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Case Report

Testicular seminoma presenting as a large conglomerate mass in abdomen ☆

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ABSTRACT

Testicular seminoma commonly occurs in young men aged between 15 and 45 years old. Those with testicular cancer may present with a lump or swelling in the testicle. If treated and managed early, patients can expect a greater than 95% success rate. However, advanced stages of testicular seminoma can lead to eventual metastasis. We present a 45-year-old male patient with a prior history of testicular seminoma who was admitted to the emergency department with abdominal distension and acute abdominal pain. The CT identified a rather sizable abdominal mass and the biopsy confirmed metastatic testicular seminoma. Lymphoma was considered as the other differential diagnosis. Abdominal metastasis is rare in patients with testicular seminoma and usually leads to a poor survival outcome. Our patient did not attend follow-up appointments postorchidectomy, likely resulting in abdominal metastasis of testicular seminoma. This demonstrates the importance of ongoing surveillance of seminoma patients, and the challenges associated with differentiating large abdominal conglomerate mass in the CT scan. This patient is currently on active chemotherapy with bleomycin, cisplatin, and etoposide.

Introduction

Testicular seminoma (TS) represents 1% of male tumors and 5% of urological cancers [1], which predominantly affects young males between the ages of 15 and 45 years old [2]. With early diagnosis and intervention, the prognosis is promising with greater than 90% cure rate and 95% 5-year survival rate [1]. There is a multitude of factors that can cause testicular cancer including cryptorchidism (2-4-fold increased risk) [3], family history of testicular cancer (6%-10% fold increased risk) [4], prior history of testicular cancer [1], sexually transmitted infections [5], testicular trauma [6], and potentially elevated maternal estrogen levels [7]. There may be no prominent symptomology for patients with testicular cancer. However, some patients may experience painless swelling and other less common symptoms such as back pain, enlargement, or tenderness of breast tissue and pain in the lower abdomen

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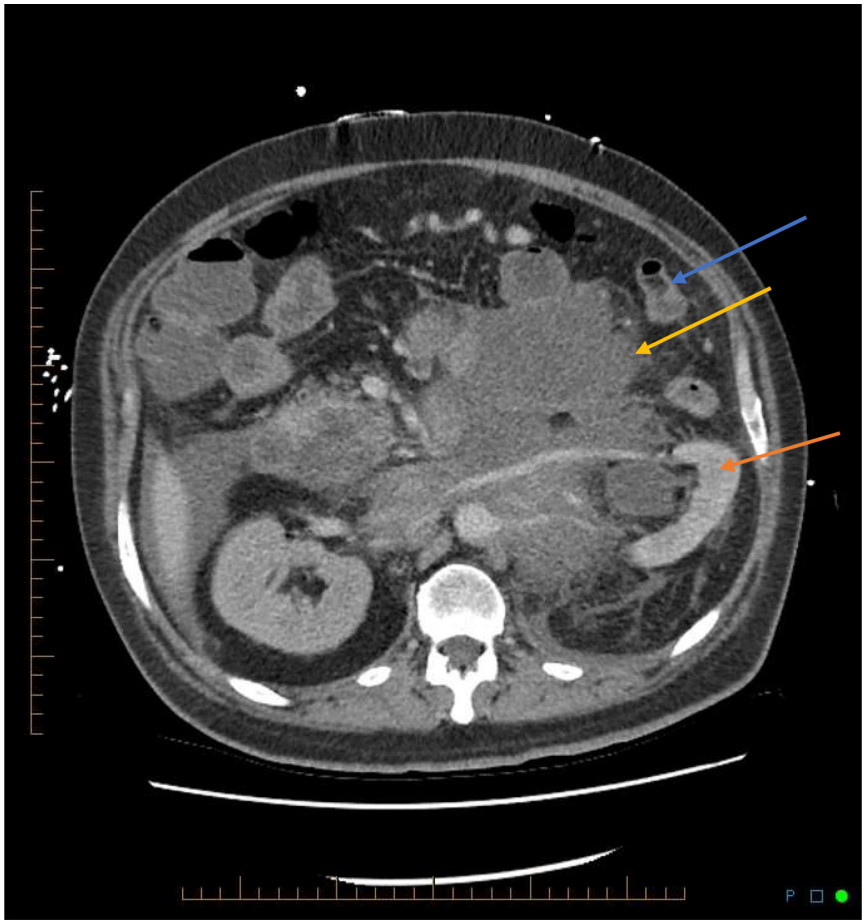

Fig. 1 – Axial slice of the abdomen noting large conglomerate mass located centrally (yellow arrow) with significant displacement of the left kidney (orange arrow) and the small bowels (blue arrow). This mass measures up to 25.4 x 22.8 cm in transverse directions.

