

# Hemoperitoneum due to deep endometriosis in a patient on peritoneal dialysis with a good response to progestin

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**Abstract:** Hemoperitoneum is common in patients undergoing peritoneal dialysis. Its varied causes include catheter-related complications, obstetric and gynecological etiologies, coagulopathies, and vascular, infectious, and intra-abdominal pathologies. A gynecological etiology, whether pathological or physiological, is the most common cause of hemoperitoneum in adult women undergoing peritoneal dialysis, with more than one-third of cases related to the menstrual cycle. Endometriosis can also cause hemoperitoneum, and the bleeding may originate from endometrial tissue implanted in the peritoneal cavity or that detaches from the intrauterine endometrium during the menstrual period. We report a case of hemoperitoneum in a patient with deep endometriosis and previous hysterectomy who had an excellent response to oral progestin.

**Keywords:** Peritoneal Dialysis, Peritoneal Cavity, Hemoperitoneum, Endometriosis.

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## 1. Introduction

Hemoperitoneum is not uncommon in patients undergoing peritoneal dialysis, occurring in approximately 7% of patients undergoing this procedure [1]. Just 2 mL of blood is enough to change the color of 1 L of peritoneal fluid. The causes of hemoperitoneum during dialysis are extremely varied [1-5]. Etiologies for hemoperitoneum related to peritoneal dialysis include catheter-related complications, obstetric and gynecological etiologies, vascular etiologies such as rupture of aneurysms, infectious etiology such as peritonitis and cytomegalovirus infection, intra-abdominal etiologies such as rupture of renal cysts, hepatic tumors, infarction, and splenic rupture as well as coagulopathies and retroperitoneal hematomas [3]. Management of bleeding from less common etiologies can be challenging in clinical practice. The authors aim to demonstrate a case with good response to the proposed therapy.

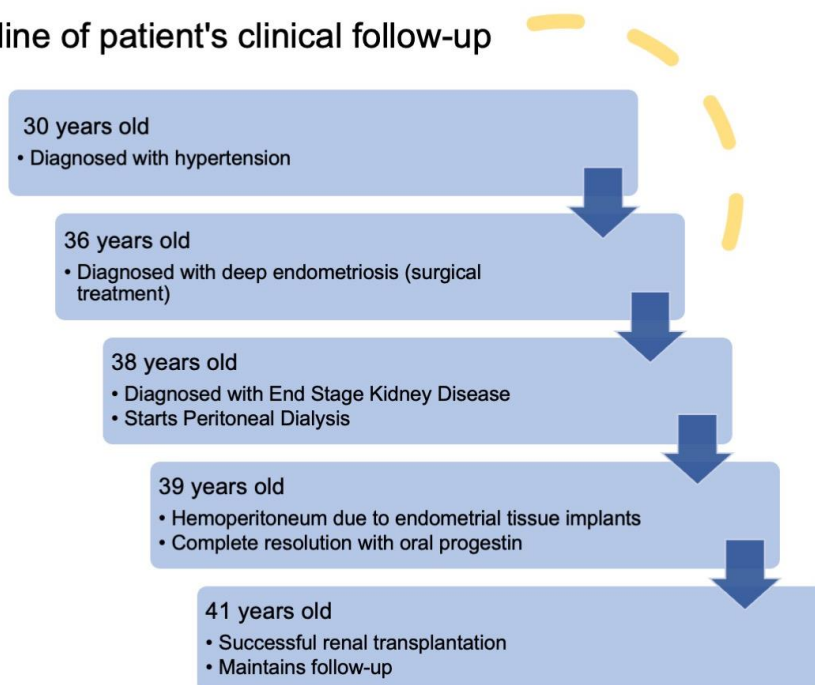
## 2. Case Report

A 36-year-old female patient, hypertensive since the age of 30, was diagnosed with deep endometriosis and underwent total hysterectomy and partial enterectomy by videolaparoscopy soon after the diagnosis of endometriosis, with no additional drug treatments after the surgical procedures. Eight years after the diagnosis of hypertension, the patient was diagnosed with end-stage renal disease and underwent renal biopsy for etiological elucidation, with an anatomopathological diagnosis of chronic glomerulonephritis (Figure 1).

She started renal replacement therapy using peritoneal dialysis as a personal preference and remained for 1 year with no intercurrents. Her condition evolved with episodes

of diffuse, nonspecific abdominal pain, recurrent hemoperitoneum, and symptomatic anemia. Peritonitis related to peritoneal dialysis had always been ruled out, and a CT scan of her abdomen and pelvis ruled out vascular lesions and showed foci of endometrial tissue implanted in the peritoneum (Figure 2).

### Timeline of patient's clinical follow-up



**Figure 1:** Timeline of patient's clinical follow-up.



**Figure 2:** CT scan shows left anexial cyst and endometrial implants foci.

Oral progestin therapy (norethisterone acetate 0.35 mg/day) was started, with complete resolution of hemoperitoneum and abdominal pain, with no new recurrences. The patient remained on peritoneal dialysis without worsening adequacy or ultrafiltration until she underwent renal transplantation 2 years later. Patient maintains adequate renal

function in transplant follow-up with standard immunosuppressive drugs, she keeps using progestin therapy to avoid endometriosis symptoms.

#### 4. Discussion and conclusion

A gynecological etiology, whether pathological or physiological, is the most common cause of hemoperitoneum in adult women undergoing peritoneal dialysis. Menstruation accounts for 33% of all causes of hemoperitoneum [3]. Hemoperitoneum is also associated with retrograde menstrual flow and endometriosis [5]. In the case of endometriosis, the bleeding originates from endometrial tissue implanted in the peritoneal cavity or that detaches from the intrauterine endometrium during the menstrual period and therefore responds to cyclic hormonal variation [6]. The presence of blood in the abdominal cavity, regardless of etiology, may have an important correlation with the viability of the dialysis technique in view of the inflammatory effects of blood and the possibility of fibrosis [5, 7]. Although highly prevalent and recurrent, bleeding related to the menstrual pattern does not predispose to peritonitis [5-8].

In cases where bleeding is severe and recurrent, the most widely used therapy, which has proven useful, is the use of oral contraceptive pills with ovulation suppression and anti-estrogen therapy, preventing ovulation and, consequently, menstruation [3, 4, 6, 9]. Blood transfusion may be required in acute critical and symptomatic cases before contraceptive therapy takes effect [5].

Other therapeutic approaches would include surgical management as laparoscopy or oophorectomy; besides the surgical risk, those approaches would imply in the need of changing dialysis method to hemodialysis. Other pharmacological approaches include aromatase inhibitors and GnRH antagonists, which are more expensive and may present with more prominent side effects [10]. Deep endometriosis as an etiology of hemoperitoneum in women of childbearing age on peritoneal dialysis should always be considered. Progestin was an effective treatment option in the reported case that allowed the maintenance of the chosen dialysis method.

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**Research Ethics Committee Approval:** We declare that the patient approved the study by signing an informed consent form and the study followed the ethical guidelines established by the Declaration of Helsinki.

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**Conflicts of Interest:** None.

**Supplementary Materials:** None.

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