

Robot-assisted partial cystectomy for the treatment of urachal carcinoma

Danny M. Rabah, MD

King Khalid University Hospital, Riyadh, Saudi Arabia

RABAHDM. Robot-assisted partial cystectomy for the treatment of urachal carcinoma. *The Canadian Journal of Urology*. 2007;14(4):3640-3642.

The traditional treatment of choice for urachal carcinoma has been either an open radical cystectomy or the more recently accepted extended partial cystectomy and umbilectomy. Recently a laparoscopic

technique has been reported. We report for the first time a robot-assisted technique for an extended partial cystectomy with en bloc umbilectomy for the management of urachal carcinoma in a 49-year-old man.

Key Words: urachal carcinoma, robotic surgery, partial cystectomy

Introduction

Urachal carcinoma is rare and reported to account for no more than 0.5% to 2% of all bladder tumors.^{1,2} It has been reported to have a poor prognosis, with 5-year survival rates of 6.5% to 55%.^{3,4} The accepted treatment for patients with resectable tumors is cystoprostatectomy and wide excision of the urachus and umbilicus. However, a bladder-sparing approach has been gaining popularity, as several

groups have shown that extended partial cystectomy and umbilectomy carry survival rates comparable to those of radical cystectomy while maintaining quality of life.⁴⁻⁷

The introduction of minimally invasive surgery to urologic oncology is pushing the envelope to adopt these techniques to attain similar or better outcomes. An example of which was the recent reporting of the first case of a laparoscopic extended partial cystectomy with en bloc removal of the umbilicus and urachus for the excision of a primary malignant urachal tumor.⁸ To our knowledge, the case reported herein is the first reported of a robotically assisted extended partial cystectomy with en bloc removal of the umbilicus and urachus for the management of a urachal carcinoma.

Accepted for publication July 2007

Address correspondence to Dr. Danny Rabah, Department of Urology, King Khalid University Hospital, PO Box 55068, Riyadh 11534 Saudi Arabia

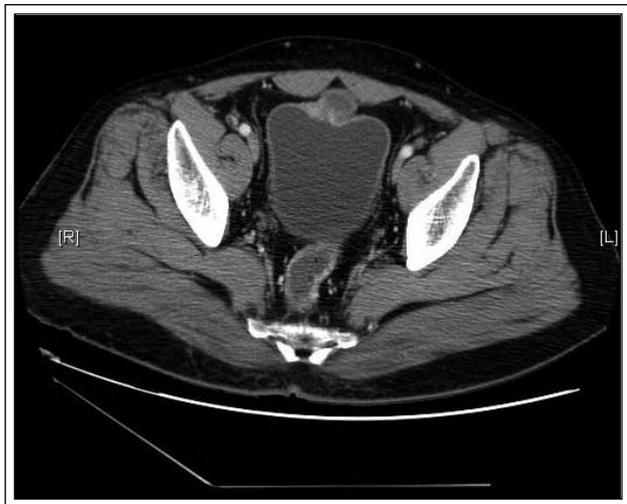


Figure 1. CT scan of the abdomen with the urachal tumor invading the bladder wall.

Case report

A 49-year-old man presented with complaints of intermittent, painless gross hematuria and vague lower abdominal pain of 3 months duration. His physical examination was unremarkable, and urine cytology was within normal limits. The patient underwent cystoscopy revealing a mass at the dome of the bladder. No additional lesions were found in the bladder. Biopsy of the mass was reported as invasive adenocarcinoma. Contrast-enhanced computed tomography of the abdomen and pelvis showed an enhancing mass approximately 3 cm x 4 cm x 4 cm that extended from just above the bladder dome toward the anterior abdominal wall, Figure 1. Other primaries of adenocarcinoma origins were excluded after appropriate workup and as such a diagnosis of urachal carcinoma was made.

