

# Giant urinary bladder with left scrotal swelling: An unusual presentation of chronic urinary retention

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### SUMMARY

**Chronic Urinary Retention (CUR) can be either asymptomatic or associated with lower urinary tract symptoms. There has been no report of case of CUR presented with unilateral scrotal swelling. In the present report, a 69-year-old man came with an abdominal distension and left scrotal swelling. He was initially diagnosed with ascites secondary to a possible malignancy. A diagnosis was established after a computed tomography (CT) scan was done that revealed a giant bladder distension with volume of 10.1 litres. The left scrotal swelling was resolved after catheterization was carried out. There was a possibility that the patient had inferior vena cava obstruction secondary to the huge bladder.**

### INTRODUCTION

Only 0.8% of elderly men are diagnosed with chronically distended urinary bladder per annum<sup>1</sup> and benign prostatic hyperplasia is the most common obstructive cause of urinary retention, approximately 53% of such cases. Chronic urinary retention (CUR) can present either asymptotically or be associated with lower urinary tract symptoms. However, to the best of our knowledge, there has been no case of CUR presenting with left scrotal swelling reported.

In this report, we present a case of CUR of an elderly man with giant bladder with the chief complaint of left scrotal swelling from which 16.5 litres of urine was drained.

### CASE REPORT

A 69-year-old man was presented at the Department of General Surgery, Hospital Sultanah Nora Ismail, Batu Pahat, Johor with a chronic abdominal distension and abdominal discomfort for 2 months. The patient also had his left scrotal swelling for 2 days. He denied any urinary symptoms and was able to urinate every day without difficulties.

After carrying out an examination, his abdomen was found to be grossly distended, soft, non-tender, but clinically he exhibited no masses and had intact hernial orifices. Shifting dullness and fluid thrill were positive. Gross left scrotal swelling and no skin changes were noted. His laboratory tests, including renal profile, were normal. Both abdominal and chest radiographs were unremarkable. He was seen by our physician and was diagnosed with symptomatic ascites for investigation and to rule out occult malignancy.

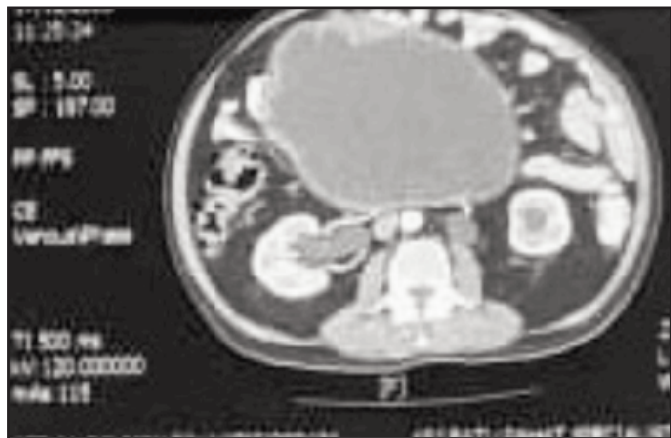
A diagnostic and therapeutic peritoneal tapping was done to relieve the symptom of which it drained out 2.4 litres of straw coloured fluid. After peritoneal tapping, his scrotal swelling was reduced in size. Culture and cytology were sent for laboratory tests and that revealed coagulase-negative *Staphylococcus* spp. He was then started on oral cefuroxime for 5 days.

A contrast enhanced computed tomography (CT) scan of thorax, abdomen and pelvis was done 3 days after the admission for ascites to rule out occult malignancy and it revealed a prostatomegaly with huge bladder volume complicated with a mild hydroureter and hydronephrosis (Figure 1). Based on the CT scan results, it was found that the huge bladder volume was 10.1 litres. The urinary bladder wall was thickened with possibly of chronic cystitis changes. There was no evidence of inferior vena cava obstruction and the patient was then referred to general surgery for further assessments.

After the catheterisation 16.5 litres of urine was drained within 24 hours and the left scrotal swelling completely resolved. A daily renal profile taken revealed a normal result. He developed post obstructive diuresis for 3 days with maximum drainage of 14.5 litres per day. He was discharged after his urine output volume normalised. He was still under close follow-up by the researchers and urologists. He was planned for urodynamic study to look for the possibility of detrusor underactivity secondary to chronic urinary retention, however it was delayed due to the pandemic of COVID-19. Patient is currently still on catheter as he failed trial of voiding (TOV).

