



Arterial occlusion precipitated by cisplatin-based chemotherapy

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ABSTRACT

Cisplatin-based therapy is curative in testicular cancer. Adverse effects of cisplatin-based chemotherapy include dose-dependent myelosuppression, nephrotoxicity, neurotoxicity, and ototoxicity. By contrast, chemotherapy-associated vascular complications are unpredictable. Few incidents of digital gangrene with cisplatin have been reported. Here, we present a patient who developed arterial occlusion leading to gangrene of the toe after cisplatin-based chemotherapy.

KEY WORDS

Cisplatin, peripheral vascular disease, arterial occlusion

1. INTRODUCTION

Cisplatin-based therapy is curative in testicular cancer. Adverse effects of cisplatin-based chemotherapy include dose-dependent myelosuppression, nephrotoxicity, neurotoxicity, and ototoxicity. By contrast, chemotherapy-associated vascular complications such as Raynaud phenomenon, myocardial infarction, arteritis, cerebrovascular accidents, and thrombotic microangiopathy are unpredictable^{1,2}. Few incidents of digital gangrene with cisplatin have been reported. Here, we present a patient who developed arterial occlusion leading to gangrene of the toe after cisplatin-based chemotherapy.

2. CASE DESCRIPTION

A 50-year-old male chronic smoker with a stage IIc testicular germ cell tumour was started on chemotherapy with an etoposide–cisplatin regimen after a high inguinal orchiectomy. The pre-chemotherapy renal function tests and echocardiogram were within normal limits. During the 3rd day of the 2nd cycle of chemotherapy, the patient began complaining of severe claudication pain in both lower limbs, which subsequently progressed to rest pain. On the 5th day, he developed acral erythrocyanosis progressing to

acute digital ischemia and impending gangrene of the left great toe and second toe (Figure 1).

Clinical examination revealed absent pulsation bilaterally in the dorsalis pedis and posterior tibial vessels. Renal function tests and electrolyte values remained normal. Echocardiography was normal, showing no evidence of thrombus in the left atrium or ventricle. Digital subtraction angiography (DSA) showed normal femoral and popliteal arteries in both lower limbs. The right anterior tibial artery had slow flow in the proximal and middle segments, with total occlusion in the distal third of the leg. The right posterior tibial artery was occluded in the distal third of the leg, with a filling defect suggestive of thrombus. Left lower limb DSA showed occlusion of the posterior tibial artery just after its origin, with



FIGURE 1 Erythrocyanosis of left great toe and second toe, with line of demarcation.

distal reformation by collaterals (Figure 2). The anterior tibial artery was totally occluded at the middle third of the leg, with collateral formation.

The patient was started on anticoagulants and pentoxifylline. Further doses of cisplatin were withheld, and in the subsequent cycles, carboplatin was added instead of cisplatin. The ischemia did not progress further, and the patient responded to conservative management.

3. DISCUSSION AND CONCLUSIONS

The mechanisms of cisplatin-induced vascular events remain unknown and may be mediated by endothelial dysfunction, toxicity, vasospasm, autonomic dysfunction, vasculitis and stimulation of fibroblasts, or abnormalities in the coagulation cascade directly produced or induced by chemotherapy^{3,4}. High-dose

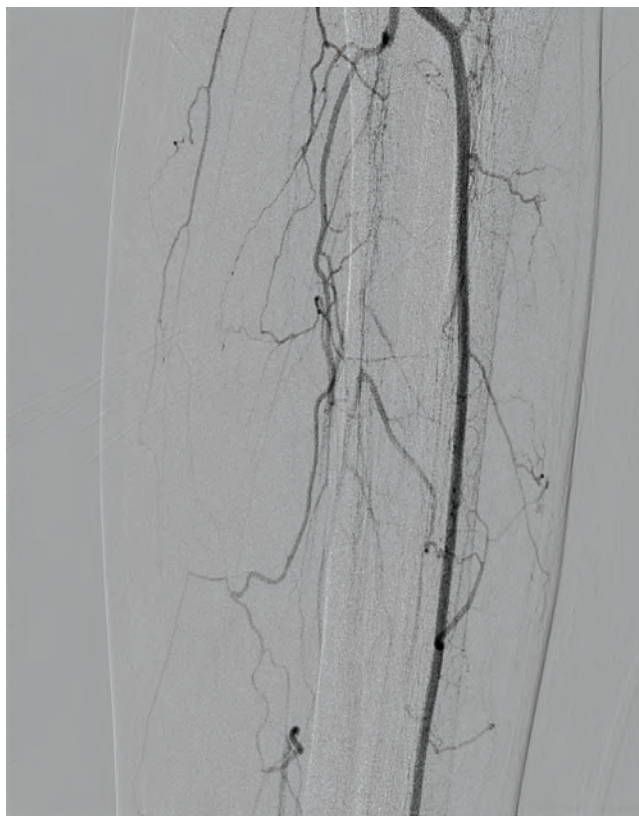


FIGURE 2 Digital subtraction angiography shows occlusion of the posterior tibial artery (left lower limb) just after its origin, with distal reformation by collaterals.

dexamethasone administered as an antiemetic with cisplatin may be an independent prognostic factor for development of a vascular event⁵.

Discontinuation of cisplatin is advised once a serious vascular event has occurred. The most common alternative is carboplatin⁶. Whether patients with certain risk factors or with previous minor vascular events should be excluded from cisplatin-based treatment is unknown. Before cisplatin-based chemotherapy is started, all patients should undergo a thorough clinical examination of peripheral pulses. Caution should be exercised in patients with peripheral vascular disease. Because testicular cancers are highly curable, strategies to predict the occurrence of vascular events should be developed, because events of that type may sometimes be life-threatening or may lead to severe morbidity.

4. REFERENCES

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