Scholars Journal of Medical Case Reports
Abbreviated Key Title: Sch J Med Case Rep
ISSN 2347-9507 (Print) | ISSN 2347-6559 (Online)
Journal homepage: https://saspublishers.com

OPEN ACCESS

Radiology

Retroperitoneal Immature Cystic Teratoma: A Case Report

Outaghyame S[1*], Garmane A[1], Zouita I[1], Basraoui D[1], Jalal H[1]

[1]Radiology Department, Mother and Child Hospital, CHU Mohamed VI, Marrakech, Morocco

DOI: 10.36347/sjmcr.2023.v11i06.040 | **Received:** 02.05.2023 | **Accepted:** 06.06.2023 | **Published:** 14.06.2023

***Corresponding author:** Outaghyame Sabrine
Radiology Department, Mother and Child Hospital, CHU Mohamed VI, Marrakech, Morocco

Abstract **Case Report**

Retroperitoneal immature cystic teratoma (RCIT) is a rare disease. RCITs manifest as solid cystic masses. In pathological sections, cysts of various sizes are observed, with internal hemorrhage and necrosis. Components of all germ layer tissues are also observed, the majority of which are located in the endoderm. Because the tumor contains immature, undifferentiated tissue components, RCITs are also known as malignant teratomas. Immature teratomas grow rapidly, often invading adjacent tissues to cause severe symptoms, and spread via blood and lymphatic vessels, often resulting in glandular cancer. We report the case of an infant with RCIT, aged three months, was hospitalized due to abdominal distension with collateral venous circulation. Physical examination revealed a large abdominopelvic mass, extending from the xiphoid to the umbilical region, with abdominal tenderness. Abdominal computed tomography (CT) revealed a large right retroperitoneal mass. The mass was heterogeneous, solid-cystic, with linear and nodular calcifications, associated with fatty flares in the center, and enhanced after injection of PDC. A retroperitoneal tumour resection was then performed. During resection, the tumour was found to originate from the retroperitoneum. Pathological examination confirmed the diagnosis of grade III secretory retroperitoneal immature teratoma.

Keywords: teratoma, retroperitoneal, immature, CT scan.

INTRODUCTION

Retroperitoneal immature cystic teratoma (RCIT), also known as malignant teratoma, is composed of immature tissue during embryogenesis, the majority of which consists of neuroglia and neural tube-like structures. RCIT demonstrates pathological manifestations such as undifferentiated cells and increased cellular mitosis [1]. RCIT rarely occurs in children, accounting for less than 1% of all childhood tumors [2]. The tumor has malignant potential and recurrence is frequent. As RCIT has a high risk of transforming into a malignant teratoma, treatment modalities for RCIT are similar to those for malignant teratoma, which include surgical resection and combined treatment with chemotherapy and radiotherapy [3].

Malignant germinomas, including seminomas, dysgerminomas, embryonal carcinomas and endodermal sinus tumors, were historically referred to as malignant teratomas. However, these tumors are the result of cellular dedifferentiation in various regions during cell movement from the yolk sac to the gonads during embryonic development. Malignant germinomas are not generally classified as teratomas, as they lack any pathologically observable triploblastic structure [4]. Imaging techniques, including ultrasonography, computed tomography (CT) and magnetic resonance imaging (MRI), are necessary for the diagnosis and surgical management of teratomas [5].

OBSERVATIONS

A three-month-old infant was admitted to hospital with an abdominal mass. Physical examination revealed a large mass (10 × 7 cm), extending from the xiphoid to the umbilical region, of friable consistency, having a smooth surface, sharp borders with abdominal tenderness and collateral venous circulation; the rest of the examination was unremarkable.

Abdominal computed tomography (CT) revealed a large right retroperitoneal mass. The mass was heterogeneous, solid-cystic, measuring 7 x 10 cm; a site of linear and nodular calcifications associated with fatty flames in its center, enhanced after injection of PDC and responsible for significant dilatation of the homolateral pyelocal cavities, pushing back the large vessels (VCI, aorta). A retroperitoneal tumour resection

was then performed. On resection, the tumour was found to originate from the retroperitoneal space, confirming the diagnosis of grade III secretory retroperitoneal immature teratoma.

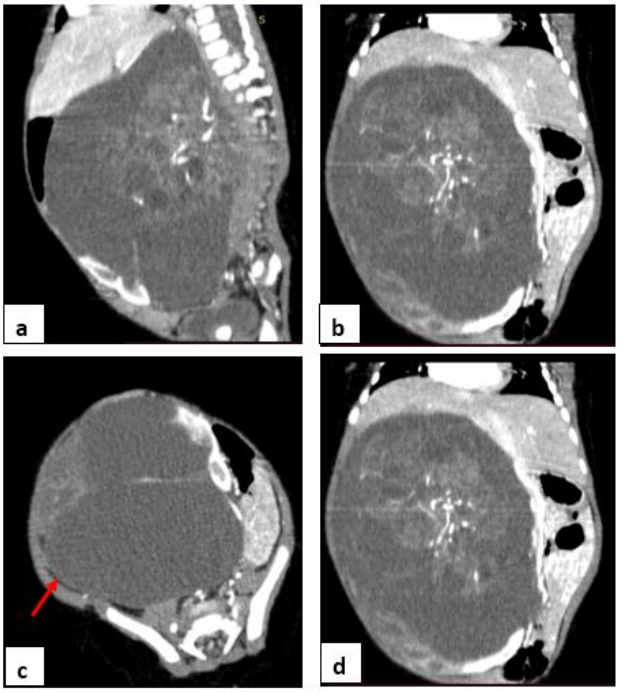

Figure 1: CT axial slices without and after PDC injection (arterial and portal time): Large mass in the right retroperitoneal space. The mass is heterogeneous, solid-cystic, with linear and nodular calcifications, associated with fatty flares at its center, enhanced after injection of PDC and responsible for significant dilatation of the homolateral pyelocalic cavities (arrow), pushing back the large vessels (VCI, aorta).

