G Chir Vol. 32 - n. 1/2 - pp. 73-76
January-February 2011

A simple method to treat post-kydney transplantation lymphocele

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SUMMARY: **A simple method to treat post-kydney transplantation lymphocele.**

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Objective. *To describe our experience with ultrasonic-guided instillation of povidone-iodine to treat post-kidney transplantation lymphocele.*

Patients and methods. *We studied the safety and efficacy of this procedure for treatment of lymphocele in 6 male kidney transplanted recipients in which we assisted a progressive increase of creatinine and urinary proteins levels and color-Doppler ultrasonography demonstrated an increase (25,4%) of index of resistence (IR) Using eco-color-Doppler, the related-graft lymphocele location and the distance to the anterior abdominal wall were determined; then, a radiopaque double-lumen catheter was used to instillate 5% povidone-iodine 10 ml.*

Results. *Percutaneous drainage achieved a resolution rate of 100%. Studying the rate of peripheral and internal vascularization of the kidney before and after treatment, eco-colorDoppler showed a significant decrease of the IR (24,6%).*

Conclusions. *The US-guided povidone-iodine instillation for treatment of lymphocele following renal transplantation may be considered as first choice therapy in such disease.*

RIASSUNTO: **Un semplice metodo di trattamento del linfocele post-trapianto di rene.**

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Obiettivo. *Descrivere la nostra esperienza sull'instillazione eco-guidata di iodopovidone per il trattamento del linfocele che si sviluppa in seguito a trapianto di rene.*

Pazienti e metodi. *Abbiamo testato la sicurezza e l'efficacia della procedura nel trattamento del linfocele in 6 riceventi maschi trapiantati di rene per i quali si è assistito ad un progressivo aumento delle concentrazioni ematiche di creatinina e dei livelli urinari di proteine, oltre che a un incremento (25,4%) degli indici di resistenza (IR) dimostrato ecograficamente. Con l'ausilio dell'eco-colorDoppler sono stati determinati la sede del linfocele e la sua distanza dalla parete addominale anteriore; successivamente, si è proceduto all'instillazione di 10 ml di iodopovidone al 5% per mezzo di un catetere radiopaco a doppio lume.*

Risultati. *Con il drenaggio percutaneo si è raggiunto un tasso di risoluzione della patologia pari al 100%. Valutando il grado di vascolarizzazione renale periferica e centrale prima e dopo trattamento, l'eco-colorDoppler ha dimostrato una significativa riduzione degli indici di resistenza (24,6%).*

Conclusioni. *L'instillazione eco-guidata di iodopovidone per il trattamento del linfocele post-trapianto di rene può essere considerata la terapia di prima scelta per questo tipo di patologia.*

KEY WORDS: Lymphocele - Kidney transplantation - Povidone-iodine - US-guided percutaneous treatment.
Linfocele - Trapianto di rene - Iodopovidone - Drenaggio percutaneo ecoguidato.

Introduction

Lymphocele, also known as lymphocyst, is an abnormal accumulation of lymphatic fluid that lack of an epitelial lining. It occurs most frequently after lymphadenectomy for malignant tumors or after kidney transplantation, due to transection of lymphatic channels during iliac artery dissection, or from excessive use of diathermy (1-4). Cystic collection develops when the adjacent peritoneum becomes edematous and fibrotic, preventing resorption of extravasated lymph (5). Several factors may lead to leak of lymph such as acute rejection episodes, delayed graft function, source of kidney (cadaveric versus living related donor), use of diuretics, and steroid therapy (6).

Lymphocele is diagnosed by means of radiologic studies, in the appropriate clinical setting, and fluid sampling, to distinguish the lymphocele from other similar appearing fluid-filled masses such as urinomas, seromas,

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hematomas, and abscesses. Lymphocele following kidney transplantation is a well-known complication with an incidence of 2-18% (7). The majority of patients are asymptomatic. However, once a lymphocele has become symptomatic, as evidenced by graft dysfunction, this condition must be treated.

