Hemoperitoneum Related with Peritoneal Dialysis in A Female Adolescent: it is Not as Frightening as it Seems

Adolesan Bir Kız Hastada Peritoneal Diyaliz İlişkili Hemoperitoneum: Göründüğü Kadar Korkunç Değil

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ABSTRACT

Although hemoperitoneum is a benign and common complication of chronic peritoneal dialysis the apperance of the effluent will be devastating for the patients. In women of reproductive age group gynecological causes are the common etiological factors.

A 17 years old girl who had been on automated peritoneal dialysis for six months was admitted because of bloody effluent lasting for two days. At admission she described mild abdominal pain; physical examination was unremarkable and bleeding time and coagulation profile was normal. Abdominal ultrasound revealed hemorrhagic cysts on left ovary. Peritoneal effluent was cleared by using rapid exchanges with room temperature dialysate.

Hemoperitoneum is a well recognized complication of peritoneal dialysis in women of reproductive age.Abdominal ultrasound is the first, easily applicable and reliable diagnostic modality in order to detect underlying causes of hemoperitoneum. Performing rapid exchanges with cold-room temperature dialysate is the mainstay of treatment.

Key Words: Adolescent, Hemoperitoneum, Peritoneal dialysis, Ovarian cyst

ÖZ

Hemoperitoneum kronik periton diyalizinin selim ve sık görülen bir komplikasyonu olmasına rağmen periton drenaj sıvısının görünümü aileler için çoğunlukla korkutucu olmaktadır. Jinekolojik sebepler reprodüktif çağdaki kadınlarda etiyolojik faktörlerin en sık sebebi olarak karşımıza çıkmaktadır.

Altı aydır aletli periton diyaliz tedavisi almakta olan 17 yaşındaki kız hasta iki gündür devam eden kanlı periton diyaliz sıvısı olması nedeni ile başvurdu. Hastanın hafif karın ağrısı dışında eşlik eden şikayeti yoktu, fizik muayenede özellik saptanmadı, kanama zamanı ve koagülasyon testleri normal sınırlardaydı. Abdominal ultrason incelemede sol overde hemorajik kist saptandı. Oda ısısında diyalizat solusyonu ile hızlı değişimler uygulandı. Bu tedavi ile hastanın diyalizat sıvısının kısa sürede normale döndüğü saptandı.

Hemoperitoneum periton diyaliz tedavisi alan reprodüktif çağdaki kadınlarda sık rastlanılan bir komplikasyonudur. Hemoperitoneumun altta yatan nedenini saptayabilmek açısından abdominal ultrason ilk yapılması gereken, kolayca uygulanabilen ve güvenilir bir görüntüleme modalitesidir. Soğuk-oda ısısında diyalizat ile hızlı değişimler uygulanması tedavinin temelini oluşturmaktadır.

Anahtar Kelimeler: Adolsean, Hemoperitoneum, Periton diyalizi, Over kisti

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Conflict of Interest /*Çıkar Çatışması:* *On behalf of all authors, the corresponding author states that there is no conflict of interest.*

Financial Disclosure / *Finansal Destek*: The authors declared that this case has received no financial support.

***Confirmation / Onay*:** The written consent was received from the patient who was presented in this study.

How to cite / *Atıf Yazım Şekli* : Özlü SG, Özdemir Gökçe A, İnözü M and Bayrakçı US. Hemoperitoneum Related with Peritoneal Dialysis in A Female Adolescent: it is Not as Frightening as it Seems. Turkish J Pediatr Dis 2024;18:143-144.

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Received / Geliş tarihi : 11.11.2023
Accepted / Kabul Tarihi : 18.11.2023
Online published : 25.01.2024
Elektronik yayın tarihi
DOI: 10.12956/tchd.1389383

INTRODUCTION

Hemoperitoneum; which is described as the presence of blood in peritoneal dialysate (PD) effluent is a relatively common complication of PD (1,2). For women in the reproductive age receiving peritoneal dialysis common causes of hemoperitoneum are menses, endometriosis, hemorrhagic ovarian cyst and ovarian cyst rupture (1,3). Here we present an adolescent girl in whom hemoperitoneum was caused by hemorrhagic ovarian cyst and easily treated with rapid exchanges with cold dialysate.

