

Peritoneal Sızıntı Tanısında Peritoneal Sintigrafi

Peritoneal Scintigraphy in Diagnosis of Peritoneal Leakage

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ÖZET

Herniler ve periton sızıntısı, periton diyalizinin mekanik komplikasyonlarından. Obez olmayan tip 2 DM'ye bağlı gelişen diabetik nefropatili sürekli ayakta periton diyalizi (SAPD) hastasında periton sızıntısına bağlı sol inguinal herninin periton sintigrafisiyle tanısını sunmayı amaçladık.

Otuz sekiz yaşında, 6 yıldır SAPD programında olan bir hasta son iki haftada ultrafiltrasyonda azalma ve sol inguinal bölgede şişlik nedeniyle müracaat etti. Abdominopelvik ultrasonografi (USG) ve bilgisayarlı tomografide fasyal yapı sağlamdı. Peritoneal sintigrafide; 1. saatin sonunda sol inguinal bölgede artmış aktivite tutulumları izlendi. Hasta geçici olarak 1 ay süreyle haftada 3 hemodiyaliz programına alındı. 1 ayın sonunda kontrol periton sintigrafisinde önceki defektin kapandığı saptandı. Hasta tekrar SAPD tedavisine alındı.

Abdominopelvik USG ve bilgisayarlı tomografiyle saptanmayan peritoneal sızıntıya bağlı gelişen inguinal hernilerin tanısında peritoneal sintigrafi düşünülmelidir.

Anahtar sözcükler: peritoneal sızıntı, peritoneal sintigrafi, SAPD hastası

ABSTRACT

Abdominal hernias and peritoneal leakage are mechanic complications of peritoneal dialysis. We want to present a nonobese type 2 diabetic female patient treated with continuous ambulatory peritoneal dialysis (CAPD) who had left inguinal hernia due to peritoneal leakage detected by peritoneal scintigraphy.

A 38-year-old female patient who has been on CAPD programme for 6 years was suffering from a swelling in her left inguinal region and a little decline in ultrafiltration rate in last two week. Fascial structure was intact by abdominopelvic ultrasound and computed tomography. In peritoneal scintigraphy; increased activity attachments were observed at the left inguinal side after first hour. The patient was transferred to the hemodialysis programme three times a week for 1 month temporarily. After 1 month, peritoneal leakage and fluid accumulation were not observed in the control peritoneal scintigraphy. The patient began to CAPD therapy again. In conclusion, peritoneal scintigraphy should be considered in detection of the dialysate leakage in patients on CAPD that failed to be diagnosed by abdominopelvic USG and computed tomography.

Keywords: peritoneal leakage, peritoneal scintigraphy, CAPD patients

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Introduction

Some complications inevitably occurred in patients treated with continuous ambulatory peritoneal dialysis (CAPD) during their life. The complications of peritoneal dialysis therapy can be divided into two part as infectious and non-infectious. Abdominal her-

nia and leaks of dialysis fluid are noninfectious complications that are most commonly related to increased intraabdominal pressure. Pressure within the abdomen rises in proportion to the volume of dialysate instilled (1,2). Increased abdominal pressure and abdominal wall tension lead to hernia formation in those with congenital or acquired defects in or around the abdomen. The areas of weakness are probably very important in the pathogenesis of hernias. In fact, the increased intraabdominal pressure in patients with hernias is not different from the pressure measured in those without hernias (3).

