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Abdominal Teratoma, A Case Report and Review of Cases Reported from Saudi Arabia

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ABSTRACT

Background: teratomas is defined as germ cell tumors that derived from totipotent cells, some are entirely benign (mature) and some are malignant (immature) account for 80%, 3%, respectively.

The majority of teratomas are found in gonads (ovary, testis) followed by extra-gonadal sites (sacrococcygeal, retroperitoneal, gastric, *etc.*).

Aim of the study: this study aimed to report a rare cases of teratoma in Saudi Arabia.

Method: this study was a case of a one-year old child with abdominal teratoma, which was discovered incidentally, and on reviewing the literature we found that only two cases of extragonadal abdominal teratomas reported from Saudi Arabia and this is the third one. Data were collected from patient's medical file after approval has been taken from bioethics department and the patient's family.

Result: abdominal teratoma is rare and should be taken into consideration as one of the differential diagnosis of abdominal mass. Total excision is the mainstay of treatment.

Conclusion: Abdominal teratoma is rare and should be taken into consideration as one of the differential diagnosis of abdominal mass, it is usually benign. Total excision is the mainstay of treatment. Careful histopathological examination and close follow-up is mandatory, only two cases were reported from Saudi Arabia and our case could be the third one.

K**eywords:** abdominal teratomas, incidental finding; rarely reported from Saudi Arabia.

INTRODUCTION

Teratoma comes from two Greek words, teraton meaning (monster) and Onkoma (swelling).This name was first given by Rudolph Virchow in 1869 due to diversity of the anatomical component in the sacrococcygeal type. It arise early in embryonic cell division from totipotent cells, by definition it should contain all three germ cell layers; ectoderm, endoderm and mesoderm, however majority of pathologists do not require the presence of cells from these germinal layers, the best current definition nowadays is the one given by Willis ; "teratomas is a tumor or neoplasm formed of several foreign tissues arising in abnormal location, this is different from cases which contain recognizable organs immaturely developed within the mass, as a result of separation from the fertilized ovum early in pregnancy called fetus in feto"[1].

Some teratomas are entirely benign, some are all malignant and others may contain a mixture of benign and malignant tissues. A third group was added; where there is a histological benign tissue which has not been progressed to recognizable organ, called embryonal, its metastatic potential is uncertain [2], this is different from cases which contain recognizable organs immaturely developed within the mass, as a result of separation from the fertilized ovum in the early of pregnancy called fetus [1,2]. Benign type is the most common one and

malignant transformation may rarely occur and it has been reported to be between 1% and 12.5% for sacrococcygeal lesions[3]. The most common malignancies arising in teratomas are squamous cell carcinoma, carcinoid tumor and adenocarcinoma [4].

Teratomas commonly arise in the gonads and sacrococcygeal region, followed by the mediastinum, stomach, liver and retroperitoneal space [4].

Clinically teratomas present as a mass noticed during clinical examination or mass effect symptoms related to pressure on the adjacent structure, hematemesis, melena and secondary anemia could be the presenting features of gastric teratomas. Symptoms due to malignant invasion of the adjacent structures may also occur.

Hormonal production by teratomas is rare; cases of hypoglycemia, and precocious puberty were reported. High level of beta chorionic gonadotrophin indicates transformation into

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choriocarcinoma, while raised serum alpha-fetoproteins which is normally produced by embryonic liver cells and yolk structures suggest yolk sac carcinoma.

Routine X-ray shows calcification, bony structures which may exclude Wilms' tumor and neuroblastoma. Contrast study may be done for further evaluation and to assess the relation to the adjacent structures

In the world literature, 85 cases of teratomas were reported from Riley Children's Health, Indian University Health, Indianapolis, USA, in which 27 (32%) were boys 58 and (68%) were girls. Teratoma was arising from sacrococcygeal in 55 (64.8%) patients, gonadal in ten (11.7%), mediastinal in ten (11.7%), presacral in four (4.8%), retroperitoneal in three (3.5%) and cervical in three (3.5%)[5].

