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Urolithiasis Presenting as Right Flank Pain

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Authors' contributions

This work was carried out in collaboration among all authors. All authors read and approved the final manuscript.

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Case Study

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ABSTRACT

Introduction: Urolithiasis is a term that refers to the formation of calculi or stones in the urinary tract. Calcifications arise in the urinary system, generally in the kidneys or ureters, but they can also damage the bladder and/or urethra. It's a prevalent ailment that leads to a high number of hospital visits. It is generally avoidable by modifying risk factors, and there are a variety of treatment methods available. Clinicians should be aware of the signs, symptoms, potential consequences, and therapeutic suggestions. In urolithiasis, diagnostic imaging techniques such as double-contrast cystography, ultrasonography, radiography, and, potentially, computed tomography are used.

Presenting Complaints and Investigations: A 50-year-old male was admitted in AVBRH on 13/02/2021 with chief complaints of severe pain in the side, which spread to the lower abdomen and groin, pain in urination, nausea, vomiting for 15 days. Investigations included hematology and

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radiological tests including Hemoglobin 7.5 gm/dl, Sodium: 19.1 mg/dl, creatinine: 5.4 mg, calcium: 11.5 mg/dl. Urine analysis, cystoscopy, ultrasound, KFT, LFT were carried out.
Main Diagnosis: Urolithiasis.
Therapeutic Interventions: Included Tab. Ibuprofen, Syp. Cystone.
Conclusion: Urolithiasis is harder to treat in the aged since they have more complications and become less likely to show with classical renal colic complaints. This could result in a later presentation with larger, more complicated stones. Individuals with significant back and flank discomfort should consider acute care and preventive efforts in patients with renal calculi, as it might lead to hydro nephrosis and kidney failure.

Keywords: Urolithiasis; back pain; groin pain; management; nursing care.

1. INTRODUCTION

Urolithiasis is most typically found in adults; however, it is becoming more common in youngsters. The link between blood pressure (BP) and urolithiasis in children is poorly understood. When urine contains excessive levels of specific minerals, a kidney stone can form in one or both of your kidneys. When handled by a medical specialist, kidney stones seldom result in permanent damage. Urinary stone disease (USD) is becoming increasingly common. The factors that are causing this growth, however, are unknown. Recent microbiome research suggests that symbiosis may play a role in the rise in prevalence [1,2,3].

Urolithiasis is a common and recurrent condition that has recently become more prevalent because to the obesity epidemic. A number of illnesses have been linked to the underlying molecular mechanism of urolithiasis, with some of them being discovered in children. To assess the temporal trend of upper urinary tract stones in the Japanese population, a countrywide survey of urolithiasis was conducted [4,5,6].

Diet, excess body weight, some medical conditions, and certain supplements and medications are among the many causes of kidney stones. Kidney stones can affect any part of your urinary tract from your kidneys to your bladder. Often, stones form when the urine becomes concentrated, allowing minerals to crystallize and stick together. In industrialized countries, roughly 5–10% of the population suffers from urinary stone development. Urolithiasis is caused by a complex biochemical process that is not completely understood. Kidney stone development is the result of chemical changes and urine supersaturation [7,8,9].

2. PATIENT'S INFORMATION

2.1 Primary Concerns and Symptoms

A 50 years' male was admitted in Acharya Vinobha Behave Rural Hospital with the chief complaints of severe pain in the side, spreading to the lower abdomen and groin, pain in urination, nausea, and vomiting for 15 days.

Medical, family, and psycho-social history: Patient had no previous medical history of any kind of disease and related urolithiasis. He belongs to joint family. All family members are healthy except the patient. He maintained good interpersonal relationship between the family members and there was no family history of hypertension, asthma, diabetes. Patient looked dull and anxious. His bowel and bladder habits were abnormal, sleeping pattern was disturbed due to the pain in abdomen and pain in groin. Patient had no bad habits like tobacco chewing, alcohol etc.

Relevant past intervention with outcomes: Present case had bad medical history. The patient was admitted in private hospital with chief complaint of numbness of arms, fingers, and hands. Muscle weakness made grabbing and holding objects difficult. He had pain and stiffness in the neck for 10 days. His general condition was poor, so patient was referred to AVBRH sarangi Wardha for further management.

Clinical findings: The patient was conscious and well oriented to date, time and place. His body built was moderate and he had maintained good personal hygiene. hemoglobin was low i.e., 7 gm, pulse rate was slightly increased. Blood pressure was 110/70 mm of Hg. No challenges experienced during diagnostic evaluation.

Prognosis: Fair.

Nursing perspectives: IV fluid was provided to maintain the fluid and electrolyte. Monitored fatal heart rate and vital signs per hourly.

Relevant past intervention with outcomes: patient having no relevant past intervention and no outcome.

