Case Report

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Obstuctive Uropathy in Germ Cell Tumor of Test is Masquerading as Spontaneous Tumor Lysis Syndrome

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Abstract

Tumor lysis syndrome (TLS) is characterized by hyperkalemia, hyperuricemia, hyperphosphatemia and hypocalcemia. TLS can be Spontaneous TLS, Lab TLS, and Clinical TLS.Germ cell tumors presenting with spontaneous TLS is uncommon. But obstructive uropathy causing similar picture is reported.

Keywords: Hypercalcemia_Germ Cell Tumour; Tumor Lysis Syndrome; Obstructive Uropathy.

Introduction

Tumor lysis syndrome (TLS) is an important oncologic emergency which is associated with bulky and rapidly growing cancers.

It is characterized by metabolic abnormalities that include hyperkalemia, hyperuricemia, hyperphosphatemia and hypocalcemia. TLS can occur either as spontaneously or as a result of cytotoxic therapy.

It is associated most often with Non Hodgkin's lymphoma and acute leukemia, although it is not uncommon in other malignancies [1].

We report a case of obstructive uropathy in testicular GCT with massive retroperitoneal nodal mass encasing ureters masquerading as spontaneous TLS.

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Case Report

A 34 year male patient presented with history of pain abdomen and testicular swelling from the past 1 year. On examination, a 10*12 cms palpable retroperitoneal nodal mass with bilateral inguinal nodal mass was found. Non tender, hard right testicular mass of 8*10cms noted. Laboratory tests revealed hyperurecemia (13.1mg/dl), hyperkelemia (6.2meq/L, hyperphosphatemia (6.3mg/dl) and hypercalemia (10.7mg/dl). Raised creatinine (3.8mg/dl) and urea(57 mg/dl) level which worsened over next few days. Patient was adequately hydrated and his daily output was 1500ml.

Computed tomography scan revealed large confluent retoperitoneal nodal mass measuring 15*13*11cms encasing distal aorta and IVC. Lesion was engulfing bilateral upper ureters and bilateral renal vessels. Large confluent nodal mass seen at right external iliac level measuring 7*5cms. Heterogenously hypodense mass of size 8*6cms noted involving right testis which was consistent with testicular neoplasm.

Serum markers revealed raised beta HCG and LDH and normal AFP levels. Trucut biopsy from inguinal nodal mass reported as metastatic germ cell tumour probably seminoma.

A differential diagnosis of GCT with spontaneous TLS versus GCT with renal failure was made. During work up patient creatinine, uric acid, phosphate and potassium levels worsened. He was managed conservatively with antihyperkelmia measures and normal saline infusion which improved creatinine, calcium and potassium levels. Patient then underwent bilateral ureteral stent. Following which there was drastic improvement in serum uric acid, phosphorous, calcium and potassium levels

normalized.

Patient received first cycle of chemotherapy (etopsoide and carboplatin) under cover of adequate hydration and allopurinol. Patient was monitored for TLS and was discharged as chemotherapy was uneventful.

Discussion

Tumor lysis syndrome results when tumor cells release their contents into the blood from either spontaneous or chemotherapy-induced tumor cell death.Tumor cytotoxicity releases intracellular contents,including nucleic acids, proteins, and electrolytes into the systemic circulation and may lead to development of hyperuricemia, hyperphosphatemia, hypocalcemia, and hyperkalemia. Clinically, this results in multiorgan effects such as acute kidney injury , cardiac arrhythmias, and seizures [2,3]. TLS is the most common oncologic emergency [4], and without prompt recognition and early therapeutic intervention, morbidity and mortality is high.

First classification of TLS was given by Hande and Garrow in 1993 which was later modified by Cairo and Bishop in 2004 [2,5]. This system (Table 1) defines LTLS when two or more of the following abnormalities are met within 3 days before or 7 days after the initiation of chemotherapy:

1. 25%decrease from baseline in serum calcium
2. 25% increase from baseline in the serum values of uric acid
3. 25% increase from baseline in the serum values of potassium
4. 25% increase from baseline in the serum values of phosphorous.

The Cairo and Bishop definition assumes adequate volume expansion and prophylaxis with a hypouricemic agent. LTLS is defined as CTLS (Table 1) when LTLS is accompanied by one or more clinical manifestations such as cardiac arrhythmia, death, seizure, or AKI with an elevated serumcreatinine. 1.5 times upper limit of normal. Additionally, this definition of CTLS assumes that the clinical manifestations are not caused directly by the therapeutic agent. Last, a third class specifies patients with normal laboratory and clinical parameters as having no LTLS or CTLS.

Table 1: Cairo-Bishop definition of laboratory tumour lysis syndrome and clinical tumour lysis syndrome

Laboratory tumour lysis syndrome

Electrolyte or metabolite	Criteria for diagnosis
Uric acid	>8mg/dl or 25% increase from baseline
Potassium	>6mEq/L or 25% increase from baseline
Phosphorus	>6.5mg/dl(children), >4.5mg/dl(adults), or 25% increase from baseline
Calcium	> 25% decrease from baseline

Clinical Tumour Lysis Syndrome

Laboratory tumour lysis syndrome and one or more of the following

1. Creatinine > 1.5 upper normal limit(age >12 years of age or age adjusted)
2. Cardiac arrhythmia or sudden death
3. Seizure

In our case there was increased serum potassium,phosphorus and uric acid levels with worsening creatinine without inducing therapy enough to satisfy cairo and bishop criteria. Hence Spontaneous TLS was thought of.

Other differential diagnosis was obstructive uropathy leading to acute renal failure which could produce similar laboratory picture. Finally Spontaneous TLS was ruled out as patient lab values normalized following b/l ureteral stenting, spontaneous TLS being rare and patient had hypercalemiac which is rare in TLS [6].

Conclusion

TLS is a common oncologic emergency that requires immediate diagnosis and prompt treatment to avoid morbidity and mortality.

Understanding the diagnostic criteria for TLS, knowing the tumor types at high risk for TLS, and instituting prophylactic and treatment measures are very essential.

As few case reports of Spontaneous TLS in GCT have already been reported this DD should

not be forgotten and renal failure should be ruled out before making spontaneous TLS as diagnosis [7,8].

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