CASE REPORT

Ulcerative balanoposthitis secondary to leukemic infiltration in the penis

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INTRODUCTION
Leukemia is a disease that is characterized by abnormal development and proliferation of leukocytes and their precursors. Chronic lymphocytic leukemia (CLL) affects more than 100,000 Americans and 15,000 new cases are diagnosed per year. According to World Health Organization (WHO) classification, LLC and small lymphocytic lymphoma are the same entity. Mean...
diagnostic age is from 60 to 68 years with a predominance in men (the woman to man ratio is approximately 1:1.8). Clinical manifestations include fever, night sweating, weight loss (>10% of body weight), fatigue, frequent infections, organomegaly (splenomegaly, hepatomegaly), lymphadenopathy, autoimmune complications and symptoms related to cytopenias (anemia, thrombocytopenia). Diagnosis is generally incidental to unexpected absolute lymphocyte count in complete blood count (greater than 5 x 10^9/L) with no clear etiology. The patient’s condition is determined by physical examination (lymph nodes, splenomegaly or hepatomegaly), sequential blood counts (to determine lymphocyte doubling time) and peripheral blood smear. Bone marrow aspiration and biopsy are electives for patients who are asymptomatic upon diagnosis (1,2).

Before the appearance of chemotherapy, 57% percent of leukemia patients presented with some kind of genitourinary involvement when autopsied. A considerable number of patients with myeloproliferative and lymphoproliferative disorders present with genitourinary tract involvement. The majority of cases are leukemic infiltration of the kidney complicated by chronic renal insufficiency (CRI) or testicular infiltration. Hematolymphoid diseases rarely present as penile lesions (1,3).

**CASE REPORT.**

The patient was a 74-year-old male with the following medical history: a smoker since the age of 18 years, an occasional alcohol consumer, negative Coomb’s test, received blood transfusions at unspecified time, had presented with irregularly and non-specifically managed chronic lymphocytic leukemia for some time.

Four months before hospital admission, patient presented with non-painful increased volume in the left inguinal region, edema of the left pelvis and a non-painful ulcerous lesion on the glans and prepuce that later produced a yellowish and fetid secretion. He saw a private doctor and was referred to the hospital. Upon physical examination, patient presented with pale teguments (+++) and non-painful 1 x 1 cm bilateral submandibular adenomegaly. Abdomen showed apparent 4 cm hepatomegaly of the right lobe under the costal ridge. There was no hepatalgia when the inferior pole of the spleen was palpated. There was non-painful, convergent, approximately 2 x 2 cm bilateral adenomegaly in the inguinal region and edema of the left pelvis. The genitals presented with ulcerative lesion of the glans and prepuce towards the ventral and right lateral regions. The lesion was non-painful and had well-defined edges. There was fibrinoid tissue and a slight whitish non-fetid secretion as well as color alterations in the glans and prepuce outside the lesion (Images 1 and 2). Testicles were normal, right spermatic cord was normal and evaluation of the left cord was not possible. Rectal examination revealed an approximately 40 gr adenomatous, partially mobile, euthermic, non-painful prostate that was displaced toward the right with no nodules in the palpable zone.

Laboratory Tests: Blood Chemistry: glucose 104, creatinine 1.1, urea 58, BUN 27.3, GO-T 25, GP-T 12, ALP 153, LDH 581, GGT 27, TB 0.8, albumin 4; Blood Count: leukocytes 156.54, Hb 7.8, Hct 27, platelets 37 thousand, neutrophils 730. Coagulation times: fibrinogen 552, PT 12.9, PTT 29.3. Urinalysis: proteins 30 g, erythrocytes 10 per field, leukocytes 4-8 per field. Ulcerated penis secretion culture: no bacterial growth.

Abdominopelvic tomography showed pelvic adenomegaly displacing the bladder to the right (Image 3).

Penile lesion biopsy: Ulcerated lymphoproliferative lesion compatible with well-defined necrotizing chronic lymphocytic infiltration (Image 4).
The patient was later managed in the Hematology Service with 40 mg IV fludarabin, globular package transfusion and platelet concentrates. The patient died 6 months later due to respiratory complications.

**DISCUSSION**

Malignant metastatic tumors of the penis are rare. Fewer than 200 cases have been reported and less than 1% of cases are lymphoid in origin. We are aware of only nine other reported cases of penile lesions secondary to different types of leukemia (4, 5).

