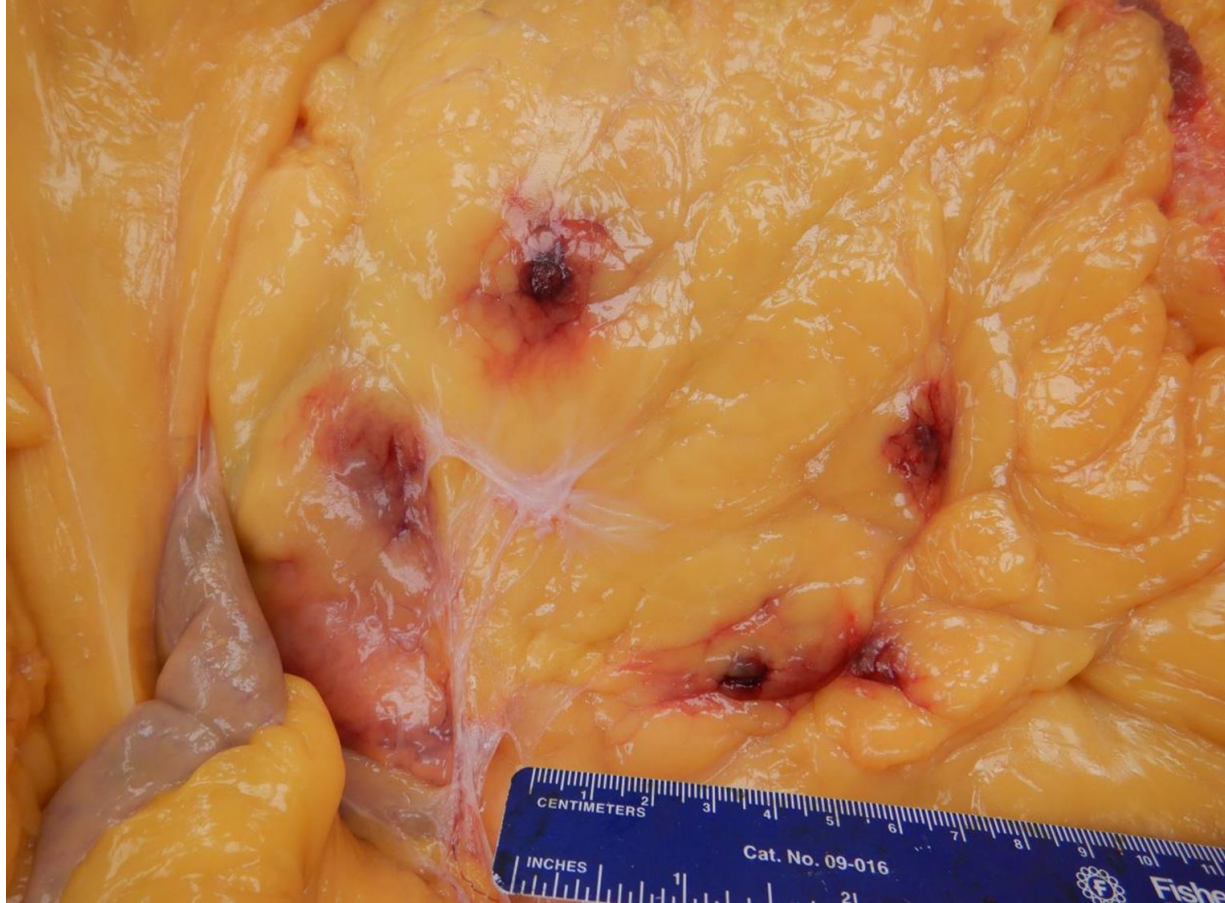
- a) We would have assumed it was somehow therapy related
- b) We would have NEVER considered doing histology on this lesion!

Cardiac metastasis from thyroid carcinomas are rare (ranging from 0-2% in large case series). In this patient with a known diagnosis of anaplastic thyroid carcinoma, a cardiac lesion with no history of recent cardiac intervention or myocardial infarction should raise suspicion for cardiac metastasis. Microscopic examination of the endocardial lesion revealed metastatic deposits of Pax-8 positive thyroid carcinoma associated with necrosis and hemorrhage. The pulmonary nodules seen at autopsy had a similar hemorrhagic appearance. Numerous hemorrhagic mesenteric lesions showed similar histology.









Other responses:

A. Complication of thoracostomy (4.07% responses)

Iatrogenic lacerations and perforations of the heart have been reported as rare complications of thoracostomy. However, an acute external injury to the heart should be evident on the epicardium rather than limited to the endocardium.

B. Complication of cardioverter-defibrillator implantation (40.33% responses)

This patient's defibrillator was implanted five years prior, making an acute or subacute injury pattern unlikely.

D. Reperfusion injury following myocardial infarction (21.59% responses)

Although the hemorrhagic lesion could be consistent with reperfusion injury following a myocardial infarction (MI), the clinical history does not indicate an acute MI or recent coronary artery reperfusion. In the setting of metastatic disease and no recent cardiac interventions, another explanation for this hemorrhagic lesion should be investigated.

E. Myocardial contusion resulting from chest compressions (21.38% responses)

As noted in the given history, the decedent was extubated after transitioning to comfort care. The clinical course did not include cardiopulmonary resuscitation.

# REFERENCES

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- 5) Varghese S, Slottosch I, Saha S, et al. Surgical management of iatrogenic left ventricle perforation by chest tube insertion. *Ann Thorac Surg*. 2019;108(6):e405-e407.