[8]. TS usually metastasizes to the lungs, lymph nodes, liver, bones, and brain [1]. There are also presentations of TS metastasis to the abdominal region, albeit rare. This can typically occur in less than 5% of patients with nonseminomatous tumors, and in less than 1% of patients with pure seminomas [2]. In such cases, the response rate in this population is approximately 60% and therefore demonstrates the significance of attending regular appointments to monitor and control the progression of this disease [6,10].

Case report

A 45-year-old man with prior medical history of testicular cancer and left orchiectmy in 2021 was admitted to the emergency department with acute abdominal pain, distention, and vomiting. Our patient reported missed outpatient appointments following his orchidectomy in 2021. He had no known testicular cancer in his family history. Additionally, there is no medical history of cryptorchidism. On initial presentation, his heart rate was 130, blood pressure was 130/70, respiratory rate of 16, oxygen saturation was 98% and he was afebrile. His tachycardia improved with fluid resuscitation. On physical examination, a large, distended abdomen and generalized abdominal tenderness was noted. His bowel sounds were present, and previous surgical scars were healed well. The patient underwent radical inguinal orchiectomy in 2021. The biopsy of the tissue noted TS at the time of surgery. CT scan of the chest, abdomen, and pelvis was performed 2 weeks postsurgery and did not reveal any metastatic disease.

The patient proceeded to have CT scan of his abdomen and pelvis for this presentation. The scan Fig. 1 and 2 revealed a large undifferentiated mass localized throughout the abdomen and pelvis (transverse dimensions: 25.4 × 22.8 cm). The CT scan in Fig. 1 also demonstrated left kidney displacement and encasement of the abdominal aorta, visceral branches, and inferior vena cava. There is also displacement of the small and large bowel loops in the upper abdomen and this mass extends into the central pelvis. Fig. 2 also highlights left sided hydronephrosis with dilation of the renal pelvis up to 27 mm. The scan also noted the patient to have mild splenomegaly along with hepatomegaly with multiple solid lesions as noted in Fig. 3 throughout both hepatic lobes.

