



Fig 1. Before popliteal sciatic nerve block: (A) Vascular ultrasound of the right tibial artery showing a narrow caliber of 22 mm. (B) Right tibial artery pulse-wave Doppler velocity showing an attenuated flow. Thirty minutes after popliteal sciatic nerve block: (C) Increased diameter of the right tibial artery measured at 67 mm. (D) Increase of the right tibial artery pulse-wave Doppler velocity.

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## Popliteal Sciatic Nerve Block as Rescue Therapy in Acute Lower Limb Ischemia Related to Venoarterial ECMO Support



To the Editor:

We would like to share our experience regarding the use of regional anesthesia as an additional therapy in the intensive care unit for acute lower limb ischemia. A 40-year-old, 60-kg, 156-cm woman underwent lung transplant using right femoral venoarterial extracorporeal membrane oxygenation (ECMO) support for preoperative respiratory failure and right ventricle dysfunction related to pulmonary hypertension. Six days after surgery, the patient developed right lower limb ischemia downstream to the ECMO insertion site due to reperfusion cannula malfunction. The clinical improvement of cardiac and respiratory function allowed us to withdraw the ECMO support and perform a right superficial femoral artery embolectomy with a

Fogarty catheter. Unfortunately, the right leg remained ischemic. Vascular ultrasound showed a major reduction of the right main tibial artery caliber, with an attenuated pulse-wave Doppler velocity (Fig 1, A and B). To improve perfusion, we performed a right popliteal sciatic nerve block with 15 mL of 0.475% ropivacaine under United States guidance. After the block, perfusion of the right leg was visibly improved. Vascular ultrasound showed a significant increase of the right main tibial artery caliber and pulse-wave Doppler velocity (Fig 1, C and D).

Lower acute limb ischemia is a major concern in patients undergoing venoarterial ECMO support.<sup>1</sup> This was the second time in our practice that we successfully used a peripheral nerve block in a context of limb ischemia. We suggest that regional anesthesia could be a useful intervention after the primary cause of ischemia is treated (in this patient, after withdrawal of the ECMO cannula and arterial embolectomy).

## Conflict of Interest

None.

## Reference

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## Earlier studies of prolonged times to tracheal extubation after end of surgery



To the Editor:

Arora and colleagues examined time to extubation after thoracic aortic surgery.<sup>1</sup> In their very interesting study, they found negligible differences in median times to extubation between normothermic patients (7 minutes [95% confidence interval (CI) 6-to-8 minutes]) versus hypothermic patients (8 minutes [95% confidence interval 7-to-12 minutes]).<sup>1</sup> There were significantly greater incidences of prolonged times to extubation among hypothermic patients (hazard ratio 2.06 [95% confidence interval 1.18-to-3.59]).<sup>1</sup> The authors' study of hypothermia and prolonged extubation is novel because earlier studies involved prolonged extubations being caused by drugs with slower wakeup<sup>2–4</sup> or anesthesia providers (nurse anesthetists and resident physicians) who had little prior experience (<5 cases) working with the surgeon.<sup>5</sup> The authors' finding of negligible difference in median times to extubation but large difference in incidences of prolonged times to extubation matched a two-group comparison of patients undergoing long gynecologic procedures.<sup>4</sup> There was prolonged extubation among 39% (292/740) of patients who did not receive remifentanyl or desflurane versus 6% (35/632) among those who did (relative risk 7.12 [95% confidence interval 5.10, 9.95]), but the mean difference was only 1 minute.<sup>4</sup>

Arora and colleagues explained that “although there are no established limits that clearly define normal time to extubation, prolonged times to extubation that are greater than 15 minutes can significantly reduce operating room workflow, with other team members sitting idle waiting for extubation,” referencing Bayman and colleagues' study which showed, instead, that prolonged operative times to extubation were not a useful metric for comparing the performance of individual anesthesia providers or anesthesiologists.<sup>6</sup> The study of operating room workflow described by Arora and colleagues<sup>1</sup> was done by Masursky and colleagues.<sup>7</sup> There was a positive association between time to extubation and the probability of at least one person being idle in the operating room.<sup>7</sup>

There are more data showing the validity of using 15 minutes as criterion for prolonged time to extubation. Among many hospital patients, approximately 15% of extubations were prolonged based on 15 minutes.<sup>2,7</sup> Patients with prolonged extubations ( $\geq 15$  minutes) were rated by the anesthesiologists as having poor recovery from anesthesia.<sup>8</sup> Extubation times longer than 15 minutes were also associated with immediate reintubation and with respiratory treatments in the post anesthesia care unit.<sup>9</sup> Times to extubation  $\geq 15$  minutes were associated with longer times from patient transport from the operating room to the start of the surgeon's next case.<sup>2</sup> Finally, when controlling for surgical time and prone positioning,<sup>6</sup> prolonged extubations were associated with 13-minute longer times from end of surgery to operating room exit.<sup>10</sup>

## Declaration of Interest

The Division of Management Consulting of the University of Iowa's Department of Anesthesia provides consultations to corporations, hospitals, and individuals. I receive no funds personally other than my salary and allowable expense reimbursements from the University of Iowa, and have tenure with no incentive program. My family and I have no financial holdings in any company related to my work, other than indirectly through mutual funds for retirement. Income from the Division's consulting work including those related to the economics of time to extubation are used to fund Division research. A list of all the Division's consults is available in my posted curriculum vitae at [https://FranklinDexter.net/Contact\\_Info.htm](https://FranklinDexter.net/Contact_Info.htm).

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## REFERENCES

- 1 Arora H, Encarnacion JA, Li Q, et al. Hypothermia and prolonged time from procedure end to extubation after endovascular thoracic aortic surgery. *J Cardiothorac Vasc Anesth* 2022. <https://doi.org/10.1053/j.jvca.2022.09.077>; (e-pub ahead of print) (Accessed September 24, 2022).
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