



Primary Diffuse Large B-cell lymphoma of the Penis: Difficulties in Diagnosis and Treatment

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ARTICLE INFO

Article history:

Received: 10 April 2018;

Received in revised form:
2 June 2018;

Accepted: 14 June 2018;

Keywords

Penile mass,
Diffuse large B cell
Lymphoma,
Chemotherapy.

ABSTRACT

Penile lymphoma is an extremely rare neoplasm. We report the case of a 68 -year-old man who presented with penile masse. MRI confirmed the existence of a masse infiltrating the corpus cavernosum. Staging was performed using fluorine-18-fluorodeoxyglucose (FDG) positron emission tomography-computed tomography (PET-CT). The patient was treated initially with penile amputation; we confirmed malignant lymphoma of the corpus cavernosum by postoperative pathological examinations. We treated with a systemic rituximab-chemotherapy regimen. The patient was tumour-free at the 18-month follow-up.

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Introduction

Primary penile lymphoma is extremely rare, with only a small number of cases have been reported in the literature¹. It is most commonly reported in old age². It is unusual for surgeons to consider lymphoma in the differential diagnosis of a penile masse, consequently may result in useless penile amputation³. We present the case of a primary lymphoma of the penis treated initially by penectomy and immuno-chemotherapy and a review of the literature.

Case report

A 68 -year-old man presented with a 3-month history of penile mass. He had a history of smoking up to 35 years ago, hypertension and hyperuricemia. Physical examination revealed a firm, painless mass measuring 7 x 4 cm affecting the base of the penis. The inguinal lymph nodes were normal and there was no hepatosplenomegaly or lymphadenopathy. The haematological and biochemical parameters were normal. HBV, HCV and HIV serology tests were also negative.

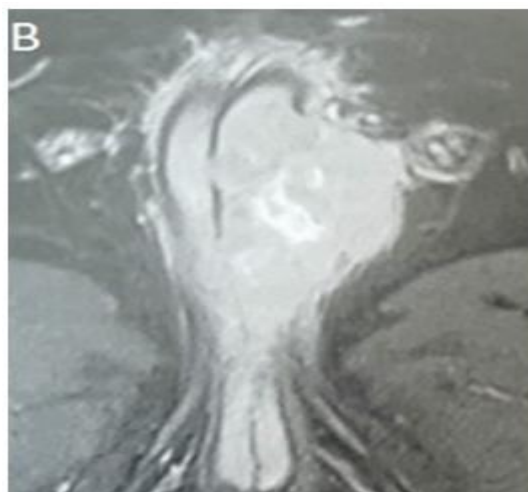
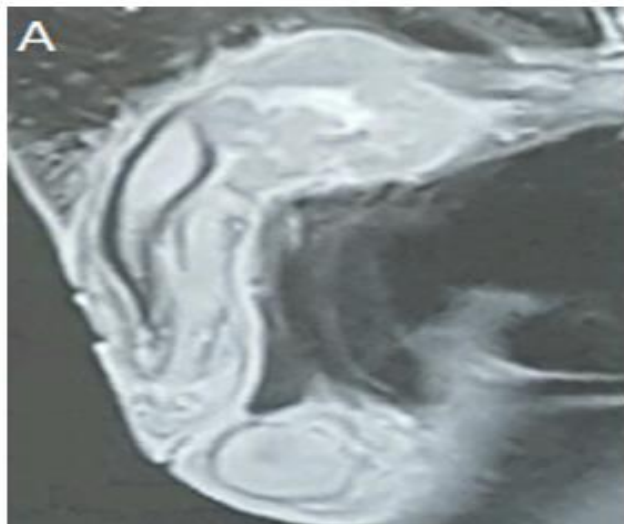


Figure 1. MR images of the penis: (A) sagittal T2 weighted MR image shows a heterogeneous mass within the proximal part of the penile shaft (B) axial T2 weighted MR image shows a mass invading the corpus cavernosum and corpus spongiosum.

An MRI revealed a heterogeneous masse measuring 7 cm in diameter within the proximal part of the penile shaft and invading the corpus cavernosum and corpus spongiosum (fig.1).

