NOVEL TECHNIQUE OF ROBOTIC ASSISTED HARVEST OF VERTICAL RECTUS ABDOMINIS MYOCUTANEOUS (VRAM) FLAP FOR PELVIC WOUND COVERAGE

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Background: Preoperative chemoradiotherapy and abdominoperineal resection has become standard of care for locally advanced rectal cancer. Vertical rectus abdominis myocutaneous (VRAM) flaps for abdominoperineal resection (APR) defects have the least number of complications in respect to other flaps. Robotic assisted approach has become mainstay in colorectal surgery for the APR, although robotic reconstruction using rectus has been described only in small series and requires gluteal fasciocutaneous flaps for skin coverage. We report four consecutive cases who underwent a robotic assisted VRAM flap, including one with fascial sparing, perforator dissection of the skin component.

Methods: The patients who underwent robotic APR were three males and one female, whose resection also included the posterior vagina. All had a perforator identified on CT scan preoperatively and dopplerable within the skin paddle. The intraabdominal rectus harvest was employed using two additional two ports to triangulate the muscle and was dissected free from origin to inferior aspect of the skin paddle, as well as its vessels. The skin paddle over the superior rectus was then dissected and the flap passed into the pelvis. Imaging with indocyanine green showed perfused skin paddle. Patient #4 had a fascial sparing, perforator dissection of the skin paddle.

Results: All four flaps were harvested using the robot without conversion to open. One patient had a bladder injury during the dissection that was managed with layered closure. All ambulated on first postoperative day and were discharged from the hospital at a median of 5 days post-operatively. No donor or reconstruction site complications were noted at median 5 months (range, 3 to 11 months).

Conclusion: Robotic surgery offers the distinct advantage of increased dexterity and 3D views. These are the first reported cases of a rectus abdominis muscle flap with a skin paddle component being performed with robotic assistance. They show the feasibility of a skin paddle component when the rectus is harvested robotically and obviates the need of open harvest of flap. Given that the majority of APRs are done robotically, the authors of this paper see a future where VRAM flaps are raised robotically as well.