Seventeen cases of abdominal teratomas were seen and managed at Cathay General Hospital, USA between 1978 and 1993. The male to female ratio was 9-8; the range of age at diagnosis was from 2 days to 13 years.The chief complaints were palpable abdominal mass in 13 (76%) patients and abdominal distention in 7 (41%)[6].

By Medline search, few reports about teratoma in Saudi Arabia were found; five cases of abdominal teratomas; two gonadal and three extragonadal (two mesenteric, one gastric)[7-10].

One case of fetus in feto was reported [11]. All were totally resected and no recurrence was found after long term follow up[12] gonadal teratoma is the most common among all types. Conservative surgery has good outcome and staging is very important for disease prognosis. Fertility can be maintained with chemotherapeutic strategies [13].

Germ cell tumors (GCTs) in children are rare kind of neoplasm that believed to originate very early in life with mostly unknown etiology [14].

CASE REPORT

A one-year old full-term baby boy, product of non-consanguineous marriage and uncomplicated pregnancy, product of spontaneous vaginal delivery, found to have an abdominal mass by the examining physician during routine checkup and then referred to pediatric surgery for further work ups. **(Figs. 1,2).**

There were no other associated symptoms. Systemic review was unremarkable. The abdomen was soft and lax. The mass was on left hypochondrium, firm in consistency, non-tender, with regular outline. The liver was palpable (2 cm) below costal margin. Routine laboratory tests were unremarkable. Serum level of alpha-fetoprotein was normal. Abdominal plain X-ray revealed soft tissue opacity with calcification and bonny structures in the upper abdomen, ultrasound of the abdomen and pelvis revealed partially well-defined heterogeneous mass in the left hypochondrium measuring 6 x 5.1cm.

Computed tomography of abdomen with intravenous contrast showed left upper quadrant soft tissue densities with fatty tissue and calcification, consistent with mature teratomas completely separated from adjacent organs and vessels **(Figs. 3, 4).**

Complete surgical excision of the mass was done **(Fig. 5).** Bisection of the tumor showed hairy and multiple bone structures (**Fig. 6).** Post-operatively he had uneventful recovery and discharged home well three days later.

The histopathological report confirmed the diagnosis of mature teratomas with no malignant changes.

The patient is under regular follow up for two years clinically and serial measurements of alpha-fetoprotein showed no rise**.**

Figure 1. Visible abdominal mass in the left upper quadrant.

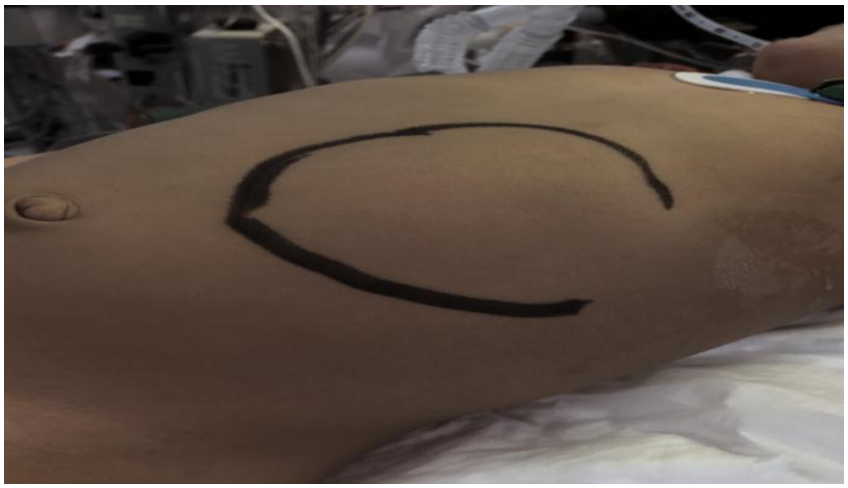

Figure 2. Outlines of the abdominal mass.

