CASE REPORT

Retroperitoneal Teratoma with Secondary Infection

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ABSTRACT

Teratomas are germ cell tumors arising from the embryonic germ layers. Since they originate from the germ cells, they can be found in the gonadal, sacrococcygeal, mediastinal, intracranial, retroperitoneal, and cervical regions. In this case report, a 4-year boy, brought to the hospital due to abdominal pain and fever, was diagnosed as a large and infected peritoneal teratoma by contrast-enhanced abdominal computed tomography (CT) along with abdominal CT and operative findings.

Key Words: *Computed tomography, Retroperitoneum, Teratoma.*

INTRODUCTION

Histologically, germ cell tumors are classified as yolk sac tumors, embryonal carcinomas, dysgerminomas, teratomas, choriocarcinomas, and mixed tumors. Germ cell tumors constitute approximately 1% of all childhood malignancies and have a low incidence in children under the age of 15 years (2.4 in one million).[1] The most common form of germ cell tumors is teratoma, originating from two or more germ layers (ectoderm, mesoderm and endoderm).[2,3] Retroperitoneal teratomas are rare and constitute only 4% of all teratomas.[4]

Here, we present the computed tomography (CT) and clinical findings of a pediatric patient with a large, retroperitoneal mature teratoma that had a secondary infection and was removed surgically.

CASE REPORT

A 4-year child was brought to the hospital with complaints of abdominal pain and fever. On physical examination, palpable, hard mass was present in the left upper and middle quadrant of the abdomen. In the laboratory tests, C-reactive protein (CRP) level was 19 mg/L and leukocyte count was 14,500 cells/mm^3. Other laboratory tests revealed no abnormal results. Ultrasound examination revealed a solid mass in the left upper and middle quadrant. The mass had hyperechoic foci and was compressing the left kidney. The patient was hospitalised with a diagnosis of abdominal mass, and treatment was initiated. In abdominal CT with intravenous contrast, a mass measuring 110x101x76 cm was observed on the left side of the midline in the retroperitoneal area. The mass contained fat and coarse calcifications and air densities evaluated as secondary to infection and solid components showing contrast media uptake while pushing the left kidney posteriorly (Figures 1a and 1b). The fat planes between the mass and the left kidney, the left renal vein, and the spleen were preserved, and the relation with the intestinal loops could not be clearly assessed. Consent form was obtained from the patient's family and upon these clinical and radiological findings, he was subjected to surgery. Consistent with the radiological findings, a solid mass was found intraoperatively in the retroperitoneal region located on mesentery of colon and small intestine, forming severe adhesions with the latter, extending towards iliac region; and the mass included a bone and hair.

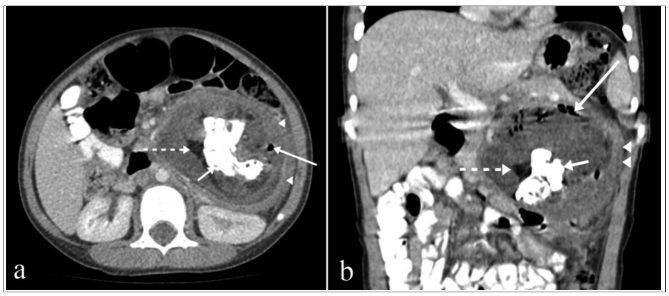

Figure 1: (a) Contrast-enhanced CT images of the axial plane, **(b)** Coronal reformat showed a mass in the retroperitoneal area at the left of the abdominal midline pushing the left kidney to the posterior and containing fat (cut arrows), coarse calcifications (short arrows), air densities (long arrows) and solid components (arrow heads) displaying contrast medium uptake (Infected teratoma).

The mass was totally excised and measured about 11 cm in diameter. The specimen was sent to the pathology laboratory and histopathological findings were compatible with infected mature teratoma. The patient regained stable condition and was discharged on the 11th postoperative day.