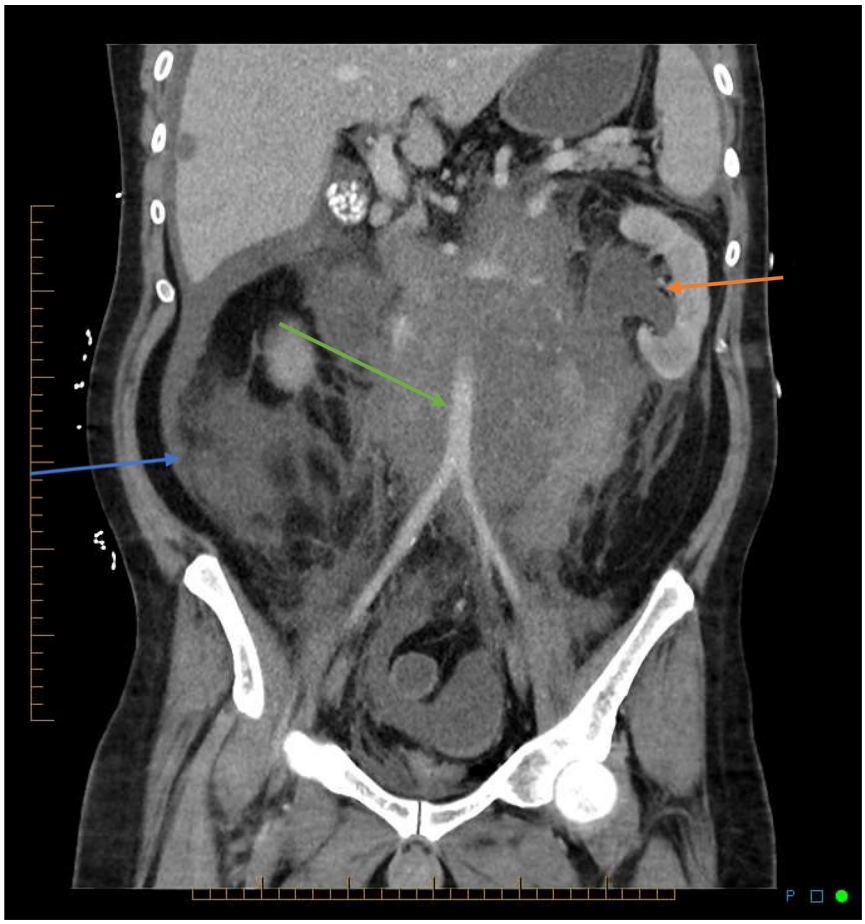

Fig. 2 – Coronal slice of the abdomen noting same mass with significant displacement of the bowels (blue arrow). There is evidence of encasement of abdominal aorta (green arrow). Mass effect on the left kidney causing moderate size hydronephrosis (orange arrow).

The patient had a presumed diagnosis of metastatic seminoma of his testicular cancer and was admitted under the oncology team. The differential diagnosis of lymphoma was considered in this patient as well. The patient proceeded to have a biopsy of this mass whilst an inpatient. The biopsy results noted sheets of polygonal cells with substantial clear cytoplasm and vesicular nuclei, with dispersed lymphocyte-rich septa. Immunohistochemistry revealed that the tumor cells are positive for PLAP, OCT3/4, and CD117 and negative for SOX10. Hence, this histologic evaluation was deemed to be consistent with the diagnosis of metastatic seminoma for our patient. Our patient proceeded to have further staging scans which did not reveal any metastatic depositions to the chest, head, and neck.

The current oncologic diagnosis of this patient is stage IIIc seminoma. The oncologic history is pure seminoma PT1bNx with left orchiectomy in 2021. The tumor markers showed alpha-fetoprotein (AFP) at 4.4, Lactate dehydrogenase (LDH) at 1230 and beta-human chorionic gonadotropin (β-hCG) at 38. The patient has been currently scheduled for 4 cycles of chemotherapy and is currently on bleomycin, etoposide, and platinum (BEP) therapy.

Discussion

Testicular seminoma (TS) is a germinal cell tumor in the testicle affecting the germinal epithelium of the seminiferous tubules [3]. This conditions represents half of all testicular germ cell tumors and is the most common malignancy for men between 15 and 35 years [4]. Although a malignant neoplasm, testicular seminoma is one of the most curable cancers with a survival rate above 95% with early detection. However, delayed diagnosis or poor patient compliance for patients with TS increases the likelihood of metastasis, and thus results in poorer patient outcome [5]. The most common sites of metastases are the lungs (61.9%), followed by distant lymph nodes (36.2%), liver (15.2%), bone (6.7%), and brain (6.4%). Abdominal metastasis can also occur in patients with TS, although a rare occurrence in less than 1% of patients with pure seminomas [4]. Intra-abdominal testicular tumors can grow to extraordinary sizes before garnering medical attention. In the majority of reported cases in the literature, abdominal metastases in TS were associated with natural progression of the disease [6,7]. Metastasis to the GI tract typically

