GIANT RETROPERITONEAL LIPOSARCOMAS: DIAGNOSTIC APPROACH WITH MULTIDETECTOR COMPUTED TOMOGRAPHY AND MAGNETIC RESONANCE IMAGING

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Liposarcomas are the most common mesenchymal tumors of the retroperitoneal space. Retroperitoneal liposarcomas are usually grown slowly and frequently reach a very large size before clinical recognition. Precise diagnosis and distinct multiplanar evaluation is essential for complete resection of these tumors. Here we reported two cases with giant retroperitoneal liposarcomas which were evaluated multiplanarly with multidetector computed tomography and magnetic resonance imaging.

Key-word: Liposarcoma.

Soft-tissue sarcomas are rare tumors and represent less than 1% of all malignancies. Of all soft tissue sarcomas 10% to 15% are located in the retroperitoneum. Liposarcomas are the most common soft tissue sarcomas in adults and the second most frequent retroperitoneal tumors (1). They are most commonly located in the soft tissues of the extremities, but other sides such as retroperitoneum can be involved (2). Retroperitoneal liposarcomas (RLs) grow slowly in the very expandable retroperitoneal space in the deeply hidden and clinically silent retroperitoneum. Total resection of the tumor is the aim, including adjacent organs if necessary. But, its prognosis is poor due to tumor relapse and only complete surgical removal produces a “cure” (3).

Multidetector computed tomography (MDCT) and magnetic resonance imaging (MRI) are very important for diagnosis of RLs with fast multiplanar imaging techniques especially for huge ones. Hereby we demonstrated the facility of multiplanar evaluating of giant RLs with MDCT and MRI on two of our patients.

Case reports

Case 1

A 52-year-old woman admitted to our hospital with a one year history of abdominal pain, distension, dyspepsia, and alteration of intestinal habits. She did not have any loss in weight. On physical examination, her abdomen had a marked distension and a palpable huge mass was filling the whole of her abdomen. Laboratory findings were considered as normal, also tumor markers (Carcino embryonic antigen and CA19-9) were within the normal limits. Abdominal ultrasound revealed a huge retroperitoneal solid mass which was filling all abdominal cavity. MDCT scan had been obtained using 16-section multidetector row CT (Sensation 16, Siemens Medical Solutions, Erlangen, Germany). Intravenous contrast-media had been administered and 60 sec delayed portal phase had been performed on CT scan. After MDCT scan, MRI was performed with a 1.5 T scanner (Intera-Philips Medical Systems, Netherlands, 2000). Scanning orientations were transvers and coronal balanced FFE Turbo spin-echo (TSE) T1 weighted images (TR/TE: 500 ms/15 ms, flip angle 80°) and TSE T2 weighted images (TR/TE: 1600/70 ms). T2 images were on coronal plane with spectral presaturation with inversion recovery (SPIR) sequence for fat-suppressed imaging. Contrast-enhanced T1 weighted MR images also obtained with intravenous injection of gadopentatate dimeglumine (Magnevist, Schering, Germany) (0.1 mmol/kg of body weight).

On overall evaluation of tumor with MDCT and MRI the lesion had thickened, irregular septas and minor nodular components. On contrast-enhanced images, sclerosing components of the mass were enhanced homogeneously on MDCT and MRI. These were the sclerosing components of the well differentiated liposarcoma, showed CT attenuation and MR signal intensity that approximated the characteristics of muscle (Fig. 1). The tumor did not involve the major vascular structures, and the organs. The lesion was hypointense relative to muscle on T1 and T2 weighted TSE images, and showed slightly enhancement (Fig. 2). MDCT attenuation and MRI signal intensity of the lesion was equal to fat tissue and with drop-out on fat-suppressed STIR images (Fig. 3). The T1 weighted criteria for well-differentiated liposarcoma were thick septation and nodularities with non-fatty signal intensity within tumors as this case. Thus, imaging on fat-suppressed STIR images, lesion was considered well-differentiated liposarcoma also when linear or nodular well-defined hyperintens septas were detected inside suppresed fatty lesion. No distant metastasis was detected. Histological examination revealed a well-differentiated liposarcoma.

