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Non-Parasitic Chyluria: Our Experience With Sclerotherapy With Solution of Povidone-Iodine and Destrose and A Review of the Literature

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ABSTRACT

Chyluria is the passage of chyle in the urine. The cause seems to be the rupture of retroperitoneal lymphatics into the pyelocaliceal system, giving urine a milky appearance. This condition if left untreated it leads to significant morbidity because of hematochyluria, recurrent renal colic, nutritional problems due to protein losses and immunosuppression resulting from lymphocyturia. We report our experience with the use of povidone iodine with dextrose solution as a sclerosing agent in the management of chyluria in two patients.

Introduction

Chyluria is the passage of chyle in the urine. The cause seems to be the rupture of retroperitoneal lymphatics into the pyelocaliceal system, giving urine a milky appearance. This communication is caused by the obstruction of lymphatic drainage proximal to intestinal lacteals, resulting in dilatation of distal lymphatics and the eventual rupture of lymphatic vessels into the urinary collecting system. This condition if left untreated it leads to significant morbidity because of hematochyluria, recurrent renal colic, nutritional problems due to protein losses and immunosuppression resulting from lymphocyturia. Various conservative measures like bed rest, high fluid intake, low-fat diet, fat-containing medium-chain triglycerides have been described. Chyluria may be classified as mild, moderate, or severe. Many sclerosing agents have been tried as silver nitrate, povidone iodine diluted in distillated water or pure. Povidone iodine with or without dextrose solution as a sclerosing agent was used successfully in a few studies. We report our experience with the use of povidone iodine with dextrose solution as a sclerosing agent in the management of chyluria in two patients.

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Material and methods

Case 1

A man of 42-year old presented to our department with a new episode of chyluria associated with hematuria. The patient had medical history negative for major diseases. At the moment of the access at our department his chyluria may be classified as moderate and he underwent complete hematological exams that show normal lipoproteins level and total proteins level. Urine analyses demonstrated sterile urine and the presence of lipoproteins (>2.5 g). The day after the patient underwent endoscopic evaluation: the cystoscopy evaluation revealed the presence of left side efflux (Fig. 1). Subsequently a retrograde pyelography was performed and a communication between the left upper urinary tract and the retroperitoneal lymphatics was demonstrated (Fig. 2). A 7 F mono-J ureteral catheter was positioned and it was left attached to a 18 F indwelling Foley catheter for the 3 days of the treatment schedule. A freshly prepared solution containing 5 mL of 10% povidone iodine and 5 mL of 10% dextrose was instilled twice a day for 3 days. Routine prophylactic oral antibiotics and oral analgesics were given for 4 days after instillation. Before removing the ureteral catheter a retrograde pyelography was performed and it demonstrated the absence of communication between the lymphatic system and the upper urinary tract.

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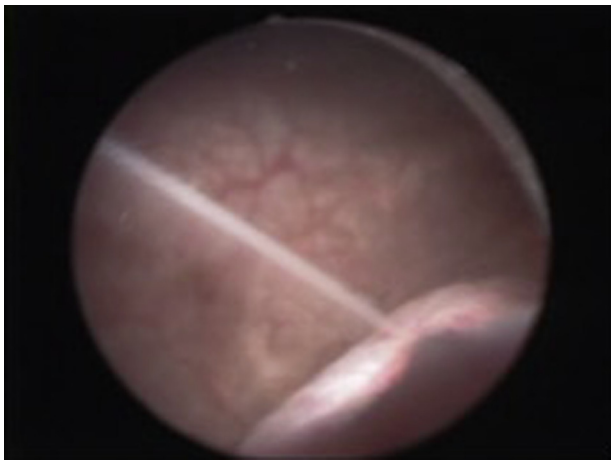

Figure 1. Chyluria: left side efflux during cystoscopy.

