

Cases of Regional Anesthesia for Novel Burn Care Pain

**Alexandra Nerantzinis, MD; Shaun Charkowick, MD;
Jasper Murphy, BA; Vincent Bargnes III, MD;
Sun Mei Liu, MD, MSBA; Eman Nada, MD, PhD**

INTRODUCTION

Recent advances in burn care suggest that early proteolytic enzymatic treatment for deep partial-thickness and/or full-thickness thermal burns may reduce the need for surgical interventions. While avoiding surgery offers significant benefits, this shift in treatment requires an interdisciplinary approach, involving both regional anesthesiologists and burn surgeons, to ensure effective multimodal pain management.

Proteolytic enzyme treatment involves a two-step process. First, a proteolytic enzyme gel is applied for several hours, allowing the enzymes to selectively break down proteins in the burn eschar. In the second step, the dissolved eschar is removed to promote healing.

Unlike patients undergoing general anesthesia for surgical burn treatment, those receiving enzymatic burn therapy remain awake during the painful steps of their nonoperative treatment. As such, these patients may greatly benefit from regional anesthesia.

Even after enzymatic treatment, patients may still require operative interventions, reinforcing the rationale for using peripheral nerve catheters as part of a comprehensive pain management strategy in burn care.

RESULTS

This report presents two cases of patients who successfully underwent enzymatic burn treatment with minimal pain, following regional anesthesia administered via peripheral nerve catheters. The anesthesia protocol included an initial bolus, followed by a continuous infusion of ropivacaine.

Enzymatic Burn Care and Peripheral Nerve Catheters Go Hand in Hand

CASE 1

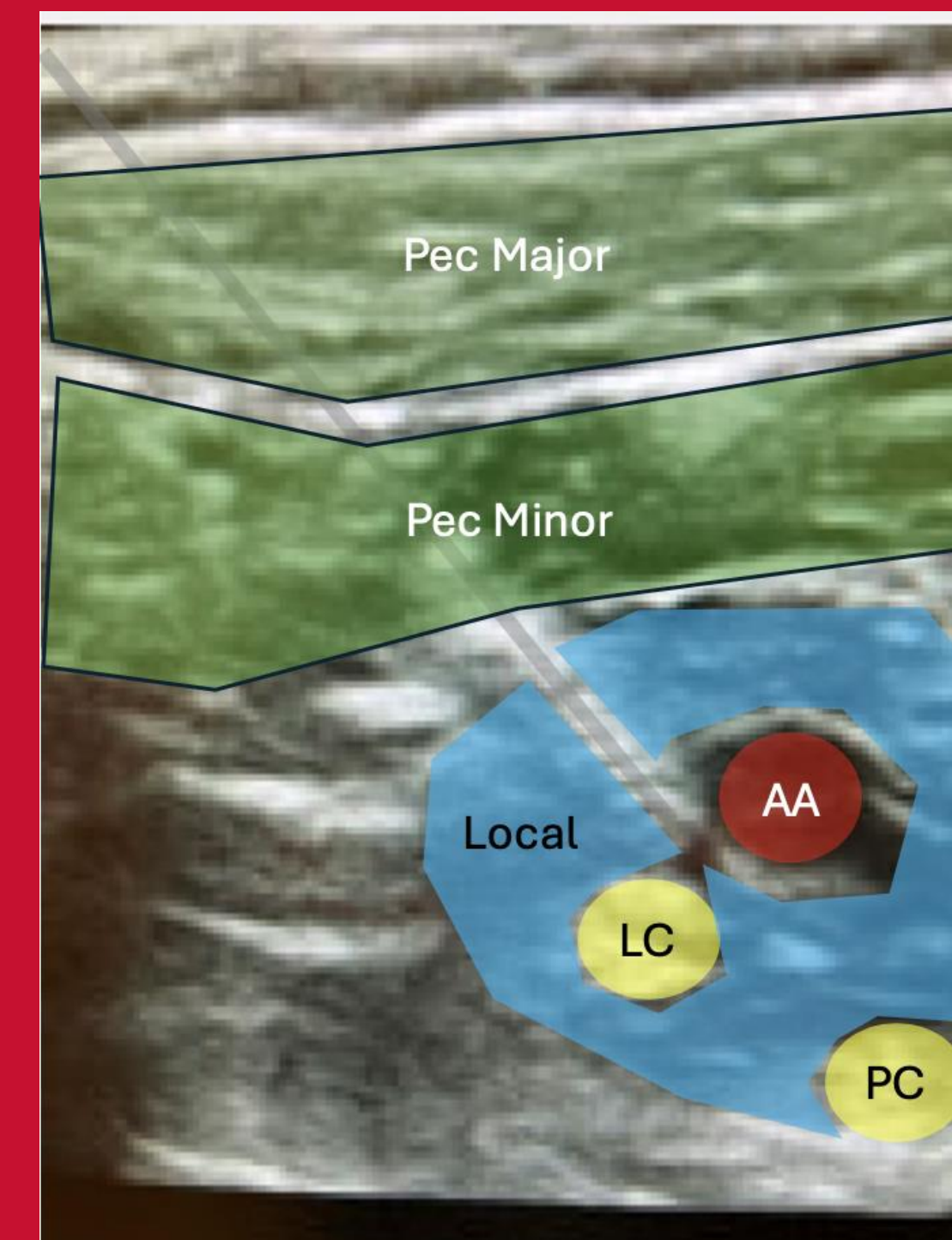


Figure 1. Infraclavicular nerve block. AA=axillary artery, LC=lateral cord, P=posterior cord.



