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The Gulf Journal of Oncology

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**Approaches To Management Of Adenocarcinoma Following Colocystoplasty**

R. Ramamurthy, S. Susikar

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**Abstract**

Primary adenocarcinoma of the urinary bladder is rare and more so is adenocarcinoma arising in an augmented colocystoplastic bladder. We present a case of adenocarcinoma developing in a urinary bladder after colocystoplasty which was managed by radical cystectomy with bilateral pelvic lymphadenectomy. The post-operative histopathology showed the lesion to be an Adenocarcinoma with spread to the pericolic lymphnodes and not the pelvic lymphnodes. There are no guidelines for bladder screening in these patients who appear to be at risk. Radical Cystectomy remains the treatment of choice. Though post op irradiation has been reported, its role is not clearly defined. Role of chemotherapy in the adjuvant setting is yet to be defined.

Following this is the literature review and a discussion on Adenocarcinoma arising in a colocystoplastically augmented bladder.

**Keywords**

Adenocarcinoma, urinary bladder, cystoplastically augmented bladder, radical cystectomy

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**Introduction**

Primary adenocarcinoma of the urinary bladder accounts for approximately 0.5-2% of all bladder cancers. Patients generally present with hematuria, dysuria, suprapubic pain, and less commonly, mucusuria in colonic or enterically augmented bladders. The histologic appearance of bladder adenocarcinoma can be enteric, signet ring, mucinous, clear cell, hepatoid and mixed types. The differential diagnosis includes glandular differentiation of transitional cell carcinoma and direct extension or metastatic spread of adenocarcinoma arising primarily from the colon, prostate, appendix or endometrium.

Predisposing factors for the development of primary adenocarcinoma of the bladder include schistosomiasis, exstrophy, persistent urachal remnants and bladder augmentation by intestinal segments.

We present a case of adenocarcinoma developing in a urinary bladder after colocystoplasty with a review of literature.

**Case Report**

A 56-year old male patient presented to us with a history of passing blood stained mucoid discharge along with urine for 6 months duration. He was previously treated for thimble bladder of tuberculous etiology with antituberculous treatment and colocystoplasty with right ureteric reimplantation 16 years ago.

On initial evaluation with a cystoscopy, the augmented bladder had a large amount of mucus material with a mass in the left lateral wall. Other areas of the bladder appeared normal. The tumor was biopsied and it was reported as adenocarcinoma. Contrast enhanced CT of the abdomen and pelvis revealed thickening of the left lateral wall of the bladder with right hydroureteronephrosis and thinning of the right renal cortex (possibly due to reflux after the right ureteric reimplantation done 16 years ago). Staging evaluation revealed no evidence of metastatic disease.

On laparotomy, there was a growth confined to the left lateral wall of the augmented bladder at the junction of the augmented colonic segment.
Adenocarcinoma following Colocystoplasty, R. Ramamurthy, et al.

with the native bladder and right hydronephrosis with a grossly dilated ureter. There were multiple pericolic nodes but no paraaortic or nodes along the inferior mesenteric pedicle. An en bloc complete resection of the coloplastied segment with its mesocolon and the native bladder with bilateral pelvic lymphadenectomy was done with urinary diversion using an ileal conduit.

The patient developed a leak from the ileoileal anastamosis on the 10th post-operative day which was managed by a laparotomy and taking down the suture line and bringing out the proximal end as an ileostomy. The patient recovered well after that and was discharged planning for the ileostomy closure after 8 weeks.

His post-operative histopathology revealed an infiltrating mucinous adenocarcinoma at the junction of the colonic and vesical mucosa infiltrating the bladder and the colonic wall up to the muscularis. The pelvic nodes (6 on the left side and 7 on the right side) did not harbor any tumor cells but two out of the eight of the pericolic nodes were positive for tumor deposits implying that the colonic wall was the origin of the neoplasm.

Discussion

Literature review

Adenocarcinoma developing in a colocystoplasty augmented bladder is a rare entity and there have been very few cases reported in literature and in time are estimated to occur in 1.3% of cases.\(^{(17)}\)

Lane T et al\(^{(18)}\) reported 2 cases, 1 of which is a squamous cell carcinoma and conducted a literature review of such cases and found that only 15 such cases had been reported in literature.

Bono Arino A et al\(^{(14)}\) reported a case of signet ring-cell adenocarcinoma in augmentation colocystoplasty.

Yip SK et al\(^{(19)}\) reported a Mucinous adenocarcinoma of renal pelvis and villous adenoma of bladder after a caecal augmentation of bladder.

