

## SEMINOMA COMPLICATING ECTOPIC ABDOMINAL TESTIS

A.A. YAKUBU, A.Z. MOHAMMED, S.T. EDINO AND A.T. ATANDA

*Departments of Surgery and Pathology, Aminu Kano Teaching Hospital, Kano, Nigeria*

### INTRODUCTION

Germ cell tumors of the testis are the most common solid tumors in men between 15 and 34 years<sup>1</sup>. The incidence varies according to geographical area and race, and is reported to be highest in Scandinavians and lowest in black Africans and Asians<sup>2</sup>. Seminomas account for about one half of all testicular germ cell tumors. An increased risk of occurrence is associated with cryptorchidism, testicular dysgenesis, genetic factors, human immunodeficiency virus (HIV) infection and in-utero exposure to diethylstilboestrol<sup>1-4</sup>. They are also frequently preceded by a spectrum of preneoplastic changes within the seminiferous tubules referred to as intratubular germ cell neoplasia<sup>5,1</sup>.

In cases of uncorrected cryptorchidism seminoma may develop in the ectopic location, the risk being greater with abdominal testis<sup>1</sup>. The present report describes such a case managed at our centre.

### CASE REPORT

A 30-year-old father of three was referred to the surgical outpatient clinic of Aminu Kano Teaching Hospital, Kano, Nigeria, with a 7-month history of progressive left-sided abdominal swelling. The swelling was not preceded by trauma to the site and had continued to increase from the left flank extending towards the midline. There was an associated constant dull ache at the site with minimal relief from analgesics. Constitutional symptoms including intermittent fever, anorexia and some weight loss were also noticed, but he had no cough, bone pains, jaundice or urinary symptoms. The past medical history revealed a history of right-sided orchidectomy for torsion at the age of 16 years. Prior to the onset of the present illness he had experienced a normal sexual relationship with his spouse.

Physical examination revealed an ill-looking young man who was afebrile, not in obvious

distress, but pale. The cardiovascular and respiratory systems were unremarkable. The abdomen was distended by a firm, irregular left-sided retroperitoneal mass with a nodular surface. It measured about 16 x 15 cm extending from the left hypochondrium and flank to the right of the midline. No testicles were found in the scrotum or groin areas. The peripheral lymph nodes were not enlarged.

Laboratory investigations revealed hemoglobin of 10.3g/dL, a platelet count of  $2.6 \times 10^9$  /L and a white blood cell count of  $9.4 \times 10^9$  /L. The ESR was raised (127mm/hr), while serum urea, electrolytes, creatinine and tests of liver function and blood clotting profile were all normal. Fine-needle aspiration cytology (FNAC) of the mass revealed sheets of polygonal malignant cells in a lace-like background which are features consistent with a seminoma.

Abdominal ultrasound scan demonstrated normal appearing kidneys, even though the left was displaced downwards and medially by the mass which had a mixed echogenic pattern. Some of the para-aortic and retroperitoneal lymph nodes were enlarged. A chest X-ray showed slight cardiac enlargement but with clear lung fields. Unfortunately, the patient could not afford the cost of computerized tomography (CT) imaging of the abdomen and pelvis.

Radioimmunoassay for serum tumor markers showed mildly elevated  $\beta$ -human chorionic gonadotropin ( $\beta$ -HCG) and lactate dehydrogenase (LDH) levels with a normal alpha-fetoprotein (AFP) concentration.

The patient was subjected to an exploratory laparotomy, where a retroperitoneal mass of mixed texture was found. There was displacement of the pancreas and left kidney by the mass. The mass was mobilized and debulked.

