CASE REPORT
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# Radiological images of retroperitoneal dedifferentiated liposarcoma: a rare case report

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## ABSTRACT

**Background:** Retroperitoneal liposarcoma is a rare tumor with an incidence of 2.5 per 1 million individuals. This tumor usually occurs at the age of 50-70 years, although incidents in children have been reported. Imaging techniques such as Magnetic Resonance Imaging (MRI) and Computed Tomography (CT) play an important role in the diagnosis and follow-up of retroperitoneal liposarcoma. To date, only a few cases of differentiated retroperitoneal liposarcoma have been reported. Therefore, the author wants to explain cases of differentiated retroperitoneal liposarcoma, in this case accompanied by recurrence.

**Case Report:** A male 64-year-old patient complained of a lump appearing in his stomach. The lump in the stomach has appeared since the beginning of 2019. The first CT-Scan of the Abdomen without and with Contrast showed a left retroperitoneal mass with a cystic-solid-fat complex component, with internal septation, suspicious for microcalcification, which was attached to the nearby fascia and was pushing the left retroperitoneum organ to the right midline. The patient has undergone tumor resection, where in this patient the histopathological examination results showed a Malignant Mesenchymal Tumor, tending to Dedifferentiated Liposarcoma. A recurrence was reported after the surgery. The patient underwent another laparotomy surgery to resect the tumor. From the results of the last control, the patient's condition is still stable and from the results of abdominal MRI with the results there is no visible residive nor residual mass in the retroperitoneum or intraperitoneum.

**Conclusion:** Retroperitoneal liposarcoma is usually asymptomatic until the liposarcoma is large enough to press on the surrounding organs. It is often misdiagnosed due to its rarity and absence of symptoms. However, imaging techniques such as MRI and CT play an important role in the diagnosis and follow-up of retroperitoneal liposarcoma.

**Keywords:** *Retroperitoneal Liposarcoma, CT Scan Abdomen, MRI Abdomen, Retroperitoneal mass*.
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## INTRODUCTION

Liposarcoma is a malignancy of fat cells. Liposarcoma is the most common soft tissue malignancy. Liposarcomas normally appear as slow-growing, painless, non-ulcerated submucosal masses, but some lesions develop rapidly and become ulcerated in a shorter time.[1]

Retroperitoneal liposarcoma is a rare tumor with an incidence of 2.5 per 1 million individuals. This tumor usually occurs at the age of 50-70 years, although incidents in children have been reported. The number of male and female sufferers is in a ratio of 1:1. The complex treatment and disabilities caused by sufferers make this tumor have a big impact on human life.[2–4]

It is difficult to diagnose retroperitoneal liposarcoma before surgery due to the lack of typical clinical features. However, imaging techniques such as MRI and CT play an important role in the diagnosis and follow-up of retroperitoneal liposarcoma. To date, only a few cases of differentiated retroperitoneal liposarcoma have been reported. Therefore, the author wants to explain cases of differentiated retroperitoneal liposarcoma, in this case accompanied by recurrence.

## CASE REPORT

A male patient, 64 years old, living in Jembrana, came to the Radiology Department of RSUP. Prof. IGNG Ngoerah Denpasar on December 31 2019 with a planned CT scan of the abdomen with contrast. The patient complained of a lump appearing in the stomach. Lumps in the stomach, especially on the left side are said to have appeared since the beginning of 2019. Defecation is said to be still good. Nausea and vomiting were denied by the patient. Physical examination found blood pressure 120/70 mmHg, pulse 88 x/minute, respiration 16 x/minute, axillary temperature 36.6°C. No family history of similar diseases. No history of asthma, high blood pressure, and diabetes. Then an axial, sagittal, and coronal reformat CT scan of the abdomen was carried out without and with contrast. The results of the CT scan

