CASE REPORT – OPEN ACCESS

International Journal of Surgery Case Reports 75 (2020) 385–389

Contents lists available at ScienceDirect

International Journal of Surgery Case Reports

journal homepage: www.casereports.com

Inguinal lymph node metastasis of bladder carcinoma after radical cystectomy: A case report and review of literature

Mohamad Moussa[a], Mohamed Abou Chakra[b,*], Athanasios Papatsoris[c], Athanasios Dellis[d], Wajih Saad[e], Nazih Bou Chahine[f]

[a] Head of Urology Department, Zahraa Hospital, University Medical Center, Lebanese University, Beirut, Lebanon
[b] Faculty of Medicine, Department of Urology, Lebanese University, Beirut, Lebanon
[c] 2nd Department of Urology, School of Medicine, Sismanoglio Hospital, National and Kapodistrian University of Athens, Athens, Greece
[d] Department of Urology/General Surgery, Areteion Hospital, Athens, Greece
[e] Head of Oncology Department, Zahraa Hospital, University Medical Center, Lebanese University, Beirut, Lebanon
[f] Department of Vascular Surgery, Zahraa Hospital, University Medical Center, Lebanese University, Beirut, Lebanon

ARTICLE INFO

Article history:
Received 18 June 2020
Received in revised form 7 September 2020
Accepted 7 September 2020
Available online 21 September 2020

Keywords:
Bladder cancer
Inguinal lymph node
Metastasis
Case report

ABSTRACT

INTRODUCTION: Lymph node metastasis in bladder cancer (BC) is common and has been associated with a very poor prognosis. Bc rarely metastasizes to inguinal lymph nodes.
PRESENTATION OF CASE: We reported an unusual case of right inguinal lymph node metastasis of transitional cell carcinoma of the bladder. Metastasis occurred 9 months after radical cystectomy for BC. The patient refused chemotherapy and underwent only surgical excision of lymph nodes without any adjuvant therapy. During a follow-up period of 3 years, the patient still having complete remission.
DISCUSSION: Multiple studies showed an improved clinical outcome with adjuvant chemotherapy for pathological node-positive patients with BC. Long-term survival could be achieved for some patients with limited lymph node metastasis who underwent metastasectomy. Some studies supported the benefit of surgical consolidation after a good response to systemic chemotherapy. The best management plan for clinically node-positive BC is not established yet.
CONCLUSION: There is little evidence on which to base the management of inguinal lymph node metastasis from BC. Metastasectomy could be an option with good outcomes.

1. Introduction

Bladder cancer (BC) ranks as the ninth most frequently-diagnosed cancer worldwide, with the highest incidence rates observed in men in Southern and Western Europe, North America. Bladder cancer ranks 13th in terms of death ranks. The main risk factor for BC is tobacco smoking [1]. Lymph node (LN) involvement in BC occurs in approximately 30% of cases invading the bladder wall (stage T2). Sixty percent of the cases, tumor extends into the perivesical tissue (stage T3 or greater). Positron emission tomography/computed tomography (PET/CT) is a potentially helpful modality for improving sensitivity in the detection of metastatic LN in BC patients [2].

The primary lymphatic drainage site for BC includes the internal iliac, external iliac, obturator, and presacral LNs. Secondary drainage sites include the common iliac, para-aortic, interaortocaval, and paracaval lymph nodes. Bilateral pelvic lymphadenectomy is an important part of radical cystectomy for BC. Lymphadenectomy, completed according to the extended template, provides optimal diagnostic and possibly therapeutic results [3]. The prognosis for patients with a gross nodal disease from BC is poor although cure may be possible in a small number of patients. In such cases a multimodality approach is appropriate and management decisions should be made on an individual patient basis [4].

Inguinal LN metastasis from BC is unfrequent. We reported a case of urinary bladder carcinoma with right inguinal LN metastasis occurred 9 months after radical cystectomy.

This work has been reported in accordance with the SCARE criteria [5].

