Retropancreatic teratoma with intra-thoracic extension

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Abstract

Primary retroperitoneal teratoma is a rare entity in adults. We present a case of 23-years-old female who presented with complaint of abdominal pain in left upper quadrant. Computed tomography scan revealed a retroperitoneal retropancreatic teratoma near celiac axis with intra thoracic extension. Laparotomy with tumor resection was done. The case report is interesting for intra thoracic extension of retropancreatic teratoma.

Introduction

Teratomas are congenital tumors containing all or either of the three germ layers and accordingly they are classified as monodermal, bidermal, or tridermal.1 Teratomas occur in order of decreasing frequency, in the ovaries, the testes, the anterior mediastinum, the retroperitoneal space, the pre-sacral and coccygeal areas, pineal and other intracranial sites. Retroperitoneal teratomas are often located near the upper pole of the kidney, with a preponderance on the left side.2 Retroperitoneal retropancreatic teratomas are rare.

Case Report

A 23-year old unmarried female presented with complaints of abdominal pain and backache. The pain was dull aching and mostly localized to her left upper quadrant. There were no bowel or urinary complaints. There was no history of abdominal operation or trauma to the abdomen. Menstrual history was unremarkable.

Clinical examination revealed moderately built lady with unremarkable general examination. Abdomen was soft with no organomegaly. Routine blood tests and urinalysis were all within normal limits. Ultrasonography of abdomen showed large mass near upper pole of left kidney, encasing left suprarenal gland. Computerized tomography (CT) scan revealed 7.6×3.1×3.8 cm well defined lesion of fat attenuation with calcific focus within, posterior to pancreatic body and tail. It was in close proximity to celiac axis (Figures 1 and 2) and had intra thoracic extension into the posterior mediastinum. A provisional diagnosis of teratoma was made.

The patient underwent an exploratory laparotomy which revealed a well circumscribed mass in the retroperitoneal region behind the pancreas. The tumor was situated along the course of the celiac axis over the aorta with blood supply from the splenic and the left gastric arteries. It was not firmly fixed to any overlying structures. It was completely resected along with the extension entering the mediastinum through the esophageal hiatus (Figure 3) as its blood supply was only from the abdominal vessels. Mass was excised completely (Figure 4) and sent for histopathological examination. Cut section of tumor was composed of tan brown soft tissue with gelatinous secretion with bony components at the centre of mass. Histologic sections reported mucous glands with a cyst lined by flattened cuboidal epithelium and focus of maturing mucous glands. The diagnosis was consistent with Immature retroperitoneal teratoma. Follow up of 1-year shown her to be disease and symptom free.

Discussion

Teratomas are derived from the germ cells that fail to mature normally in their primary location which are gonads. These totipotent cells can then differentiate themselves to form the derivatives of the fundamental germ layers being endoderm, mesoderm and ectoderm. Beside gonans they have been reported in the anterior mediastinum, the retroperitoneum, pre-sacral areas and pineal gland.3 Their distribution along the midline of the body is best explained by the migration of primitive germ cells during development. The proportional ratio of retroperitoneal teratomas amongst teratomas is less than 10%.4 They are rare in the adult population moreover retropancreatic teratoma extending into the thorax is hardly reported in literature. Teratomas are classified histologically into 2 types-mature and immature. The mature variant consists of adult cell type with well differentiated cells while the immature variant consists of partial differentiation similar to the embryo or fetus. The mature type is generally benign in nature, however can undergo malignant transformation into non-germ cell tumor such as sarcoma or carcinoma. The immature type has a distinct malignant potential.

Retroperitoneal teratomas usually are asymptomatic as the retroperitoneal space is extensive enough to allow for their free growth and present due to the compressive symptoms of the tumor size.5 Malignant tumors however rapidly increase in size. In our case it was non-specific abdominal pain for which imaging was done. This imaging led us to the finding of retroperitoneal teratoma.

The primary modality of investigation is radiological which can help in ascertaining the diagnosis. A plain radiograph of the abdomen shows soft tissue mass with calcifications. These calcifications can assume the margins of the tumor or can be interspersed within the tumor in the form of focal calcifications.4 Calcifications are seen in 50-60% of teratomas and can help in clinching a diagnosis which also helped in our case. Although higher proportion of benign tumors show calcification, a 10% chance of malignant tumors which are calcified cannot be looked upon.5 CT scan can help differentiating the various components of the tumors depending on the density as to fat, sebum, soft tissues and calcifications. Additionally, cross section imaging can help to determine the extent and invasion of the tumor in the surrounding tissues, the relation to the underlying solid organs and the vascular structures for an elective plan of surgical exci-
Magnetic resonance imaging can help in better delineation of the tumor with respect to the surrounding structures.

The primary treatment of retroperitoneal teratomas is surgical resection to obtain a tumor free site. In the absence of contiguous spread, the cure rate of teratoma is high. In benign cases, the tumor can be excised completely with a favorable outcome. However a fact can be borne in mind that a small number of patients may have a tumor recurrence.

Retropancreatic teratomas with intrathoracic extension derive their blood supply from abdominal vessels. The clinical implication is that intrathoracic extension can be easily removed through abdominal approach, as it does not have any intrathoracic blood supply.

Conclusions

Primary retroperitoneal retropancreatic teratoma with thoracic extension is rare. Preoperatively the diagnosis can be established by its characteristic appearance on computed tomography. Preoperative biopsy is not necessary if the neoplasm is thought to be completely removable. Blood supply is mainly abdominal, however it should be confirmed on imaging. The definitive treatment for these neoplasms is surgical resection.

References

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