

MANAGEMENT OF NEURAXIAL PLACEMENT IN CHEMOTHERAPY-INDUCED THROMBOCYTOPENIA: A CASE SERIES

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INTRODUCTION

- Epidural placement can provide effective perioperative analgesia
- Careful assessment of risks and benefits is essential
- Precautions should be taken before epidural catheter removal, as catheter removal may be as traumatic as catheter placement
- Thrombocytopenia: relative contraindication to neuraxial analgesia with currently no consensus regarding minimum threshold platelet count to ensure safe neuraxial procedures except by Society for Obstetric Anesthesiology and Perinatology 2021 Guidelines in obstetric patients (1)
- Guidelines recommend a platelet count of $\geq 70,000/\mu\text{L}$ to reduce bleeding risk
- Patients with gynecologic malignancies undergoing tandem and ovoid placement for brachytherapy typically have neoadjuvant chemotherapy such as cisplatin or carboplatin, which can cause thrombocytopenia

CASE SERIES

Case 3

- 72-year-old female with vulvar squamous cell carcinoma received neoadjuvant cisplatin, complicated by thrombocytopenia with last dose 1.5 weeks before procedure
- Epidural placement was uncomplicated. However, thrombocytopenia worsened with platelet count 70K/uL. Epidural infusion continued given neurologically stable
- Platelet count spontaneously improved to 86 K/uL. Epidural removed, and patient was discharged with no complications

Case 4

- 45-year-old female with history of deep vein thrombosis on apixaban, cervical squamous cell carcinoma received neoadjuvant carboplatin followed by cisplatin resulting in ongoing thrombocytopenia
- Thrombosis history with planned postoperative anticoagulation and thrombocytopenia, epidural deferred due to risk factors. Pain was managed with oral and intravenous multimodal analgesics

Case 5

- 82-year-old female with history of paroxysmal atrial fibrillation, and stroke and stroke had cervical squamous cell carcinoma status post neoadjuvant carboplatin, with last dose three weeks prior to her procedure, and labs were within normal limits
- Received uncomplicated epidural with platelets around 100 K/uL

Case 6

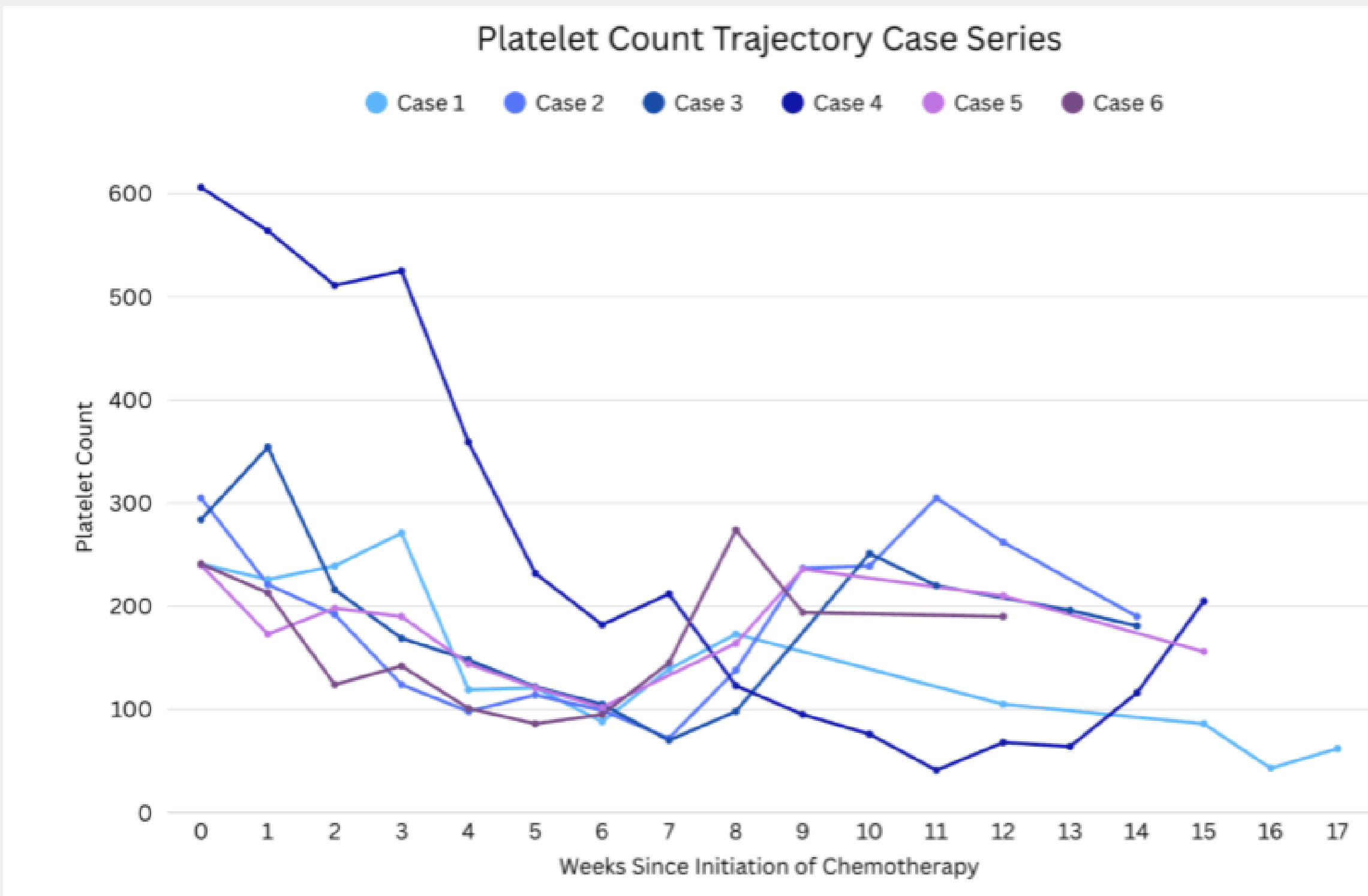
- 80-year-old female with endocervical adenocarcinoma began neoadjuvant cisplatin but rising creatinine, cisplatin was discontinued, with last dose thirteen days prior
- She did not receive an epidural due to ongoing thrombocytopenia. Her pain was managed with multimodal analgesia.

