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Radiology

Imaging of Gliomatosis Peritonei Following an Immature Ovarian Teratoma: A Case Report

I. Bounnite[1*], A. Benamara[1], A. El Ouali[1], S. Moussaoui[1], M. Lebied[1], C. Mountassir[1], G. Lembarki[1], M. Sabiri[1], S. Lezar[1]

[1]Central Radiology Department, Ibn Rochd University Hospital Center, Faculty of Medicine and Pharmacy of Casablanca, 6 Rue Lahcen Al Arjoune, Casablanca 2050, Morocco

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***Corresponding author:** I. Bounnite
Central Radiology Department, Ibn Rochd University Hospital Center, Faculty of Medicine and Pharmacy of Casablanca, 6 Rue Lahcen Al Arjoune, Casablanca 2050, Morocco

Abstract **Case Report**

Peritoneal gliomatosis is defined by the implantation of mature glial tissue on the surface of the peritoneum or intraperitoneal organs, very often found in association with mature or immature teratoma. The report the case of a 23-year-old woman presenting a surgical history of left ovariectomy for immature ovarian teratoma five years prior followed by chemotherapy, presents for abdominal pain for which an abdominal ultrasound and MRI were performed and showed a right hepatic mass in connection with a peritoneal gliomatosis.

Keywords: Teratoma, Mature, Immature, Gliomatosis, Peritonium, Chemotherapy.

INTRODUCTION

The mature teratoma is a benign tumor, however, the immature type, which is also benign, has a more aggressive course and a tendency to recur.

The immature teratoma is made up of three germ cell tissues, which is similar to the composition of the mature teratoma. It is difficult to differentiate between mature and immature teratomas, but immature teratomas generally affect younger women [1].

Peritoneal gliomatosis is defined by the implantation of mature glial tissue on the surface of the peritoneum or intraperitoneal organs, very often found in association with mature or immature teratoma.

Understanding the radiological features and clinical management of GP is critical for differentiating it from malignant conditions and ensuring appropriate treatment.

CASE REPORT

A 23-year-old woman presenting a surgical history of left ovariectomy for immature ovarian teratoma five years prior followed by chemotherapy, presents for abdominal pain for which an abdominal ultrasound was performed and showed a right hepatic mass.

She was then refered to us for an abdominal MRI that showed the following findings:

