Case Report

Intra-abdominal seminoma found incidentally during trauma workup in a man with bilateral cryptorchidism

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Abstract

Bilateral cryptorchidism is a rare occurrence and seminoma is the most common germ cell tumor found in undescended testes when they occur. We present the case of a patient with bilateral cryptorchidism who presented to our trauma center after a motor vehicle collision and was found incidentally to have a 17-cm intra-abdominal mass. The mass was subsequently biopsied and proven to be seminoma. The patient completed three cycles of bleomycin/etoposide/cisplatin chemotherapy and successfully underwent a postchemo retroperitoneal lymph node dissection with no viable residual tumor or positive lymph nodes found in the surgical specimen. He also had an orchiopexy of the contralateral testicle. The patient recovered fully and has been found to be recurrence-free four months postoperatively. We highlight the importance of cisplatin-based chemotherapy and extensive tumor resection as the mainstay of initial cancer control.

Key Words: Cryptorchidism, incidental finding, seminoma, testicular cancer, trauma

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INTRODUCTION

Cryptorchidism is an uncommon congenital anomaly, occurring in < 5% of full-term males; and bilateral cryptorchidism is rare.[1] Failure of bilateral testicular descent carries a 40-fold relative risk of malignant transformation and the most common malignancy of undescended testis, especially intra-abdominal testis, is seminoma.[2,3] In addition to malignancy, intra-abdominal testes can also be complicated by hemorrhage, torsion, and infertility later in life. Orchidopexy is usually performed if the testes do not spontaneously descend by a year of age. Due to this preventative measure, the incidence of tumor from intra-abdominal testes has significantly decreased in the past decades. We report the case of a patient with unknown cryptorchidism and incidental intra-abdominal testicular tumor found during trauma workup post-motor vehicle collision (MVC).

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CASE REPORT

A 32-year-old male patient presented to the trauma bay following MVC, complaining of abdominal pain. Physical examination and subsequent imaging revealed a 12.9 cm × 16.9 cm × 16.6 cm abdominal mass and an empty scrotal sac. The right hemiscrotum was atrophic on physical examination, and ultrasonography revealed the left testicle to be in the inguinal canal. The patient denied any symptoms prior to the MVC, including pain, hematuria, weight loss, fatigue, etc., He and his wife had been trying unsuccessfully to achieve pregnancy for 2 years. He had no significant past medical, surgical, or family history, smoked 1 pack of cigarettes/month, and worked mainly as a laborer.

A biopsy of the mass showed malignant germ cells, consistent with seminoma. Staining showed the mass to be positive for octamer-binding transcription factor-4, CD117, cytoskeletal (CK7), and CK818. Three courses of bleomycin, etoposide, and cisplatin (BEP) were given at 21-day intervals, which were well tolerated, and the regimen decreased the size of the mass to 6.1 cm × 9.9 cm × 9.2 cm [Figure 1]. Immediately prior to BEP therapy, beta-human chorionic gonadotropin (beta-hCG) was 29 (normal: 0-5 mIU/mL) and alpha fetoprotein (AFP) 5.4 (normal: 0.6-6.0 ng/mL). Postchemo markers included a beta-hCG < 1 and AFP 4.9. Lactate dehydrogenase (LDH) was within normal range pre- and post-chemo. The patient was counseled about sperm banking prior to chemotherapy.

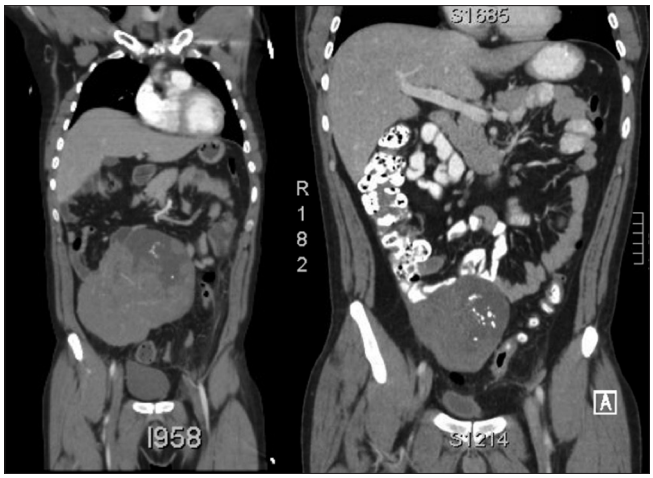

Figure 1: Pre- and post-chemotherapy computed tomography scans

In January 2014, the patient underwent exploratory laparotomy for resection of the mass, with bilateral-template postchemotherapy retroperitoneal lymph node dissection (PC-RPLND) and left orchidopexy. The patient was first placed in dorsal lithotomy position for cystoscopy and bilateral insertion of ureteral catheters to help identify and protect the ureters. A midline incision was made and upon entering the abdomen, the right lower quadrant mass was immediately appreciated [Figure 2]. Because of its size and location, a surgical oncologist was present to help mobilize the omentum and excise the mass off the right iliac vessels. There was no hydronephrosis or right ureteral involvement. The appearance of the tumor was consistent with an intra-abdominal testicle. The spermatic cord structures entering the mass were dissected caudal to cephalad, until the gonadal vein was seen inserting into the vena cava [Figure 3]. At the insertion point, the gonadal vein was ligated and transected, and the mass was passed off the field.

