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OLGU SUNUMU / CASE REPORT

Chylous ascites: an unusual complication of peritoneal dialysis in an infant with congenital nephrotic syndrome

Konjenital nefrotik sendromlu bir infantta periton diyalizine bağlı olarak görülen nadir bir komplikasyon olarak şiloz asit

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Abstract
Chylous ascites is a rare but important non-infectious complication in patients undergoing peritoneal dialysis. A male infant of 1.5-month-old with congenital nephrotic syndrome admitted to our pediatric intensive care unit becasue of deterioration in general appearence, diffuse edematous appearance and respiratory distress. Peritoneal catheter insertion and peritoneal dialysis was performed in the 3rd day of hospitalization. Five days after peritoneal dialysis catheter insertion (on the 8th day of hospitalization) the peritoneal dialysis effluent had a milky appearance. The chemical analysis of the milky effluent showed characteristics of chylous ascites: triglycerides 468 mg/dl. The chylous ascites resolved at the 5th day of our treatment with a low fat diet with medium chain triglycerides and intravenous infusion of somatostatin analogue (octreotide) and the patient was transferred to the pediatric service for maintenance of the treatment.

Key words: Chylous ascites, non-infectious complications, peritoneal dialysis

Öz
Şilöz asit; periton diyalizi yapılan hastalarda nadir görülen fakat önemli bir non-enfeksiyöz komplikasyondur. Konjenial nefrotik sendromlu 1,5 aylık erkek hasta genel durumunda kötüleşme, diffüz ödematöz görünüm ve solunum sıkıntısı nedeni ile çocuk yoğun bakım ünitesine kabul edildi. Yatışının üçüncü gününde periton diyaliz kateteri takılarak periton diyalizi uygulanmaya başlandı. Periton diyaliz kateteri takıldıktan beş gün sonra (yatışının sekizinci gününde) diyaliz sıvısı süt görünümü almaya başladı. Süt görünümündeki sıvının biyokimyasal analizi şilöz asit karakteri gösteriyordu: trigliserit 468 mg/dl. Şilöz asit kısa zincirli yağ asitlerinden zengin düşük lipidli diyet ve somatostatin anoloğu (octreotid) infüzyonu ile tedavinin 5. gününde düzeldi ve hasta tedavinin devamı için pediatri servisine transfer edildi.

Anahtar kelimeler: Şilöz asit, non-enfeksiyöz komplikasyonlar, periton diyalizi

INTRODUCTION

Since the clinical use of peritoneal dialysis in the 1970s, there have been reports about decreasing rates of peritonitis and increasing non-infectious complications of peritoneal dialysis. Insertion and maintenance of the PD catheter in the peritoneal cavity, the increase in intraabdominal pressure caused by dialysate and the metabolic effects of glucose and its byproducts in the dialysate solutions are responsible for the non-infectious complications.

Chylous ascites is an uncommon clinical entity and is described as presence of thoracic or intestinal lymph in the abdominal cavity. Multiple causes of chylous ascites have been described in the literature: congenital defects of the lymphatic system, infections, pancreatitis, abdominal and pelvic surgery, trauma injury, malignant neoplasms and liver diseases[1]. CA is a rare complication in patients

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undergoing peritoneal dialysis[2]. There are a few reports of CA as a complication of peritoneal dialysis[3]. It may occur due to traumatic insertion of the peritoneal dialysis catheter and is more common in adults. In infants and children; congenital defects of the lymphatic system, lymphangioma and abdominal-thoracic surgery are the most common causes of CA, while surgical operations after blunt abdominal trauma is the most common cause in adolescents and adults[4].

Herein we report a case of chylous ascites in a 1.5 months of age pediatric patient with congenital nephrotic syndrome after peritoneal dialysis catheter insertion with laparoscopy.