DISCUSSION

Immature teratomas contain varying amounts of neuroectodermal or blastodermal tissue and can be classified according to the amount of immature neuroglial tissue [6]. Immature teratomas have been reported mainly in the ovaries of young women, and diagnosis of these tumors relies primarily on pathological evaluation of the tumor tissue. A previous immunohistological study of immature teratoma tissue reported the presence of partial neuroendocrine differentiation of immature origin [7]. Complete resection, combined with chemotherapy, is the main method of treatment for immature teratomas [8].

Lee *et al* [9] reported an immature teratoma of the parapharyngeal space and noted that germ cell tumours often occur in infants, with the sacro-coccygeal region, gonads and mediastinum being the most common sites. According to Anilkumar *et al* [10], gastric teratomas are extremely rare, accounting for <1% of all teratomas in infants and children. In total, over 100 cases of gastric teratomas have been reported in the literature, and very few of these are of the immature variety.

Imaging helps to make the diagnosis: on MRI, RCIT shows a mixed pattern of signal intensity and enhancement, presenting as hyposignal on the T1-weighted sequence (WI) and hypersignal on T2WI, with enhancement of the tumor capsule. On CT imaging, RCIT often shows a heterogeneous density due to the presence of various well-differentiated components. Following confirmation of the diagnosis of RCIT, an early resection procedure should be performed. The tumor requires complete resection to prevent tumor recurrence from any remaining pluripotent cells.

In summary, retroperitoneal immature teratoma is rare in clinical practice and difficult to diagnose. It is also difficult to differentiate retroperitoneal immature teratoma from neurogenic retroperitoneal and yolk sac tumors, which occur mainly in the body axis.

REFERENCES

1. Aggarwal, S. K., Keshri, A., & Agarwal, P. (2013). Immature teratoma of the nose and paranasal sinuses masquerading as bilateral nasal polyposis: A unique presentation. *Journal of Postgraduate Medicine*, *59*(2), 138.
2. Ishida, M., Hotta, M., Ohta, M., Taga, T., Ohta, S., Takeuchi, Y., & Okabe, H. (2012). A case of retroperitoneal immature teratoma with nephroblastic components. *Journal of Pediatric Hematology/Oncology*, *34*(1), e22-e25.
3. Yanai, H., Matsuura, H., Kawasaki, M., Takada, Y., Tabuchi, Y., & Yoshino, T. (2002). Immature teratoma of the ovary with a minor rhabdomyosarcomatous component and fatal

rhabdomyosarcomatous metastases: the first case in a child. *International journal of gynecological pathology*, *21*(1), 82-85.

4. Grammatikopoulou, I., Kontomanolis, E. N., Chatzaki, E., Chouridou, E., Pavlidis, P., Papadopoulos, E. M., & Lambropouloux, M. (2013). Immature malignant sacrococcygeal teratoma: case report and review of the literature. *Clin Exp Obstet Gynecol*, *40*(3), 437-439.
5. Hasiotou, M., Vakaki, M., Pitsoulakis, G., Zarifi, M., Sammouti, H., Konstadinidou, C. V. V., & Koudoumnakis, E. (2004). Congenital cervical teratomas. *International journal of pediatric otorhinolaryngology*, *68*(9), 1133-1139.
6. Marina, N. M., Cushing, B., Giller, R., Cohen, L., Lauer, S. J., Ablin, A., ... & Castleberry, R. P. (1999). Complete surgical excision is effective treatment for children with immature teratomas with or without malignant elements: a Pediatric Oncology Group/Children's Cancer Group Intergroup Study. *Journal of clinical oncology*, *17*(7), 2137-2143.
7. Bogner, G., Wolfrum-Ristau, P., Schneider, W., Fischer, T., & Jacobs, V. R. (2014). Local foreign body reaction of peritoneum after rupture of cystic partially immature teratoma. *Journal of Minimally Invasive Gynecology*, *21*(5), 959-962.
8. Matsushita, H., & Tani, H. (2011). Successful treatment of infertility after fertility preservation surgery and chemotherapy for immature teratoma of the ovary: a case report and review of the literature. *Reprod Med Biol.*, *10*, 193-198.
9. Lee, D. H., Yoon, T. M., Lim, S. C., & Lee, J. K. (2014). Immature teratoma of the parapharyngeal space presenting with airway obstruction in an infant. *B-ENT*, *10*(1), 71-73.
10. Anilkumar, M. G., Jagadishkumar, K., Girish, G. N., & Sunila. (2013). Immature gastric teratoma in an infant. *Indian Journal of Surgery*, *75*, 453-455.