



Time is Bleeding Risk: Epidural Catheter Management in Patients Receiving Emergent Antithrombotic Therapy

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Introduction

- Epidural catheters are a frequently used intervention in the surgical and pain sphere, with utility in thoracic and abdominal surgeries.
- While epidural catheter offer significant benefits including improved post-operative analgesia, decreased opioid use, and more rapid return of gastrointestinal function, there is small, but serious risk of epidural hematoma with catheter insertion and removal
- ASRA guidelines recommend holding most antiplatelet agents prior to pursuing neuraxial anesthesia.
- However, when the clinical scenario necessitates emergent initiation of antiplatelet therapy in a patient with an epidural catheter in situ, guidance on timing removal is lacking.

Materials and Methods

IRB exemption was obtained from the Saint Louis University IRB. Patients or their next of kin were consented for inclusion. Patient course and relevant clinical data was obtained via retrospective chart review. Three cases were included, consisting of a patient undergoing a rib plating surgery who had a myocardial infarction, a patient undergoing a partial hepatectomy who had an acute stroke, and a patient undergoing an abdominoperineal resection who had an acute myocardial infarction.

Conclusions/Discussion

- ASRA guidelines recommend holding anti-platelet agents prior to pursuing neuraxial anesthesia.
- However, when the clinical scenario necessitates emergent initiation of antiplatelet therapy in a patient with an epidural catheter in situ, guidance on timing removal is lacking.
- Established pharmacokinetics suggest there is a short period of time following initiation of DAPT, during which peak platelet inhibition is not yet achieved.
- Based upon these known pharmacokinetics, ESRA offers a weak recommendation for early removal.
- However, clinical evidence is lacking. Here we provide three cases of application of this principal to clinical practice, resulting in the safe and efficacious removal of the epidural catheter.
- Based upon this limited clinical evidence, review of the literature, and review of pharmacokinetics we proposed the following:
 - When possible, a robust consideration of risks, benefits, and alternatives is preferable (case 2).
 - However, when this is not possible, application of pharmacokinetics suggest urgent removal is the best option (case 1, 3).

In Patients With An Epidural Catheter and Need for Emergent Dual-Antiplatelet Therapy Guidance is Limited...

When possible, a robust consideration of risks, benefits, and alternatives is preferable (case 2).

Patient	Age (years)	Gender	Procedure	Level of Epidural Catheter	Indication for DAPT	Loading Dose	Labs Assessed	Catheter Removal Following Loading Dose	Maintenance Therapy After Catheter Removal	Clinical Outcome
Patient #2	Elderly	Female	Partial hepatectomy	T9-10	Acute Stroke	N/A	None	N/A	6 hours with Aspirin 81 mg, Clopidogrel 75 mg	No complications

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Patient	Age (years)	Gender	Procedure	Level of Epidural Catheter	Indication for DAPT	Loading Dose	Labs Assessed	Catheter Removal Following Loading Dose	Maintenance Therapy After Catheter Removal	Clinical Outcome
Patient #1	Elderly	Male	Rib plating	T12-L1	Myocardial Infarction	Aspirin 325 mg, Clopidogrel 300 mg	None	3 hours	21 hours with Aspirin 81 mg, Clopidogrel 75 mg	No complications
Patient #3	Middle-Aged	Male	Abdominoperineal resection	T12-L1	Myocardial Infarction	Aspirin 325 mg, Ticagrelor 180 mg	None	30 minutes	18 hours with Aspirin 81 mg, Ticagrelor 90 mg	No complications



Literature Review

Patient	Age (years)	Gender	Indication for Epidural	Level of Epidural Catheter	Indication for DAPT	Loading Dose Anti-Platelet Agent	Catheter Removal Following Loading Dose	Maintenance Therapy After Catheter Removal	Clinical Outcome
Wagh et al	Not disclosed	Male	Bilateral total knee arthroplasties	Not disclosed	Myocardial infarction	Clopidogrel 300 mg	5 days	No maintenance therapy	No complications
Nguyen et al	Elderly	Not disclosed	Open lower anterior resection	T9-10	Persistent troponin elevation	Clopidogrel 75 mg	30 hours	Not disclosed; Aspirin 81mg, clopidogrel 75mg	7 mm epidural hematoma, which regressed without need for surgery
Burad et al	53	Male	Exploratory laparotomy	T8-9	Myocardial infarction	Clopidogrel 600mg, Aspirin 300mg	24 hours	2 hours with Aspirin 81mg, clopidogrel 75mg	No complications
Orfanou et al	78	Male	Pancreaticoduodenectomy	T9-10	Myocardial infarction	Aspirin 100mg, Clopidogrel 75mg	24 hours	2 hours with Aspirin 100 mg, clopidogrel 75mg	No complications
Tank et al	72	Not disclosed	Total knee replacement	L2-3	Myocardial infarction	Aspirin 250mg, clopidogrel 300mg	8 days	2 hours with Aspirin 100 mg, clopidogrel 75mg	Local signs of infection at puncture site; No complications of catheter removal.



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