CASE REPORT

A 17 years old girl, with end stage kidney disease secondary to focal segmental glomerulosclerosis had been on automated peritoneal dialysis for six months. She was presented to our emergency department with bloody peritoneal effluent lasting for two days. She described mild abdominal pain; and there was no abdominal trauma. She was sexually inactive, had regular menses after PD initiation lasting for 21 to 23 days and her last menstrueal period was about ten days before. The last two days all of the dialysate exchanges were bloody (Figure 1).

On physical examination she appeared generally well, heart rate was 88/min; blood pressure was 100/60 mmhg, respiratory rate was 15/minute; she was afebrile. Abdomen was soft, there was no rebound tenderness. She did not have peripheral edema. Cardiac and respiratory examinations were normal.

Laboratory examinations were normal except for renal function tests. Bleeding time and coagulation profile were in normal limits. Urine examination was normal and peritoneal dialysate culture was negative.

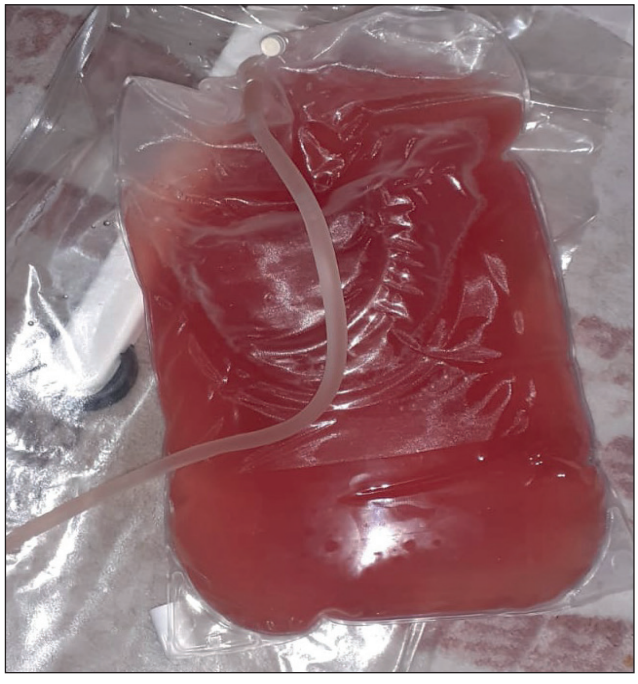

Figure 1: Bloody peritoneal effluent

The Tenckhoff catheter was detected to be in good position in the pelvis on abdominal X ray and there was no free air or dilatation of bowel segments. Abdominal ultrasound revealed hemorrhagic cysts on left ovary. Rapid exchanges with room temperature dialysate cleared peritoneal effluentin two days. Because hemoperitoneum did not recur in this patient no further evaluation was performed.

DISCUSSION

PD related hemoperitoneum is a benign complication of chronic peritoneal dialysis (1,2). Because the PD catheter provides an opening to peritoneum even small amounts of blood may cause peritoneal effluent to appear bloody (1,2). Underlying etiology is commonly evident from the patients history and peritoneal dialysate is usually cleared with several rapid exchanges (1,2).

The incidence of hemoperitoneum differs among reported studies mainly depending on the patient population (4-6). Tse et al. (4) reported that forty six among 549 patients experienced 116 episodes of hemoperitoneum in 10 years of follow-up. None of these patients developed ultrafiltration failure (4). In the study of Greenberg et al. (5) 30 episodes of hemoperitoneum occured in 26 among 424 patients who had been followed up for 11 years. Twenty four of 26 patients had benign causes of hemoperitoneum (5). Recently Aksoy et al. (6) evaluated noninfectious complications of PD in children and they demonstrated that the frequency of hemoperitoneum was 5.6 % in their study group. Seventeen among 302 patients had hemoperitoneum; fifteen were females and 14 of the episodes were menstruation related (6).

