Oncology Case Reports Journal

Case Report
Published: 05 Jan, 2023

Cisplatin Induced Arterial Thrombus

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Abstract

Introduction: Cisplatin is a platinum-based chemotherapeutic drug that is commonly used to treat a variety of solid tumors. Accelerated arterial and venous thrombosis is becoming more widely recognized as a potentially life-threatening cisplatin consequence.

Case Report: We describe a case of 35-year-old male with no risk factors for vascular disease presented with right femoropopliteal embolus leading to gangrene of right foot.

Discussion: We review the literature on the incidence and pathogenesis of cisplatin induced arterial thrombosis.

Conclusion: Cisplatin causes arterial thrombosis, and this case report describes acute femoropopliteal embolus as a result of its use. We seek to enhance clinician awareness of these complications, which can occur even when no other risk factors are present.

Introduction

Cisplatin is a platinum-based chemotherapeutic drug that is used to treat malignancies of the bladder, lung, ovary, testis, gastrointestinal tract, and head and neck. It prevents cell division and increases oxidative stress by crosslinking purine residues and inducing apoptosis. Nausea and vomiting are common side effects. Vomiting, nephrotoxicity, hepatotoxicity, cardiotoxicity, myelosuppression, and allergic reactions are only a few of the side effects [1]. However, a recent analysis Accelerated venous and arterial thrombosis, according to studies, is an under-recognized yet common life-threatening adverse effect. Cisplatin toxicity can affect up to 18.1 percent of patients during or after treatment [2]. Etiology is arterial or venous, and pathogenesis is occlusive or nonocclusive. It can cause 90 percent morbidity if not caught early.

We describe a case in which cisplatin caused several arterial thrombi in a patient who had no other risk factors, resulting in life-threatening mesenteric ischemia. As a result, we aim to improve awareness of these consequences among clinicians using it as a chemotherapeutic agent.

Case Presentation

We present a case of mixed germ cell tumor stage 3c on chemotherapy protocol of bleomycin, etoposide and cisplatin. He was admitted for 3rd cycle of chemotherapy, 3 days after his 3rd cycle, he presented with acute onset leg pain. It was acute in onset and 9/10 in severity. patches over dorsum of right foot. Hematological and biochemical investigations were performed of which a raised lactate of 3.5 mmol/L was noted. The ECG No past significant medical history. Social history revealed he was nonsmoker. On examination he was alert and hemodynamically stable. Right dorsalis pedis artery and right anterior tibial artery pulses were feeble and there were discoloration patches over dorsum of right foot. ECG showed normal sinus rhythm. Ultrasonography doppler was suggestive of non-opacification of medial segment of right popliteal artery with attenuated flow in distal part. Attenuated flow in right dorsalis pedis artery, non-visualizing of distal right anterior tibial artery. Patient initially underwent right popliteal embolectomy but in view of gangrenous right foot patient underwent tarsometatarsal joint amputation.

Discussion

Occlusive arterial causes lower limb ischemia can be subdivided into Thrombotic or Embolic etiology. Embolic tends to occur in relation to cardiac emboli - mural thrombosis post-infarction, endocardial vegetations or due to atrial fibrillation. All of these were ruled out by TTE in our patient. Thrombotic is most commonly related to atherosclerotic disease.

Although it is well known that cancer predisposes to the development of venous thrombi, retrospective analysis of patients treated with cisplatin for a variety of tumor's suggests an

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Received Date: *08 Dec 2022*
Accepted Date: *02 Jan 2023*
Published Date: *05 Jan 2023*

Citation:
Rasool A. Cisplatin Induced Arterial Thrombus. Oncol Case Report J. 2023; 6(1): 1051.

ISSN: 2641-9173

incidence of developing arterial thrombi within 4 weeks of treatment. Treatment discontinuation was 2.03% [2]. Cisplatin has also been shown in prospective trials to have a considerably higher chance of causing thromboembolic events. When compared to other platinum-based drugs [3-8].

The pathogenesis of this accelerated arterial thrombosis is not well understood but may relate to induction of von Willebrand Factor production or due to hypomagnesemia inducing vasospasm [9,10].

This example raises the question of whether preventive anticoagulation should be utilized in cisplatin chemotherapy patients. A recent meta-analysis suggests a statistically significant relationship. Symptomatic venous thromboembolic disease is reduced significantly when heparin-based parenteral therapies are given to chemotherapy people with a range of malignancies, however minor bleeding events are more likely to occur [11,12]. However, more research is needed to determine their benefits in reducing the incidence of arterial embolic events and to look at patients particularly in isolation on platinum-based agents.

Conclusion

Cisplatin causes arterial thrombosis, and this case report describes acute femoropopliteal embolus as a result of its use. We seek to enhance clinician awareness of these complications, which can occur even when no other risk factors are present. However, work is required to identify the benefit of prophylactic LMWH in mitigating arterial embolic events in patients undergoing chemotherapy with platinum-based agents.

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