Abdominal pain: The black box. Retrospective evaluation of patients administered to the emergency department due to complicated lymphocyst

Meltem Akkaş¹, Türkmen Çiftci², Devrim Akıncli², Nalan Metin Aksu¹, Müge Gúnalp³*, Figen Coşkun⁴, Erhan Akpinar², Mehmet Mahir Özmen¹ and Okan Akhan²

¹Hacettepe University School of Medicine Department of Emergency Medicine, Turkey.
²Hacettepe University School of Medicine Department of Radiology, Turkey.
³Ankara University School of Medicine Department of Emergency Medicine, Turkey.
⁴Ankara Training and Research Hospital Department of Emergency Medicine, Turkey.

Accepted 22 August, 2011

Lymphocyst is mainly observed following extraperitoneal surgery. In this retrospective study, we aimed to determine the results of patients treated with percutaneous catheter drainage who referred to the emergency department due to lymphocyst complications. The examined group was consisted of 17 patients. All patients admitted to the emergency were suffering from abdominal pain. Ultrasonography (USG) was performed to all patients. Computerized tomography (CT) and magnetic resonance imaging (MRI) were performed in 13 and 1 patient respectively. With the imaging evaluation complicated lymphocysts were detected. In 5 cases compression of urinary bladder, in 5 cases hydrourerteronephrosis, in 2 cases compression of the left external iliac vein, in 1 case compression of the small and large intestine were observed. Percutaneous catheter drainage and sclerotherapy under ultrasonography and fluoroscopy guidance was performed to all cases in interventional radiology unit. To the best of our knowledge most of the lymphocysts were asymptomatic. Complicated lymphocysts may present as acute abdominal pain due to intraabdominal mass effect in patients having undergone surgery for gynecologic malignancy. If the lymphocyst is infected or becomes symptomatic due to compression of adjacent organ must be diagnosed and treated in early period. Clinical and radiological examinations are the key to the diagnosis of complicated lymphocyst. Emergency physicians should consider percutaneous catheter drainage as a treatment of choice.

Key words: Lymphocyst, percutaneous catheter drainage, abdominal pain, emergency department.

INTRODUCTION

Lymphocysts are usually seen as abnormal accumulation of lymphatic fluid, after radical lymphadenectomy or extraperitoneal surgeries. This occurred due to lymphatic leakage or surgical transection. If the injury in lymphatic vessels is mild, lymphatic circulation will continue through collaterals (Braun et al., 1974). But if the injuries of lymphatic vessels are serious, the lymphatic fluid in afferent vessels will accumulate in various compartments like pelvic or retroperitoneal cavity and this situation will result in the formation of lymphocyst (White et al., 1985).

Lymphocysts are surrounded by a thick fibrous wall with no epithelial cells. It contains clear and yellow fluid different from seroma and hematoma. The biochemical analysis (protein, urea, creatinine, electrolytes) of lymphocyst is similar to serum, but different from urinoma, hematoma, seroma, and abscess (Sawhney et al., 1996). The lymphocyst formation is not associated with age, stage of disease and histology of tumor. But lymphostasis, the presence of metastatic lymph nodes, usage of steroids, diuretics or heparin, previously received radiotherapy and the surgical technique are associated
with the formation of lymphocyst (Braun et al., 1974; Glass et al., 1998; Cohan et al., 1987; Yamamoto et al., 2000).

Lymphocysts are seen in a rate of 2 to 32% (Ayhan et al., 2002; Conte et al., 1990; Petru et al., 1989; Charkviani et al., 2000) after gynecologic lymphadenectomy, 0.6 to 25% (Sawhney et al., JVIR, 1996; Cohan et al., 1987; Yamamoto et al., 2000; Sansolene et al., 2000; Atray et al., 2004) after renal transplantation and 0.7 to 27% (Cohen et al., 1987; Spring et al., 1981; Tomic et al., 1994) after urologic extraperitoneal lymphadenectomy. In this study, we aimed to determine the results of treatment of patients with percutaneous catheter drainage who referred to emergency department due to lymphocyst complications.

MATERIALS AND METHODS

Hacettepe University, School of Medicine is a center where excess number of patients admitted and treated due to malignancies and their complications. In this study patients who are admitted to emergency department with various complaints and diagnosed with complicated lymphocysts were retrospectively evaluated. Between January 2000 to December 2006, 21 patients were recorded in hospital registration identified by ICD-10 codes. 4 patient's files were excluded due to insufficient information. The 17 patients which were included into the study were evaluated in terms of lymphocyst etiology, symptoms in the emergency department, findings of physical examination and imaging modality, treatment and outcomes. The data were recorded on standard forms. Categorical data were expressed as frequencies and percentages.

RESULTS

Among the patients admitted to the emergency department with lymphocyst complication mean age was 53.5 years (25 to 75 years). All the lymphocysts were occurred after lymphadenectomy surgery which was performed due to gynecologic malignancy. It was recorded that the history of surgery was present in patients due to ovarian cancer (n=12), endometrium cancer (n=3) and cervical cancer (n=2). The duration between the surgery and the admission to emergency department due to lymphocyst complications were between 19 days and three years.