2. Case report

A 59 years old female patient underwent radical cystectomy with extended pelvic LNs dissection and ileal conduit urinary diversion for muscle-invasive high-grade urothelial carcinoma

* Corresponding author.
E-mail addresses: mohamadamoussa@hotmail.com (M. Moussa), mohamedabouchakra@hotmail.com (M.A. Chakra), agpapatsoris@yahoo.gr (A. Papatsoris), aedellis@gmail.com (A. Dellis), Saad-wajih@hotmail.com (W. Saad), nbouchah@ul.edu.lb (N.B. Chahine).

https://doi.org/10.1016/j.ijscr.2020.09.068

Fig. 1. Computed tomography (CT) scan of the abdomen and pelvis demonstrating an inguinal lymph node of 2 × 1.7 cm (white arrow).

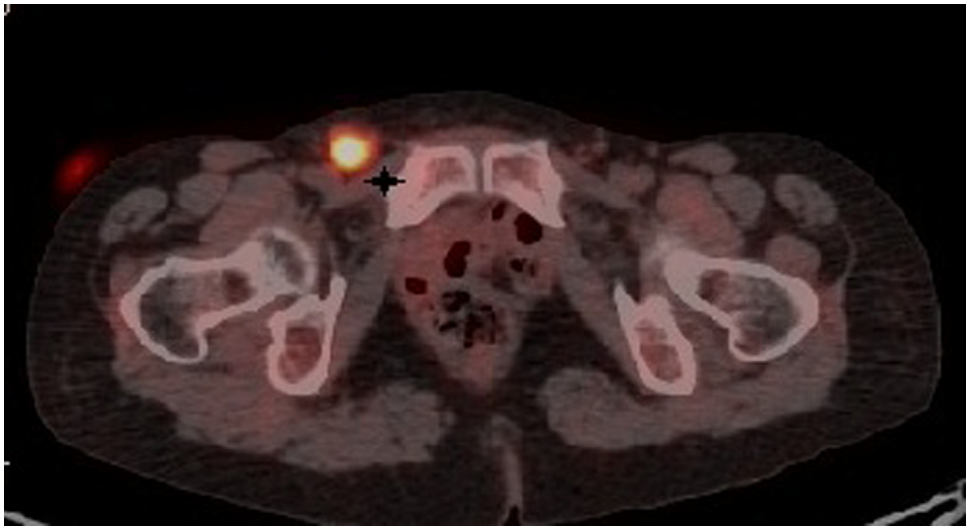

Fig. 2. FDG PET/CT with hypermetabolic right inguinal lymph node (asterisk).

(pT2bN0M0). Follow-up consisted of physical examination, blood tests, and abdominal CT imaging every 3 months. At 9 months after radical cystectomy, despite the lack of symptoms, CT-scan of the abdomen and pelvis imaging revealed an enlarged inguinal LN of 2 × 1.7 cm (Fig. 1). The patient denied any genitourinary trauma or infection. She is still smoking. His past medical and family history were unremarkable. She is not taking any medications.

On admission, vital signs were stable. Physical examination revealed a lump in the right groin region which is hard to palpation. The patient denies dysuria or frequency or hematuria.

PET/CT showed increased fluorodeoxyglucose (FDG) uptake in the right inguinal area (Fig. 2). Left inguinal LN excision was planned.

The skin incision is made parallel to the inguinal ligament. Superficial inguinal lymph nodes are removed en bloc (Fig. 3). Deep to the fascia lata, medial to the femoral vein, deep inguinal nodes, are also removed. The surgery was performed by a certified surgeon in urologic oncology and he was assisted by a vascular surgeon. Histopathological examination of superficial inguinal lymph nodes was consistent with metastatic urothelial carcinoma (Fig. 4).

Postoperatively, the patient remains stable. Post-surgical instructions were provided in verbal and written forms. This case was discussed at a tumor board meeting. Many members of the tumor board recommended starting platinum-based combination chemotherapy in the first-line treatment of metastatic urothelial carcinoma even if metastasectomy was done. The patient refused to take chemotherapy. During regular follow-up, the patient was doing well with no significant pain and not requiring analgesia. Patient compliance was good throughout the treatment, and we assess patient tolerance by the clinical and radiologic follow-up with an abdominopelvic CT scan for 3 months over 3 years period. All imaging studies showed complete remission.