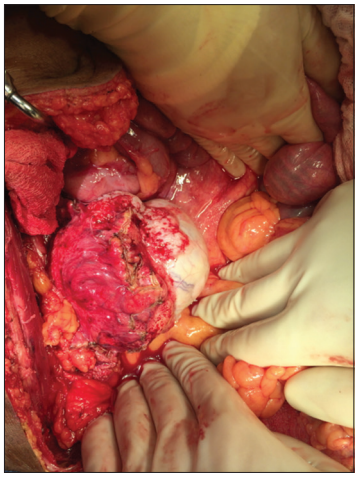

Figure 2: Intra-abdominal mass

After mobilizing the colon, the split and roll technique was utilized to carefully remove lymphatic tissue from the vena cava within the margins of the bilateral-template.[4] Lumbar vessels were secured with silk ligatures and clips. Paracaval, precaval, interaortocaval, preaortic, and para-aortic lymph nodes were sent for pathology. Attention was then turned to the left orchiopexy, which proceeded without complications.

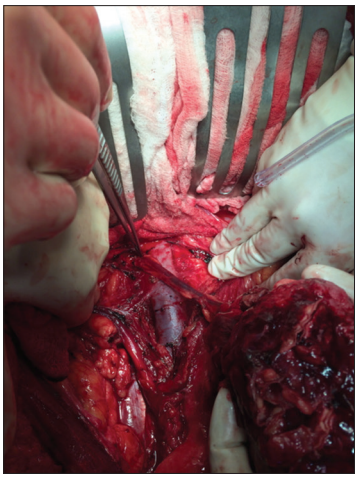

Figure 3: Mass with right gonadal vein

Final pathology of the mass and lymph nodes did not show any viable residual tumor or metastatic disease. The patient was discharged home on postoperative day 5 without any postoperative complications. Four months following his surgery, the patient's scrotal ultrasound, repeat serum tumor markers, and chest X-ray are all within normal limits.

DISCUSSION

Nonpalpable testis may be intra-abdominal, inguinal, absent, or atrophic, with intra-abdominal testes having the highest risk of malignant transformation. Histologic data suggests that the gonocytes in an undescended testis fail to develop normally, and these abnormal cells may be present as early as infancy. Tumor pathologies have shown persistently undescended testes are more

likely to develop into a seminoma (74%), versus nonseminoma in scrotal testes (63%).[2] Men with unilateral cryptorchidism are 6 times more likely to develop testicular cancer, especially if untreated before puberty. Bilateral cryptorchidism carries a 40-fold increased risk of malignancy.[3] Furthermore, men with a history of testicular cancer have a 12-fold increased risk of germ cell tumor (GCT) in the contralateral testis.

Because 10% of testicular GCTs are found in men with a history of cryptorchidism, early detection of undescended testes and treatment with orchidopexy are keys to cancer prevention by facilitating early diagnosis of a testicular mass. While testicular-self-examination is an important measure, other factors can delay diagnosis of a testicular tumor including little-to-no access to care, neglect, or delayed onset of symptoms. Once diagnosed, orchidopexy optimizes testicular function, and reduces the risk of torsion, hernia, or progression to malignancy. A 2007 meta-analysis by Walsh, *et al.*, showed men who underwent orchiopexy after age 10 had a relative risk of 5.8 of developing testicular cancer, compared to those with earlier correction.[5] Because of this increased risk, for some physicians, orchiectomy becomes the preferred treatment of cryptorchid testes discovered between puberty to 50 years of age.

Upon malignant transformation of an intra-abdominal testis, the most common presentation is a painless mass. 15% of pure seminomas have already metastasized at diagnosis, presenting with palpable masses, abdominal and flank pain, lower extremity swelling, dyspnea, chest pain, cough, or hemoptysis.[6] Elevated serum tumor markers can also have an effect: 2% of men may present with gynecomastia from elevated serum beta-hCG, and 66% may complain of infertility. Seminomas can cause an elevated LDH and beta-hCG, but do not produce AFP. In this patient, his AFP was within normal range consistent with the original biopsy showing pure seminoma. Serum tumor markers are also useful in following disease progression. As was seen in this patient, levels of LDH, AFP, beta-hCG would be expected to decrease with chemotherapy and after orchiectomy. GCTs tend to be very sensitive to cisplastin-based chemotherapy, which is very useful in metastatic disease.

Because undescended testes are typically diagnosed early in life, it has become rare to see an intra-abdominal testicular malignancy of such a large size. This case report highlights the fact that a combination of treatment modalities, including chemotherapy and resection of the mass with RPLND, can be effective in initial GCT management. Further surveillance of this patient's remaining testis post-orchiopexy is necessary to ensure early detection of potential malignancy.

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