

## Interventional Radiology-Led Preoperative Botulinum Toxin for Complex Abdominal Wall Hernia Repair: A Retrospective Case Series from a UK District General Hospital

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### Abstract

**Introduction:** Complex abdominal wall hernias are increasingly prevalent and challenging, particularly in patients with larger defects, recurrent presentations, or significant comorbidities. Preoperative administration of botulinum toxin A (BTX-A) has emerged as a valuable adjunct to facilitate tension-free fascial closure in complex ventral hernias by improving lateral abdominal wall compliance. While evidence from tertiary centres is growing, there is limited data on the feasibility and outcomes of IR-led BTX-A services in District General Hospitals (DGHs), where access to specialist surgical infrastructure may be limited.

**Methods:** We conducted a retrospective observational study of 16 patients referred for elective repair of complex abdominal wall hernias at a UK DGH between January 2022 and December 2023. Patients notes and CT scans were reviewed within a dedicated multidisciplinary abdominal wall reconstruction (AWR) team comprising of surgeons, anaesthetist, ERP nurses and interventional radiologist. Indications for BTX-A included a defect width  $\geq 8$  cm, recurrent hernia, loss of domain, or poor abdominal wall compliance. BTX-A (200 units) was diluted in 60 ml saline and injected bilaterally into the external oblique, internal oblique, and transversus abdominis muscles under ultrasound guidance using local anaesthesia.

**Results:** The mean patient age was 58.8 years (SD  $\pm 14.6$ ) with a mean BMI of 32.2 kg/m<sup>2</sup> (SD  $\pm 4.7$ ); 87.5% had  $\geq 1$  comorbidity. The median interval from BTX-A injection to surgery was 19 days (range: 15–24.8). Large hernias ( $\geq 10$  cm) were present in 68.8% of patients, with a mean defect width of 12.5 cm (IQR: 9.2–15.0). All patients achieved successful primary fascial closure. There were no BTX-A-related adverse events, and no hernia recurrence was observed during structured postoperative follow-up.

**Conclusion:** This study demonstrates that an IR-led BTX-A injection service is a safe, reproducible, and effective adjunct for complex hernia repair in a DGH setting. Embedding the service within a multidisciplinary AWR pathway enabled timely preoperative optimisation and standardised technique delivery. These findings support broader adoption of IR-led models and provide real-world data to inform future prospective studies and national protocol development.

### Keywords

Abdominal wall hernia, interventional radiology, multidisciplinary team, Botulinum Toxin A, district general hospital.