

# The Efficacy And Safety Of Povidone Iodine In The Management Of Chyluria

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## Abstract

**Aim:** To assess the efficacy and safety of povidone iodine in the management of chyluria.

**Materials & method:** Twenty patients with chyluria who attended our department from January 2000 to December 2002 were studied. There were 14 males and 6 females, age ranging from 24 to 42. After confirming chyluria by relevant investigations and demonstrating chylous efflux at cystoscopy, all were treated with renal pelvic instillation of povidone iodine solution. Follow up was up to 3 years.

**Results:** There was immediate disappearance of chyluria in all the 20 patients and 17 remained free of chyluria till their last follow up in June 2003. Three patients presented 1, 3, & 4 weeks later with recurrence. All 3 were retreated with povidone iodine. However, in 2 patients the chyluria persisted and these 2 patients were referred for laparoscopic management and lost for follow-up. Of the 20 patients, 2 patients had severe anaphylaxis which was appropriately treated.

**Conclusion:** Povidone iodine is effective in curing chyluria. However, instillation of povidone iodine may be associated with serious anaphylactic reactions.

## INTRODUCTION

Chyluria is 'milky urine' due to the presence of chyle that enters the urinary tract due to fistulous communication with the renal lymphatics. Though usually intermittent, persistence may lead to weight loss and protein deficiency. Management includes conservative measures like avoidance of fat, anti filarial drugs etc; minimally invasive techniques like renal pelvic instillation of sclerosing agents and invasive procedures like renal decapsulation, retroperitoneoscopic nephrolympholysis etc. Instillation of 1% silver nitrate into the renal pelvis has been the initial treatment modality if conservative measures failed. However, this procedure may be associated with serious complications like acute renal failure<sup>1</sup>, life threatening haemorrhage<sup>2</sup> and death<sup>3</sup>. Povidone iodine as a sclerosing agent has been shown to be effective and safe in the management of chyluria<sup>4</sup>.

## MATERIALS AND METHODS

Between January 2000 and December 2002, 20 patients who presented with chyluria were studied. There were 14 males and 6 females. Their age ranged from 22 to 42 years. All presented with complaints of passing milky urine, of

duration varying from 2 months to 5 years. Chyluria was confirmed by demonstration of chylomicrons in the urine. Urine culture grew E. Coli in 2 patients and Klebsiella in 1 patient which were treated accordingly. Renal function was normal in all patients. Intravenous urogram was normal in all in whom it was done. Cystoscopy showed chylous efflux on the right side in 11 patients and in the remaining on the left side. None had bilateral involvement. Under antibiotic cover a 6F ureteric catheter was passed into the selected ureter and positioned in the pelvis. Ten milliliters of diluted solution of povidone iodine (2 ml of 5% povidone iodine + 8 ml of distilled water) was instilled into the renal pelvis. Patients were observed for 24 hours. Follow up was up to 3 years.

## RESULTS

Prompt cessation of the chyluria was noted in all the patients and 17 patients were free of chyluria when followed up to 3 years. Three patients reported with recurrence at 1, 3, and 4 weeks after the initial treatment. All 3 had repeat povidone iodine instillation. Only 1 patient responded. The other 2 patients were referred for laparoscopic management and were lost for follow up. Two patients developed anaphylaxis

immediately following povidone iodine instillation. This was treated with intravenous fluids, epinephrine and oxygen.

### **DISCUSSION**

Surgical management of chyluria is indicated when conservative measures fail. Conservative measures include dietary manipulations with omission of long chain triglycerides (TG), drug therapy with diethyl carbamezine, bed rest, abdominal binders etc. Median chain TG's (<12 C atoms) are advocated as they are directly reabsorbed via the portal vein bypassing the lacteals and lymphatics.

Endoscopic sclerotherapy with 1% silver nitrate has been the initial modality when conservative treatment failed.<sup>5</sup> However, this may be associated with serious complications like acute renal failure, papillary necrosis, massive hematuria and even death. Even though not as extensively tried as silver nitrate, povidone iodine has been shown to be effective.<sup>4</sup> Instillation of povidone iodine initially results in inflammatory oedema and blockage of the lymphatics. Later, inflammatory fibrosis leads to permanent obstruction of the lymphatic channels and cure of chyluria. Povidone iodine is iodine complexed with the non ionic surfactant polymer polyvinyl pyrrolidone and has a local sclerosant action. As a sclerosant it has been used in the management of renal cysts<sup>6</sup> and lymphocele following renal transplanation.<sup>7</sup> Our study of 20 patients, showed

povidone iodine to be an effective agent in curing chyluria. However, it may be associated with serious iodine hypersensitivity reactions. Other agents that have been tried are 50% glucose, normal saline, 10-25% sodium iodide and 15% potassium iodide. The reported success rate varies from 59-68% with recurrence rate of 51%.<sup>8</sup>

Surgical treatment is indicated in patients with severe symptoms i.e. severe anemia, hypoproteinemia, anasarca and chyluria not responding to conservative measures. Retroperitoneoscopic or laparoscopic nephrolympholysis, ureterolympholysis, hilar stripping, fasciectomy etc. have been proved to be effective.<sup>9</sup> Tandon et al believe that definite surgical ablation of the lymphatic urinary fistula is better than conservative medical treatment as it has higher success rate, more dietary freedom and better patient acceptability.<sup>10</sup> Endoscopic coagulation has been shown to be highly effective.<sup>11</sup>

Chyluria is milky urine due to the presence of chyle entering the urinary tract due to fistulous communication with the renal lymphatics. It is mostly due to filarial infection and

commonly seen in tropical countries. Chyle is composed of albumin, emulsified fat and fibrin in varying proportion. The natural history of chyluria is not known. It has a waxing and waning course. Chyluria occurs in young adults with or without microfilaremia and earlier in the natural history of filariasis than genital elephantiasis. Dying worms provoke lymphatic obstruction with proximal lymphangiolar obstruction leading to lymphatic fistula near the renal calices. Urine examination for chylomicrons, TG's and staining for fat help in the diagnosis of chyluria. Intravenous urography, as shown by Hemal et al was not helpful in our study also.<sup>6</sup>

It was Morgagni who first associated chyluria with a disturbance in lymphatic circulation. Two theories have been proposed in the causation of chyluria. The first is a generalized obstruction and rupture theory stating that obstruction occurs between the lacteals of the small intestine and the thoracic duct resulting in lymphatic hypertension; lymph stasis, with lymphatic valvular incompetence, varices, finally spills into the urinary system. The second hypothesis states that in the local obstruction theory occurrence of a local blockage from retroperitoneal fibrosis and replacement results in chylous reflux into the urinary system; actual rupture is not necessary. The communication between the urinary tract and the lymphatics can occur at the renal level, ureteric level and bladder level. The surgical treatment of chyluria is indicated only when the process is relentless resulting in large losses of protein and fat from the urine with loss of body weight; chyluric fibrous clots may result in ureteral obstruction or urinary retention necessitating surgical intervention.

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