Oncology

Pleomorphic malignant fibrous histiocytoma in bladder diverticulum

C. García Alvarez *, R.J. González Alvarez, A.C. Plata Bello, H. Alvarez-Argüelles Cabrera, T. Concepción Masip
Complejo Hospitalario Universitario De Canarias, Spain

A B S T R A C T

The Malignant Fibrous Histiocytoma is a very rare cancer and rather exceptional when located in bladder diverticulum. It occurs in men in their sixties, manifests itself through haematuria and/or irritative micturition. There is not a causal association. An immunohistochemical analysis is necessary to establish a differential diagnosis. It is aggressive, with a high rate of local recurrence and remote progression, thereby requiring early treatment that consists of radical cystectomy with pelvic lymph node dissection followed by adjuvant therapy, predominantly radiotherapy on the surgical wound. Close follow-up is crucially important. Poor survival rate even when patients undergo multimodal therapy.

Introduction

Soft Tissue Sarcomas (STS) in the genitourinary tract are rare, representing 1–2% of all malignant genitourinary tumours. Its clinical research is limited.¹

Malignant Fibrous Histiocytoma (MFH) is rarely located in the urinary tract. As far as we know, 30 cases have been reported with bladder affection resulting from MFH – none at bladder diverticulum- and only 5 cases with intradiverticular STS have been reported, all of them carcinosarcomas.² Our case, therefore, appears to be the first MFH reported in this human body location.

Case presentation

A 64-year-old Senegalese male with haematuria was referred. His clinical history included an internal urethrotomy 20 years ago. The cystoscopy showed a large diverticulum occupied by a tumoral lesion which was removed via TUR. The anatomopathological study revealed a high grade undifferentiated malignant tumour. A CT [Fig. 1] and a bone scan were performed, both proved negative for nodal/metastatic disease. We resolved to carry out a radical cystectomy with pelvic lymphadenectomy [Fig. 2]. The study of the surgical specimen confirmed a high-grade bladder undifferentiated pleomorphic sarcoma (formerly referred to as malignant fibrous histiocytoma) at pT3N0 stage [Figs. 2 and 3].

After surgery an extension study was undertaken, including a bone scan which confirmed two new lesions. Our Committee of Urologic Malignancies decided to administer palliative chemotherapy with Adriamycin. After two chemo cycles patient complaining of perineal pain. A subsequent magnetic resonance confirmed cancer relapse, which filtered into the anterior rectal wall and spread to the corpus cavernosum penis. Initially, we explored the possibility of performing a pelvic radiotherapy which was dismissed in view of its poor benefit in his quality of live. Death six months after the cystectomy.

Discussion

Reported first time in 1963 by Ozzello, despite being the most common STS in adults (10–21% of all cases) MFH in the urinary tract is rare (<1%), being more common in the kidney.³ In bladder tumours MFH shows an incidence of 0.23–0.67%, as reported by Kunze et al. In their review, Povo-Martín et al. reported 30 cases of bladder MFH, none of which was located in the bladder diverticulum.

MFH is prevalent in males (4:1) of 60 years old on average and manifests itself with macroscopic haematuria and/or irritative micturition syndrome. Some authors have associated the development of MFH in patients who had previously undergone radiotherapy and/or chemotherapy as well as patients with concomitant tumours and/or haematopoietic diseases.

MFH is usually a fairly sized (average 6.4 cm) non-papillary tumour with a manifest invasion of the muscular propia, the medical relevance of which is surprising given the non-existence of such bladder wall in the diverticulum.⁴ Although its histological origin is controversial, there are four morphological MFH types which were recognized and analysed by

* Corresponding author.
E-mail address: carlosgcruza@gmail.com (C. García Alvarez).

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According to the medical literature published thus far, the immunohistochemical analysis of MHF proved positive for: vimentin and alpha-1-antichemotripsine, factor XIIIa and focally for CD68 and alpha-1-antitripsine.

The differential diagnosis of MFH was conclusively established in the presence of sarcomatoid carcinoma (CK+, EMA+ and factor XIIIa-), the inflammatory myofibroblastic tumour (limited number of atypias and mitosis, anaplastic lymphoma kinase-1+ and actin) and leiomyosarcoma (desmin+ and smooth muscle actin+). To date, genetic studies have not found a specific gene group occurring in MFH.

The determining prognostic factors for MFH are the histological type, grade, depth and size of the tumour, and patient’s age. These are very aggressive tumours with high local recurrence rate and remote progression that require early and aggressive treatment based on radical cystectomy with pelvic lymphadenectomy followed by adjuvant therapy. High local relapse rate (50–80%) makes the use adjuvant with external radiation therapy necessary. Despite the ensuing toxicity, it appears to increase local control rate given the radio sensitivity of MFH. The rate of remote metastasis following radical MFH surgery is between 23 and 42% according to the series and the histological variant. A meta-analysis published in Lancet in 1997 demonstrated a significant advantage of the use of Adriamycin, both for localized and disseminated disease, with a slight tendency to prolong survival, despite being a small advantage in exchange for significant toxicity. Local and remote relapse results obtained after the review of all bladder MFH confirmed the extent with which the rate of local relapse and remote progression were reduced from 50% to 0% and from 25% to 20% respectively, when we also administered radiation therapy and/or chemotherapy instead of performing cystectomy alone.

The high rate of local and remote relapses requires close patient monitoring. In the event of local recurrence, the recommended treatment appears to be surgical resection and local radiation therapy, while the combination of radiochemotherapy seems to have a synergistic effect and may control the disease when it spreads with remote metastases. However, it is advisable to individualize cases because survival is poor despite the use of multimodal therapy, as reflected in the study of Wright et al. In our case, after the detection of bone metastasis Adriamycin was initiated. When local recurrence was subsequently detected, we elected to continue chemotherapy discarding surgery and/or RT of local rescue after our committee evaluated and concluded that there would be a negative at-risk/benefit balance of both treatments with respect to caused naturalness, impact on quality of life and effect in terms of patient survival.

**Conclusion**

Urinary MFH is an exceptional one indeed when located in the bladder diverticulum. It usually presents as an infiltrating large tumour, and an immunohistochemical analysis is essential for its differential diagnosis. They are highly aggressive tumours, with such high rate of local recurrence and remote progression that they require early treatment based on radical cystectomy with lymphadenectomy and followed by adjuvant therapy, mainly RT on the surgical bed, while the association of chemotherapy remains a controversial point in the absence of remote disease. Survival rate is low even when multimodal therapy is administered.

**Conflicts of interest**

None declared.

**Appendix A. Supplementary data**

Supplementary data to this article can be found online at https://doi.org/10.1016/j.eucr.2019.101074.
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