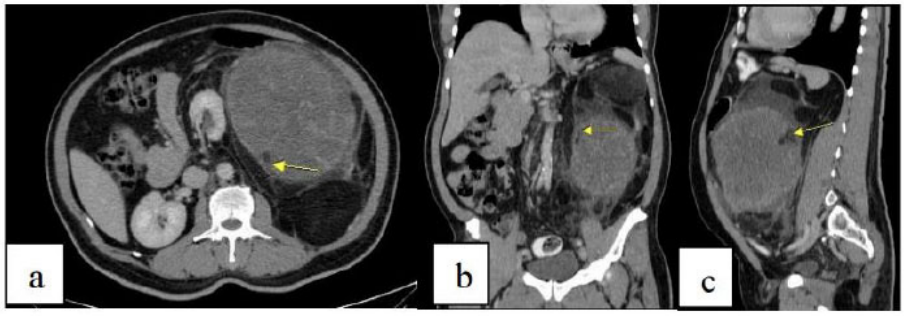


**Figure 1.** CT scan of the abdomen with venous phase contrast. A left retroperitoneal mass with a cystic-solid-fat complex component, with internal septation, suspicious for microcalcification, was adherent to the adjacent fascia and was pushing the left retroperitoneal organ to the right midline. Arrows indicate the fat component of the mass. Image (a) is an axial CT scan of the abdomen. Image (b) is a coronal CT scan of the abdomen and image (c) is a sagittal CT scan of the abdomen.

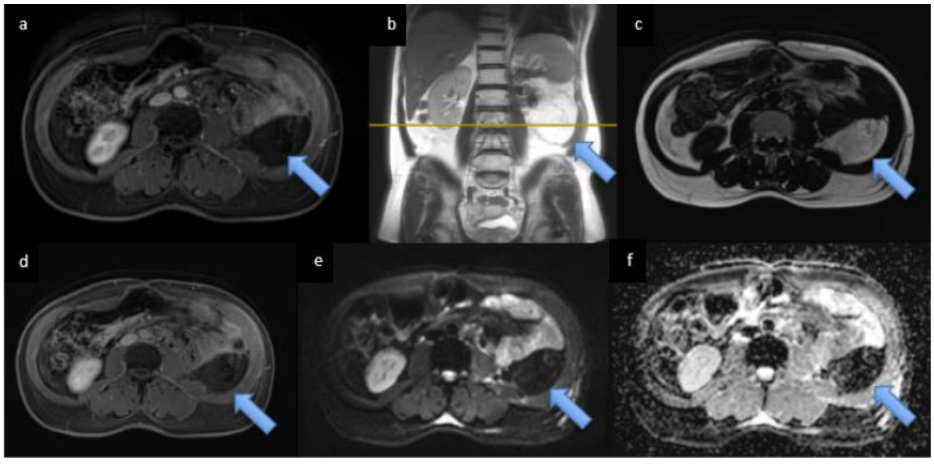


**Figure 2.** MRI examination results show a heterogeneous solid mass (dominant fat component) with septa, clear boundaries, and regular edges in the left retroperitoneal space as indicated by the arrow. Image (a) is an axial slice of T1 Water Separation, image (b) is a coronal slice of T2 haste, Image (c) is an axial slice of T1 Fat Separation, Image (d) is an axial slice of T1 Water Separation with contrast, Image (e) is an axial slice of DWI, Image (f) is an axial slice of ADC.

showed a cystic-solid-fluid complex mass with a density of 20-50 HU as well as fat components, internal septations, firm boundaries with lobulated smooth edges measuring approximately 16 x 21.3 x 28 cm, suspicious for microcalcification, in the retroperitoneal space on the left side. Contrast administration showed contrast enhancement in the solid component in the venous and delayed phase, a mass was seen attached to the lateroconal fascia, transverse fascia, which was pressing on the retroperitoneal organs to the right midline (kidney and descending colon) (Figure 1).

