

CASE REPORT

Devastating complication of silver nitrate instillation for the treatment of chyluria

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SUMMARY

The passage of milky white urine (chyluria) is an alarming sign. Safety and efficacy of silver nitrate instillation therapy for chyluria has been demonstrated in various studies in literature. In spite of these, various serious complications following silver nitrate therapy have been reported from the regions where the pathology is prevalent. Even today, no protocol has been standardised for instillation therapy for chyluria about the ideal agent used, exact concentration or amount to be instilled, total number of instillations and doses per instillation to be administered. We presented a devastating complication of silver nitrate instillation therapy resulted in acute renal failure followed by later formation of long ureteric stricture in a patient resulting in long-term morbidity to the patient. There is a need for more vigilant approach and standardisation of protocol for silver nitrate instillation for treatment of chyluria.

BACKGROUND

It is important to understand that the silver nitrate instillation is not an innocuous therapy. Cases of even death have been reported after its instillation but formation of such a long stricture in the ureter has been rarely reported which caused severe morbidity to the patient with need of multiple interventions. This case highlights the importance of meticulous care and precaution needed in using sclerotherapy instillation in patients of chyluria.

CASE PRESENTATION

A 27-year-old female patient presented in a state of oliguria, gross haematuria and features of acute renal failure 2 days after nine instillations of an unspecified quantity of silver nitrate solution into each renal pelvis elsewhere. She had a history of the passage of milky white urine for the past 3 years for which silver nitrate instillation was performed bilaterally at the same time. She underwent two sessions of haemodialysis at our nephrology unit and supportive treatment pertaining to her condition was given. She was discharged after complete recovery and then lost to follow-up. One year later, she again presented with symptoms of right flank pain for the past 5 months which gradually increased in intensity. On evaluation with ultrasound study, she was found to have right side severe hydronephrosis and dilated upper part of the ureter. Retrograde pyelography was suggestive of long ureteric stricture of 8–9 cm in the mid and upper part on right side (figures 1 and 2). The patient was initially managed by 6-Fr double-J stent standing for 3 months. But the symptoms recur on

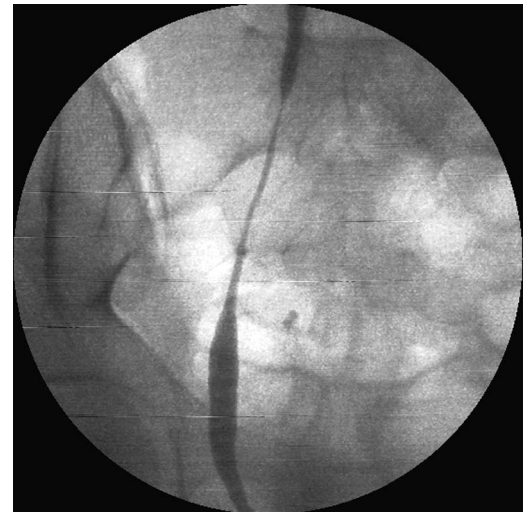


Figure 1 Long stricture present in the mid and upper part of the right ureter on retrograde pyelography.

removing the stent. The patient finally required ureteric reconstruction using ileal segment and now asymptomatic in the follow-up period.

DISCUSSION

Chyluria is the rare entity nowadays but still common in the developing countries due to incidence of filariasis.^{1 2} Although it is not a life-threatening condition, due to its spontaneous remissions and exacerbation episodes, produce morbidity and a state of immunosuppression to the patient.³

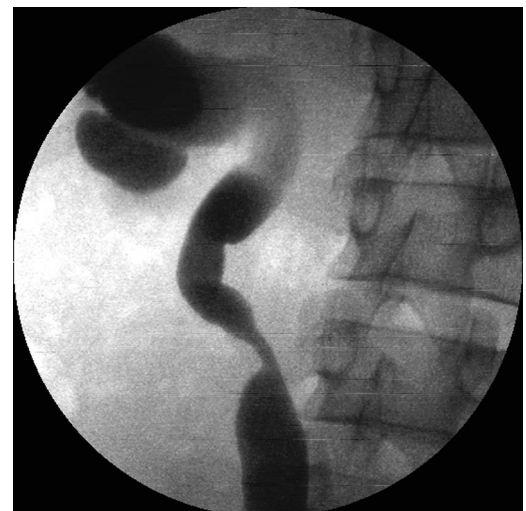


Figure 2 Stenosed segment in the upper part of the same ureter in the same film.