In urology, leukemia can present as priapism and it is a rare complication in these patients, affecting 5% of adult patients. Its etiology is not known, though it is probably a result of leukemic cell infiltration within the sinusoids of the corpus cavernosa. Detumescence should be attempted within the first 12 hours in order to maintain erectile function. Initial management is not surgical. Intracorporeal irrigation is also useful and oncological evaluation should be carried out to decide if emergency chemotherapy is to be employed (1,3).

Urolithiasis presents from the increased risk of hyperuricemia and hyperphosphatemia resulting from cellular degradation. Chemotherapy causes rapid cellular change and liberation of large quantities of nucleic acids and cellular proteins. Urinary saturation and acid pH also intervene. Patients should be managed with urine alkalization (pH between 6.5 and 7), hydration and allopurinol. Allopurinol should routinely be started together with urine alkalization upon chemotherapy administration (1).

Calcium stones are a rare complication in leukemia patients. However, they may present as a result of corticosteroid use and prolonged bedrest (1).

Leukemic infiltration may occur in any part of the urinary tract. The kidney is the most frequently involved site (63% of autopsies). Patients are generally asymptomatic with only 35% presenting with hematuria and flank pain (1).

Malignant hematolymphoid diseases rarely present as penile lesions. Frequent etiologies of ulcerative penile lesions stem from infections. Neoplasms, traumas, drug-induced lesions and autoimmune diseases may present in this manner (5).

The prostate is the second most affected organ (1.2% of radical prostatectomy patients). Leukemic infiltration of the prostate may cause prostate growth with obstructive symptoms. A case of CLL in the prostate diagnosed after transurethral resection of the prostate (TURP) has been reported. The simultaneous presence of prostate adenocarcinoma and CLL has been reported in the varying percentages of 0 to 0.8% (1,6).

Testicular infiltration is common in extramedullary recurrence in children presenting with acute lymphocytic leukemia (70% in autopsies with evidence of microscopic infiltration). Other sites include the ureter, bladder, and in rare cases, the penis (1).

Tumor compression may present causing urethral obstruction from leukemic infiltration in adjacent lymph nodes and viscera. Granulocytic sarcoma (8% of patients presenting with granulocytic leukemia) is a tumor causing urinary obstruction in leukemia patients. It can present as a retroperitoneal mass or involve the prostate, bladder, kidney and spinal medulla. Management includes retrograde or percutaneous catheter placement and controlling hematuria associated with bladder or urethral involvement. If hematuria is not able to be controlled, radiation or embolization may be required and in some cases, urinary diversion.

When a mass is identified in a stable patient, diagnosis should be confirmed by open or percutaneous biopsy. Commencement of appropriate chemotherapy and the use of local radiotherapy
may reduce the size of the mass and relieve the obstruction (1).

Chemotherapy includes the use of chlorambucil or intravenous cyclophosphamide, purine nucleoside analogues (fludarabin, pentostatin and cladribine) alone or combined and a combination of monoclonal antibodies (rituximab) with purine nucleoside analogues (chemoimmunotherapy) with or without cyclophosphamide (2,7).

Complications from chemotherapy and radiotherapy include urolithiasis, hemorrhagic cystitis, increased risk for developing urothelial carcinoma and testicular dysfunction. Hemorrhagic cystitis is a common adverse effect of treatment with cyclophosphamide, a lending agent whose active metabolite (acrolein) is responsible for urothelial necrosis. For this reason, mesna is administered together with cyclophosphamide to detoxify urine from acrolein. Other agents that cause hemorrhagic cystitis are ifosfamide, bleomycin and doxorubicin (1).

Testicular dysfunction is related to the use of lending agents that cause infertility. Their use produces interstitial fibrosis and thickening of the basal membrane of the seminiferous tubules. During chemotherapy FSH levels are elevated to the degree that testicular dysfunction develops. The return to normal FSH levels predicts fertility recuperation. Cryogenic sperm bank service should be offered before chemotherapy is begun (1).

Retroperitoneal fibrosis is a common complication of radiotherapy. Patients generally are asymptomatic or refer to flank pain. Hydronephrosis presents with medial displacement of the affected ureter. If prognosis is poor, the patient should be managed with percutaneous nephrostomy or urethral catheter placement and corticosteroid use. Ureterolysis is reserved for patients with favorable prognosis (1).

**CONCLUSIONS**

The patient discussed here presented with a penile lesion that is rare in this type of hematolymphoid disease. Management is often only palliative or support management and there may be lesion improvement in a secondary manner. Prognosis is usually poor given the time of progression necessary for these types of manifestations to present.

**BIBLIOGRAPHY**