



Introduction:

- Complex abdominal wall reconstructions pose an expensive and surgically complex challenge.
- Transverse Abdominis Plane Blocks (TAP) are typically used post operative analgesia
- There is an increasing amount of data supporting evidence for using regional techniques to deposit Botulinum Toxin in the abdominal wall layers to facilitate surgical closure and improve post operative pain

Case Report:

- We report of a 77-year-old female with history of recurrent ventral hernia, failing multiple surgical repairs.
- The patient was referred by her general surgeon for Botulinum Toxin injections two weeks prior to surgery.
- The procedure was done in clinic under ultrasound guidance, with BTX injected in the abdominal wall fascial layers as outlined in Figure 1.
- The surgery went uneventfully, and the surgery team noted she had a remarkably well post operative recovery.
- Patient was seen 8 weeks post op and continued to have no pain and no hernia recurrence.

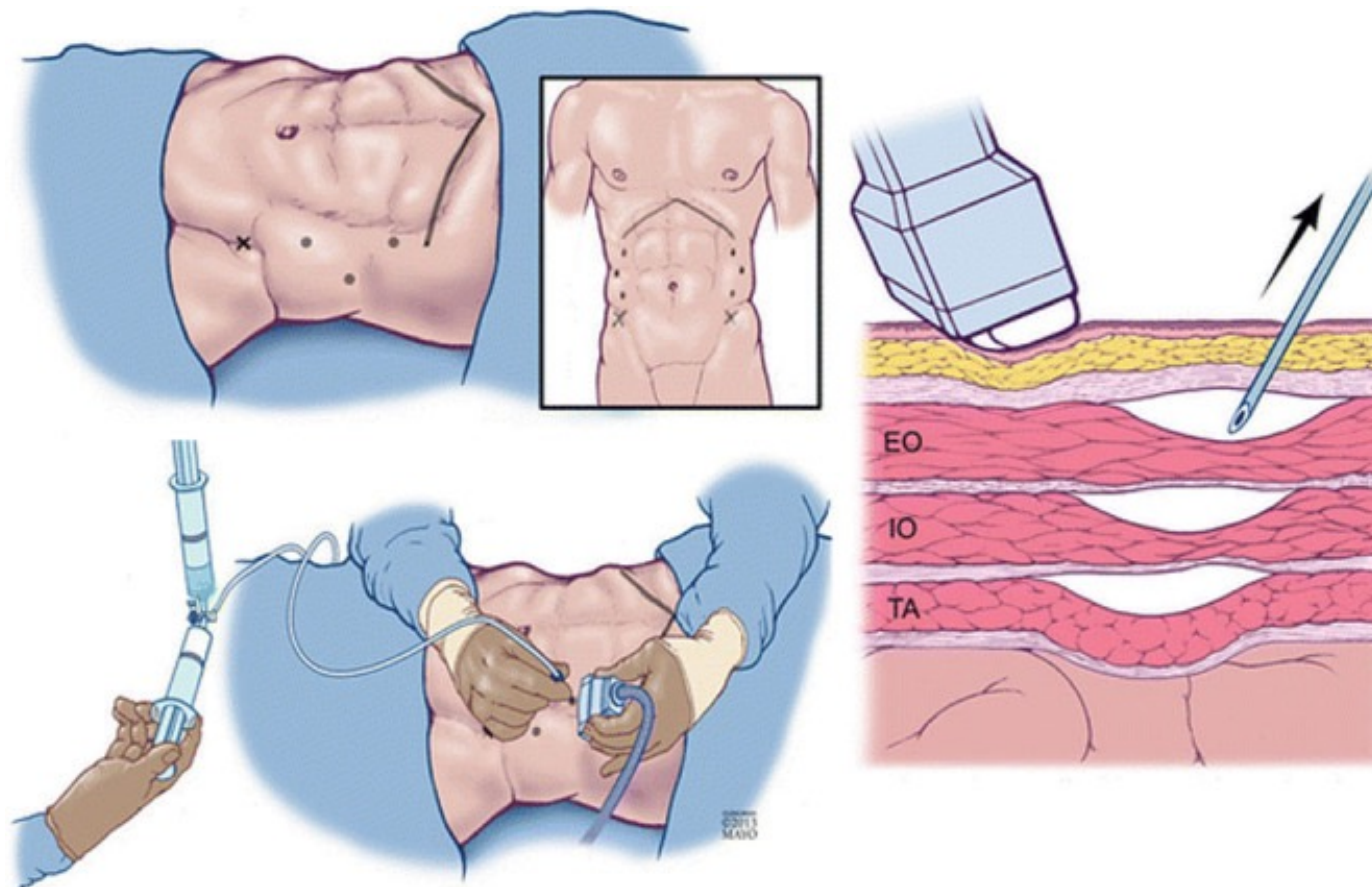


Fig 1: Anatomical Landmarks and Ultrasound Guidance for Abdominal Wall Botox Administration³

Discussion

- Botulinum toxin (BTX) is a neurotoxin that causes flaccid muscle paralysis due to acetylcholine inhibition on presynaptic cholinergic nerve terminals
- Utilization on the lateral muscle complex (Internal/External Oblique, Transversus Abdominus) elongates the abdominal wall muscles.¹
- This helps to assist the surgeon with fascial wall closure and prevent hernia recurrence; one meta-analysis showed an average wall muscular lengthening of 3.33 cm and hernia width reduction of 5.79 cm²
- TAP Blocks for Botox injection involves depositing the toxin intramuscularly in all three layers of the abdominal lateral muscle complex (Figure 1).³
- There is currently no consensus on the ideal amount of BTX for ideal closure, a meta-analysis showed that anywhere from 100 to 500 units are currently being used in practice.¹
- Administration of BTX 6 days prior to surgery saw no improvement in clinical results, with evidence showing it takes at least 2 weeks before the paralyzing effect reaches maximum efficacy.³
- BTX is theoretically thought to reduce recurrence rates, due to decreased muscle tension leading to improved healing, however long term studies have not proven this benefit.¹
- While this case report discusses a successful use of this technique to assist in abdominal wall closure, there remains a lack of standardization in regard to patient selection, dosage, and timing for the administration of preoperative BTX for abdominal hernias.

References

1. Whitehead-Clarke T, Windsor A. The Use of Botulinum Toxin in Complex Hernia Surgery: Achieving a Sense of Closure. *Front Surg*. 2021 Oct 1;8:753889. doi: 10.3389/fsurg.2021.753889. PMID: 34660688; PMCID: PMC8517326.
2. Weissler JM, Lanni MA, Tecce MG, Carney MJ, Shubinets V, Fischer JP. Chemical component separation: a systematic review and meta-analysis of botulinum toxin for management of ventral hernia. *J Plast Surg Hand Surg*. 2017 Oct;51(5):366-374. doi: 10.1080/2000656X.2017.1285783. Epub 2017 Feb 20. PMID: 28277071.
3. Soltanizadeh S, Helgstrand F, Jorgensen LN. Botulinum Toxin A as an Adjunct to Abdominal Wall Reconstruction for Incisional Hernia. *Plast Reconstr Surg Glob Open*. 2017 Jun 21;5(6):e1358. doi: 10.1097/GOX.0000000000001358. PMID: 28740773; PMCID: PMC5505834.