



First-time Renal Stone Sufferer - A Autobiographical Case Report

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Abstract

Kidney stone disease (KSD) is a type of solid hard mass formation by aggregation of tiny particles in the kidneys. It's a developing urinary tract system disease increasing the risk of chronic kidney disease (CKD) and end-stage renal disease (ESRD), compelling the need for kidney transplantation. CKD is a well-known complication of kidney stones because of genetic illness called primary hyperoxaluria, Dent disease, 2-8-hydroxyadenine crystalluria, and cystinuria 3-5. This leads a progressive decrease in Glomerular Filtration Rate (GFR) and early setting of ESRD. Calcium oxalate, forms at Randall's plaque on the renal papillary surfaces, is the most frequent type of kidney stone.

I present my autobiographical case of suffering of left kidney renal calculi with left hydro-uretero-nephrosis. I presented with acute severe pain in left groin and difficulty to walk, tiredness, to a private multi-speciality hospital in Shimoga, Karnataka. I was treated with plenty of oral fluids and medication of potassium citrate, magnesium citrate and vitamin B12 Oral solution syrup and tab Spasmoproxion 1 BD for a week, Tab Tamsulosin 0.4mg for 1 week has been advised to continue medication.

Keywords: Kidney Stone; CKD; ESRD; Renal Failure; Calcium Oxalate

Introduction

Minerals and salt deposit inside the kidneys and form small to big stones and commonly known as Kidney stones/renal calculi and the conditions are called as nephrolithiasis, or urolithiasis. Kidney stones can be caused by a variety of factors, including diet, excess body weight, certain medical conditions, supplements, and drugs. Though called kidney stones they can harm any part of our urinary tract. When urine becomes concentrated due to inadequate hydration, minerals crystallise and bind together, to form stones. Renal stones transacting through the urinary tract is an extremely painful, but if washed out, early they rarely cause permanent damage. Surgery may be required only if stones become trapped in the urinary tract, or there is an urinary infection or create any other problems [1]. Physicochemical phenomena like supersaturation, nucleation, development, aggregation, and retention of urinary

stone ingredients within tubular cells, are the known stone formation process.

First symptoms include acute pain in the abdomen, Difficulty to Stand and walk, feeling tired, and headache. If not attended second time symptoms are repeat severe pain, sharp pain in the side and back.

Standard treatments available

- Non-Surgical Treatment Small Kidney Stones involve drinking plenty of water and eating less salt and protein.
- Extracorporeal Shock Wave Lithotripsy (ESWL) is a process of breaking down big stones using sound waves. Tiny particles thus broken move freely through the ureters and into the bladder. This procedure is conducted under general anaesthetic using a lithotripter and takes about 45 minutes to an hour.

- **Tunnel Surgery:** The stones are removed approaching the affected side kidney through a small incision in the back. This is recommended only when ESWL fails, and it is performed under general anaesthesia as an inpatient procedure.
- **Ureteroscope:** When a stone lodges in the ureter or bladder, ureteroscope- a thin tube with a camera inserted through the urethra into the bladder and ureter. First the stone is located, then trapped or broken into smaller pieces using a laser, allowing it to pass through the urine.
- **Laser Lithotripsy:** Laser lithotripsy breaks down stones in the kidneys or ureters, allowing them to move through the ureters and expelled in urine [2].

Case History

I am a 25-year-old male college student reported on 08/07/21 with symptoms of acute pain in lower abdomen, difficulty to stand, around 8.15 am for the first time. It recurred the second time symptoms on 12/07/21. I visited Sahyadri multi-speciality hospital Shimoga, Karnataka and consulted a urologist with severe pain in the side and back.

- **On Examination:** Blood pressure 121/79 mm hg, Pulse 81, SPO₂: 99%,
- **Investigations:** Ultrasound scanning done
- **Impression:** B/L Renal lithiasis Left Hydroureteronephrosis due to impacted LUVJ calculus.

CT Scan report

- Urinary bladder appears well distended, no focal lesion/calculus seen.
- Both kidneys normal in size, shape, and density.
- Left vesicoureteral junction calculus noted measuring 3.9 mm causing left sided Hydroureteronephrosis. Small left renal upper pole noted measuring 1.6 mm.

Treatment given

- Potassium citrate, magnesium citrate and vitamin B12 Oral solution 200 ml twice a day
- Plenty of Oral fluids: clear, watery fluid
- Tab Spasmoproxicon: Dicyclomine 1 BD for 1 week 10 mg 1-0-1 tab
- Anticholinergic prescribed for irritable bowel syndrome
- Tab Tamsulosin 0.4mg for 1 week 1-0-1 tab.