Histochemical stains such as Periodic Acid Schiff demonstrated glycogen in the tumor. Histopathological evaluation of the excised specimen demonstrated a malignant neoplasm

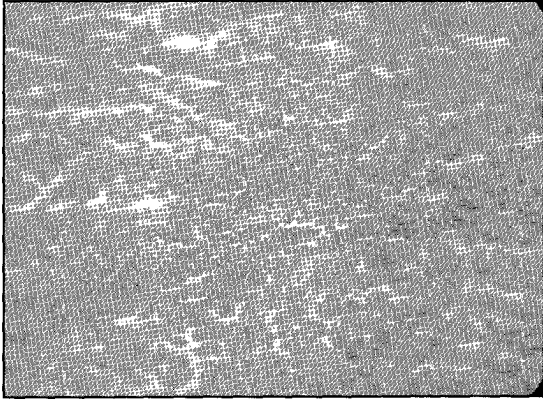


Fig. 1: Seminoma showing sheets of closely packed polyhedral cells with clear cytoplasm. The nuclei are round to ovoid with prominent nucleoli. Note the interstitial lymphocytic infiltrate. (H&E, x 100)

characterized by sheets of uniform polyhedral cells with clear cytoplasm, central nuclei and prominent nucleoli demarcated into lobules by fibrous septae infiltrated with lymphocytes (Fig. 1). Isolated foci of syncytiotrophoblastic giant cells were also observed in some sections of the tumor.

The patient's postoperative recovery was satisfactory, and subsequently he underwent chemotherapy using cisplatin, etoposide and bleomycin with successful induction of remission. The elevated  $\beta$ -HCG and LDH levels returned to normal, and post-chemotherapy abdominal ultrasound imaging demonstrated a residual 3.5 cm mass in the retroperitoneum. The patient was later discharged home and followed at the surgical outpatient clinic. Unfortunately he was lost to follow up 6 months after the diagnosis of his condition.

## DISCUSSION

In developing countries where many babies are delivered at home, and neonatal examination for congenital anomalies may not be routinely performed, occult abnormalities such as cryptorchidism can pass unnoticed until much later in life. Although testicular cancer has been shown to be rare in blacks, the risk of occurrence is remarkably increased when the testis is in an ectopic location such as the abdominal cavity<sup>1,2,4,6</sup>. To what extent this risk is reduced by orchidopexy is unclear, but it is generally believed to confer some protective effect when undertaken prior to puberty<sup>2</sup>. However, cancer has also been shown to develop

in patients who had orchidopexy done in childhood<sup>7</sup>.

Patients with retroperitoneal germ cell tumors usually present with back pain or palpable abdominal mass<sup>2,8</sup>. In our patient, the pain and abdominal mass were towards the left hypochondrium and flank corresponding to the situation of the undescended testicle. Cryptorchidism is a risk factor for torsion; this complication occurred in the right normally descended testis of this patient as a teenager and was treated by orchidectomy. It is unfortunate that at that time exploration was not done to determine the situation of the right testicle. Unlike some reports which suggest a frequent association with urogenital malformations<sup>9</sup>, none was detected in our patient.

Estimation of serum concentrations of AFP,  $\beta$ -HCG and LDH are essential in the clinical evaluation of seminoma and during follow up, for residual disease or relapse.  $\beta$ -HCG is particularly important in patients with metastatic disease while LDH, although less specific, may be increased in up to 80% of patients with seminoma<sup>2,8</sup>. FNAC is now widely applied for the diagnosis of seminoma, and with experience a high diagnostic accuracy can be obtained<sup>10</sup>.

Histologic evaluation of the biopsy material is required to confirm the diagnosis and exclude the co-existence of other germ cell tumors. This may require a thorough sampling of the submitted biopsy material. In addition to the distinctive morphological features of seminoma, the cells exhibit histochemical staining for placental alkaline phosphatase (PLAP)<sup>11</sup>, however, immunohistochemical positivity for PLAP does not prove that the tumor is a seminoma; embryonal carcinoma (++) and choriocarcinoma (++) and even yolk sac tumor (+) stain positively. To rule out other types of germ cell tumors, staining for AFP and Ber-H2 (CD30) should be negative<sup>12</sup>.

CT and magnetic resonance imaging of the abdomen and pelvis are reliable methods of diagnosis, which can also be applied to the chest or head where metastatic disease is suspected. However our patient could not afford these tests.