In this case report, we want to present a nonobese type 2 diabetic female patient treated with

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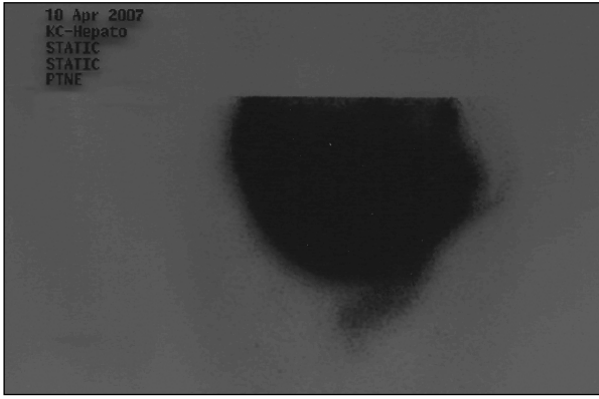


Figure 1. Increased activity attachments at the left inguinal side after 1 hour.

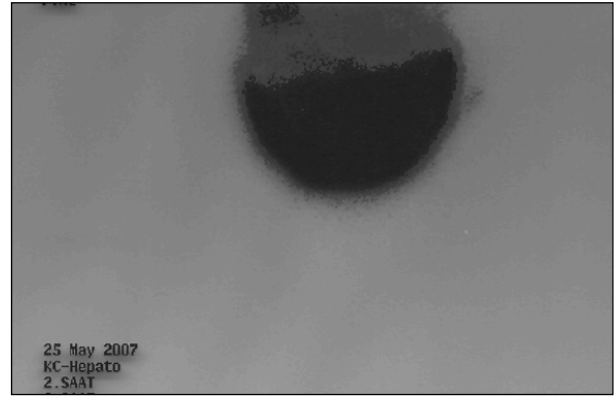


Figure 2. Control peritoneal scintigraphy after 1 month.

CAPD who had left inguinal hernia due to peritoneal leakage detected by peritoneal scintigraphy.

Case: A 38-year-old female patient who has been on CAPD programme for 6 years was suffering from a swelling in her left inguinal region and a little decline in ultrafiltration rate in last two week. She has used four 1.5 Lt 1.36% peritoneal dialysis exchange solution a day. She complained for reduced fluid removal approximately 200-300 cc per exchange in a day with left inguinal swelling. The patient features were BMI: 21 kg/m², Kt/V: 1.96, BP: 120/80 mmHg, Echo: normal, Urea: 141 mg/dl, Creatinine: 10.9 mg/dl, Serum albumine level: 3.5 g/dl, Hgb: 11.3 g/dl, CRP: 5.47 mg/dl.

Abdominopelvic USG: The dermis and muscle structure were much thick at the left inguinal side than right side (right 12 mm, left 22 mm). Fluid accumulation observed at the left inguinal side. Fascial structure was intact and there wasn't any fascial defect.

Abdominopelvic computed tomography: Intraabdominal fascial defect was not established.

Peritoneal scintigraphy: 3mCi 99m technetium sulfur colloid with 1.5 Lt 1.36% peritoneal dialysis solution was used in the peritoneal scintigraphy scan. It was given into the intraperitoneal cavity via intraperitoneal catheter. Sequential gamma camera static images were obtained at the beginning, and then 15 minutes intervals during 2 hours, and after drainage. Increased activity attachments were observed at the left inguinal side after first hour (Figure 1). Peritoneal leakage due to weakness of anterior abdominal wall that caused left inguinal

hernia was established in the scan. Surgical repair wasn't thought in the treatment of the left inguinal hernia. CAPD therapy was stopped temporarily for 1 month. Central venous catheter was inserted into the right internal jugular vein. The patient was transferred to the hemodialysis programme three times a week for 1 month. After 1 month, peritoneal leakage and fluid accumulation were not observed in the control peritoneal scintigraphy (Figure 2). Thus it was thought that peritoneal leakage was healed without surgical repair. The patient began to CAPD therapy again with 750 cc, 1.36% peritoneal dialysis solution four times a day. After a week, the volume of the peritoneal dialysis exchange solution was increased to 1.5 Lt per exchange.