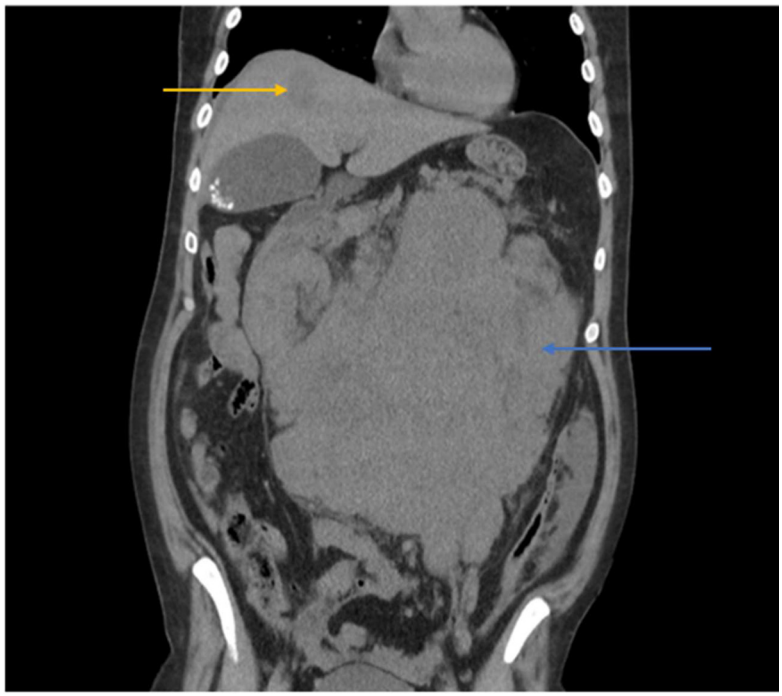

Fig. 3 – Lesion is noted within the liver (orange arrow). This again demonstrates the large conglomerate mass within the abdomen (blue arrow) and significant displacement of the abdominal structures.

occurs via the retroperitoneal lymph nodes [8]. TS with abdominal metastasis have also been reported in autopsies, and less commonly as a clinical manifestation of the disease [7]. Although chemotherapy has demonstrated success in treating metastatic seminoma, patients with abdominal metastasis are considered higher risk and are usually associated with poor outcomes [9]. The response rate in this population is approximately 60% [6,10]. Hence, this highlights the significance in this population of TS patients to comply with attending regular appointments to assess the progression of this disease.

Herein, we present a unique case of a 45-year-old male patient presenting with acute abdominal pain and abdominal distention. Abdominal distension is a common presentation to the emergency department and has a wide range of differentials [9]. This patient had a left orchidectomy in 2021 and was noted to miss most of his follow-up appointments. The CT identified a significantly large abdominal mass and the biopsy report confirmed metastatic testicular seminoma. This patient is currently on active chemotherapy with bleomycin, cisplatin, and etoposide.

Lymphoma is another differential diagnosis to consider in this patient's case. Lymphoma can be frequently noted in abdominal structures and can be involved in both nodal and extra-nodal diseases [1]. In this patient, multinodular type of lymphoma can be considered to form the large conglomerate mass in the abdomen. The patient also noted to have splenomegaly and hepatomegaly with multiple scattered lesions within the liver. This raises the suspicion for lymphoma in this patient. A lymphatic mass on a CT scan usually presents as a uniform density lesion with homogeneous enhancement [2]. However, the large conglomerate mass in this patient had heterogeneous enhancement, thus making this diagnosis less likely.

This patient had a left orchiectomy in 2021 and was noted to miss most of his follow-up appointments. The follow-up CT scans of the chest, abdomen, and pelvis 2 weeks postsurgery did not reveal any metastatic disease. This patient was classed as stage I seminoma at the time of the orchidectomy. The Princess Margaret Cancer Centre recommendations for stage I seminoma include 6-monthly CT scan of the abdomen and pelvis for the first 3 years [10]. Hereafter, CT scans should be performed every 1 to 2 years. Patients should be followed-up for a minimum of 5 years post cancer treatment. The risk of relapse can be up to 20% within this 5-year period. Ninety-two percent of the relapses occur within the first 3 years, and therefore emphasizes the importance of consistent patient follow-up. A major concern from both patients and medical professionals is the risk of radiation-induced malignancy. The abdominal-pelvic CT exposes patients between 10 and 20 mSV of radiation [11,12], with an estimated 1 in 1000 risk of inducing malignancy for every 10 mSV [13]. It is important for medical professionals to discuss of the risks versus benefits of ongoing surveillance with CT scans to TS patients.

Conclusion

Testicular seminoma is a common malignancy amongst young men between the ages of 15 and 45 years old [2]. This patient presented to the emergency department with a large conglomerate mass within the abdomen and was diagnosed with metastatic testicular seminoma. The differential diagno-

sis of lymphoma was considered. The patient did not attend any follow-up appointments post-orchidectomy, likely resulting in abdominal metastasis of testicular seminoma. This highlights the importance of ongoing surveillance of seminoma patients.

Patient consent

Patient has provided written, informed consent for this publication.

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