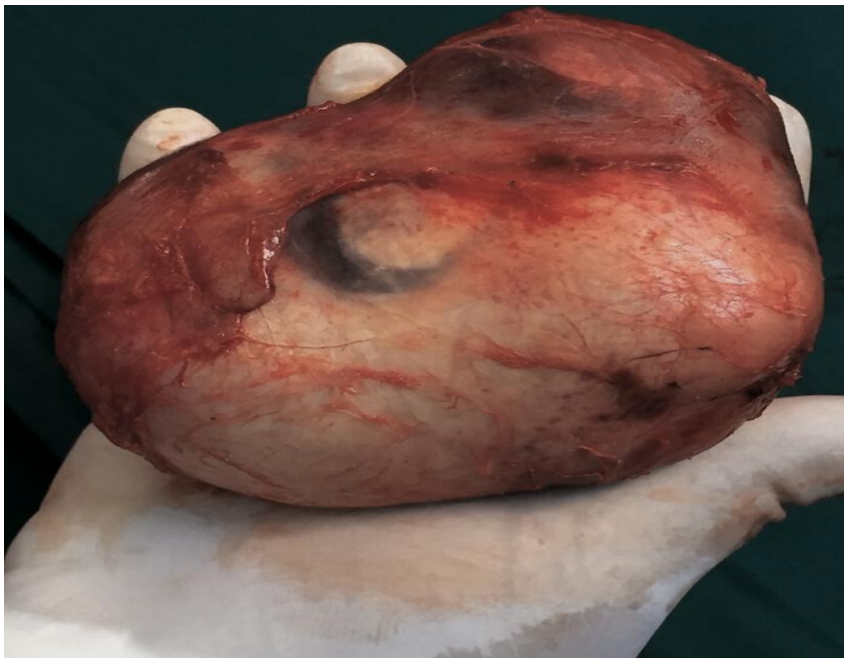

Figure 3. CT abdomen with IV contrast showing left upper quadrant soft tissue densities with fatty tissue and calcification, consistent with mature teratomas completely separated from adjacent organs and vessels.

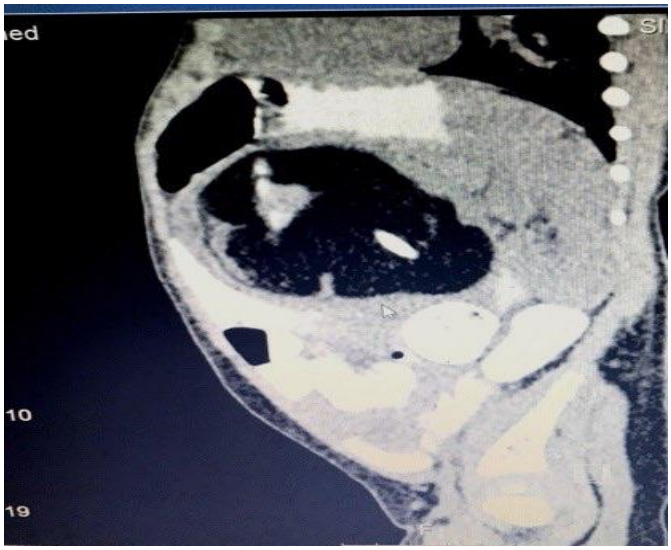

Figure 4. A large lobulated lesion is noted at the left hypochondrium measuring 8.2*5.7*4.9 cm.

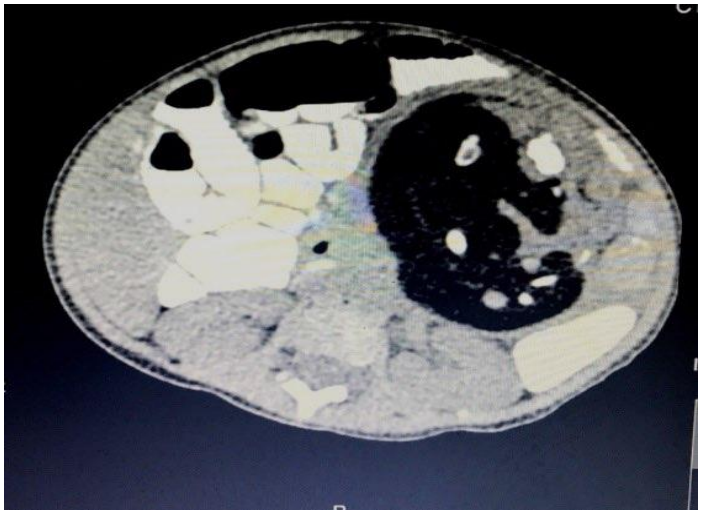

Figure 5. The excised tumor.

