

# Blunt Abdominal Trauma with Retroperitoneal Teratoma Rupture : A Case Report and Computed Tomography Diagnosis

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*A 13-year-old boy with rupture of retroperitoneal teratoma due to blunt abdominal trauma is presented. It was demonstrated by computed tomography, which showed hemoperitoneum and fat-fluid levels in the peritoneum. These findings with acute abdominal pain should strongly suggest the possibility of intra-peritoneal rupture of abdominal teratoma.*

**Key words:** blunt abdominal trauma, teratoma rupture, computed tomography(CT)

## Introduction

Most teratoma of infancy and childhood arise in the sacrococcygeal region and the other sites include the gonads and various midline location, such as the head, neck, mediastinum and retroperitoneum<sup>(1)</sup>. Considering other locations, teratomas of the retroperitoneum are relatively rare (4%)<sup>(2,3)</sup>. Most teratomas are diagnosed at school-age either coincidentally or because of a mass lesion<sup>(4)</sup>.

## Case Report

A 13-year-old boy sustained a blunt abdominal trauma during a basketball game. He experienced almost immediately severe diffuse abdominal pain. He was transported to a nearby emergency facility, where a sonography was interpreted as hemoperitoneum and a mass lesion in the abdominal cavity. He was then admitted to our hospital for further evaluation.

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On admission, his vital sign revealed temperature of 37.8°C; blood pressure, 130/70 mmHg; respiratory rate, 20 per minute; and pulse, 104 per minute. Abdominal examination revealed severely diffused abdominal tenderness and rebound pain. Laboratory data showed hemoglobin 12.5 g/dl and white cell count 12,000 cells/mm<sup>3</sup>. Urinalysis was normal. Abdominal computed tomography (CT) showed multiple cystic mass with fat-fluid level (Fig.1) and hemoperitoneum around right subphrenic space and pelvis. The major component of the cystic mass revealed a mean CT number of +34 Hounsfield units (H) with similar attenuation to muscle. The small fatty mass (-120 H) with dependent fluid (-40 H) was present at left lower part near the central area (Fig. 1).

Preoperative diagnosis of retroperitoneal teratoma rupture into peritoneum was strongly suspected. At surgery, a 10 × 10 × 10 cm retroperitoneal mass

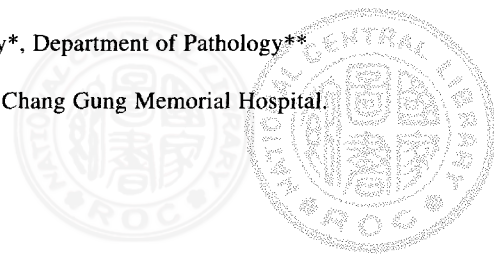
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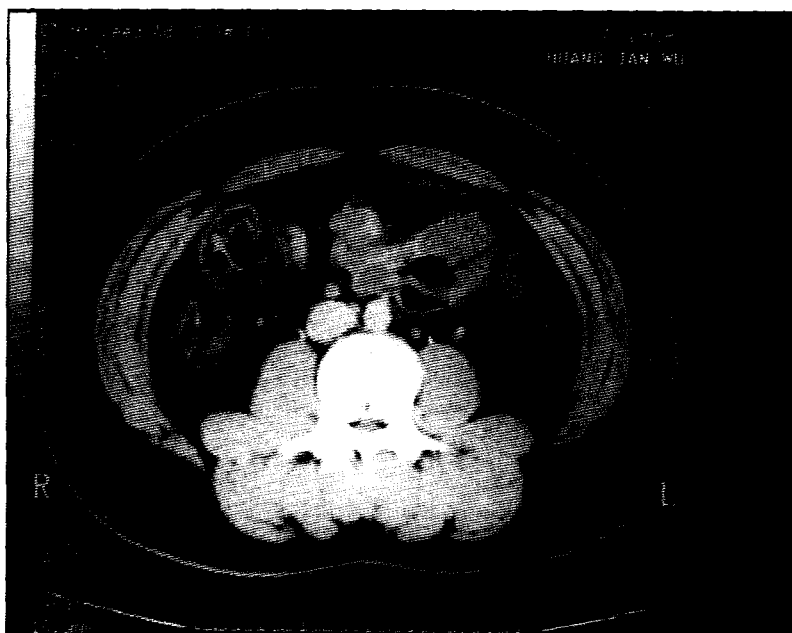


Fig. 1 CT scan of abdomen shows cystic mass with septum and fat-fluid level (arrow).

with rupture area about  $6 \times 6 \times 6$  cm into the peritoneal cavity was noted. Cheesy, yellowish and mucinous fluid with hair content about 500 ml in the abdominal cavity was evacuated. Subsequently en bloc extirpation of the mass was performed. The diagnosis of rupture of retroperitoneal teratoma was then confirmed. Histopathological examination of the excised mass showed a mature cystic teratoma covered by serosa. The inner surface is lined by skin with sebaceous content. Microscopy revealed cysts lined by skin with appendage and respiratory type mucosa (Fig. 2). The patient recovered successfully.