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Although, exact pathophysiology is still under dilemma, rupture of renal lymphatic into the pelvicalyceal system due to obstruction of retroperitoneal lymphatics may be the cause and leads to milky white chylous urine with or without haematuria.⁴

Various treatment modalities have been described for chyluria including dietary manipulation as avoidance of fatty diet with high protein and medium-chain triglyceride-rich diet, antifilarial drugs, sclerosing agent instillation therapy, a shunt surgery from the retroperitoneal lymphatic to the spermatic vein.

Pelvic instillation of sclerosant agents is the commonly utilised therapy and various agents as silver nitrate 0.1–3%, povidone iodine 0.2%, hypertonic saline, sodium iodide 15–25%, dextrose 50% and contrast agents like potassium bromide 10–25% are used.^{3 5}

Silver nitrate is the most widely used agent with success rate of 68–80%. Side effects like flank pain, nausea, vomiting, interstitial nephritis or chemical cystitis are common with silver nitrate instillation. Other complications like pelvi-calyceal cast formation, argyrosis of the urinary tract, renal papillary necrosis may occur. Still the formation of such a long stricture of the ureter long after AgNO₃ instillation has not been described in the literature.³

Vijan *et al*⁶ reported a case of ureteral stenosis after retrograde intrapelvic instillation of silver nitrate and Su *et al*⁷ described the acute necrotising ureteritis as an unusual complication following instillation of silver nitrate which resolved completely with non-surgical intervention. A case of arterial haemorrhage following instillation of silver nitrate was described by Srivastava *et al*⁸ which was treated with coil embolisation.

Dhabalia *et al* mentioned about the development of a pseudoaneurysm of renal artery which caused large perinephric haematoma following silver nitrate instillation. The patient in this case was managed by angioembolisation followed by drainage of infected perinephric haematoma.⁹ Even the death of a 30-year-old woman was reported by Mandhani *et al*¹⁰ with a 10-year history of chyluria who underwent bilateral simultaneous 3% silver nitrate instillation.

In the present case, the patient developed gross haematuria due to renal papillary necrosis after bilateral silver nitrate instillation. The instillation was performed elsewhere, with no idea of the quantity or concentration of silver nitrate used and it resulted in acute tubular necrosis and acute renal failure. Experimental animal studies showed that tubular degeneration and interstitial oedema can occur by precipitation of silver in the interstitium and at higher concentration may cause necrosis of renal papilla. After initial stabilisation of patient by haemodialysis and conservative management, patient recovered but later on, developed a long ureteric stricture in right ureter. This may develop due to higher concentration of silver nitrate used which caused chemical cauterisation of the urothelium of ureter leading to fibrosis and later on stricture formation. But it remains a dilemma why patient developed a stricture only on one side, when initial bilateral instillation was performed.

Certain precautions are utmost necessary to minimise the complications of instillation therapy. Optimal filling of the pelvicalyceal system is helped by fluoroscopic guidance and thus overfilling or underfilling of the system can be avoided. One side should be instilled at a time with an interval of 6 weeks between instillations. Silver nitrate instillation using 1% concentration is an effective and safe treatment for chyluria as chances of grave complications increase to several folds using concentration above this. Varying protocols ranging from a single instillation up to as many as nine instillations over 3 days has been mentioned but the total duration of therapy to be given still requires standardisation.

Learning points

- ▶ Although the silver nitrate therapy is efficacious in patients of chyluria, it may result in debilitating morbidity.
- ▶ Utmost care is needed during instillation in regard to the concentration and amount to be used to minimise the complication rates.
- ▶ Bilateral silver nitrate instillations should be avoided to minimize the risk of renal failure.

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Competing interests None.

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