

Oncology

Progression from tubulovillous adenoma to high-grade adenocarcinoma in Indiana pouch urinary diversion

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1. Introduction

Urologists are aware of the increased risk of adenocarcinoma in urinary diversions that mix urine and feces, such as ureterosigmoidostomy.¹ There are also several published case reports of this occurring in isolated bowel segments that are used for urinary reconstructions after cystectomy for several diseases, both benign and malignant. Here, we update a previous case report of an adenoma in an Indiana pouch urinary diversion, with further progression to a high-grade adenocarcinoma over 4 years.²

2. Case report

A 66-year-old male underwent cystectomy with creation of an Indiana pouch continent urinary diversion for pT3bN2M0 small cell carcinoma of the bladder in 1995. Adjuvant chemotherapy was administered and patient has been without evidence of disease recurrence for 20 years.

Seven years after his initial surgery, the patient noted repeat episodes of gross hematuria and was diagnosed with a 2.5 × 2.0 cm high-grade tubulovillous adenoma on the anterior wall of the pouch. Because the patient had several significant medical comorbidities, including severe coronary artery disease, that precluded an open operative resection, he underwent endoscopic resection of the tumor (Fig. 1). He was followed with routine

surveillance pouchoscopy, biopsy, and fulguration every 3 months as necessary during which time the patient was noted to be without recurrence of this lesion. Patient also underwent upper and lower endoscopies that were negative for polyps or suspicious findings.

After 3 years, he was seen every 6 months for urinary cytology, pouchoscopy, and upper urinary tract imaging. At year 4 of follow-up, a computed tomography (CT) scan and pouchoscopy showed a recurrent mass within the urinary diversion pouch (Fig. 2). Again, endoscopic polypectomy was performed and now showed invasive adenocarcinoma. Once medical clearance was obtained, he was taken to the operating room for open excision and revision of the Indiana pouch. Final pathology returned as pT3 (3.6 cm) adenocarcinoma with negative surgical margins and with lymphovascular invasion noted (Fig. 3). After discussion with the medical oncology section of his disease management team, the patient declined the recommendation to receive adjuvant chemotherapy and continued close follow-up. He has now been without disease

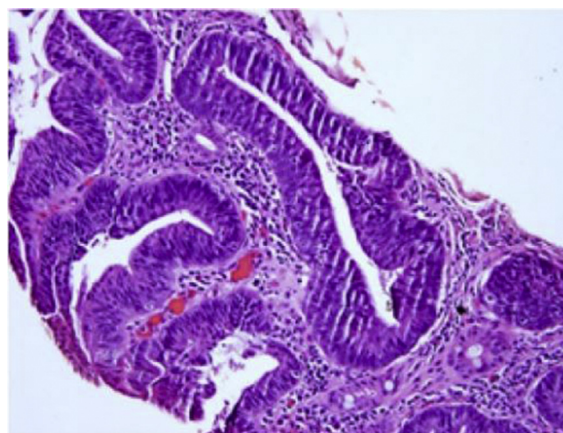


Fig. 1. Initial finding of tubulovillous adenoma of pouch on biopsy with hematoxylin-eosin stain.

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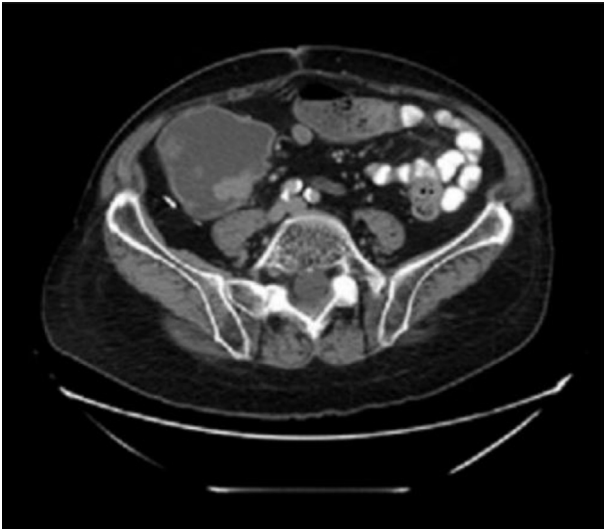


Fig. 2. CT scan showing recurrent polypoid mass in right lower quadrant urinary pouch as noted by the arrow.

