Ultrasound-Guided Botulinum Toxin for Chronic Postsurgical Abdominal Pain after Landmark-Based Injection Failure

Matthew Brandenburg,[1] MD MS Peter Lascarides,[2] DO

1. Burke Rehabilitation Hospital: 785 Mamaroneck Ave White Plains, NY 10605 2. Northern Westchester Hospital 400 E Main St, Mt Kisco, NY 10549

Introduction:

Persistent abdominal pain after complex abdominal surgery can be an under-recognized source of refractory, debilitating pain, often attributed to myofascial trigger points or entrapped cutaneous nerves that are difficult to localize. This case shows how ultrasound (US)-guided botulinum toxin injection significantly improved pain relief after both conservative treatments and an unguided injection had failed.

Case Report:

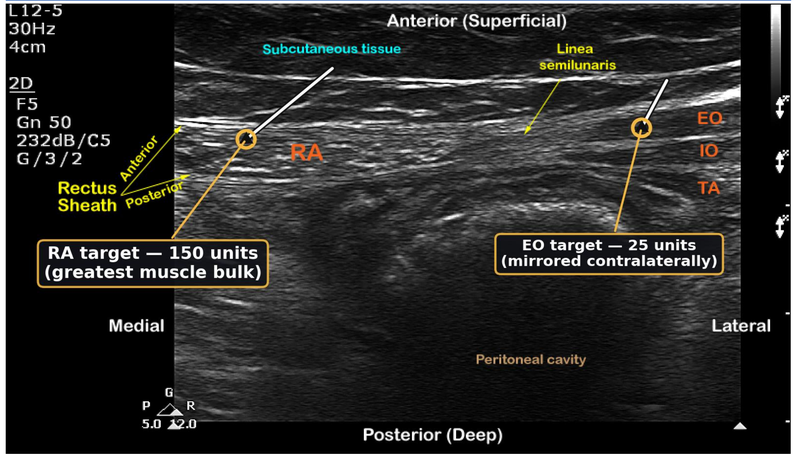
55M obese man with a 5-year history of severe diffuse abdominal pain, Carnett sign positive, beginning after laparotomy with bowel resection, diverting ileostomy, and subsequent closure for adhesions and bowel obstruction.

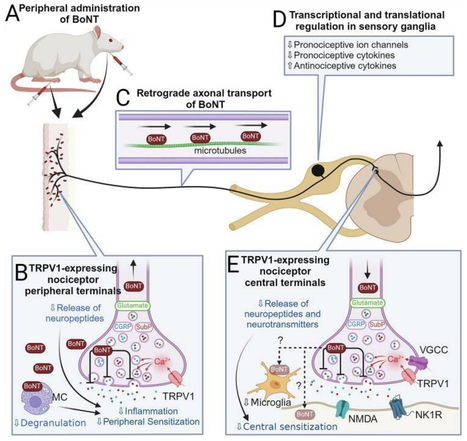
Pain persisted despite oral agents (NSAIDs, muscle relaxants, neuropathic pain modulators) and a 6-week PT course for abdominal wall strengthening and stabilization.

Botulinum toxin attempt (3 months earlier): 200u without image guidance to RA and units without image guidance to the rectus abdominis and bilateral EO with no meaningful relief and 10/10 immediate post-procedure pain.

Patient underwent identical procedure with US-guidance targeting the region of greatest muscle bulk with 150u to the rectus abdominis and 25u to each external oblique (total 200u) with immediate 2/10 post-procedure pain relief lasting 3 months.

Figures:





Top: Ultrasound of abdominal anatomy in short-axis above the arcuate line: superimposed needle track for toxin administration. RA: Rectus abdominus, EO external oblique; IO external oblique, TA: Transverse abdominus

Bottom: Proposed mechanism of botulinum toxin in pain signaling in animal models.

Materials and Methods

Formal IRB approval was not required per Burke Rehabilitation policy, as this report contains no identifiable PHI, informed consent was obtained for submission of this case report. Oswestry Disability Index obtained of 68% and a severely limited Patient-Specific Functional Scale prior to ultrasound-guided botulinum toxin injection.

Conclusion

This case underscores that injection technique may be as consequential as agent selection in postoperative abdominal pain control. A positive Carnett's sign helped localize pain to the abdominal wall, guiding a myofascial-targeted approach. US imaging identified the widest point of the muscle body, allowing accurate needle placement to maximize motor endplate exposure.

Take home point: Botulinum toxin injection for abdominal wall pain should be performed under guidance (US, electrical stimulation, or EMG), as anatomical landmarks alone may be insufficient even in experienced hands. Although US use may cause logistical headaches, this case suggests the added effort is worth the squeeze.

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