Follow up

Scanning repeated on 01/10/2021. Left vesicoureteral junction calculus was absent.

Discussion

A kidney stone is a solid mass formed by collation of urine crystals. Low daily urine volumes due to inadequate hydration, saturation of the urine with calcium, oxalate, calcium phosphate, uric acid, or acidic urine and bacterial infections are some of the known factors that lead to stone formation [3]. Urolithiasis affects roughly 2% to 3% of the population. Within ten years, around half of individuals with past urinary calculi experience a recurrence. Males are two to three times more likely than females to have stone illness It occurs more frequently in adults than in the elderly.

A study of total 621 patients of urolithiasis in Manipur with history, physical examination, and urolithiasis confirmation by X-ray Kidney Ureter Bladder (KUB) or Ultrasound (USG) KUB between February 2016 and January 2018 reported flank pain like I suffered in in 35.6% patients. The male to female ratio was 1.01:1. 30.8%. 63.1% of studied population had single stone and commonly seen in the 31-40 years of age, whereas multiple stones (n = 59) were found most in the 41-50 years of age group. In my age group 21-30, that was the second highest age group affected and 91 had a single stone and 36 had 2 or more stones [6]. 68.4% of studied patients had BMI between 25 and 29.9 kg/m² in this study inferring that the patients with a body mass index (BMI) of ≥ 25 kg/m² were associated with a greater risk of kidney stone formation but I do not belong to high BMI population. Kidney was the most common site of calculus affecting in 419 (67.4%) cases as was in my case. In this study, 41.72% the calculus was on right side as compared to Hallawee S study had reported that calculi were found with equal frequency on either side with presence of stones on both the side in 26.24% as compared to this my left kidney and the stone.

A community-based survey in Ballabgarh, near Delhi indicated the lifetime prevalence of urinary stones in the study participants as 7.9%. In that study my age group of 21-30 had 10 cases contributing to 29% of cases followed by 31-40 years at 26% [7].

Renal disorders such as polycystic kidney disease, renal tubular acidosis, and metabolic syndromes put the population at higher risk. Lifestyle and nutritional causes like low urine volume, high animal protein, oxalate, or salt meals, abnormal body weight, sed-

entary activities, and stressful life events increase a person's risk further in developing calculus [4].

Stone size

Renal Stones of less than 5 mm are likely to pass through uneventful and therefore should be allowed to pass. Patients with stones less than 4 mm must be counselled saying that they will pass the stone in one to two weeks as 80% of them do not require any treatment other than analgesics.

Stone location

Asymptomatic renal stones be treated conservatively. Commonly renal stones are present in the kidney, ureter, bladder and also hydronephrosis part [5].

Conclusions

It is a frequent problem that manifests itself in the form of recurring intermittent pain episodes, surgical treatments, and drug intake, all of which have an impact on the patients' quality of life. Urolithiasis can cause extreme pain and emergency conditions that require prompt attention to guarantee the patient's urinary system is protected. This example depicts a circumstance in which a transient ureter blockage caused mild hydronephrosis. The urinary system must be preserved in the event of an underlying calculus, and clinicians must be aware of renal complications.

Take home messages and remedies for renal stone

- **Water:** If you're having trouble passing a stone, increasing your water intake can assist. Instead of the customary 8, aim for 12 glasses of water every day. Men should drink about 3.7 litres of water every day.
- **Juice of lemon:** Freshly squeezed lemons can be added to your water as often as you like. Citrate is a molecule found in lemons that inhibits calcium stones from developing.
- **Juice of basil:** Basil includes acetic acid, which aids in the breakdown of kidney stones and the alleviation of discomfort.
- **Vinegar of apple cider:** Acetic acid is found in apple cider vinegar. Acetic acid aids in the dissolution of kidney stones.
- **Juice from celery:** Celery juice has long been used in traditional medicines to help eliminate toxins that contribute to kidney stone development. It also aids in the flushing of the body, allowing you to pass the stone.

- **Pomegranate juice:** Pomegranate juice has been used to improve kidney function for generations. It will clear your system of stones and other pollutants, which contribute to the health of the kidneys and may play a role in the prevention of kidney stones
- **Broth with kidney beans:** Cooked kidney bean broth is a traditional Indian dish that has traditionally been used to improve urinary and renal health. It also aids in the dissolving and flushing of the stones.

Patients who haven't passed stone in 6 weeks and are in excruciating agony, must see a doctor. Other conditions like blood in your urine, fever, chills, nausea, and vomiting are the indications to see a urologist [8].

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