3. Discussion

BC is a highly prevalent disease and is associated with substantial morbidity, mortality, and cost. Environmental or occupational exposures to carcinogens, especially tobacco, are the main risk factors for BC. BC develops via two distinct pathways, giving rise to non-muscle-invasive papillary tumors and non-papillary

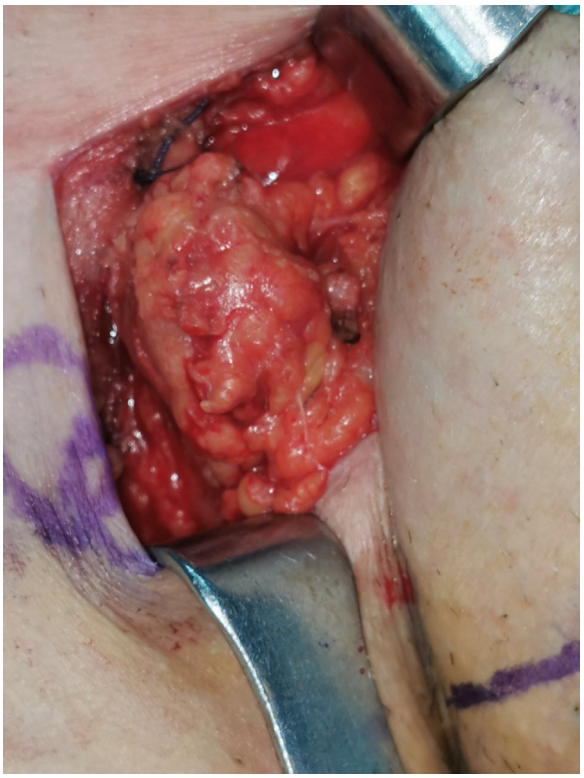

Fig. 3. Intraoperative view of inguinal lymph node dissection.

(solid) muscle-invasive tumors [6]. Muscle-invasive BC is an aggressive epithelial tumor with a high rate of early systemic dissemination and poor long-term survival; almost 50% of these patients develop metastases. The standard treatment approach for patients with localized muscle-invasive BC is a radical cystectomy with urinary diversion. The standard approach for patients with inoperable locally advanced or metastatic disease is systemic chemotherapy. Urothelial BC is highly responsive to cisplatin-based chemotherapy [7]. For fit metastatic patients, cisplatin-based chemotherapy remains the first choice. In cisplatin-ineligible patients, immunotherapy in programmed death-ligand 1 (PD-L1)-positive patients or carboplatin in PD-L1-negative patients is recommended. For second-line treatment in metastatic disease, pembrolizumab is recommended. Postchemotherapy surgery may prolong survival in responders [8].

LN positive BC is a serious disease associated with a poor prognosis. Nevertheless, even after radical cystectomy and LN dissection alone, long-term oncologic control has been reported in a subset of these patients [9]. Staging of muscle-invasive BC remains a challenge. MRI and (PET/CT) provides superior sensitivity compared to CT for the detection of positive LN in BC before cystectomy. There is variability in the accuracy that current imaging modalities achieve across different studies [10]. Combining metabolical and morphological features using 18F-FDG PET/CT improves the detection of malignant LN in patients with BC [11].

Systemic therapy alone is rarely curative for the treatment of metastatic urothelial cancer. A systematic review to explore the role of metastasectomy in metastatic urothelial carcinoma was conducted. Limited conclusions can be drawn from the available literature exploring the role of metastasectomy in this setting. As a subset of patients treated with metastasectomy achieves durable disease control, this approach may be considered for select patients [12]. In a study conducted by Abe et al., it was demonstrated that long-term cancer control could be achieved in a subgroup of patients who undergo metastasectomy, especially those with a solitary lung or solitary LN metastasis [13]. Surgical resection of metastases of BC is technically feasible and can be safely performed. Consolidative extirpative surgery may be considered in patients with clinically evident pelvic or retroperitoneal LN metastases but only if they have had a response to chemotherapy [14]. In another study, it was found no difference in survival by adding postchemotherapy lymphadenectomy in patients with pelvic or retroperitoneal lymph node metastatic BC. The indication to perform postchemotherapy lymphadenectomy in the most suitable patients requires additional studies [15].