Staging was performed using FDG PET-CT and revealed a FDG avid penile mass with enlarged and no lymph nodes and visceral metastases (fig. 2). The decision was made to perform a penile amputation.

Pathological examinations of penectomy detected an atypical lymphocyte infiltrate corpus cavernosum corresponding to a diffuse large B-cell lymphoma. Immunohistochemical tests showed positivity for CD20, CD45 and BCL2 in the cancer cells. CD3, CD5 and CD10 were negative. The Ki-67 labeling revealed positivity in 100% of tumor cells (Ki67: 100%)

The patient treated with immunochemotherapy: eight cycles of combination chemotherapy comprising cyclophosphamide, doxorubicin, vincristine, and prednisolone (CHOP) together with rituximab (R-CHOP regimen) at three-week intervals. At 18 months after the chemotherapy, the patient had no evidence of recurrence or dissemination of disease.

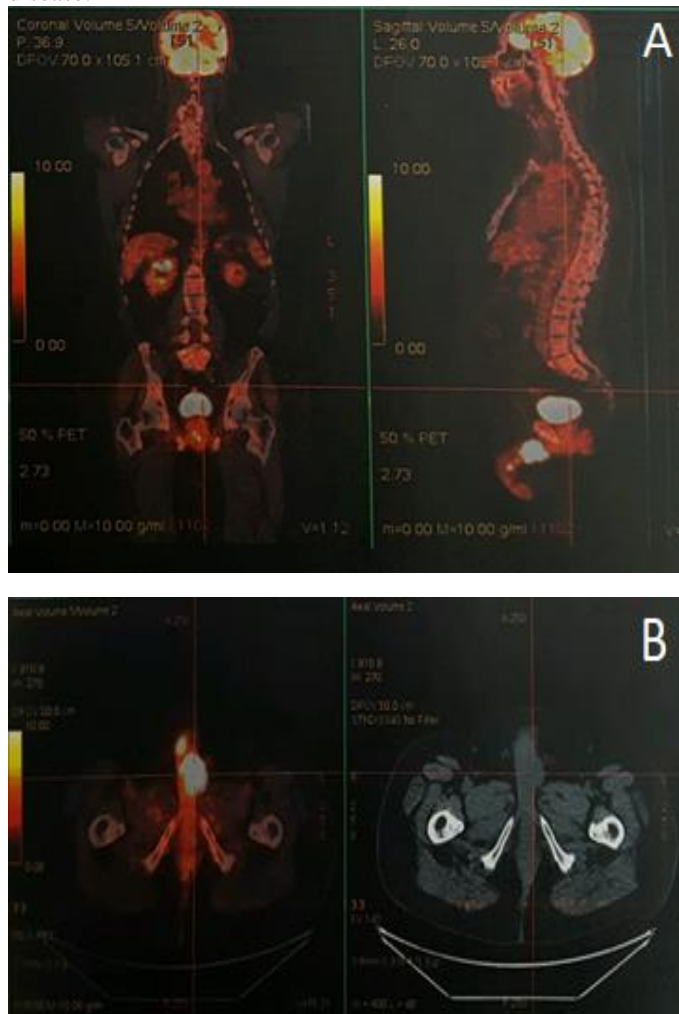


Figure 2. FDG PET/CT:

(A) sagittal and coronal PET-CT image show diffusely increased FDG uptake in the penis along.

(B) transaxial fused PET-CT and CT images show soft tissue mass involving the penis along with FDG avid mass.

Discussion

The primary penile cancer is uncommon, for only 0,4 - 0,6 % of all malignancies in the developed world⁴. The most common type is squamous carcinomas and are generally treated with total or partial penis resection⁵. Primary penile lymphoma is extremely rare, less than 50 cases have been described in the literature since Oomura et al described the first case in 1962⁶. The mean reported patient age was 51,6 years (range: 4-91). Only two patients were younger than 18 years of age⁶, and one case pediatric of 4 years of age⁷.

In most cases a focal lesion localized in the shaft of the penis is seen, but the glans penis and prepuce may also be involved⁸.