Radiotherapy alone is the treatment of choice for patients with small-volume retroperitoneal seminoma (less than 5 cm abdominal mass) and cure can be achieved with this mo-

dality<sup>8</sup>. With larger-volume disease as in this case (greater than 10 cm abdominal mass), primary cisplatin-based chemotherapy is the best option yielding high cure rates<sup>8</sup>. Aggressive tumor debulking is not usually warranted, hence only partial excision in order to prevent tumor lysis syndrome was undertaken in our patient. Remission was also successfully achieved with cisplatin, etoposide and bleomycin with minimal adverse effects.

A post-treatment abdominal scan revealed a 3.5cm residual mass which we assumed to be fibrous tissue since  $\beta$ -HCG and LDH levels had reverted to normal and failed to show any rise during the period of follow up. Hence, surgery was not contemplated. In spite of counseling on the need for follow up, the patient was lost to follow up 6 months after the diagnosis of his condition even though he was still in remission at the last clinic visit. We are uncertain of his present clinical condition, considering that the median time of relapse is 12 months<sup>13</sup>.

The assertion that he has fathered three children is quite puzzling and remains a mystery. On advice from the social workers, we did not attempt to investigate his fatherhood in order to avert the psychological trauma it was likely to impose on the patient and his family.

In conclusion, seminoma, a recognized complication of undescended testis, may present in adulthood as a retroperitoneal mass. It underlines the importance of neonatal examination for congenital anomalies, as orchidopexy improves the ability to observe the testis and decreases the risk of malignant transformation. An extended period of surveillance is mandatory after treatment.

#### REFERENCES

1. Epstein JI. *The lower urinary tract and male genital system*. In: Kumar V, Abbas AK, Fausto N (Eds.): *Robbins & Cotran Pathological Basis of Disease*, 7<sup>th</sup> ed., Philadelphia: WB Saunders, pp. 1023-1058, 2004.
2. Bosl GJ, Motzer RJ. Testicular germ-cell cancer. *N Engl J Med* 1997, 337:242.
3. Timmerman JM, Northfelt DW, Small EJ. Malignant germ-cell tumors in men infected with the human immunodeficiency virus: natural history and results of therapy. *J Clin Oncol* 1995, 13:1391.
4. Martin DC. Malignancy in cryptorchid testis. *Urol Clin North Am* 1982, 9:371.
5. Jacobsen GK, Henriksen OB, Von der Maase HV. Carcinoma in situ of testicular tissue adjacent to malignant germ-cell tumors: a study of 105 cases. *Cancer* 1981, 47:2660.
6. Cheng C, Chan PS. Cryptorchidism with a large abdominal mass: a challenge. *Br J Urol* 1993, 72:946.
7. Magoha GA. Testicular cancer in Nigerians. *East Afr Med J* 1995, 72:554.
8. Nichols CR, Fox EP. Extragonadal and pediatric germ-cell tumors. *Hematol Oncol Clin North Am* 1991, 5:1189.
9. Shah MS, Patel LN, Shah RR, Bhatt C, Madi J. Seminoma in abdominal ectopic testis. *Ind J Radiol Imag* 2004, 14:299.
10. McGoogan E. *Testis and its adnexae*. In: Young JA (Ed.): *Fine Needle Aspiration Cytopathology*. Oxford: Blackwell Scientific Publications, pp. 216-232, 1993.
11. Manivel JC, Jessurun J, Wick MR, Dehner LP. Placental alkaline phosphatase immunoreactivity in testicular germ-cell neoplasms. *Am J Surg Pathol* 1987, 11:21.
12. Rosai J. *Male reproductive system*. In: Rosai J, Ackerman LV (Eds): *Surgical Pathology*, 8<sup>th</sup> ed., Vol. II, New York: Mosby Publishers, pp. 1221-1318, 1996.
13. Warde P, Gospodarowicz MK, Panzarella T et al. Stage I testicular seminoma: results of adjuvant irradiation and surveillance. *J Clin Oncol* 1995, 13:2255.

Corresponding author:

Dr. A.A. Yakubu  
Department of Surgery  
Aminu Kano Teaching Hospital  
PMB 3452  
Kano  
Nigeria

[yakubuaa@yahoo.co.uk](mailto:yakubuaa@yahoo.co.uk)