Case 2

A 70-year-old woman was admitted to emergency department of our hospital with severe abdominal pain, distension, nausea, dyspepsia, anorexia, and abdominal tenderness. She had almost one-year of abdominal pain, and her complaints had significantly increased in the past two months. The abdomen was enlarged and a very large soft mass was palpable throughout the abdomen. Laboratory findings showed no significant changes. Abdominal ultrasound revealed a hypoechoic huge mass in retroperitoneal region that was displacing the right colon, and right kidney anteriorly and medially. MDCT imaging demonstrated a very large retroperitoneal mass of fat density that was filling right abdomen-pelvic cavity totally and left abdomen cavity partially. The lesion was com-
pressing the liver superiorly. Right colon and sigmoid colon were seriously compressed by the mass anteriorly and the other colon segments was dilated due to obstruction of passage. Right kidney displaced superomedially also (Fig. 4). General condition of patient was bad and after MDCT scan, patient was sent to intensive-care unit. In this case, MRI could not be done due to bad condition of the patient. On histopathological examination, mature large-sized multivacuolated atypical fat cells demonstrated. This phenomenon was diagnosed as a well-differentiated liposarcoma. As soon as later, patient was died in intensive-care unit due to cardio-pulmonary arrest.

Discussion

Liposarcoma is a malignancy of adipose tissue mostly found in the soft tissue of limbs, retroperitoneum, trunk, and mediastinum. Although slight male predominance can be seen in patients (4). However, the patients that we studied were women. Liposarcoma and leiomyosarcoma are the most frequent diagnosed sarcomas in the retroperitoneal space. Thus, 25-35 % liposarcomas consist of soft tissue sarcomas located in the retroperitoneal region (5). Liposarcomas usually grow slowly and frequently reach a very large size before recognised clinically and they generally present with symptoms of discomfort or palpable mass and causes disturbances in adjacent structures. On pathology, recognition of lipoblasts is the key finding in histological diagnosis of liposarcoma. Liposarcomas is currently classified into five groups: well-differentiated (or atypical lipoma), pleomorphic, myxoid, round-cell and dedifferentiated liposarcoma subtypes. Prognosis of liposarcomas varies on the basis of the subtypes. Well-differentiated liposarcoma is considered a low-grade malignancy and myxoid liposarcoma is considered an intermediate-grade malignancy tumors. Pleomorphic and round-cell liposarcomas are considered high-grade malignancies with high rates of local recurrence and metastases (6). Like our cases, well-differentiated liposarcomas show a predominant presence of mature fat cells, and the amount of widely diffused lipoblasts is relatively low.

US imaging is very restricted valuable for detection in liposarcomas. They show hyperechoic or mixt echo texture on US imaging. But, with this modality detection of borders of

![Fig. 1. -- Noncontrast (A) and contrast-enhanced (B) CT images show a large fatty mass which is filling a very big portion of the abdominal cavity and displacing right kidney to medially and ventrally.](image1)

![Fig. 2. -- Contrast-enhanced axial (A) and coronal (B) T1 weighted TSE images show heterogeneously enhancing hyperintense lesion (white arrow) appears isointense in relation to subcutaneous fat and linear sclerosing components of the lesion (black arrow).](image2)

![Fig. 3. -- Coronal T2 weighted TSE (A) image shows giant abdominal fatty mass with homogeneously hyperintense in relation to subcutaneous fat. At the same location with T2 TSE SPIR sequence (B) image shows fat suppression of the lesion and hyperintense sclerosing septas (arrows).](image3)
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Thin septal structure (sclerosing component) which also is one of the well-differentiated subtypes, showed similar signal intensity that approximated the characteristics of muscle. Less fatty liposarcomas composed of myxoid, pleomorphic, or round-cell subtypes have been reported (8).

In conclusion, RLs generally had large sizes because of their silent characteristics. At the time of diagnosis, the huge sizes of lesions should be evaluated carefully. On comparing the pathology, different subtypes of RLs exhibit varying MRI features, depending on tumor histological components. So, we emphasize that multiplanar imaging and evaluating of giant RLs with MDCT and MRI may be helpful for exact diagnosis and for predicting the prognosis.

References