The clinical presentation of penile lymphoma includes indurated plaques, nodules, diffuse penile swelling and ulceration. Rare associated symptoms include phimosis, priapism, lymphadenopathy¹. A major differential diagnostic is the squamous cell carcinoma of the penis. In effect, failure to diagnosis lymphoma may result in unnecessary penile

amputation, which is a common treatment option for squamous cell carcinoma⁷.

Diffuse large B-cell lymphoma is the most common histological subtype⁷, such as the case presented here. But the other reported types: T-cell lymphoma, lymphoblastic lymphoma, T-cell rich B-cell lymphoma, extranodal marginal B-cell lymphoma, and anaplastic large cell lymphoma⁶.

Since staging and differentiation between primary lymphoma and disease secondary to systemic lymphoma are important in terms of treatment and prognosis. Physical examination and radiological imaging investigation, including CT, magnetic resonance imaging (MRI) and PET, should be undertaken to stage the disease⁹. The computed tomography CT scan of chest, abdomen, and pelvis excluded thoracic or abdominal primary origin. Magnetic resonance is the best radiological exploration in the pre-treatment evaluation of penile lymphoma, it provides optimum information about tumor stage and infiltration of neighbor organs^{10,11}. The FDG PET-CT is a used for staging, response monitoring of penile lymphoma and differentiating recurrent or residual lesions in post-therapy^{9,12}.

A definitive diagnosis is made through biopsy and immunohistochemical examinations to differentiate lymphoma from undifferentiated sarcomas or carcinomas and to distinguish between B- and T-cell lymphomas². The primary penile lymphoma in almost all reported cases was localized in the penis at clinical stage I E¹³. Standardized diagnosis of primary penile lymphoma: (1) penile mass and pathological confirmation; (2) no hypertrophy of lymph nodes; (3) no signs of bone marrow suppression or leukemic hemogram; and (4) no visceral lymphatic masses¹⁴.

The management of primary penile lymphoma depends mainly on the stage of the disease, as well as the age and performance status of the patient⁷. While systemic chemotherapy is the treatment of choice for a secondary presentation of lymphoma in the penis. In primary penile lymphoma, treatment guidelines are difficult to establish¹⁵.

Although radical surgery has been recommended, it is not only mutilating but unnecessary¹⁶. The conservative therapy could be considered as the first-choice approach with a curative goal⁶. Radiotherapy alone offers a potential cure rate of 65% in advanced stage lymphoma and it a good treatment option for patient whom chemotherapy cannot be appropriate and avoiding the need for surgery¹⁶. However, similar to surgery, radiotherapy may result in disfigurement or loss of erectile function and thus it may be avoided in younger patients¹⁷.

Systemic chemotherapy is a good treatment option because it preserves the erectile function and avoids disfigurement. Cyclophosphamide, doxorubicin, vincristine, and prednisone, was the most common choice of systemic chemotherapy. The reported 2-year disease-free survival after chemotherapy has been as high as 83% for primary diffuse large cell lymphoma¹⁷. The chemotherapeutic treatment has significantly improved with introduction of rituximab (an anti-CD20 chimeric antibody)¹⁸. This combination can enhance curative effects¹⁴.

Combined modality radio-chemotherapy seems to be the ideal treatment option, which has the advantage of treating both the primary lesion and any occult systemic disease³. The potential cure rate is 92% (survival free from disease more than 2 years)¹⁶.

In primary penile lymphoma, good prognostic factors include young age and presence of CD30+ lymphocyte

marker. An unfavorable prognostic sign is a high LDH level¹⁷.

Conclusion

Primary lymphoma of the penis is exceptional. The diagnosis should be suspected when there is a mass or node of the penis and to institute appropriate treatment avoiding unnecessary mutilating surgery. Chemotherapy may be considered the first-line treatment to obtain complete remission and to preserve sexual function.

Conflicts of Interest

Authors have no conflict of interest to declare.

