Seminoma Arising from Intra-abdominal Cryptorchidism with Ipsilateral Renal Agenesis: A Rare Association

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Abstract Unilateral renal agenesis is usually asymptomatic and may be found incidentally during examination for other causes. The incidence of testicular tumors arising from cryptorchidism is well established, but if it is coexistent with ipsilateral renal agenesis, the diagnosis and management becomes a challenge. Only three cases of such association have been reported in literature so far. This association has to be kept in mind when dealing with a case of testicular tumor arising from abdominal cryptorchidism, so that the function of the other kidney can be assessed before surgery, and protection given to it in the event of using radiotherapy in an adjuvant setting.

Keywords Seminoma · Intra-abdominal cryptorchidism · Unilateral renal agenesis

Case Report

A 43-year-old man presented with the history of a progressively increasing lump in the left side of the abdomen for 4 months. On examination a 20×15 cm large, hard, intra-abdominal lump was found involving the left hypochondrium, lumbar, and iliac fossa. The left testis was absent and the scrotum was poorly developed on the left side.

Ultrasonography of the whole abdomen revealed a large, heterogeneous mass measuring 16×12 cm in the region of the left kidney. The right kidney and the ureter were normal. Contrast-enhanced computerized tomography (CECT) of

the whole abdomen revealed a large variegated mass in the left lumbar region. No normal renal parenchyma and ureter could be identified. The right kidney and the ureter were normal. CECT findings were suggestive of a renal neoplasm, possibly renal cell carcinoma (Fig. 1a).

Keeping in mind the possibility of the neoplasm arising from an abdominal cryptorchidism, tumor markers were done. Serum LDH (939 units/l) and β -HCG (10.43 mIU/ml) were raised, while serum AFP (3.25 ng/ml) was within normal limits. Thus, the diagnosis was further confounded, as the normal renal parenchyma and ureter were not visualized at all in either the normal or any ectopic position. A decision was taken to do a radionuclide renogram using Tc-99 m-DTPA. This confirmed the absence of the left kidney and ureter (Fig. 1b). Cystoscopy findings also failed to reveal the ureteric orifice on the left side further confirming absence of the left ureter.

An exploratory laparotomy was performed. A huge mass was found arising from the retroperitoneum and adherent to surrounding structures (sigmoid colon and mesocolon). Instead of a definite vascular pedicle, leashes of vessels were seen all around the mass. The left kidney and ureter were not visualized separately. En bloc resection of the mass was done. No lymph nodes were seen.

The resected specimen was 15.5 cm at its longest axis (Fig. 2a), with smooth surface and areas of necrosis (Fig. 2b). Histopathological examination gave the impression of a malignant tumor (seminoma) (Fig. 2c). The immunohistochemistry report revealed tumor cells expressing c-kit (Fig. 2d) and PLAP. It was negative for CD 20 and CD 30. The final impression was that of testicular seminoma (pT2 pN0M0S2), stage IS.

Postoperatively, the patient received radiotherapy, but as he had a solitary right kidney, it had to be shielded before abdominal irradiation. The patient has been on follow-up for 1 year, with no evidence of recurrence and tumor markers are within normal limits.

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Fig. 1 (a) CT scan showing huge retroperitoneal mass on the left side (arrow). Right kidney appears normal. (b) Radionuclide renogram using Tc-99 m-DTPA showing normally perfused right kidney. Left kidney not visualized

Discussion

Unilateral renal agenesis (URA) is usually asymptomatic and may be found incidentally during examination for other congenital malformations, enuresis, abdominal pain, or clinical features of renal failure. URA was discovered incidentally in this case during the process of investigating an intra-abdominal lump. Nearly half of the patients with URA have associated anomalies such as vesicoureteric reflux, ureterovesical junction obstructions, pelviureteric junction obstructions, and concurrent ureterovesical and pelviureteric junction obstructions in the solitary kidney [1]. None of these anomalies were found in this case.

Intravenous urography or radionuclide scan using DTPA or DMSA may show a single kidney with its pelvicalyceal system, as found in this case. The trigone is usually deformed with the ureteral orifice missing on the involved side, which may be confirmed on cystoscopy.

The incidence of URA has variably been reported to be between 1/500 and 1/3200 live births, with a male predominance [2]. The left kidney is more commonly absent in URA as compared to the right side, as was the finding in our case [3]. URA may be an isolated malformation or may be associated with anomalies of the cardiac, genital, skeletal, gastrointestinal, and respiratory systems [4]. In our case, there were no other anomalies in other systems other than the abdominal left testis which had developed a seminoma.

Although the overall incidence of cryptorchidism is low (<1 %), a history of an undescended testis is present in 3.5–

Fig. 2 (a) Macroscopic view of the excised retroperitoneal mass. (b) Cross-section reveals smooth surface. (c) Hematoxylin eosin-stained high-power microscopic view suggestive of seminoma. (d) Seminoma tumor cells expressing c-kit

14.5 % of patients with testicular tumors [5]. Association of seminoma arising from abdominal cryptorchidism with agenesis of ipsilateral kidney and ureter is extremely rare, and to our knowledge, only three cases have been reported so far in literature [6–8]. This is the fourth report of this rare association.

Treatment of intra-abdominal seminoma is dependent on its staging. Stage IS is quite uncommon, and patients are treated with radiation to the infradiaphragmatic area, including the para-aortic nodes with or without irradiation to the ipsilateral ilioinguinal lymph nodes. Our patient also received the same, but treatment had to be cautiously planned in view of the presence of the solitary right kidney.

Conclusion

This case portrays the rare association between seminomas arising from abdominal cryptorchidism with agenesis of the ipsilateral kidney and ureter. This association has to be kept in mind when dealing with a case of seminoma arising from abdominal cryptorchidism, so that the function of the other kidney can be assessed adequately before surgery, and due protection be given to the solitary kidney in the event of using radiotherapy in an adjuvant setting.

Conflicting Interest None

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