Chemical component separation for large ventral hernia repairs in an Asian population: An observational case series

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Introduction:
Botolinium toxin A (BTA) is a protein produced by Clostridium botulinum with an inhibitory effect on presynaptic cholinergic nerve endings. Injecting calculated doses of BTA at specific points in the lateral abdominal wall allows paralysis of these muscles for tension free surgical closure.

Indications:
1. Large hernia width (more than 8cm) or loss of domain ratio
2. Expected difficulty in closing midline wound
3. Treatment adjuncts for muscle spasms

Methods:
Prospective observational study of all large ventral hernia with BTA prior to surgery conducted between 2018 and 2022 in a single tertiary institution.

Results:
16 patients had BTA prior to large ventral hernia repair. Surgical mesh repair was done via open remtromuscular (Rives Stoppa) repair in 2 cases, while laparoscopic intraperitoneal onlay mesh repair was performed in 14 cases. 4 patients had grade 1 complications – 1 hematoma, 2 seroma and 1 wound infection. These were managed conservatively.

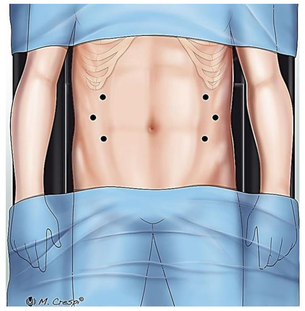


Fig.1 Sites for BTA administration

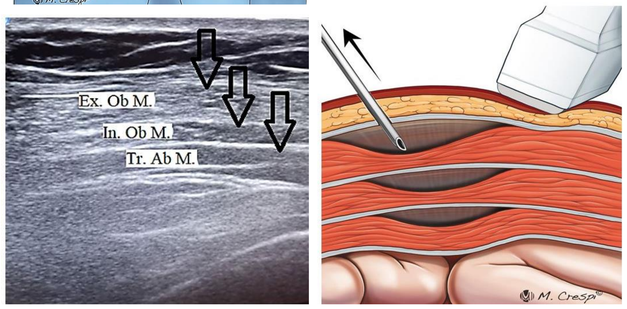


Fig.2 Ultrasound guidance for locating sites for BTA injection

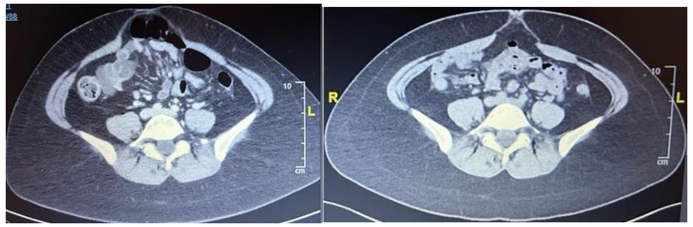


Fig.3 CT Abdomen and pelvis after BTA injection showing a 6cm reduction in hernia width

Variables	N= 16	
Median age in years (range)	51 (36-74)	
Mean BMI (range) kg/m2	28.8 (23-30.4)	
Mean preoperative hernia size in cm (SD)	12.4 (6.77)	
Type of hernia	Primary	10 (62.5%)
	Incisional	6 (37.5%)
Mean wait time between BTA to surgery in days	29.8	
Mean intraoperative hernia size in cm (SD)	10 (5.86)	
Mean operative time in mins	210.6	
Midline fascial closure	14 (100%)	
Median length of postoperative stay in days	3.5	
Postoperative complications according to Clavien Dindo classification	Grade 1	4 (25%)
	Other grades	0 (0%)
Mean follow-up duration in months (range)	9.5 (6-36)	
Recurrence of hernia at 6 months	1 (6.25%)	

Table 1: Results of BTA use in large ventral hernia repair between 2018 to 2022

Conclusion:
BTA is a useful pharmacological adjunct to aid fascial closure in complex abdominal wall hernia and open abdomen, it could be used to avoid the need for component separation in selected cases.