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Single-Port Endoscopic Nipple-Sparing Mastectomy Using a Handheld Motorized Articulating System: Technical Description and Initial Outcomes

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Abstract

Background Endoscopic nipple-sparing mastectomy (NSM) offers excellent cosmetic outcomes but remains technically demanding with conventional straight laparoscopic instruments, particularly in the medial, inferior, and retroareolar regions. The HandX™ (HumanTouch Surgical Ltd, Israel) is a 5-mm handheld, software-driven motorized articulating system that provides wrist-like motion. Its application in endoscopic breast surgery has not been previously reported.

Patients and Methods We present the first clinical use of this articulating system in single-port endoscopic NSM with immediate implant-based reconstruction. Two patients—one therapeutic case following complete clinical response to neoadjuvant chemotherapy and one bilateral prophylactic case—underwent NSM through a lateral incision using a standard single-port system. The articulating monopolar scissors were used to complete the superior, medial, inferior, and retroareolar dissection under CO_2 insufflation. Reconstruction was performed with prepectoral placement of an anatomical implant wrapped in an acellular dermal matrix (Braxon® FAST, Decomed Srl, Italy).

Results All procedures were completed successfully without intraoperative complications. Operative times were 240 min for the unilateral case, including axillary procedure, and 250 min for the bilateral case. Blood loss was minimal, and both patients were discharged within 48 h. Drains were removed on postoperative day 7. No early (30-day) or late (90-day) complications occurred. Final pathology demonstrated a pathologic complete response in the therapeutic case and multifocal atypical ductal hyperplasia in the prophylactic case.

Conclusions Single-port endoscopic NSM using a software-driven motorized articulating system is technically feasible and facilitates dissection in challenging regions. This technique represents a minimally invasive approach positioned between fully robotic systems and endoscopic techniques, and warrants further evaluation.

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Disclosures The authors declare no conflicts of interest.

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