DISCUSSION

Teratomas are the most common type of germ cell tumors and are classified into three distinct groups: mature (benign), immature (malignant), and mono-

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dermal.[5] Teratomas may exhibit gonadal and extra-gonadal localisation. Extra-gonadal teratomas are more common in newborns and infants, while gonadal teratomas are more frequent in older children and adults.[2] Retroperitoneal teratomas are rare tumors, accounting for only 4% of all teratomas.[4] As there is a possibility of malignancy in one out of four cases, surgical resection should be performed in patients with retroperitoneal teratomas.[6] Due to their localisation, retroperitoneal teratomas may not be diagnosed until they reach considerable size. These tumors are usually found close to the left side of midline in the abdomen, neighboring the upper pole of the left kidney. Although the majority of patients with retroperitoneal teratomas are asymptomatic, some patients may manifest symptoms, such as abdominal pain, as in this case.[2]

Care should be taken during surgical excision of retroperitoneal teratomas, since they may distort adjacent vascular structures, including renal vascular structures.[7-9] In this case, the mass caused compression of the left kidney. However, fat planes between the mass and the renal vascular structures could be distinguished in abdominal CT scan. Adrenal myelolipomas should also be kept in mind in the differential diagnosis of retroperitoneal teratomas due to their close proximity to the kidneys. Yumura *et al*. have made several inferences on differentiating retroperitoneal teratomas from adrenal myelolipomas by radiographic findings.

According to literature reviews of these authors, coarse calcifications are seen in retroperitoneal teratomas, while punctate calcifications predominate in myelolipomas. Solid components exhibit contrast material uptake in retroperitoneal teratomas. However, this phenomenon is not seen in myelolipomas. In addition, myelolipomas often contain more than 80% fat; whereas, this rate rarely exceeds 50% in retroperitoneal teratomas.[10] In the present case, coarse calcifications and solid areas with contrast uptake were observed in the mass and the fat content was less than 50% by volume.

Furthermore, abdominal CT revealed air images which are unusual for teratomas. This condition, which is thought to be due to the secondary infection and which explains the fever is a rare finding in teratomas that can be secondary rupture or to malignant transformation. Hasanzadeh *et al*. reported that mature teratoma was infected only in seven cases in British literature.[11] In this patient, histopathology report of the mass revealed that apart from the fat and calcification, purulent material was present in the mass, confirming the infection and that the mass was infected with Escherichia coli.

In conclusion, modern imaging techniques such as CT and magnetic resonance imaging (MRI) can be used in diagnosis of retroperitoneal teratomas. Although the majority of retroperitoneal teratomas are asymptomatic and rarely seen, they are clinically important because they can undergo malignant transformation, bear a risk for rupture and as in our case, become infected. The definitive treatment of these tumors is surgical excision.

REFERENCES

1. Valenzuela-Ramos MC, Mendizabal-Mendez AL, Rios-Contreras CA, Rodriguez-Montes CE. Pediatric gastric teratoma. *J Radiol Case Rep* 2010; **4**:6-13.
2. Mathur P, Lopez-Viego MA, Howell M. Giant primary retroperitoneal teratoma in an adult: A case report. *Case Rep Med* 2010; **2010**:650424.
3. Sasi W, Ricchetti GA, Parvanta L, Carpenter R. Giant mature primary retroperitoneal teratoma in a young adult: Report of a rare case and literatüre review. *Case Rep Surg* 2014; **2014**: 930538.
4. Azizkhan RG, Caty MG. Teratomas in childhood. *Curr Opin in Pediatr* 1996; **8**:287-92.
5. Corapçioglu F, Ekingen G, Sarper N, Güvenç BH. Immature gastric teratoma of childhood: A case report and review of the literature. *J Pediatr Gastroenterol Nutr* 2004; **39**:292-4.
6. Leandros E, Alexakis N, Konstadoulakis M, Albanopoulos K, Dikoglou C, Bramis J. Postchemotherapy resection of a primary mature malignant retroperitoneal teratoma in an adult: Report of a case. *Surg Today* 2005; **35**:965-7.
7. Chaudhary A, Misra S, Wakhula A, Tandon RK, Wakhlu AK. Retroperitoneal teratomas in children. *Indian J Pediatr* 2006; **73**:221-3.
8. Hart J, Mazrani W, Jones N, Kiely EM, Sebire NJ, McHugh K. Upper abdominal teratomas in infants: Radiological findings and importance of vascular anatomy. *Pediatr Radiol* 2008; **38**: 750-5.
9. Jones NM, Kiely EM. Retroperitoneal teratomas-potential for surgical misadventure. *J Pediatr Surg* 2008; **43**:184-6.
10. Yumura Y, Chiba K, Urushibara M, Saito K, Hirokawa M. A case of retro peritoneal teratoma difficult to distinguish from adrenal myelolipoma. *Hinyokika Kiyo* 2000; **46**:891-4.
11. Hasanzadeh M, Tabare SH, Mirzaean S. Ovarian dermoidcyst. *Professional Med J* 2010; **17**:512-5.