Inguinal LN metastasis from BC is very rare. To the best of our knowledge, only five cases of inguinal LN metastasis of BC have been reported in the literature (Table 1). Ozbek et al. reported the case of metastatic adenocarcinoma in the inguinal lymph node from pure transitional cell carcinoma (TCC) after radical cystectomy. Curative resection of inguinal LN could not be performed due to adhesions to the adjacent vital structures. The metastatic lesion was unchanged following 4 cycles of chemotherapy and radiotherapy [16]. Nishimoto et al. reported left inguinal LN metastasis after 10 years of radical cystourethrectomy for BC. It is suggested that the recurrent TCC in the urethral remnants might metastasize into the inguinal LN [17]. Hamano et al. reported a right inguinal metastasis occurred 1 year after radical cystourethrectomy for mixed BC. Inguinal LN remained unchanged following chemotherapy and radiotherapy [18]. Uemura et al. described the case of TCC recurrence in inguinal lymph nodes and urethral remnant after 8 years after cystourethrectomy for BC. The primary bladder tumor was

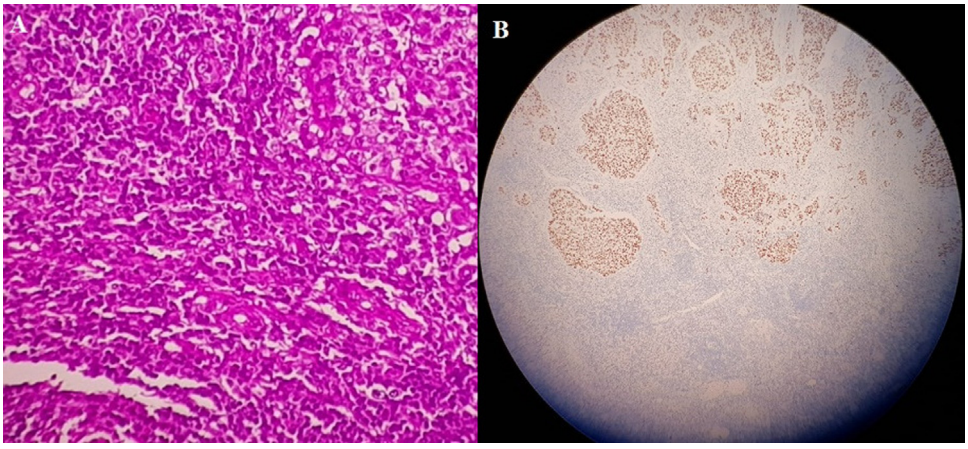

Fig. 4. **A-**Pathology of inguinal lymph node excision showing microscopic features of urothelial carcinoma. **B-**Neoplastic cells are positive for GATA3 staining.

Table 1
Published reports of inguinal lymph node metastasis of bladder carcinoma.

Reference	Period to Inguinal LN metastasis after RC	Initial bladder tumor pathology	Inguinal LN pathology	Treatment modality used	Results
Ozbek et al. [16]	6 months	TCC (pT2), high-grade	Likely from TCC of bladder	LN excision + chemotherapy + radiotherapy	Minimal remission
Nishimoto et al. [17]	10 years	SCC & TCC	Likely from TCC of bladder	LN excision + chemotherapy	No remission
Hamano et al. [18]	12 months	Adenocarcinoma with small foci of squamous cell carcinoma and TCC	N/A	Chemotherapy and radiotherapy	No remission
Uemura et al. [19]	8 years	TCC G2 > G3 pT1	TCC of bladder	LN excision + chemotherapy	N/A
Obata et al. [20]	9 years	TCC, G3, pT4	N/A	LN excision + chemotherapy	N/A
Our case	9 months	TCC G3, p T2b	TCC of bladder	LN excision	Complete remission

LN: Lymph node; RC: radical cystectomy; TCC: transitional cell carcinoma; SCC: small cell carcinoma; N/A: not available.