References

- 1-Gong Z, Zhang Y, Chu H, Lian P, Zhang L, Sun P, Chen J. Priapism as the initial symptom of primary penile lymphoma: A case report. *Oncol Lett.* 2014 Nov;8(5):1929-1932.
- 2-Karki K, Mohsin R, Mubarak M, Hashmi A. Primary non hodgkin's lymphoma of penis masquerading as a non-healing ulcer in the penile shaft. *Nephrourol Mon.* 2013 Jul 1;5(3):840-2.
- 3-El-Sharkawi A, Murphy J. Primary penile lymphoma: the case for combined modality therapy. *Clin Oncol (R Coll Radiol)* 1996; 8:334–335.
- 4-Bleeker MC, Heideman DA, Snijders PJ, Horenblas S, Dillner J, Meijer CJ. Penile cancer: epidemiology, pathogenesis and prevention. *World J Urol.* 2009 Apr;27(2):141-50.
- 5-Gentile G, Broccoli A, Brunocilla E, Schiavina R, Borghesi M, Romagnoli D, Bianchi L, Derenzini E, Agostinelli C, Franceschelli A, Colombo F, Zinzani PL. An isolated penile mass in a young adult turned out to be a primary marginal zone lymphoma of the penis. A case report and a review of literature. *Anticancer Res.* 2013 Jun;33(6):2639-42.
- 6-Chu L, Mao W, Curran Vikramsingh K, et al. Primary malignant lymphoma of the glans penis: a rare case report and review of the literature. *Asian J Androl.* 2013; 15:571–572.
- 7-Wei CC, Peng CT, Chiang IP, Wu KH. Primary B cell non-hodgkin lymphoma of the penis in a child. *J Pediatr Hematol Oncol.* 2006; 28:479–480.
- 8-Stamatiou K, Pierris N. Lymphoma presenting as cancer of the glans penis: a case report. *Case Reports in Pathology.* 2012.

9-Karunanithi S, Sharma P, Naswa N, Soundararajan R, Mohapatra T, Malhotra A, Bal C, Kumar R. Primary penile lymphoma: the use of PET-CT for accurate staging and response monitoring. *Diagn Interv Radiol.* 2013 Mar-Apr; 19(2):130-3.

10-Ibarz Servio L, Arzo Fábregas M, Ruiz Domínguez JM, Batlle Massana M, Mate Sanz JL, Saladié Roig JM. Primary lymphoma of penis. *Actas Urol Esp.* 2009 Jul-Aug;33(7):826-9.

11-Chiang KH, Chang PY, Lee SK, Yen PS, Ling CM, Lin CC, Lee CC, Chou AS. MR findings of penile lymphoma. *The British Journal of Radiology,* 79 (2006), 526–528

12-Guo Y, Bai RJ, Gao S. FDG PET/CT detects malignant lymphoma invading the penis. *Clin Nucl Med* 2011; 36:204–206.

13-Tanaka Y, Tanaka A, Hashimoto A, Shinzato I. Isolated Pituitary Stalk Relapse of Primary Penile Lymphoma. *Intern Med.* 2017;56(7):835-839.

14-Wang GC, Peng B, Zheng JH. Primary penile malignant lymphoma: report of a rare case. *Can Urol Assoc J.* 2012 Dec;6(6): E277-9.

15-Lin DW, Thorning DR, Krieger JN: Primary penile lymphoma: diagnostic difficulties and management options. *Urology* 1999; 54;(2.);366.

16-Arena F, di Stefano C, Peracchia G, Barbieri A, Cortellini P. Primary lymphoma of the penis: diagnosis and treatment. *Eur Urol.* 2001; 39:232–235.

17-Tomb RR, Stephan F, Klein-Tomb L, Chahine G, Grosshans E. Recurrent primary CD30+ lymphoma of the penis. *British Journal of Dermatology.* *Br J Dermatol.* 2003 Oct;149(4):903-5.

18-Hamamoto S, Tozawa K, Nishio H, Kawai N, Kohri K. Successful treatment of primary malignant lymphoma of the penis by organ-preserving rituximab-containing chemo therapy. *Int J Clin Oncol.* 2012; 17:181–184.