OBJECTIVE

We present a case series of 6 patients who underwent gynecologic procedures for cancer treatment, resulting in thrombocytopenia that affected their epidural management.

METHODOLOGY

This is a case series devoid of patient identifiable information. It does not meet the definition of research and is exempt from IRB review.



Graph 1. Platelet Count Trajectory per Case

Case 1

- 51-year-old female with hepatitis C, polycystic kidney and liver disease status post liver and kidney transplantation, with cervical squamous cell carcinoma, received neoadjuvant carboplatin and intermittent paclitaxel, complicated by pancytopenia, with final dose one week before tandem and ovoid procedure, and labs within normal limits
- Unventful epidural placement, postoperative course complicated by initial epidural site bleeding with bilateral lower extremity weakness, more pronounced on left that resolved twenty-four hours later. Suspected chemotherapy-induced thrombocytopenia refractory to transfusions
- Multidisciplinary discussions resulted in epidural removal POD #3
- After close monitoring, patient stable and discharged without sequelae.

Case 2

- 38-year-old female with cervical squamous cell carcinoma received neoadjuvant cisplatin
- Procedure postponed due to thrombocytopenia, platelet count 98 K/uL and last cisplatin dose four days before.
- Rescheduled four weeks later with platelet count improving to 237 K/uL
- Had uncomplicated epidural, and hospital course uneventful

Case	Platelet Count Nadir	Platelet Count Nadir Timing After Chemotherapy Induction	Coagulation Profile (INR, PTT, PT) during hospitalization	Chemotherapy Regimen (All weekly cycles)	Last Dose Prior to Procedure	Epidural Catheter Removal
1	43 K/uL	16 weeks	Within Normal Limits	Carboplatin with Paclitaxel Immunotherapy	1 week	POD #3
2	72 K/uL	7 weeks	Within Normal Limits	Cisplatin with Pembrolizumab Immunotherapy	3.5weeks	POD #4
3	70 K/uL	7 weeks	Within Normal Limits	Cisplatin with Pembrolizumab Immunotherapy	1.5 weeks	POD #3
4	41 K/uL	11 weeks	Highest Values INR: 1.2 PT 12.9 PTT 35	Started with Carboplatin 6 weekly cycles and paclitaxel immunotherapy followed by Cisplatin 4 weekly cycles with pembrolizumab immunotherapy	3 weeks	No epidural placed due to risk factors
5	102 K/uL	6 weeks	Not available	Carboplatin with pembrolizumab immunotherapy	3 weeks	POD #3
6	86 K/uL	5 weeks	Within Normal Limits	Cisplatin with Pembrolizumab Immunotherapy	2 weeks	No epidural placed due to risk factors

Table 1. Case Series Characteristics

DISCUSSION

- Platinum-based chemotherapy is associated with thrombocytopenia, and platelet count trajectory should be monitored before neuraxial procedures (Graph 1; Table 1)
- Carboplatin has more profound hematological toxicity compared to cisplatin (2-4). However, high-dose cisplatin can cause severe thrombocytopenia, a dose-related complication
- Carboplatin-induced thrombocytopenia nadirs around day 21 whereas cisplatin-induced thrombocytopenia nadirs around day 18-23
- Multidisciplinary discussions are important if chemotherapy timing and dosing significantly impacts platelet count, and labs should be obtained just prior to epidural placement.

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