TCC pT1 G2-3 [19]. Obata et al. reported the recurrence of TCC of the bladder to the urethra, inguinal and paraaortic LNs 9 years after the cystectomy. The primary bladder tumor was TCC pT4 G3. A partial penectomy and inguinal LN dissection were undertaken. Systemic chemotherapy was administered [20].

Our case was unusual in that TCC of the bladder recurred in the inguinal LNs early after the radical cystectomy. The primary tumor did not contain mixed histological components (squamous and adenocarcinoma) as previously described cases. The inguinal LN metastases were chemotherapy and radiotherapy resistant in most of the cases previously published where bladder tumor was containing two or more different histological components. In this particular case, we learned that inguinal LN metastasis from TCC of the bladder can be treated by metastasectomy alone with a good response. In addition, metastasectomy alone can prolong survival in metastatic urothelial carcinoma in a single site. Future research should be focused to identify the subgroup of patients who will benefit from metastasectomy for metastatic urothelial carcinoma.

4. Conclusion

Metastasis to the inguinal LN is uncommon in bladder carcinoma. Surgical resection of metastases may help for cancer control and prolong survival in selected patients with a limited metastatic burden. Because of the limited data testing the role of metastasectomy in the management of metastatic urothelial carcinoma, each patient should be evaluated on an individual basis when using this modality.

Declaration of Competing Interest

None identified.

Funding

None.

Ethical approval

Ethical approval is not required by our institution.

Consent

Written informed consent was obtained from the patient for publication of this case report and accompanying images. A copy of the written consent is available for review by the Editor-in-Chief of this journal on request".

Author contribution

Mohamed Abou Chakra, Mohamad Moussa, Athanasios Papatsoris, Athanasios Dellis, Nazih Bou Chahine, Wajih Saad: Case report design.

Mohamed Abou Chakra, Mohamad Moussa, Athanasios Papatsoris, Athanasios Dellis, Nazih Bou Chahine, Wajih Saad: Manuscript preparation.

Mohamed Abou Chakra, Mohamad Moussa, Athanasios Papatsoris, Athanasios Dellis, Nazih Bou Chahine, Wajih Saad: Followed up the patient and revised the manuscript.

Mohamed Abou Chakra, Mohamad Moussa, Athanasios Papatsoris, Athanasios Dellis, Nazih Bou Chahine, Wajih Saad: Approved the final manuscript.

Registration of research studies

Not applicable.

Guarantor

Mohamed Abou Chakra, MD.

Provenance and peer review

Not commissioned, externally peer-reviewed.

Acknowledgement

None.

References

[1] S. Antoni, J. Ferlay, I. Soerjomataram, A. Znaor, A. Jemal, F. Bray, Bladder cancer incidence and mortality: a global overview and recent trends, Eur. Urol. 71 (1) (2017) 96–108.
[2] P.R. Shankar, D. Barkmeier, L. Hadjiiski, R.H. Cohan, A pictorial review of bladder cancer nodal metastases, Transl. Androl. Urol. 7 (5) (2018) 804–813.
[3] F. Cattaneo, G. Motterle, F. Zattoni, A. Morlacco, F. Dal Moro, The role of lymph node dissection in the treatment of bladder cancer, Front. Surg. 5 (2018) 62.
[4] M.S. Simms, G. Mann, R.C. Kockelbergh, J.K. Mellon, The management of lymph node metastasis from bladder cancer, Eur. J. Surg. Oncol. 31 (4) (2005) 348–356.
[5] R.A. Agha, M.R. Borrelli, R. Farwana, K. Koshy, A.J. Fowler, D.P. Orgill, et al., The SCARE 2018 statement: Updating consensus Surgical CAse REport (SCARE) guidelines, Int. J. Surg. 60 (2018) 132–136.
[6] O. Sanli, J. Dobruch, M.A. Knowles, M. Burger, M. Alemozaffar, M.E. Nielsen, et al., Bladder cancer, Nat. Rev. Dis. Primers 3 (2017) 17022.
[7] P. Vishnu, J. Mathew, W.W. Tan, Current therapeutic strategies for invasive and metastatic bladder cancer, Onco. Ther. 4 (2011) 97–113.
[8] J.A. Witjes, H.M. Bruins, R. Cathomas, E.M. Compérat, N.C. Cowan, G. Gakis, et al., European Association of Urology Guidelines on Muscle-invasive and