The patient underwent repeat cystoscopy followed by robot-assisted partial cystectomy and bilateral pelvic lymphadenectomy with en bloc resection of the umbilicus, urachus, and bladder dome. The total operative time was 280 minutes, with an estimated blood loss of 100 ml. The final pathologic analysis showed an invasive, poorly differentiated, adenocarcinoma that extended to the perivesical fat (Sheldon stage IIIA) with negative margins. A total of 10 lymph nodes were identified and none were metastatic. The patient was discharged on postoperative day 3. At 12 months follow up he remains free of recurrence with no lower urinary tract symptoms.

Surgical technique

After induction of general anesthesia, cystoscopy was performed, and the patient was then placed in a modified lithotomy position at 15° Trendelenburg. The approach was transperitoneal. A midline 10-mm trocar port was placed 5 cm above the umbilicus for the camera port. Two 5 mm ports were then placed 7 cm lateral to and at the level of the umbilicus. Laparoscopic dissection of the umbilicus with peritoneum and posterior rectus sheath was carried out. The dissection was continued laterally to include the medial umbilical ligaments and caudad toward the space of Retzius until the urachal tumor was evident. Under direct laparoscopic vision two 5-mm trocars were placed in the both lower quadrant, and two 8-mm robotic arm trocars were placed three fingerbreadth medial to both anterior superior iliac spines, Figure 2. Then the laparoscope was removed while the da Vinci robot was engaged coming in with the camera at the original port above the umbilicus. The instruments used for dissection were ultrasonic shears on the right arm and a Cadere Forceps (Intuitive Surgical Inc., Sunnyvale, California) on the left arm.

The bladder dome was fully mobilized, and the bladder distended with 300 ml normal saline to facilitate additional mobilization and dissection. Excision of the mass and bladder dome was then performed leaving a 2 cm normal mucosal margin. The urachal stalk and large urachal tumor and bladder wall were placed within an EndoCatch bag that was closed to minimize potential tumor spillage. The bladder defect was closed in two layers with absorbable sutures using the robot. The bladder was filled with 200 cc of methylene blue to test the closures integrity. After which a bilateral pelvic lymphadenectomy was performed. The umbilicus was



Figure 2. Port placement.

circumscribed and the entire specimen was removed through the extended umbilical defect that measured 4 cm in size. The anterior rectus sheath and all port sites were closed in a standard fashion.

Discussion

As urologic laparoscopic and robotic surgery continues to evolve, we describe what we believe is the first reported case of robot-assisted extended partial cystectomy for the treatment of urachal carcinoma. Our combined laparoscopic and robotic approach is technically feasible and mimics the traditional open technique of extended partial cystectomy with en bloc umbilectomy. The robotic approach allows for precise tissue dissection and tissue reconstruction while the patient benefits a diminished blood loss, shorter hospital stay, and faster convalescence whilst adhering to oncologic surgical principles. We believe that robot-assisted partial cystectomy for urachal carcinoma could be considered as an alternative approach for appropriately selected patients. □

References

1. Yu HH, Leong CH. Carcinoma of the urachus report of one case and a review of the literature. *Surgery* 1975;77:726-729.
2. El-Mekresh MM, El-Baz MA, Abol-Enein H. Primary adenocarcinoma of the urinary bladder a report of 185 cases. *Br J Urol* 1998;82:206-212.
3. Henly DR, Farrow GM, Zincke H. Urachal cancer role of conservative surgery. *Urology* 1993;42:635-639.
4. Siefer-Radtke AO, Gee J, Shen Y. Multimodality management of urachal carcinoma the MD Anderson Cancer Center experience. *J Urol* 2003;169:1295-1298.
5. Herr HW. Urachal carcinoma the case for extended partial cystectomy. *J Urol* 1994;151:365-366.
6. Santucci RA, True LD, Lange PH. Is partial cystectomy the treatment of choice for mucinous adenocarcinoma of the urachus? *Urology* 1997;49:536-540.
7. Weiss RE, Fair WR. Urachal anomalies and urachal carcinoma, *AUA Update Series* 1998;XVII:298-303.
8. Milhoua PM, Knoll A, Bleustein CB, Ghavamian R. Laparoscopic partial cystectomy for treatment of adenocarcinoma of the urachus. *Urology* 2006;67:423.e15-423.e17.