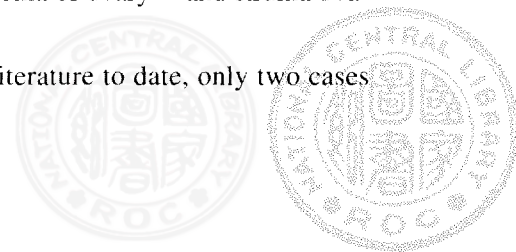
## Discussion

Benign cystic teratomas are neoplasms that consist of mature tissue of ectodermal, mesodermal and endodermal origin, frequently including skin, hair and teeth. They are most often found in the ovary<sup>(5)</sup>. Intraperitoneal rupture of ovary teratoma is rare (less than 2% of cases)<sup>(6,7)</sup>. It was reported as association with torsion, trauma, infection, labor or spontane-

ously<sup>(6)</sup>. It is difficult to make correct diagnosis pre-operatively, and in most of the cases is made at surgery or autopsy<sup>(6,7)</sup>. The second most common site of origin is the anterior mediastinum<sup>(8)</sup>. Rupture of a mediastinal teratoma into pleural cavity presenting with acute respiratory distress was reported<sup>(9)</sup>. Under the age of 12 years, teratomas occur most frequently in the sacrococcygeal region<sup>(1)</sup>. Bladder rupture due to sacrococcygeal teratoma was also found<sup>(10)</sup>.

Distinctive CT findings of benign cystic teratomas include well demarcated mass, fat density of liquid-like components and bone density of solid components<sup>(11,12)</sup>. Occasionally, fatty mass with dependent water or solid tissue density (fat-fluid level) is seen<sup>(13-15)</sup>. A fat-fluid level sign of CT is observed at 4 of 29 patients (14%) of dermoid cysts of ovary<sup>(16)</sup>. Sparse reports of tumors other than teratomas revealed the uncommon sign of fat-fluid level of CT appearance were observed at retroperitoneal liposarcoma<sup>(17)</sup>, adenocarcinoma of ovary<sup>(18)</sup> and struma ovarii<sup>(19)</sup>.

In the English literature to date, only two cases



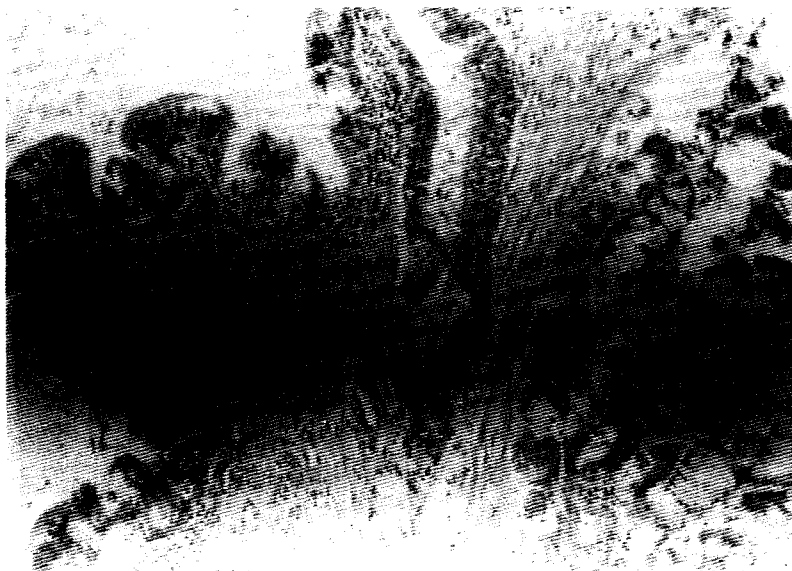


Fig. 2 Mature cystic teratoma composed respiratory type mucosa (Hematoxylin eosin stain  $\times 400$ ).

of retroperitoneal teratoma rupture due to blunt abdominal trauma were reported<sup>(20,21)</sup>. In this case the CT scan demonstrated findings considered of a teratoma rupture. It showed hemoperitoneum and fat-fluid level of cystic mass. We reported this unusual case of retroperitoneal rupture of teratoma rupture due to blunt trauma and that fat-fluid level could be a suggestive CT sign in the diagnosis of the peritoneal rupture of abdominal teratomas.

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# 腹部鈍傷併後腹腔畸形瘤破裂： 一病例報告及電腦斷層診斷

高義智 陳瑞杰 黃耀祥\* 林博彥\*\*

本文報告一例13歲男孩病人，因為腹部鈍傷接受電腦斷層檢查而顯示有囊狀腫瘤且其內存在脂肪液體分界層面。於手術前高度懷疑後腹腔畸形瘤破裂至腹腔，而在手術中及術後病理檢查確定診斷。我們認為電腦斷層顯示有脂肪液體分界層面的徵兆是應該高度懷疑畸形瘤破裂。

關鍵詞：腹部鈍傷，畸形瘤破裂，電腦斷層

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