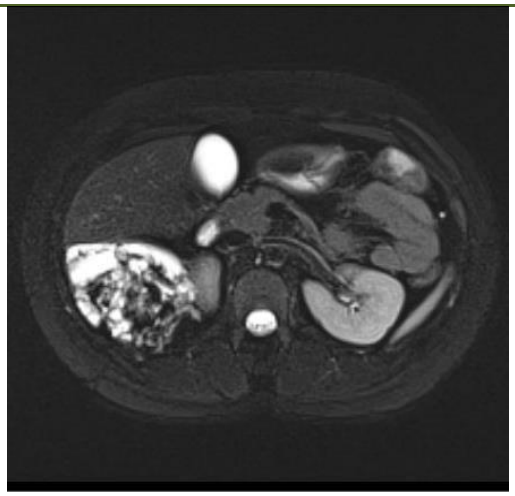

Figure 1: T2W with suppressed Fat signal

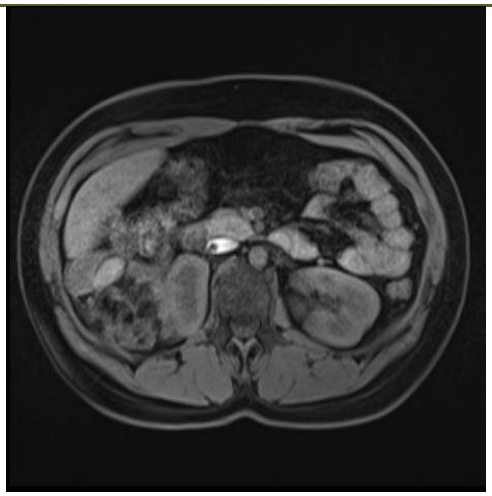

Figure 2: T1W with supressed Fat signal

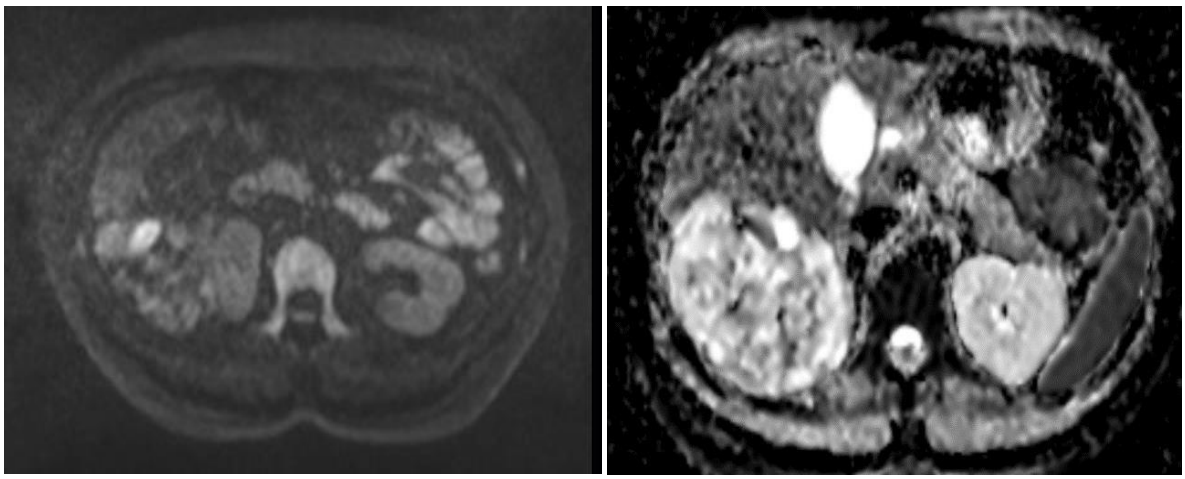

Figure 3: DWI (B1000) with Apparent Diffusion Coefficient

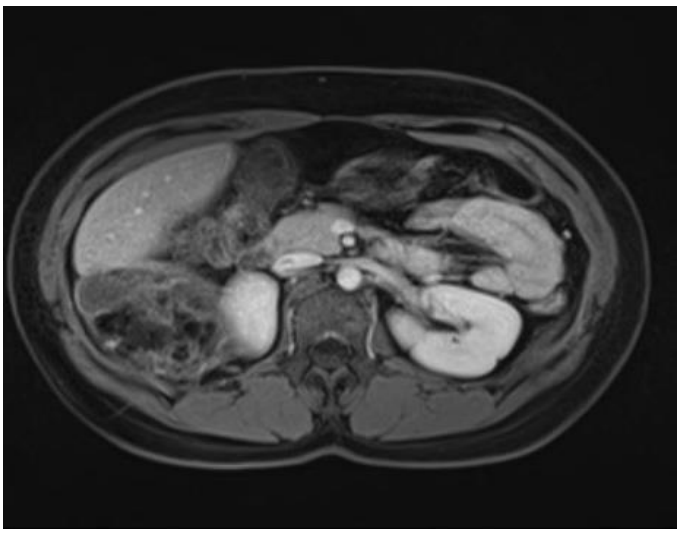

Figure 4: T1W post-contrast

MRI showed multiple intraperitoneal well-defined masses, with a cystic component and calcifications, and a solid component with restricted diffusion and enhancement after injection of Gadolinium.

Based on the medical history of the patient and these MRI findings, the diagnosis of gliomatosis peritonei has been retained.

DISCUSSION

Gliomatosis peritonei (GP) is a rare condition almost exclusively associated with mature or immature teratoma, most commonly ovarian, but also in the pediatric community after a gastric or gallbladder teratoma [2].

Cases of GP as a complication of ventriculoperitoneal shunts have been reported as well [3]. Patients present with abdominal mass syndrom and imaging is usually the next step in the diagnosis.

Ultrasound, CT and MRI can all show a unique or often multiple intra-peritoneal masses, with a cystic component and calcifications, with a greater sensibility and specificity for MRI.

GP is characterized by the presence of multiples peritoneal nodules consisting of glial tissue. Glial tissue implants are normally 1-10 mm in size and have no fatty component.

Thickening of the omentum and ascites may also be observed [1]. GP must be differentiated from other peritoneal diseases:

- **Peritoneal Carcinomatosis**: Associated with malignant tumors, exhibiting different histological features.
- **Peritoneal Mesothelioma**: Typically related to asbestos exposure with a distinct pathology.
- **Peritoneal Tuberculosis**: Presents with granulomas and a history of tuberculosis infection.

CONCLUSION

Primary retroperitoneal teratomas account for up to 11% of all retroperitoneal tumours, and are generally rare in adults.

Peritoneal gliomatosis is a rare, documented complication of teratomas.

The pathogenesis of peritoneal gliomatosis is still under investigation, but it may be due to the implantation of immature neural cells into the peritoneum following capsular rupture of a teratoma.

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