All patients suffered from abdominal pain. 5 of them had polyuria, pain and difficulty with urination; 2 of them had unilateral swelling of the lower extremity, 2 of them had flank pain, 1 of them had constipation, 6 of them had swelling in abdomen, in 11 of them fever accompanied to abdominal pain.

During physical examination, high fever (n=11), left lower quadrant tenderness (n=5), right lower quadrant tenderness (n=3), bilateral lower quadrant tenderness (n=7) and diffuse abdominal tenderness (n=2) was recorded. In 6 cases tenderness was accompanied with rebound. In 4 of the cases lymphocysts were palpable.

Ultrasonography (USG) was performed in all cases, request of computerized tomography (CT) and magnetic resonance imaging (MRI) was recorded in 13 and 1 patient respectively. With the imaging evaluation complicated lymphocysts were detected in left lower quadrant (n=6), right lower quadrant (n=3), in pelvis midline (n=2), in both quadrant (n=6). Nine patients had multiple symptomatic lymphocysts.

The smallest one of the lymphocyst has the dimension of 28 x 16 mm and the biggest one was 181 x 106 mm.

In 5 cases compression of urinary bladder, in 5 cases hydrourereteronephrosis (4 of them with minimal-moderate degree and 1 with moderate-severe degree), in 2 cases compression of the left external iliac vein (in one of them acute vein thrombosis was observed), in 1 case compression of the small and large intestine was observed.

11 patients had fever accompanying to abdominal pain and other infection focus was not detected. Internal echoes and/or fluid-debri levels on USG, fat stranding adjacent to lymphocysts and/or contrast enhancement in cyst wall on CT were identified after imaging examinations. All fluid samples that were collected during the drainage procedure were cloudy. Since radiological and clinical findings of these patients support the presence of infected lymphocyst, antibiotic therapy was also initiated besides percutaneous catheter drainage. In 9 cases positive cultures were observed from lymphocyst fluids. Culture results were as follows Staphylococcus aureus (n=4), Escherichia coli (n=2), Staphylococcus lugdunensis (n=1), Enterococcus faecalis (n=1) and Enterococcus durans (n=1).

Percutaneous catheter drainage and sclerotherapy under USG and fluoroscopy guidance was performed to all cases in interventional radiology unit. Mean catheter duration was 5.8±2.2 days (3 to 11 days). All patients were discharged without any complication. In one patient, three years after the treatment, readmission to the emergency department due to a new infected lymphocyst was determined from the records.

DISCUSSION

In literature we have not encountered any study evaluating the cases administered to emergency department due to complicated lymphocyst. All reports are available as a case report. Based on our results, it can be concluded that emergency department admissions due to complications of lymphocyst are rare. In literature lymphocyst is observed mostly after gynecological and urological malignancy, transplantation operations (Glass et al., 1998; Cohan et al., 1987; Conte et al., 1990).

Also in the future increase in the number of lymphadenectomy due to urologic and gynecologic malignancies will cause an increase in lymphocyst complications. All cases in our study were women and had undergone gynecologic malignancy operations.
Lymphocysts are often observed in few weeks after the operation; however this period can be extended to few years (Karcaaltincaba et al., 2005; Kurata et al., 2003). Excluding the duration of two cases (one of them was 1.5 years, the other was 3), the average time between surgery and admission to emergency department was 80 days, and this was in accordance with the literature.

Lymphocysts are often asymptomatic and disappear spontaneously without any treatment (White et al., 1985; Sawhney et al., 1996; Kim et al., 1999). If the lymphocyst is infected or becomes symptomatic due to compression of adjacent organs, treatment will be needed (Glass et al., 1998).

In literature, it has been shown that the most common complaint regarding lymphocysts is abdominal pain (Conte et al., 1990; Petru et al., 1989; Charkviani et al., 2000; Kurata et al., 2003; Kim et al., 1999). The cause of the abdominal pain is pelvic nerve compression. All of our patients had abdominal pain. In all our cases there was tenderness in the abdomen.

Abdominal abscess, a problem with a blood vessel (such as an aneurysm), an enlarged organ (such as the liver, spleen, or kidney), a tumor, or an accumulation of feces are reasons of abdominal mass causing abdominal pain. A wide variety of rare causes of abdominal mass exist, including many different types of cancer and rare genetic disorders resulting in cysts or other abdominal masses. Lymphocyst is the rare reason of the mass in the abdomen. If the patient undergone surgery for gynecologic or urologic cancer and had symptoms due to compression of adjacent organ, the lymphocyst should be considered. The differential diagnosis of the lymphocyst can be done only by imaging methods.

Fever due to infected lymphocyst is one of the most common complications associated with lymphocyst (Kurata et al., 2003; Kim et al., 1999; Indudhara et al., 1994; Zuckerman et al., 1997). In our some cases, defense and rebound existed and in these cases lymphocyst infection was occurred. Generalized peritonitis and sepsis may appear in patients who are not diagnosed or whose treatment was delayed. Therefore, in the cases with symptoms of abdominal pain and fever, especially patients who have a history of pelvic and para-aortic lymphadenectomy, the possibility of infected lymphocyst should be kept in mind.