Shokeir AA et al\(^{(21)}\) conducted a study to...
Screen malignant transformation after uroenteric reconstructions using bowel segments exposed to urine without fecal stream for more than 10 years. Uroenteric malignancy was diagnosed in 4 patients (2%): 2 adenocarcinoma in an isolated rectosigmoid bladder, 1 transitional cell carcinoma following augmentation colocolostomy, and 1 squamous cell carcinoma after ileal ureter. They concluded that malignant changes occur not only after ureterosigmoidostomy but also observed after different uroenteric reconstructions not exposed to fecal stream.

Steg A et al (22) reported a case in which the patient had undergone a right nephrectomy for urinary tuberculosis and a colocystoplasty to enlarge the bladder with re-implantation of the left ureter in the graft. Twenty one years later, an adenocarcinoma developed at the site of the anastomosis between the colonic graft and the bladder.

**Nature and site if origin of adenocarcinoma is in augmented bladder**

Intestinal segments have been used for augmentation or substitution of parts of the urinary system for more than half a century. Although the initial indication for augmentation cystoplasty was a contracted post-tuberculous bladder, indications for this technique have expanded to include various bladder pathologies such as postradiation or postchemotherapy bladders, neurologic insults, and interstitial cystitis (3, 17, 18). The exact pathophysiology that causes malignant transformation is unknown. It has been hypothesized that reactive oxygen species may be generated from the urine that result in carcinogenic N-nitrosamine or an inflammatory response in the mucosa of the intestinal segments in contact with the urine (4). Urothelium has also been noticed to undergo glandular metaplasia and dysplasia with intestinalization overlying normal detrusor muscle by some authors (23).

Symptomatic patients with carcinomas that result from augmented cystoplasties usually present with gross hematuria or irritative symptoms. Studies aimed at elucidating the natural history of these carcinomas have failed to detect histologic evidence for premalignant lesions in patients who are asymptomatic. A consistent finding is the absence of dysplasia, whereas villous atrophy and a chronic inflammatory infiltrate have been perceived as adaptations to a hostile environment (5, 6, 7, 15). The most common complaint of patients with augmented bladders is urethral discharge, occurring in approximately 30% of patients (8). Patients with intact sensation will often complain of pain. Hematuria and infection, particularly pyocystitis and urosepsis, are the most frequent non-oncological indications for surgical intervention (16).

There is general awareness of the increased risk of malignancy in both the intestinal and urothelial epithelium following intestinal augmentation of the bladder. The time interval from augmentation to development of mucinous adenocarcinoma ranged from 8 to 39 years (average 23.9 years) (9).

Surveillance of patients who have undergone augmentation coloplasty and enteroplasties however is not standardized and routinely followed (16, 17, 18). There are no standard recommendations for follow up of patients post coloplasty augmentations but annual cystoscopy may be prudent as a follow up recommendation in these patients.

**Extent and nature of lymphadenectomy**

Bladder cancers usually entail a bilateral pelvic lymphadenectomy with Radical cystectomy for decisions on adjuvant treatment, prognostication and staging. However the problem with adenocarcinomas arising in the augmented bladder is that there is an alternative lymphatic pathway along the lymphatics of the augmented bowel segment which also needs to be addressed. There have been no studies to prove the extent of lymphadenectomy that needs to be done along the mesenteric vessels in these patients due to paucity of cases. In patients presenting with tumors such as the one we encountered, the tumor was arising at the junction of the native bladder with the colocystoplasty augmented segment requiring addressing of the lymphatic drainage of both the native bladder and the colonic segment used for augmentation.
Adenocarcinoma following Colocystoplasty, R. Ramamurthy, et. al.

Adjuvant treatment of adenocarcinoma in the augmented bladder

Mucinous adenocarcinomas in defunctionalized bladders have been highly aggressive, with either extensive disease at initial surgery or early recurrence/progression.\(^9, 10, 11\)

Treatment of these tumors has not been standardized and though surgery plays the only possible curative role, many of these tumors are often advanced at presentation and the need for other adjuvant modalities arises. Though radical cystectomy remains the treatment of choice for bladder cancer, including adenocarcinoma, local recurrence accounted for the majority of the causes of failure. Postoperative radiotherapy (PORT) has attempted to improve the local control rate in mixed pathology series that contained adenocarcinoma patients.\(^12, 13, 14\) The additional problems encountered in these patients are the additional lymphatic pathways of the augmented colonic segment. The role of chemotherapy is also to be defined in the adjuvant and palliative settings though it is treated on the same lines as a primary adenocarcinoma of the colon.

Conclusion

As large number of patients with augmented bladders approach 20 to 40 years postoperatively, malignancies in the bladders of these patients may become more frequent. There are no guidelines for bladder screening in these patients who appear to be at risk. Radical Cystectomy remains the treatment of choice. Though post op irradiation has been reported, its role is not clearly defined. Role of chemotherapy in the adjuvant setting is yet to be defined.

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