Case 2

A man of 60-year old presented to our department for multiple acute urine retention episodes associated with chyluria. The patient had medical history positive for Parkinson disease. He was previously studied with lymposcintigraphy that showed abnormal communication between the lymphatic system and the left upper urinary tract. An Uro-CT demonstrates the presence of multiple bilateral kidney cysts but it was negative for other abnormalities. For his low urinary tract symptoms he was evaluated with cystometry that demonstrated an obstructive pattern and a transrectal ultrasound that showed a prostate of about 26 cc. Urine analysis that showed the presence of protein and chyle. His chyluria may be classified as moderate. At the moment of the access to our department the patient underwent complete hematological exams that show normal level of proteins and lipoproteins. Urine analyses demonstrated sterile urine and the presence of lipoproteins (>2.5 g). The day after he underwent cystoscopy evaluation that revealed the presence of left side efflux (Fig. 3) and a subsequently position of a 7 F mono-J and an endoscopic incision of the prostate. Subsequently a retrograde pyelography was performed and no communications between the left upper urinary tract and the retroperitoneal lymphatics was demonstrated. The patient was treated as before with success.

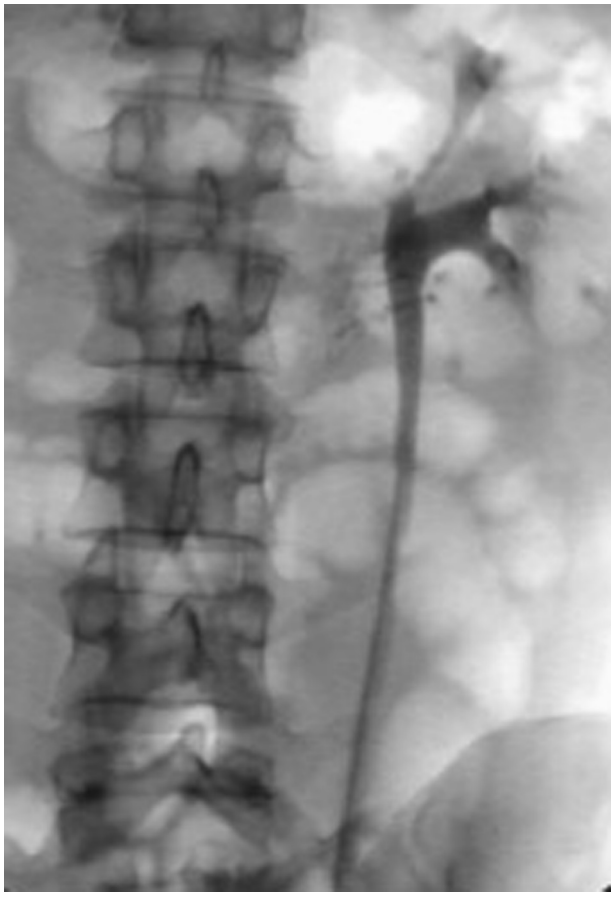

Figure 2. Retrograde pyelography: communication between the left upper urinary tract and the retroperitoneal lymphatics.

Results

All the two patients showed complete clearance of chyluria. In one patient, recurrence was noted after 6-month. A repeat injection was given with complete clearance. No major complications were seen.

Discussion

The passage of large amounts of chyle in the urine is known as chyluria. Chyle is a combination of proteins, emulsified fat and fibrin. Chyluria is classified as parasitic and nonparasitic.[1,2] The parasitic one it is seen most commonly in endemic areas such as India, China, Japan, Southeast Asia, tropical sub-Saharan Africa and South America *Wucheraria bancrofti* is considered to be the parasitic cause for chyluria in these endemic areas. Other nonparasitic causes of chyluria include tuberculosis, congenital anomalies, trauma, post-surgery infections and malignancy. The cause of the disease is due to the obstruction and the rupture of the lymphatic system into the urinary system. The fistulous communication can occur at the renal pelvis, ureter, bladder or the prostatic urethra. The most common site is the renal fornix. The symptoms of chyluria are renal colic due to the passage of milky-white urine along with clots, dysuria, hematuria and urinary tract infections. In some severe

