Utilization of a Modified Transverse Thoracic Muscle Plane Block for the Management of Chronic Post-Surgical Sternal Pain

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BACKGROUND

The advent of ultrasound for nerve blocks has led to the rise of new techniques to anesthetize the heavily innervated chest wall [1]. Although much has been achieved for managing acute post-surgical sternal pain, there remains limited knowledge for chronic sternal pain management. Approximately 30-40% of sternotomy patients develop chronic post-sternotomy pain [1,2]. **We present a case where a modified transverse thoracic muscle plane block (TTMPB) successfully treated a post-sternotomy patient with 8 months of chronic sternal pain.**

METHODS

Written Health Insurance Portability and Accountability Act (HIPAA) authorization was obtained for this case report. The report is devoid of patient identifiable information and is thus exempt from IRB review requirements per Columbia University policy.

CASE DESCRIPTION

A 58-year-old female presented with **8 months of left-sided sternal pain** following robotic left VATS and thymoma resection. She described her pain as a **persistent 8/10 ache in the left sternal area.** A modified TTMPB was discussed, and patient consent was obtained.

58 YEARS OLD

8 MONTHS OF PAIN

8 out of 10 PAIN SCALE

FIGURE 1. Ultrasound image of relevant planes for modified TTMPB.

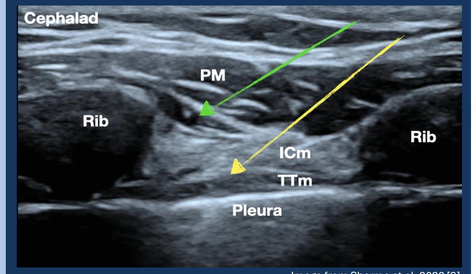


Image from Sharma et al. 2022 [3].

FIGURE 2. Coverage patterns for the PECS, SAPB, and TTP blocks

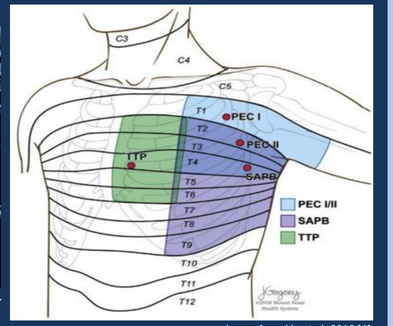


Image from Liu et al. 2019 [4].

REGIONAL PROCEDURE

1 LOCALIZE	2 DEEP PLANE	3 INJECT	4 SUPERFICIAL PLANE
Parasagittal view T4-T5; 1 cm lateral to sternum	Between Internal intercostal and transversus thoracis muscles	4 cc 0.5% ropivacaine + 4 cc PFNS + 10 mg dexamethasone	Withdraw; repeat injectate

RESULTS

The patient reported post-procedural pain improvement by 75% without adverse effects. At two-month follow-up, she reported 90% pain relief and discontinued all analgesics.

8 months of sternal pain → modified TTMPB → **90% sustained relief**

DISCUSSION

A modified TTMPB was most appropriate for this patient's presentation. Corticosteroid use and needling through multiple muscle layers likely contributed to the therapeutic effects [5]. Future research exploring the efficacy of other blocks with longer follow-up is needed.

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