The patient then underwent a laparotomy operation to remove the tumor on February 4, 2020. The results of the histopathological examination on February 11 2020 showed that it was a Malignant Mesenchymal Tumor, likely Dedifferentiated Liposarcoma. The patient then underwent radiotherapy 35 times and then had routine control every 3 months. On May 9, 2022, an MRI examination of the abdomen with contrast was carried out again and the results showed a heterogeneous solid mass (dominant fat component) with septations, clear boundaries, regular edges in the left retroperitoneal space, measuring +/- 5.1 x 6.2 x 7.1 cm, which appeared hypointense on T1 water separation, became hyperintense on T2WI and T1 Fat Separation, when Gd contrast was administered, slight contrast enhancement appeared on the septa, on DWI/ ADC there is no restricted of the area diffusion (Figure 2).

On July 13, 2022, another laparotomy tumor resection operation was performed. The results of histopathological examination on July 20 2022 showed that histomorphology showed atypical lipoblast cells among the fat tissue, suitable for recurrent liposarcoma. After that, the patient was routinely checked at Prof. Ngoerah Hospital. Seek every 3 months. From the results of the last control, the patient's condition is still stable and from the results of the last MRI of the abdomen with contrast on November 6, 2023, the results showed no residual mass in the retroperitoneum or intraperitoneum (Figure 3).

## DISCUSSION

Reported male patient aged 64 years. Retroperitoneal liposarcoma is a rare tumor with an incidence of 2.5 per 1 million individuals, although its incidence in children has been reported. The number of male and female sufferers is in a ratio of 1:1. Liposarcoma is mostly found at an age between decades 5 and 7, rarely found in children's age.[2,5,6] Patients complain of a lump appearing in the stomach. Lumps on the stomach, especially on the left side are said to have appeared since early 2019. Retroperitoneal liposarcoma is usually asymptomatic until the liposarcoma is large enough to press on the surrounding organs. It is often misdiagnosed due to its rarity and absence of symptoms. Symptoms will only occur if Liposarcoma presses on the surrounding organs. However, the retroperitoneum is a large space where retroperitoneal liposarcoma grows. Tumor symptoms will not appear until the tumor grows to a certain dimension. Imaging techniques such as MRI and CT play an important role in the diagnosis and follow-up of retroperitoneal liposarcoma. The first CT-Scan of the Abdomen without and with Contrast showed a left retroperitoneal mass with a cystic-solid-fat complex component, with internal septation, suspicious for microcalcification, which was attached to the nearby fascia and was pushing the left retroperitoneum

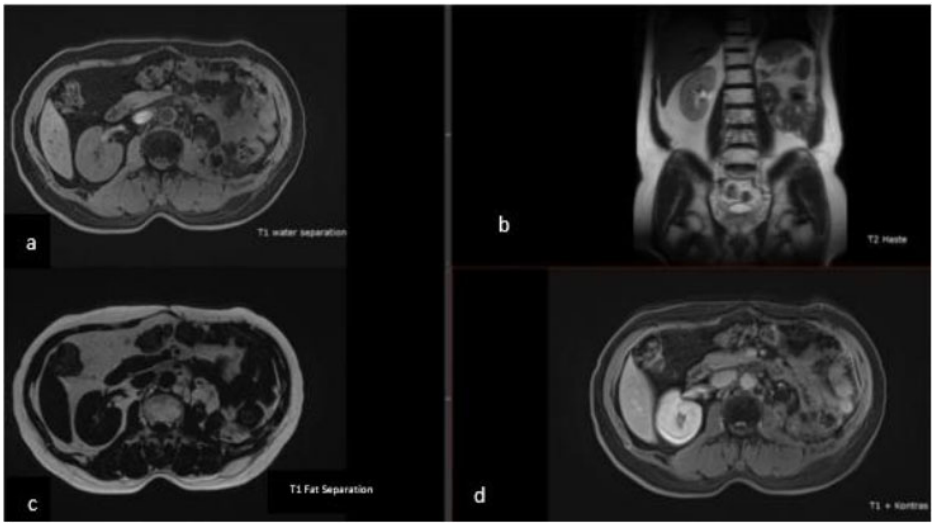


**Figure 3.** The results of the MRI examination did not show any recurrent mass in the retroperitoneum or intraperitoneum. Image (a) is an axial slice of T1 Water Separation, image (b) is a coronal slice of T2 haste, Image (c) is an axial slice of T1 Fat Separation, Image (d) is an axial slice of T1 Water Separation with contrast.