Physical Examination: Patient is conscious, co-operative, well oriented, He had thin body built, the height of patient is 152 cm and weight is 51 kg. His vital parameters were normal. Examination of abdomen - no rashes present, Tenderness was present, No any pus formation. Timeline: Patient had no past medical history. Currently he was admitted for urolithiasis in AVBR Hospital for treatment. Medical treatment included Alpha blockers, potassium citrate, hydrochlorothiazide, ondansetron.

Diagnostic Assessment: Included hematological and radiological investigations. Hemoglobin was decreased to 7.5 gm/dl. Sodium: 19.1mg/dl, creatinine: 5.4 mg, calcium: 11.5mg/dl. Urine analysis was done. Cystoscopy, ultrasound, KFT, LFT were done. Diagnostic Challenges: No challenges were reported during diagnostic evaluation.

Diagnosis: After physical examination and investigations, doctor diagnosed it as a case of urolithiasis.

Therapeutic intervention: Medical management included Alpha blockers, potassium citrate, hydrochlorothiazide, ondansetron. He was taking all treatment and outcome was good. His pain and other sign and symptoms were reduced. No any changes in therapeutic intervention.

Outcome and follow-up: Biweekly follow-up was advised. During follow-up visits, reduction in symptoms such as pain and discomfort was reported. Sodium level was normal and hemoglobin level was improved.

3. DISCUSSION

Although stone is caused by stasis in some situations. It should also be noted that the presence of a stone in a hydronephrotic pelvis does not necessarily imply that the stasis created the calculus. In many cases, the stone appears first and cause the hydronephrotic condition. Urolithiasis is a complex condition that is affected by both internal and external influences. Male gender is considered a risk factor, with a three-fold higher prevalence of urolithiasis than female gender, but the impact of sex hormones on urinary stone production is unknown. The relevance of understanding the chemical makeup of renal calculi is widely acknowledged. For the investigation of the etiology of stone formation and the formulation of medicinal regimens, reliable analytical information is essential. While traditional chemical analysis has its limitations in determining the composition of stones, Prien and Frondel outline two physical methods that have lately been discovered to be very useful in this endeavor: optical and x-ray methods [10,11,12].

Kidney stones lead to chronic kidney disease (CKD) in people with rare hereditary disorders (e.g., primary hyperoxaluria, cystinuria), but it is unknown whether kidney stones are an important risk factor for CKD in the general population [13,14,15].

In industrialized countries, roughly 5–10% of the population suffers from urinary stone development. Urolithiasis is a severe socioeconomic problem due to its high incidence and recurrence rate. Urolithiasis does not have a medicinal treatment, but some drugs can help with pain. Effective medical treatments have been developed that are capable of addressing underlying derangements [16,17,18]. Hypercalciuric nephrolithiasis is treated with sodium cellulose phosphate, thiazide, and orthophosphate; hypocitraturia calcium nephrolithiasis is treated with potassium citrate; infection stones are treated with acetohydroxamic acid; and cystinuria is treated with d-penicillamine and mercapto-propionylglycine. In most patients, new stone formation may currently be avoided with these treatments. The cause of stone development must be addressed for effective prevention [19,20,21].

In general, good diet and medication use are required to prevent the first and second bouts of urolithiasis [22]. The best way to avoid kidney stones is to maintain a healthy diet. Patients should drink enough water and other liquids to produce at least 2 liters of urine each day. Urinary saturation is reduced and promoters of CaOx crystallization are diluted when enough fluid is consumed. Foods high in oxalate, such as spinach, almonds, potato chips, French fries, and beets, should be consumed in moderation [23]. Reduced calcium intake is crucial, as is reducing

sodium consumption [24]. Extracorporeal shock wave lithotripsy and laparoscopic ureterolithotomy, for example, have changed the way urinary and renal lithiasis is treated [25].

4. CONCLUSION

Urolithiasis is harder to treat in the aged since they have more complications and become less likely to show with classical renal colic complaints. This could result in a later presentation with larger, more complicated stones. Individuals with significant back and flank discomfort should consider acute care and preventive efforts in patients with renal calculi, as it might lead to hydro nephrosis and kidney failure.

This case report provides the psychopharmacological management, pertinent nursing diagnosis, patient outcomes, and nursing interventions for urolithiasis. Further management enhancing and improving patient's pain related to urolithiasis. Nurses should be having good knowledge about urolithiasis. Timely information to the physician will prevent harm to the patients and educate the family members to come for the follow up regularly after discharge.

INFORMED CONSENT

Before taking this case, information and written consent taken from patient and his relative.

ETHICAL APPROVAL

As per international standard or university standard written ethical approval has been collected and preserved by the author(s).

COMPETING INTERESTS

Authors have declared that no competing interests exist.

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