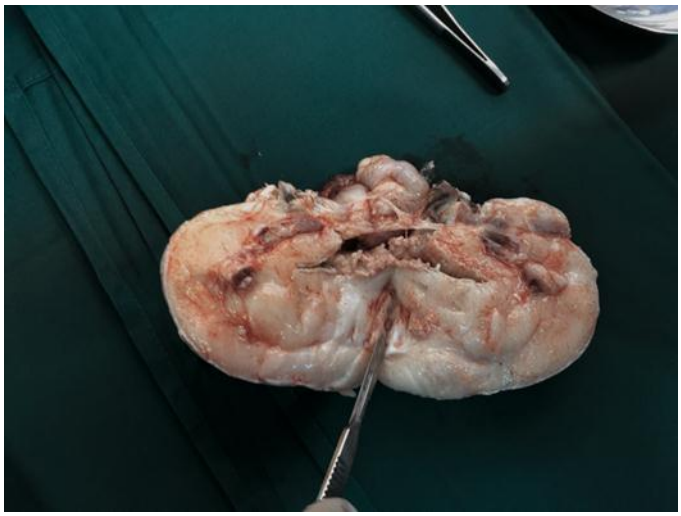

Figure 6. Bisection of the mass showing abnormal tissues.

DISCUSSION

Teratoma in neonates are mostly extra-gonadal whereas in childhood are most frequently occur in gonads. Extragonadal teratomas (EGTs) may present as incidental findings, as a mass with/without pain or with gastrointestinal or urinary symptoms. Complications such as hemorrhage, infection and rupture may occur, the latter possibly resulting in a chemical peritonitis [4].

Teratoma in retroperitoneal space is rare (3.5% - 4%) in children. Most of them present as abdominal mass with variable sizes. It may show calcification on plain abdominal x-ray which is a common finding in teratoma. Pre-Operative CT scanning demonstrates the extent of the tumor which help in surgical decision. The size of the tumor does not affect the surgical decision and complete excision is usually feasible. Major vessels may be distorted by large sized tumor and this should be looked after during surgical procedure including the renal vessels. Most of these tumors are benign. Post-operative chemotherapy for malignant types greatly improve the outcome particularly following the use of platinum based regimens [16].

The surgical procedure has to be performed in agreement with the ongoing protocols as teratomas showed a good prognosis, especially the mature type. Post-operative follow up is very important as incomplete surgical excision carries a high risk for relapse [2].

Hasan *et al.*[18] from India reported a case of large benign gastric teratomas completely excised and concluded that Germ tumors have better outcome if managed immediately and complete surgical excision is usually curative.

Another report from India about mature teratomas in the left the lumbar region in an infant which was totally removed and it was benign [19].

Laparoscopic removal of abdominal teratomas may also possible as reported by Nishida *et al.*[20] from Japan, where three cases of immature teratomas which was totally excised laparoscopically.

They recommend careful analysis of the specimen after excision is mandatory to make the diagnosis [20].

Bourke *et al.*[21] reported a case of malignant gastric teratoma in a four month old male, which was totally excised and followed up for 12 months without recurrence. Of the two cases with mesenteric teratoma reported from Saudi Arabia, the clinical presentation of the first case was with abdominal distention and palpable abdominal mass. The other one presented with vomiting followed by constipation.

The sequence of investigations and management were the same as recommended by others, the histopathology report showed mixtures of mature tissues, derived from all three embryonic layers, both patients did not show recurrence after prolonged follow-up[9].

Our case report could be the third one of mesenteric teratoma to be reported from Saudi Arabia.

CONCLUSION

Abdominal teratoma is rare and should be taken into consideration as one of the differential diagnosis of abdominal mass, it is usually benign. Total excision is the mainstay of treatment. Careful histopathological examination and close follow-up is mandatory, only two cases were reported from Saudi Arabia and our case could be the third one.

The study was done after approval of ethical board of King Abdulaziz University.

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