organ to the right midline. Findings on a CT scan can help see several features of lipomatous tumors. CT scans can show 3 different patterns of liposarcoma, including: a) solid, inhomogeneous mass; b) mixed-pattern tumor with fat foci interspersed with high-attenuation tissue; and c) pseudocystic water-density tumor. Differentially differentiated liposarcoma is seen as a well-demarcated non-lipomatous mass juxtaposed with a fatty tumor. On T1WI, the signal is hypointense relative to the muscle signal, whereas on T2WI the tumor shows a heterogeneous hyperintense signal relative to the muscle intensity, the heterogeneity on T2WI images may be a clue to the differentiation between inflammatory subtypes of well-differentiated liposarcoma and differentiated liposarcoma. The patient had undergone tumor resection, where in this patient the results of the histopathological examination showed that the histomorphological results showed Malignant Mesenchymal Tumor, tended to be Dedifferentiated Liposarcoma. Then it was reported that a recurrence occurred after the operation. Recurrence is observed to be quite high in cases of dedifferentiated subtype liposarcoma. The patient underwent another laparotomy surgery to resect the tumor and obtained Histomorphology results showing atypical lipoblast cells between fat tissue suitable for residive Liposarcoma. After that, the patient routinely controls to Prof. Dr. IGNG Ngoerah Hospital every 3 months. From the results of the last control, the patient's condition is still stable and from the results of the abdominal MRI with the results there is no visible residue nor residual mass in the retroperitoneum or intraperitoneal.

Surgical resection remains the mainstay of curative therapy. Neoadjuvant or adjuvant chemotherapy could be considered in patients with large tumors (>5 cm) or high-grade round cells or pleomorphic subtypes. Neoadjuvant or adjuvant radiation therapy may be used for local control in large high-grade liposarcoma.[5] The 5-year survival rate of well-differentiated retroperitoneal liposarcoma is 83%, whereas it is 20% for the dedifferentiated subtype. Successful complete resection of retroperitoneal liposarcoma may improve the 5-year survival rate.[7]

The rarity of cases of retroperitoneal liposarcoma and its diverse characteristics make it challenging to establish a diagnosis. CT and MRI are important modalities for diagnosing retroperitoneal neoplasm, especially retroperitoneal liposarcoma.

## CONCLUSION

We have presented an uncommon case of retroperitoneal dedifferentiated liposarcoma with a recurrence case. Retroperitoneal liposarcoma is a rare tumor with an incidence of 2.5 per 1 million individuals where the number of male and female sufferers is in a ratio of 1: 1. Most liposarcomas are found at an age between decades 5 and 7. Retroperitoneal liposarcoma is usually asymptomatic until the liposarcoma is large enough to compress the surrounding organs. The 5-year survival rate of well-differentiated retroperitoneal liposarcoma is 83%, whereas it is 20% for the dedifferentiated subtype. Successful complete resection of retroperitoneal liposarcoma may improve the 5-year survival rate. Recurrence is observed to be quite high in cases of dedifferentiated subtype liposarcoma. To date, only a few cases of differentiated retroperitoneal liposarcoma have been reported. CT and MRI are modalities that can be used to diagnose and follow-up primary retroperitoneal neoplasm and especially retroperitoneal liposarcoma.

## CONFLICT OF INTEREST

The authors report no conflict of interest in writing this case series

## RESEARCH ETHICS

The writing of this manuscript has obtained written informed consent from the patient based on the publication ethics rules of the COPE and ICMJE guidelines.

## FUNDING

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## AUTHOR'S CONTRIBUTION

All authors have the same contribution in this case report, from the stage of case finding, reading of case radiology results, and clinical outcomes obtained, which are presented in scientific publication

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