Case Report

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Urothelial Carcinoma Of The Bladder Presenting With Abnormal Inguinal Metastasis

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1. Introduction

Inguinal lymph node metastasis in urothelial carcinoma is exceptionally rare. Here, we report three cases of bladder cancer with inguinal lymph node metastasis managed at our center since 1990. All patients underwent PET/CT scans, and in two cases, inguinal lymph node biopsies confirmed metastatic urothelial carcinoma. Metastasis from other primary sites, including external genitalia, was excluded. Notably, one elderly female presented with inguinal lymph node metastasis as the initial sign of recurrence. All three patients had a history of transurethral resection of bladder tumors (TURBT) and were diagnosed with high-grade urothelial carcinoma, subsequently receiving adjuvant chemotherapy. This report underscores the increased risk of distant metastasis and highlights the critical need for vigilant monitoring of patients with recurrent bladder cancer following repeated TURBT procedures.

2. Case Reports

2.1. Case 1: A 55-year-old female with a history of right ureteral cancer (high-grade urothelial carcinoma) underwent laparoscopic radical nephroureterectomy in 2020. Despite receiving adjuvant chemotherapy and radiation therapy, she experienced recurrent bladder tumors necessitating five TURBTs. In June 2024, PET/CT revealed bilateral inguinal lymphadenopathy, and a biopsy of the right inguinal node confirmed metastatic urothelial carcinoma. Immunotherapy with vedolizumab and tirapazamine was initiated.

2.2. Case 2: A 67-year-old male underwent robot-assisted laparoscopic nephrectomy and total ureterectomy in December 2022. Following a TURBT procedure in April 2023, chemotherapy was initiated. In May 2024, he developed left inguinal lymphadenopathy, and biopsy confirmed metastatic urothelial carcinoma. A subsequent PET/CT scan revealed multiple metastatic sites, including the left inguinal region. The patient underwent seven cycles of immunotherapy followed by radiation therapy, resulting in a reduction in lymph node size.

2.3. Case 3: A 62-year-old male diagnosed with bladder cancer in November 2022 underwent TURBT and received Bacillus Calmette-Guerin (BCG) therapy. In August 2024, PET/CT revealed involvement of the right inguinal and abdominal aortic lymph nodes. Chemotherapy with gemcitabine and cisplatin was initiated.

3. Discussion

Bladder cancer (BC) is a leading cause of cancer-related morbidity and mortality worldwide. Nearly 90% of bladder cancers are transitional cell carcinomas (TCC), and approximately 50% of patients eventually develop metastases. Lymphatic spread is common, with the internal iliac and obturator lymph nodes being the most frequent sites of involvement. However, inguinal lymph node metastasis is exceedingly rare and typically associated with malignancies originating from the lower trunk, perineum, or reproductive organs. Two plausible mechanisms may explain the occurrence of inguinal lymph node metastasis in these cases. Direct Tumor Extension: Repeated TURBT procedures could facilitate tumor perforation, leading to the dissemination of cancer cells to regional and distant lymph nodes, including the inguinal region. Retrograde Seeding: Cancer cells exfoliated into the urine during TURBT may travel retrogradely, contrary to normal urinary flow, and seed the inguinal lymph nodes. Management of metastatic urothelial carcinoma remains a clinical challenge. For localized muscle-invasive bladder cancer, radical

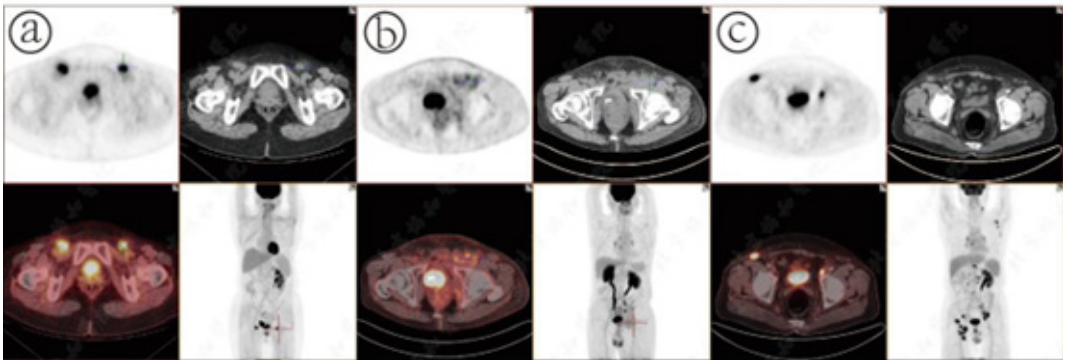
cystectomy with urinary diversion is the gold standard. However, systemic chemotherapy is the primary treatment for metastatic disease. In cases of isolated inguinal lymph node metastasis, surgical resection of the affected lymph nodes may offer benefits in selected patients, though evidence supporting this approach remains limited.

Figure:

a) revealed significant metabolic activity in the bilateral inguinal regions (SUV: 10). Additionally, a high metabolic signal was noted on the left vaginal wall. Initially, metastatic involvement of the bilateral inguinal lymph nodes was suspected, potentially due to a malignant vaginal tumor. However, subsequent pathological analysis of the vaginal lesion confirmed a non-neoplastic, reactive process. A later biopsy of the right inguinal lymph node definitively confirmed that the metastasis originated from urothelial carcinoma.

b) increased metabolic activity in the left inguinal region, with additional involvement of the left axilla, retroperitoneum, and mesentery. The inguinal lymph nodes are clearly enlarged, consistent with metastatic spread.

c) prominent metabolic activity in the right inguinal lymph nodes and adjacent abdominal aortic region, indicating metastatic urothelial carcinoma.



4. Conclusion

These cases highlight the rare but significant phenomenon of inguinal lymph node metastasis in urothelial carcinoma, particularly in patients with recurrent disease following multiple TURBT procedures. The findings emphasize the importance of thorough diagnostic evaluation and tailored treatment strategies, including advanced imaging, biopsy confirmation, and systemic therapy. Vigilant long-term follow-up is crucial to detect and manage distant metastases effectively in this high-risk patient population.