Management of lymphocele is controversial. The approach depends on type, dimension, and localization of the accumulation of fluid. Methods described of treatment of lymphocele include: i) fenestration into the peritoneal cavity by laparascopic or traditional surgical approach; ii) a non invasive method such as percutaneous US-guided aspiration with instillation of local sclerosant. A variety of sclerosing agents have been used for sclerotherapy of lymphocele, including tetracycline, acetic acid, and ethanol (3-16).

We report a method with povidone-iodine instillation after post-transplantation lymphocele percutaneous US-guided aspiration (17). This technique usually offers a 80% success rate and it is minimally invasive. Surgical treatment has been the method of choice because of the high rates of recurrence after percutaneous aspiration or drainage alone.

Patients and methods

We treated 6 male patients with symptomatic lymphocele and an average age of 46,5 years (40 to 53 years) who underwent kidney transplantation from cadaveric donors within the period 2006 - 2009. The transplant procedures were uneventful; the renal vein and artery were anastomized to the external right iliac vein and artery in a termino-lateral fashion. Immunosuppressive therapy was based on cyclosporine A, steroids, and mycophenolate mophetyle.

Lymphocele tends to occur as a complication within the first week or month after transplantation. However, in all our patient treated, lymphocele has developed about 15 days after operation. In all patients we assisted a progressive increase of creatinine and urinary proteins levels; color-Doppler ultrasound (ATL Apogee 800 PLUS) demonstrated an increase of index of resistence (IR) (25,4%) and the presence of a perirenal lymphocele of 6-10 cm ranging in diameters with moderate compression of graft vessels and dilation of renal pelvis and proximal ureter. Biochemical analyses have been helpful for diagnosis, since lymphocele had the same levels of proteins, urea nitrogen, creatinine, electrolytes and lipids as serum has.

It was decided to attempt a lymphocele space sclerosis by percutaneous instillation of povidone-iodine. The exact site of puncture was marked by means of ultrasonographic guide and needle aspiration was used to confirm the site. Under local anesthesia, a radiopaque double lumen catheter (300 mm ,7 F, Ø2,3 mm) of polyurethane (cair L.G.L Z.I.Le Pontet BP.47 69380, Civreux D'Azergues, France) was positioned into the lymphocele by a US-guided percutaneous method and 300 ± 50 cc liquid were aspirated. Then 10 ml of 5% povidone-iodine was instilled and dwelled in the cavity for 15 minutes two times daily always through the same lumen. The lymph was then allowed to drain by gravity (Fig. 1).

Results

In all patients the lymph drainage from the other lumen became insignificant within five days and thereafter the tube was removed when lymphocele was healed. During the period between a procedure and the next one, the catheter was sterily medicated and patients went home.