Etiological causes of hemoperitoneum vary in a broad range (1,2,4,7). The most common causes reported in literature are catheter related complications, gynecological or obstetric causes, trauma to intraabdominal organs, coagulopathies, uremic bleeding or vascular injuries (1,2,4).

Gynecological causes particularly menstruation associated bleeding are by far the most common causes among female adults and adolescents (4,6-9). Ovulation with mid cycle bleeding, hemorrhagic luteal cysts, ovarian cyst rupture and pregnancy are commonly reported causes of hemoperitoneum in women (1,4).

Hemoperitoneum may develop soon after PD catheter placement (1,2). Trauma, rupture of intraabdominal organs mostly liver and spleen are rare but severe causes of hemoperitoneum. Ruptured hepatic or renal cyst with intraperitoneal bleeding may also result with hemoperitoneum (1,2). Because uremic patients have platelet dysfunction bleeding diathesis should also be kept in mind (1,2).

In patients on chronic PD with several years, peritonitis particularly encapsulated peritoneal sclerosis is an important and devastating cause of hemoperitoneum (1,2).

Rare conditions as the erosion of mesenteric vein by Tenckhoff catheter, pericardiocentesis, radiation to an intraabdominal organ may also cause hemoperitoneum (1,2). In some cases so called idiopathic episodes of hemoperitoneum is likely that a minor Tenckhoff catheter related tear in omental venules may be the cause of bleeding (1,2).

As mentioned above detailed personal history is the mainstay of the evaluation of the patient with PD related hemoperitoneum. Abdominal X-ray may be performed to detect the proper position of Tenckhoff catheter. Abdominal ultrasound is required to detect intraabdominal pathologies (1,2). Authors suggest further investigation as CT or MRI where ultrasound is negative or inconclusive (2). If the patient has intractable bleeding isotope labeled red blood cell (RBC) scan can be performed in order to detect the exact site of bleeding. If more definitive diagnosis is needed angiography will be performed in selected cases (2). Our patient did not have a severe abdominal pain , also did not have a history of hepatic, splenic and renal cysts or a recent abdominal trauma. She had regular menses and her last period was 10 days before. She was sexually inactive and B-HCG was normal. Her initial laboratory tests were non diagnostic and abdominal X ray revealed a normal position of Tenckhoff catheter. Abdominal ultrasound revealed hemorrhagic cysts on left ovary. One of them was 15x9 mm in size and the other was 24x35 mm, the larger one did not have vascularization, was hyperechogenic with hypoechogenic areas inside. The second cyst suggested a complicated hemorrhagic cyst and in order to exclude malignant cases alpha-fetoprotein and CA-125 levels were obtained and they all came out to be negative. The underlying cause of bloody effluent in this case was attributed to these hemorrhagic ovarian cysts.

When managing a patient with PD related hemoperitoneum the extent of bleeding and the severity of symptoms are of great importance (1,2). Benign causes as menstruation-related do not require further evaluation. In this instance reassuring the patient and families that this is a transient condition is the basis of management (2).

Several and rapid exchanges with room temperature (cold) dialysate clears PD- related hemoperitoneum quickly (2). Some authors suggest installation of heparin in order to prevent catheter clotting (2). If there is a coagulopathy it should be corrected by administration of fresh frozen plasma (2). Blood transfusions may be required in severe cases (1,2).

Besides clearing the peritoneal effluent treating the underlying cause is crucial.In cases of hemorrhagic ovarian cysts as in our case; patients should be conservatively managed and carefully monitored (1-3). Recurrent hemoperitoneum requires hormonal or surgical intervention (1-3). Abdominal intervention is essential when bleeding from an intraabdominal organ is the case (1,2,5). In our patient hemoperitoneum improved within two days and did not reccur the following months so no further therapy was required. Follow up ultrasound examination performed one month after the first episode and demonstrated regression of the cysts.

Here we presented an adolescent female in whom PD related hemoperitoneum due to a hemorrhagic cyst resolved easily with conservative management. We aimed to emphasize that pediatric nephrologists should be aware of hemoperitoneum particularly when dealing with female adolescents. One should keep in mind that although the presentation is frightening for both patient and the families the underlying cases are usually benign and no complex-intervention is required and can easily be managed conservatively.

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