Chemo-Coronaries: A Rare Form of Coronary Vasospasm Following 5-FU Infusion

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Chemo-Coronaries: A Rare Form of Coronary Vasospasm Following 5-FU Infusion

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INTRODUCTION

- Coronary vasospasm secondary to chemotherapy induced toxicity presents with angina, elevated cardiac enzymes and electrocardiogram (ECG) changes.
- Cardiotoxicity is a rare but known oncologic emergency presenting after bolus or infusion administration of 5-fluorouracil (5-FU).
- In such cases, prompt discontinuation of the drug and Cardiology consultation is required.
- This case presents a patient who underwent 5-FU induction therapy resulting in coronary vasospasm.

CASE PRESENTATION

- A 71-year-old male with a history of atrial fibrillation, hypertension, hyperlipidemia, COPD (On Home O2) and colon cancer presented to the emergency department with chest pain, diaphoresis and nausea. The day prior to presentation the patient began a 48-hour chemotherapy induction of 5-FU.
- Presenting ECG demonstrated atrial fibrillation with rapid ventricular response, right bundle branch block and infero-lateral ST elevations (Figure 1). Troponin I was elevated to a peak of 0.24. The 5-FU infusion was stopped and the patient underwent coronary angiography where no coronary atherosclerotic disease was evident (Figure 2 and 3).
- ECG post catheterization showed resolution of infero-lateral ischemic changes (Figure 4)
- The patient was continued on aspirin, clopidogrel and atorvastatin and a long acting nitrate was added. The patient had no further episodes of chest pain.
- He had an extended hospital stay complicated by acute on chronic respiratory failure. He eventually recovered and was discharged for outpatient follow up with hematology-oncology for an alternative therapy for his colon cancer.

ECG AND CARDIAC CATHETERIZATION FINDINGS

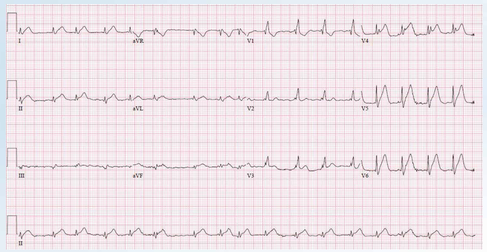

Figure 1: Presenting ECG tracing demonstrating atrial fibrillation with rapid ventricular response, right bundle branch block and infero-lateral STEMI.

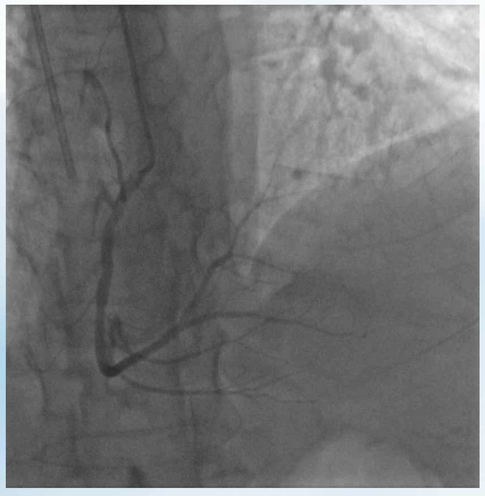

Figure 2: AP cranial coronary angiogram image demonstrating a normal, dominant right coronary artery.

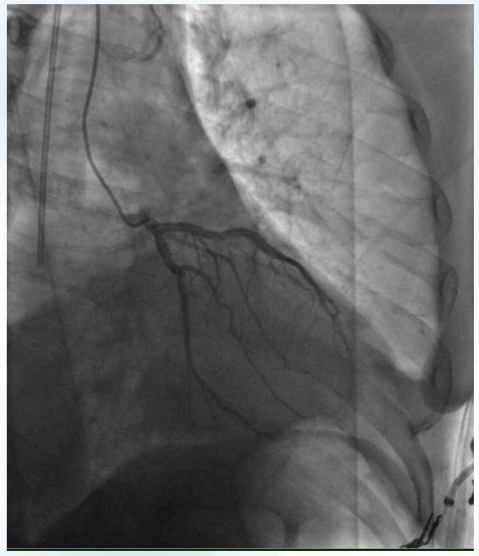

Figure 3: RAO caudal coronary angiogram image demonstrating normal left circumflex and left anterior descending coronary arteries.

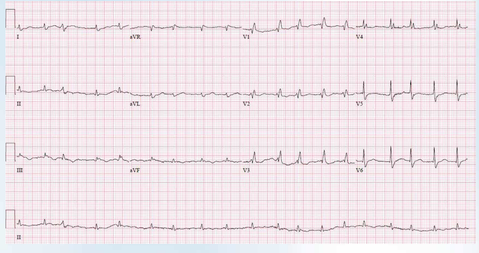

Figure 4: ECG tracing post cardiac catheterization demonstrating persistent atrial fibrillation, right bundle branch block and resolved infero-lateral ischemia.

DISCUSSION

- 5-FU alone or in combination with other chemo-therapeutic agents has become the mainstay of colorectal cancer treatments.
- In rare cases (1.6%-8.5%), life-threatening coronary vasospasm has resulted secondary to endothelial dysfunction caused by 5-FU metabolites.[1]
- This cardiotoxicity tends to occur more commonly in the first cycle of administration and 72% of affected patients were aged greater than 55 years.[1,2]
- Symptoms and ECG findings at presentation are highly suggestive of coronary occlusion and diagnosis is supported by cardiac catheterization showing patent coronaries.
- This toxicity responds favorably to prompt discontinuation of 5-FU and the administration of antianginal therapies such as calcium channel blockers.[1]
- If diagnosed in a timely fashion, the toxicity is commonly reversible and the prognosis, from a cardiac perspective, is favorable.
- Careful consideration is given to whether 5-FU can be reinstituted or whether acceptable alternative treatments can be safely used.
- When further doses of 5-FU are required, clinicians should proceed cautiously, consider using prophylactic antianginal therapy and monitor patients closely with a low threshold to discontinue therapy.[1]

REFERENCES

[1] Sara JD, Kaur J, Khodadadi R, et al. 5-fluorouracil and cardiotoxicity: a review. Therapeutic Advances in Medical Oncology. 2018;10:1758835918780140.

[2] Saif MW. Shah MM. Shah AR. Fluoropyrimidine-associated cardiotoxicity: revisited. Expert Opinion Drug Safety. 2009;8(2)191.

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