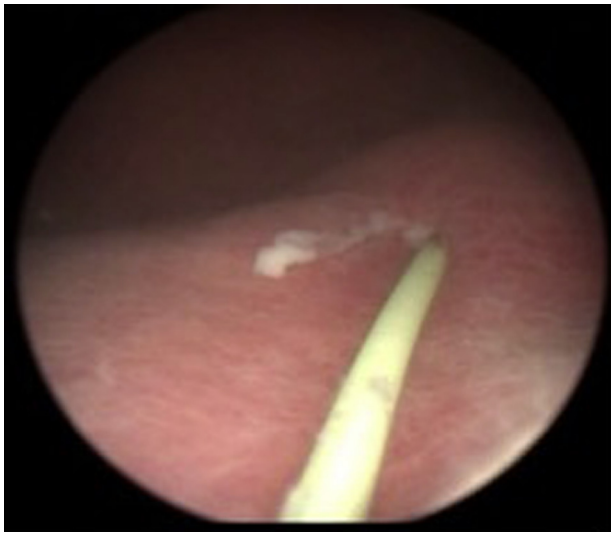

Figure 3. Chyluria: left side efflux during cystoscopy and ureteral catheterization.

forms, the disease could cause significant weight loss, cachexia, malnutrition, hypoproteinemia and immunosuppression.

The clinical diagnosis is confirmed by an ether test, in which a sample of postprandial urine is mixed with an equal volume of ether, which extracts the triglyceride-rich fatty emulsion into an organic layer, leaving the remaining urine clear. Additional investigation as complete blood test is required. To exclude other urological causes an abdominal ultrasound can be performed. Instead of lymphangiograpy other noninvasive method with equal accuracy is used: lymphoscintigraphy using 99mTc-nanocolloid. CT and MRI have also been useful in making the diagnosis. Other important evaluations that must be done are cystoscopy and retrograde pyelography after a heavy fat meal to confirm the site and side of the lymphatic-urinary fistula. Different types of treatment were tried in patients affected by chyluria. Renal pelvic instillation of sclerosant agents is a minimally invasive treatment for chyluria. Different type of sclerosant agents were used: silver nitrate 1–3%, sodium iodide 1–25%, potassium bromide 10–25%, dextrose 50%, uro-graffin 76%, and hypertonic saline 22–25%. These sclerosant agents induce an inflammatory reaction in the lymphatics. Initially they lead to chemical lymphangitis and edema of lymphatic channels. Later fibrosis and blockage of lymphatics occur, leading to closure of lymphatic pelvic communication. In the past, silver nitrate was commonly used in concentration ranging from 0.1–3% but it was abandoned due to its toxicity. Other authors described their experience using instillation of povidone iodine solution alone or combined with dextrose. Shanmugam et al.[3] used a single instillation of povidone iodine in 5 patients; all the patients treated were free of symptoms at the 6-month follow-up. Goel et al.[4] in a prospective randomized study on 106 patients divided in three groups (first group treated with 1% silver nitrate, second group treated with 0.2% povidone iodine and third group treated with 50% dextrose all at 8 h intervals for 3 days) underwent instillation of the solution at 8 h for 3 days; the authors demonstrated that povidone iodine was as effective as silver nitrate. Nandy et al have used a combination of 5 mL of povidone iodine with 5 mL of 50% dextrose with complete recurrence in 87% of the patients.[5]

Conclusion

In our small series, we noted that instillation of 10% povidone iodine plus 10% dextrose solution as a sclerosant into the renal pelvis was safe, effective and associated with minimal morbidity.

Conflict of interest

The authors declare that they have no competing interests.

References

1. Tan LB, Chiang CP, Huang CH, et al. Experiences in the treatment of chyluria in Taiwan. *J Urol*. 1990;144:710–713.
2. Singh I, Dargan P, Sharma N. Chyluria – a clinical and diagnostic stepladder algorithm with review of literature. *Indian J Urol*. 2004;20:79–85.
3. Shanmugan TV, Prakash JV, Sivashankar G. Povidone iodine used as a sclerosing agent in the treatment of chyluria. *Br J Urol*. 1998;82:587.
4. Goel S, Mandhani A, Srivastava A, et al. Is povidone iodine an alternative to silver nitrate for renal pelvic instillation chemotherapy in chyluria? *BJU Int*. 2004;94:1082–1085.
5. Nandy PR, Dwivedi US, Vyas N, et al. Povidone iodine and dextrose solution combination sclerotherapy in chyluria. *Urology*. 2004;64:1107–1109.