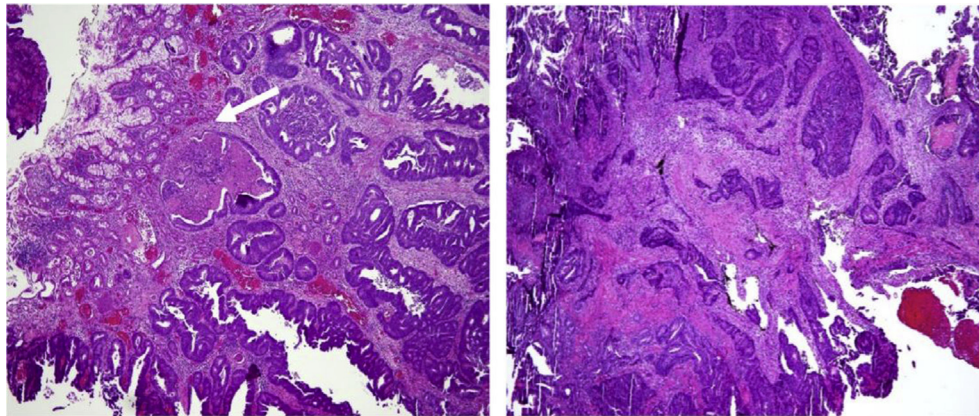


Fig. 3. Resection of portion of large bowel within Indiana pouch diversion showing moderately differentiated enteric type adenocarcinoma on hematoxylin-eosin stain.

recurrence of his small cell carcinoma of the bladder for 20 years and adenocarcinoma of the urinary diversion for 8 years.

3. Discussion

An adenoma can be classified as advanced if the lesion is 1 cm or larger and has histologic features that include tubulovillous, villous, or high-grade dysplasia. Previous reports have stated that advanced adenomas have a latency period of 3–10 years before the development of invasive cancer.^{3,4} Based on size and histology of the initial lesion seen in this patient, close follow-up was a prudent course of action and led to the early detection of an invasive adenocarcinoma. Our patient had progression to invasive disease within 4 years after initial diagnosis of tubulovillous adenoma. This adenoma–adenocarcinoma sequence is common in colon cancer and has been suggested to be similar in urinary diversion segments of bowel, with reported latency periods ranging from 6 to 27 years.⁵

Direct exposure of gastrointestinal mucosa to urine is associated with increased risk of tumorigenesis.⁵ Although documented clearly in experimental models and clinically in ureterosigmoidostomy patients, the development of adenocarcinoma in other forms of urinary diversion after cystectomy has also been

reported, mostly in case reports. A published review of the world literature through April 2003 found 81 reports of secondary tumors following urinary diversion using isolated intestinal segments. Tumors developed in 18 conduits, 45 cystoplasties, 5 rectal bladders, 3 neobladders, 6 colonic pouches, and 4 ileal ureteral interpositions.⁵ The authors reported a significantly higher tumor risk for intestinal tumor development when compared to the general population, although less so when compared to historical cohorts of patients treated with ureterosigmoidostomy.

As was performed in this patient, the use of regular follow-up with endoscopy of the pouch after the initial diagnosis of adenoma was of utmost importance. This allowed for the early detection of an invasive adenocarcinoma of enteric origin. The use of endoscopy after cystectomy and diversion should be utilized in cases of patients with new-onset hydronephrosis, hematuria, or suspicious findings on imaging.⁵ More aggressive surgical resection of the adenomatous lesion in this patient would have been done earlier but his significant medical comorbidities precluded that approach.

Conflicts of interest

There are no conflicts of interest to disclose from any of the authors.

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Appendix A. Supplementary data

Supplementary data related to this article can be found at <https://doi.org/10.1016/j.eucr.2017.11.030>.

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