### DISCUSSION

CUR is a raised volume of residual urine and may be painless. Patients with urinary retention can present with incomplete bladder emptying, complete lack of voiding, or overflow incontinence. The patient can very rarely come with the chief complaint of abdominal distension, but unusually with scrotal swelling as in our case. Complications include infection and renal failure. The renal profile in our patient was surprisingly normal despite the huge bladder. The main causes of urinary retention are obstructive, infectious, inflammatory, iatrogenic, and neurologic, and obstructive causes become the commonest. A chronic urinary retention usually comes with a volume of greater than 800mL<sup>2</sup> and commonly comes with 1.0litres to 1.5litres of retained urine,



**Fig. 1:** Contrast-enhanced CT scan of the abdomen (transverse sections) showing the giant urinary bladder with mild bilateral hydronephrosis.

with some case reports noting volumes to be greater than 4 litres.<sup>2</sup> Only a few cases reported giant urinary bladder in the literature and most were below 5 litres volume. There is no clear definition for giant urinary bladder in terms of bladder volumes or other parameters.<sup>3</sup> The largest reported volume in the literature to date is giant urinary bladder with a capacity of 11 litres and it was due to diabetic neuropathy.<sup>3</sup>

The giant bladder can compress adjacent structures due to the fixed volume of the pelvis. Adjacent bowel, vessels, or other vital structures, such as inferior vena cava and iliac vein can be compressed by the distended bladder although these complications are rarely encountered. The patient might have some degree of inferior vena cava obstruction causing a high pressure to the left renal vein and this could have explained the left scrotal swelling that was reduced after the “abdominal paracentesis”.<sup>4</sup> As the left internal spermatic vein drain into the renal vein, in a perpendicular direction, drainage venous tract is longer and it encounters large venous differences in pressure, which may explain the preponderance of left-sided scrotal swelling. The diagnosis of inferior vena cava (IVC) obstruction/ syndrome is established greatly on clinical findings, such as lower extremity oedema, in addition of radiographic findings showing vena cava compression. Nevertheless, based on the CT scan conducted, there were no features of IVC stenosis as it was done after the paracentesis. Not more than 30 cases of IVC obstruction/ syndrome due to giant urinary bladder have been reported in the literature and benign prostatic hyperplasia becomes the most common cause.<sup>4</sup>

A formal ultrasonography of abdomen is needed as a gold standard before the procedure for ascites management is carried out. However, it was not done prior to tapping procedure as our physician was convinced of ascites as patient did not complain of any urinary symptom to begin with and it was done to relief patient’s discomfort.

Giant urinary bladder is usually treated initially with urinary decompression with catheterization and correction of the underlying cause. It is estimated that 0.5% to 52% of patients will experience Post Obstructive Diuresis (POD) after the relief of obstruction.<sup>5</sup> Diuresis is a normal physiologic response to removal of excess volume and solutes accumulation during the obstruction period. The diuresis in most patients will resolve when the homeostasis is achieved by the kidney. Pathological POD takes place when the kidney continues to eliminate salt and water even after homeostasis has been reached and hence at risk of severe dehydration, electrolyte imbalances, hypovolemic shock, and death if no initiation of fluid and electrolyte replacement. Pathological POD can last longer than 48 hours and can be aggravated with overzealous intravenous fluid replacement. These patients necessitate strict monitoring of vital signs, fluid status, urinary output chart, and daily weighing. Serum electrolyte, magnesium, phosphate, urea, and creatinine levels should be monitored every 12 hours or more frequently as needed. The type and amount of fluid should be adjusted according to the patient's electrolyte levels and hydration status.

## CONCLUSION

The giant urinary bladder is a rare presentation in a patient with chronic urinary retention and can be mistaken for ascites. Thus, a thorough lower urinary tract history should be obtained. Compressive symptoms from a grossly distended bladder on the inferior vena cava should be kept in mind.

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