Figure 2. Progression of burn care from presentation to enzymatic gel application to immediate post-proteolytic treatment to near complete epithelization two-weeks post-proteolytic treatment (left to right).

CASE 2

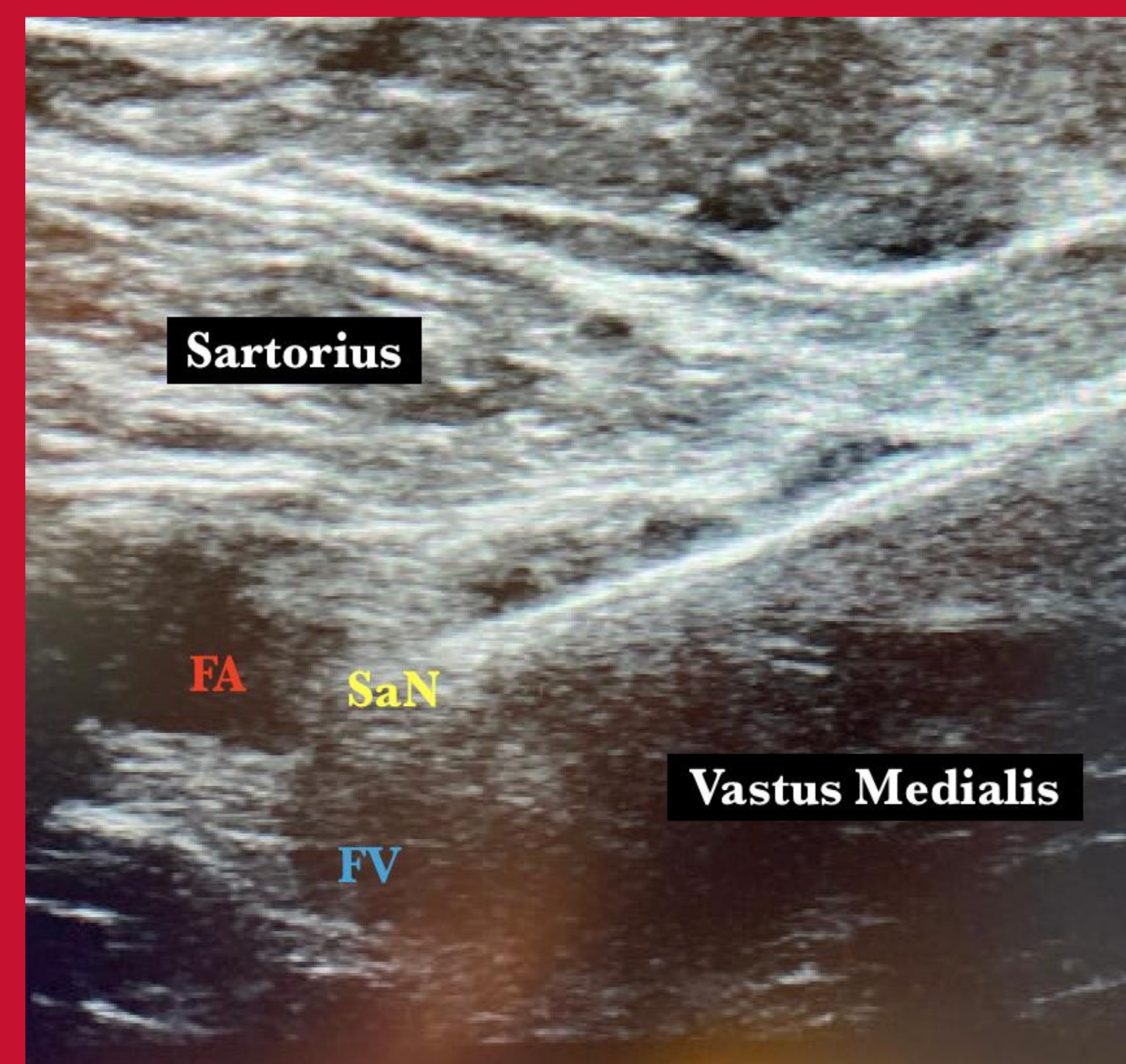


Figure 3.
Adductor canal block
FA=femoral artery
FV=femoral vein
SaN=saphenous nerve