Discussion

Patients treated with peritoneal dialysis (PD) have increased intra-abdominal pressure and a high prevalence of abdominal wall complications. Hernias and peritoneal leakage are the most frequently seen problems of the abdominal wall complications. Hernias can lead to significant morbidity in patients on peritoneal dialysis. In the clinical presentations of hernias included painless abdominal mass or tender and painful abdominal mass or abdominal pain, tenderness, or bowel obstruction (4). Nevertheless, hernias can be asymptomatic and difficult to diagnose on cursory examination. There was only a left side swelling at the standing position in the physical examination of the patient.

Large dialysis solution volumes, obesity, multiparity, recent abdominal surgery and isometric exercise are the potential risk factors (5). None of these

potential risk factors were eligible for our patient. Because the patient was nonobese, had only one child, no recent abdominal surgery and no isometric exercise. Although large dialysis volume is accepted as a potential risk factor for hernia formation in CAPD patients, Hussain SI et al (6) reported that increased volumes in PD patients do not lead to an increased risk of hernia formation. So, increased volume alone does not seem to be a risk factor for CAPD patients. The patient has a short structure and has a 1,5 Lt instilled volume. Thus we can say hernia formation is multifactorial mainly dependent on risk factors which caused to increase intraabdominal pressure. In the history of the patient, the patient had a pulmonary infection with severe coughing diagnosed as pneumonia one month ago. Valsalva maneuver can cause very high levels of intraabdominal pressure and can lead to abdominal wall complication. Not only increased intraabdominal pressure but also abdominal wall weakness is a risk factor for hernia formation in CAPD patients. Risk factors contributing to abdominal weakness appear to predispose mostly to late leaks; one or more of them can generally be identified in majority of the patients. Early leakage most often manifests as a pericatheter leak. Late leaks may present more subtly with subcutaneous swelling and edema, weight gain, peripheral or genital edema, and apparent ultrafiltration failure (7). The clinical presentation of the patient was subcutaneous swelling at the left inguinal side and ultrafiltration failure. By this reason, increased intraabdominal pressure and dialysate leakage due to abdominal wall weakness caused by severe coughing is the possible cause in the development of inguinal hernia formation in our patient. Imaging of the asymptomatic hernia can be done by ultrasonography, computed tomography and by peritoneal scintigraphy. Ultrasonography can distinguish the solid appearing hernia from the fluid collections such as peritoneal dialysis solution in patients on CAPD. But abdominal hernia could not be detected by ultrasonography in our patient. Another imaging tool is computed tomography that can aid delineation of a hernia. Computed tomography without contrast was performed for detecting hernia because of the patient feature. She has an allergic reaction to contrast dye in her history. However computed tomography without contrast could not detect the hernia in our patient either. By this reason peritoneal scintigraphy was used in detecting

the hernia. 99m technetium sulfur colloid is the preferred agent in detection of the abdominal hernias by peritoneal scintigraphy (8). 3mCi 99m technetium sulfur colloid with 1.5 Lt 1.36% peritoneal dialysis solution was used in the peritoneal scintigraphy scan. It was given into the intraperitoneal cavity via intraperitoneal catheter. Increased activity attachments were observed at the left inguinal side after first hour. Peritoneal leakage due to abdominal wall weakness caused to left inguinal hernia was established in the scan. Treatment options for dialysate leaks include surgical repair, temporary transfer to hemodialysis, lower dialysate volumes, and PD with a cyclor. CAPD therapy has been temporarily stopped for 1 month. The patient has been temporarily transferred to the hemodialysis programme three times a week for 1 month. After 1 month, peritoneal leakage and fluid accumulation were not observed in the control peritoneal scintigraphy (Figure 2). Thus it was thought that peritoneal leakage was healed without surgical repair. The patient began to CAPD therapy again. It is important that dialysate leakage and abdominal wall hernias should be referred early to the nephrology department to minimize mechanical complications.

In conclusion, peritoneal scintigraphy should be considered in detection of the dialysate leakage in patients on CAPD that failed to be diagnosed with abdominopelvic USG and computed tomography.

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