CASE

A male infant of 1.5-month-old (gestational age 34 weeks, birth weight 2260 g) was born by cesarean section carried out because of prematurity and prenatal diagnosis of nephrotic syndrome. After birth, he was hospitalised in our neonatal intensive care unit for 33 days and discharged from hospital with a central venous port for treatment of albumin replacement. Ten days after discharge, the patient with congenital nephrotic syndrome admitted to our intensive care unit becasue of deterioration in general appearence, diffuse edematous appearance and respiratory distress. The patient was intubated; mechanical ventilation and emergency hemodialysis was performed. On the 3rd day after admission, the patient underwent peritoneal dialysis (PD) catheter (Tenckhoff) insertion by pediatric surgical team. Continuous PD was started using 2.27% and 3.86% Physioneal solution (Baxter Healthcare Corporation, Deerfield, IL, USA). He was extubated on the 5th day and continous PD was performed succesfully.

Five days after PD catheter insertion (on the 8th day of hospitalization) the PD effluent had a milky appearance. The patient was afebrile and the physical examination of the abdomen was normal. The chemical analysis of the milky effluent showed characteristics of chylous ascites: triglycerides 468 mg/dL, proteins 1.5 g/dl, cholesterol 21 mg/dl, a white blood cell count of 1300/mm^3 (20% neutrophil granulocytes; 1% eosinophil granulocytes; 39% lymphocytes; 40% other cells). Serum triglycerides remained normal (86 mg/dl). The foregoing results confirmed a diagnosis of chylous ascites, which is defined as triglycerides greater than 110 mg/dL. Further evaluations were performed to rule out other causes of the CA. The abdominal X-ray showed no evidence of intestinal perforation. Abdominal ultrasound was performed and showed no specific evidence except bilateral hydronephrosis.

Although cultures from the effluent showed no growth of bacteria or fungi, systemic antibiotics were started at the moment of detection of the milky-cloudy PD effluent till the culture results were negative. At this time after diagnosis of CA, somatostatin analogue (octreotide) was started intravenously infusion with a dosage of 3 mcg/kg/h. A low fat diet with medium chain triglycerides (MCTs) was started immediately after the diagnosis of CA. The cylous ascites resolved at he 5th day of our treatment and the patient was transferred to the pediatric service for maintanence of the treatment.

DISCUSSION

The technique of peritoneal dialysis was first described in the 1950s[5]. Its use have been increasing considerably after 1970s, especially in patients with chronic renal failure. Bacterial infections causing peritonitis are still the most common complication and are the commonest cause of catheter replacement[6]. In recent years, non-infectious complications of PD are increasing while peritonitis rates are decreasing gradually. Non-infectious complications of PD are classified into two groups on the basis of onset from the time of insertion of catheter: early onset (one to four months) and late onset (12-24 months). Early-onset complications include exit site leak, catheter malposition, hemoperitoneum, right-sided hydrothorax and ultrafiltration failure. The late-onset complications are abdominal hernia, scrotal swelling, encapsulated peritonitis and catheter cuff protrusion[7]. CA is a rare seeen early onset or late onset complication of PD.

Chylous ascites (CA) is the leakage of chyle into the peritoneal cavity because of inflammation, trauma or obstruction of the lymphatic system and is defined as triglyceride concentration of >110 mg/dl in the dialysate[8]. There is a characteristic "milky appereance" due to high concentration of triglycerids in the peritoneal fluid. There are numerous causes of chylous ascites including congenital disorders, post-operative and traumatic causes, abdominal malignancies, cirrhosis, infectious aetiologies, inflammatory diseases, spontaneous

bacterial peritonitis, Klippel–Trenaunay syndrome and miscellaneous disorders. Nephrotic syndrome was reported to be associated with both chylous ascites and chylothorax in an adult patient[9].

Postoperative causes include abdominal aneurysm repair, retroperitoneal node dissection, inferior vena cava resection, and PD catheter insertion. Damage of the thoracic duct, cisterna chyli or other major lymphatic vessels in these operations cause CA. Chylous ascites is a rare but important complication of PD catheter insertion, affecting 0.5% of operations in one series[10]. Chylous ascites due to peritoneal dialysis is a rare complication, especially in pediatric patients. In our case, the CA was thought most likely to be secondary to insertion of the PD catheter insertion because of the early presentation of the chylous ascites. This serious complication was reported both in laparoscopic and percutaneous technique[11]. In our patient, the PD catheter was inserted with laparoscopic technique.

In conclusion, our case report reminds that chylous ascites after PD catheter insertion is a rare but important complication of this surgical procedure. In the case of a milky effluent in patient with PD catheter, CA should be thought seriously in differential diagnosis.

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