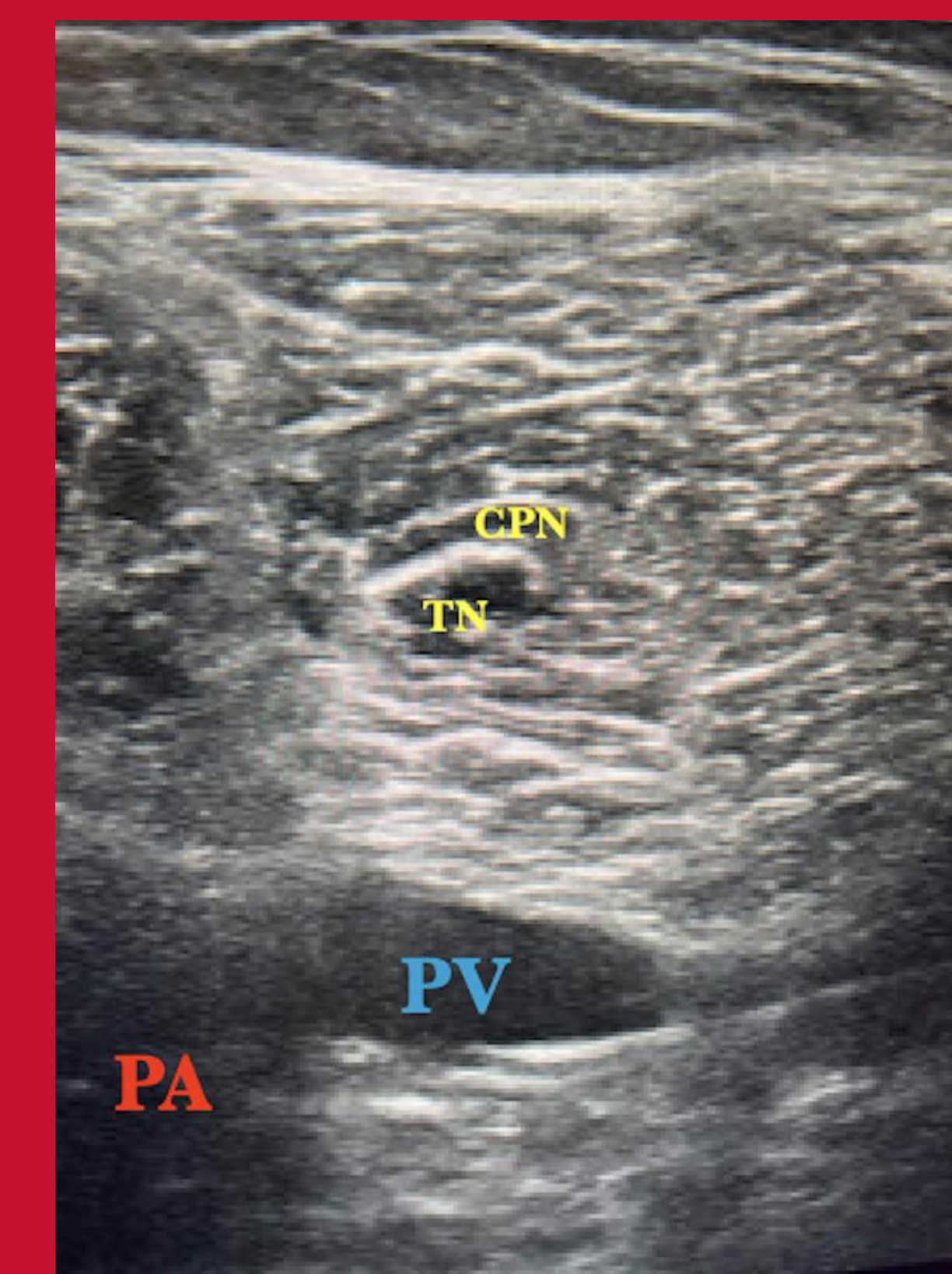


Figure 4.
Sciatic nerve block.
PA=popliteal artery
PV=popliteal vein
TN=tibial nerve
CPN=common peroneal nerve

Case 1

- 5-year-old male who presented after a cooking oil burn with a third degree burn on right forearm.
- Right infraclavicular nerve block catheter
 - Premedication with midazolam
 - Initial injection: 8mL of 0.25% ropivacaine with 22G Pejunk (50 mm)
 - Settings: Ropivacaine 0.2% at 4mL/hr

Case 2

- 54-year-old female who presented after a hot water scald with a third degree burn on her left medial malleolus and medial planter surface.
- Left adductor canal block catheter
 - Initial injection: 20mL of 0.25% Ropivacaine with 22G Pejunk (100 mm)
 - Settings: Ropivacaine 0.2% at 5mL/hr
- Left popliteal sciatic block catheter
 - Initial Injection: 15mL of 0.5% Ropivacaine + 7mL of 1% Mepivacaine with 19G Touhy
 - Settings: Ropivacaine 0.2% at 9mL/hr

CONCLUSION

These two cases highlight the versatility of regional anesthesia in burn care, including covering different body surface areas and burn care pathways, including operative management.

While large scale, prospective evidence is needed on this topic for further guidance, regional anesthesia shows promise in the evolving landscape of burn care involving enzymatic treatment.

**References
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