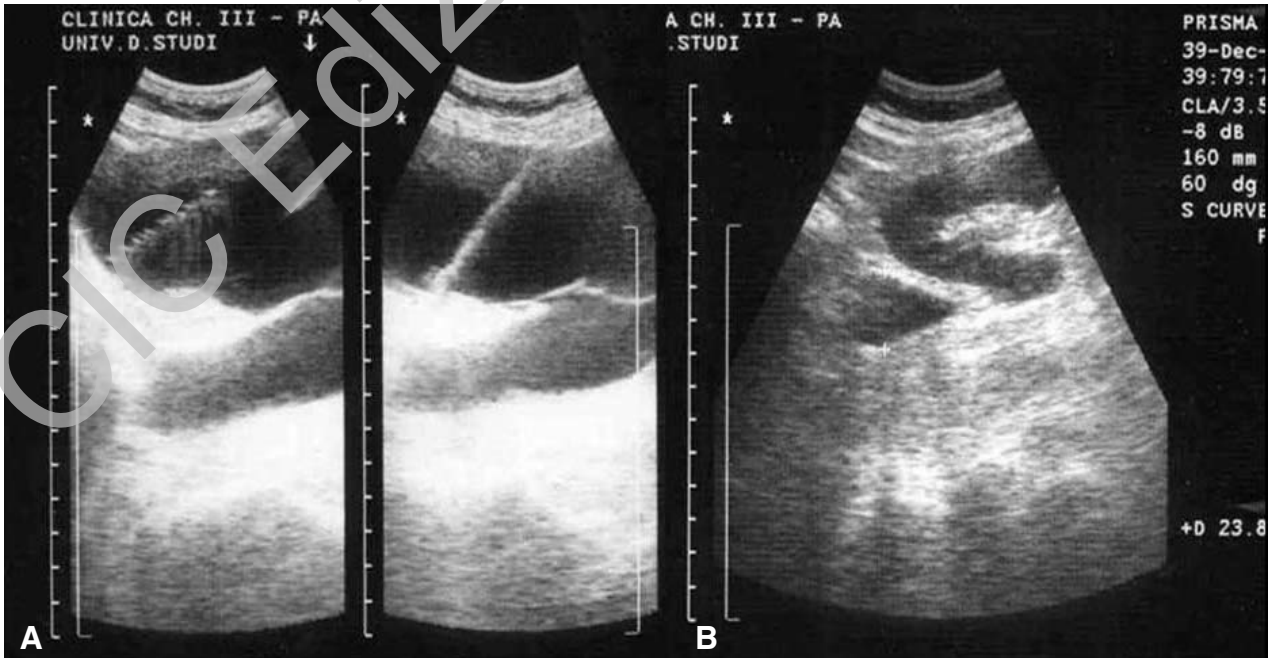

Fig. 1 - US images before (A) and after (B) the treatment.

A color-Doppler ultrasound performed immediately after the procedure evidenced resolution of the lymphocele, disappearance of pelvis and urether dilation; moreover, the renal vein and artery were patent in two patients, while in the other cases lymphoceles resolved after 15 days of therapy with normal renal function and a significant decreasing of IR (24,6%). Percutaneous drainage of the lymphocele combined with povidone-iodine instillation achieved a resolution rate of 100%. No severe complications and infections were encountered.

Discussion

The natural course of lymphocele usually depends on size of lesion. We observed that repeated femoral catheterisms in patients with a long term renal failure may induce an acute or chronic lymphoadenopathy making difficult isolate iliac vessels. Consequently, truncated or not ligated lymphatic channels lead a leak of lymph and lymphocele can develop. When lymphocele is small and sterile it usually heals by means of spontaneous resorption. However large lymphocele may become symptomatic and compress adjacent structures such as the iliac vessels, bladder, ureter or sigmoid. It causes symptoms that include abdominal distension, abdominal and pelvic pain, hydronephrosys, bladder dysfunction, constipation, tenesmus, oedema of ipsilateral legs and genitalia, and thromboembolism of iliac vessels with graft dysfuction evidenced by worsening of renal function with a rise in serum creatinine levels, proteinuria and a decrease of urine output (18).

Diagnosis can be performed using magnetic resonancy images (MR) or abdominal computed tomography (CT) scan or ultrasound; biochemical analyses of the fluid aspirated trought lymphocele puncture has been considered the last of them and could be used to distinguish lymphocele versus other complications.

Ultrasonography integrated with Color Doppler is a safe and effective method to locate lymphocele in relation to the graft, and proximity to the anterior abdominal wall (19, 20).

This procedure has already been described and offers some advantages, but it is characterized by a recurrence rate as high as 70-80% and 25-50% infection rate (4, 20, 21). Povidone-iodine can be instilled through a way of double lumen catheter throug, a simple percutaneous puncture of lymphocele after local anaesthesia; the second way of the catheter allows the drainage of fluids. It is an extraperitoneal, rapid and easy procedure that can be execute in day surgery regimen (3, 8, 9, 22). Povidone-iodine has antibacterial action, it is a local sclerosant, it is not toxic or irritant, and it's water-soluble.

Conclusions

We believe that percutaneous sclerotherapy of lymphocele post-kidney transplantation is efficacious and safe. It may be the first choice treatment for such conditions and more complicated surgical techniques should be reserved for the occasional instance of initial failure of povidone-iodine sclerotherapy or recurrence of the lymphocele.

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