Symptoms that occur due to the compression of adjacent anatomical structures by lymphocyst are important among the reasons of administration to emergency department. Ureteral compression may cause to hydronephrosis, venous compression may cause to edema of lower extremity, deep venous thrombosis or pulmonary thromboembolism and compression of the rectosigmoid colon may cause to constipation, compression to pelvic nerves may lead to pain and the compression to urinary bladder may cause to polyuria (White et al., 1985; Yamamoto et al., 2000; Kim et al., 1999; Indudhara et al., 1994). In two cases due to compression of the external iliac vein, unilateral left lower extremity swelling were observed. In one of these cases, acute thrombosis was observed in the external iliac vein. Pulmonary embolism was not detected in thorax CT evaluation. However, the patient who had acute shortness of breath was anticoagulated. Because pulmonary embolism cannot be excluded clinically. Symptoms due to lymphocyst compression should be treated and diagnosed in early stage before occurrence of any possible irreversible results (Karcaaltincaba et al., 2005; Kim et al., 1999; Indudhara et al., 1994). Especially deep vein thrombosis, pulmonary thromboembolism, generalized peritonitis and sepsis are life-threatening, major complications (Hirabayashi et al., 2005; Tsuji et al., 2007; Bianek et al., 2006).

Lymphocyst was palpable in 4 of the lymphocyst cases. Deep localization and small size of the lymphocyst or the obesity of the patient can prevent palpation of lymphocyst. USG is a first radiological modality in diagnosis (Greenberg et al., 1985; Heinzer et al., 1998). In USG, lymphocyst is usually observed as anechoic cystic structures in para-iliac region adjacent to the vessels. It may contain thin septations or debris. In CT, lymphocyst is observed as hypodense lesions with thin walls. It is usually found in the adjacent to the surgical clips. In infected and complicated cyst, cyst wall shows irregular thickening. In MRI lymphocyst is observed as lobulated and relatively hyperintense structures (Figure 1) an indistinct wall is generally present. Lymphocyst is separated from hematoma and other cystic structures with its characteristic localization, lobulated contour and cystic structure. For diagnosis of all patients in our study, USG was sufficient. However, advanced modalities (CT, MR) were used for further follow-up investigations and treatments of complications.

Pelvic lymphocyst can be treated with open or laparoscopic surgery (Gill et al., 1995; Hsu et al., 2000; Melvin et al., 2000). In open surgery lymphocyst is drained into the intraperitoneal cavity. The disadvantages of the open surgical approach are that it can only be applied to sterile lymphocyst and requires a long recovery time, its cost is high, it has high morbidity and mortality rates. With laparoscopic treatment ureteral injury may occur at a rate of 7%. In lymphocyst that laparoscopic surgery was preferred as a treatment option, presence of previously performed abdominal surgery and presence of technical limitations in the access to the cyst are the conditions that necessitates open surgery. However, in the last 20 years interventional radiology has become important in the treatment of lymphocyst and its complications. Percutaneous catheter drainage with or without an sclerosing agent has become an alternative to surgical approaches (Karcaaltincaba et al., 2005; Kurata et al., 2003; Kim et al., 1999). Ethanol, povidone-iodine, talcum powder, bleomycin, tetracycline, doxycycline can be used as sclerosing agents (Akhan et al., 1992; Khorram et al., 1993; Rivera et al., 1996; Caliendo et al., 1999).
Figure 1. A 40-year-old (a) and a 60-year-old (b,c) women who underwent ovarian cancer surgery. Axial post-contrast CT images show right sided (a) and left sided (b) paraaortic infected lymphocysts (stars) with thick enhancing wall and fat stranding. Note the femoral vein thrombosis in latter patient (arrow) (c).

Figure 2. 64-year-old female patient who had operated endometrium cancer was admitted to the emergency department with symptoms of pressure over urinary bladder and lymphoedema in lower extremity. Lyphocyst (stars) which compresses urinary bladder (arrow) was observed in the pelvis with MRI which was performed during patients’ administration to emergency department. Axial (a), coronal (b) and sagittal (c) T2-weighted MR images of lymphocyst.

2001; Mcdowel et al., 1991; Teiche et al., 1999). Since it is performed under USG or CT guidance, it becomes more commonly used technique in technically equipped centers. This method has some advantages that; it is a safe method compared to surgery; it is more appropriate method than surgery for treatment of infected lymphocyst. In our institution percutaneous catheter drainage was performed in all patients as infection or compression due to lymphocyst was present in all patients. No complication was observed during the treatment (Figure 2).

Postoperative lymphocyst is rare, usually small and sterile, and will disappear spontaneously. But if complications due to infection or symptoms associated with compression are observed, patients usually admitted to the emergency departments. If abdominal pain with unknown etiology is accompanied with fever, difficulty with urination or defecation, unilateral lower extremity swelling, acute shortness of breath, malignancy, previously performed intraabdominal surgery, lymphocyst should be considered by emergency physicians. For complicated lymphocyst, interventional radiology consultation for percutaneous catheter drainage is a good
treatment option. Complication and recurrence rates are low with this method (Figure 3).

REFERENCES