Metastatic Bladder Cancer: summary of the 2020 Guidelines [published online ahead of print, 2020 Apr 29], Eur. Urol. (2020), S0302-2838(20)30230-X.
[9] S. Van Bruwaene, A.J. Costello, H. Van Poppel, Prognosis of node-positive bladder cancer in 2016, Minerva Urol. Nefrol. 68 (2) (2016) 125–137.
[10] J. Crozier, N. Papa, M. Perera, B. Ngo, D. Bolton, S. Sengupta, et al., Comparative sensitivity and specificity of imaging modalities in staging bladder cancer prior to radical cystectomy: a systematic review and meta-analysis, World J. Urol. 37 (4) (2019) 667–690.
[11] A. Girard, M. Rouanne, S. Taconet, C. Radulescu, Y. Neuzillet, A. Girma, et al., Integrated analysis of ^{18}F-FDG PET/CT improves preoperative lymph node staging for patients with invasive bladder cancer, Eur. Radiol. 29 (8) (2019) 4286–4293.
[12] V. Patel, A. Collazo Lorduy, A. Stern, O. Fahmy, R. Pinotti, M.D. Galsky, et al., Survival after metastasectomy for metastatic urothelial carcinoma: a systematic review and meta-analysis, Bladder Cancer 3 (2) (2017) 121–132.
[13] T. Abe, H. Kitamura, W. Obara, N. Matsumura, T. Tsukamoto, T. Fujioka, et al., Outcome of metastasectomy for urothelial carcinoma: a multi-institutional retrospective study in Japan, J. Urol. 191 (4) (2014) 932–936.
[14] M. Abufaraj, G. Dalbagni, S. Daneshmand, S. Horenblas, A.M. Kamat, R. Kanzaki, et al., The role of surgery in metastatic bladder cancer: a systematic review, Eur. Urol. 73 (4) (2018) 543–557.
[15] A. Necchi, L. Mariani, S. Lo Vullo, E.Y. Yu, M.E. Woods, Y.N. Wong, et al., Lack of effectiveness of postchemotherapy lymphadenectomy in bladder cancer patients with clinical evidence of metastatic pelvic or retroperitoneal lymph nodes only: a propensity score-based analysis, Eur. Urol. Focus 5 (2) (2019) 242–249.
[16] E. Ozbek, A. Otunctemur, M. Dursun, A. Somay, Transitional cell carcinoma with glandular differentiation metastatic to the inguinal lymph node from the urinary bladder, Indian J. Urol. 30 (1) (2014) 102–104.
[17] K. Nishimoto, M. Oyama, T. Ando, Y. Nakajima, H. Kiguchi, Inguinal lymph node metastasis of bladder carcinoma ten years after cystourethrectomy: a case report, Hinyokika Kiyo 51 (11) (2005) 759–761.
[18] A. Hamano, K. Udagawa, S. Nomura, T. Ishida, Inguinal metastasis of a bladder mixed carcinoma with predominant adenocarcinoma component, Scand. J. Urol. Nephrol. 40 (1) (2006) 75–77.
[19] M. Uemura, M. Nakagawa, M. Mukai, N. Kanno, K. Nishimura, S. Miyoshi, et al., A case of inguinal lymph node metastasis and urethral remnant tumor arising eight years after cystourethrectomy for bladder cancer, Hinyokika Kiyo 49 (8) (2003) 471–473.
[20] J. Obata, E. Kikuchi, G. Kaneko, A. Miyajima, K. Kameyama, M. Jinzaki, et al., Recurrence of bladder cancer in remnant urethra and inguinal lymph node metastasis nine years after total cystectomy: a case report, Hinyokika Gakkai Zasshi 102 (1) (2011) 34–38.