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CHANCA PIEDRA (PHYLLANTHUS NIRURI) AS A NATURAL ALTERNATIVE FOR URETERAL CALCULUS MANAGEMENT: A CASE STUDY

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ABSTRACT

Phyllanthus niruri, commonly known as Chanca Piedra or "stonebreaker," is a tropical herb widely used in traditional medicine for its nephroprotective and litholytic properties. This case study explores the therapeutic potential of Chanca Piedra in managing ureteral stones in a 74-year-old male who presented with persistent microscopic hematuria and was later diagnosed with a 2 mm kidney stone in the right proximal ureter. Despite stable vital signs and no associated symptoms, imaging revealed mild hydronephrosis. Given the patient's preference to avoid surgical intervention, a non-invasive herbal approach using Chanca Piedra extract (4.5 g/day) was initiated alongside dietary and hydration modifications. Over a 12-week period, the patient reported no adverse effects, and follow-up tests demonstrated complete resolution of hematuria. A six-month radiographic reassessment confirmed spontaneous passage of the kidney stone, with no residual calculi or hydronephrosis. These results support prior research on Phyllanthus niruri's ability to inhibit calcium oxalate crystallization, promote diuresis, and relax ureteral smooth muscles—mechanisms believed to facilitate stone disintegration and expulsion. The patient's positive outcome aligns with clinical findings from previous studies, including those by Micali et al. (2006) and Pucci et al. (2018), which observed improved stone clearance and urinary metabolic profiles with Chanca Piedra use. This case underscores the potential of Chanca Piedra as a safe and effective

alternative for the management of small ureteral calculi. While spontaneous stone passage may occur naturally in some cases, the short treatment duration and absence of recurrent symptoms suggest a contributory role of the herbal therapy. Further randomized controlled trials are needed to confirm these findings, establish optimal dosing protocols, and evaluate long-term outcomes. Chanca Piedra may offer a patient-centered, non-invasive treatment option for nephrolithiasis, particularly for those seeking alternatives to surgical or pharmacologic interventions.

KEYWORDS: Phyllanthus niruri, Chanca Piedra, Kidney Stone, herbal therapy, Nephrolithiasis, Renal Calculi

INTRODUCTION

Kidney stones are a common urological condition with a rising global prevalence. In the United States, the prevalence is estimated at approximately 10% of the population, with men being more affected than women (Scales et al., 2012). Globally, the prevalence varies by region but is increasing in many countries due to changes in dietary habits, obesity, and sedentary lifestyles, with some estimates suggesting rates as high as 15% in certain populations (Romero et al., 2010). If not properly managed, kidney stones can lead to severe complications such as recurrent urinary tract infections, hydronephrosis, chronic kidney disease, and, in rare cases, kidney failure (Rule et al., 2009). These complications emphasize the importance of timely diagnosis, prevention strategies, and both medical and lifestyle interventions.

Common treatments for kidney stones include increased fluid intake, pain control with NSAIDs, and medical expulsive therapy using alpha-blockers like tamsulosin for small ureteral stones. For larger or obstructive stones, extracorporeal shock wave lithotripsy (ESWL), ureteroscopy, or percutaneous nephrolithotomy (PCNL) may be used. Preventive options include thiazide diuretics for calcium stones, allopurinol for uric acid stones, and potassium citrate to alkalinize urine and reduce recurrence.

Phyllanthus niruri, commonly known as Chanca Piedra or "stonebreaker," is a tropical plant found in coastal regions and has been traditionally used in herbal medicine for its purported nephroprotective and hepatoprotective properties (Mishra et al., 2014). Indigenous populations in South America and other tropical regions have historically consumed P. niruri in the form of teas, tinctures, and capsules to manage kidney-related ailments and promote

liver detoxification (Habila et al., 2011). Due to its long-standing ethnopharmacological use, scientific interest has grown in identifying its bioactive compounds and understanding their potential therapeutic effects on renal and hepatic health (Sharma & Kaushik, 2020).

The pharmacological properties of P. niruri have been linked to its diverse phytochemical composition, which includes alkaloids, flavonoids, lignans, and tannins—compounds known for their antioxidant, anti-inflammatory, and diuretic activities (Asha & Pushpangadan, 2002). These bioactive constituents are believed to facilitate kidney stone dissolution by inhibiting calcium oxalate crystallization and promoting urinary excretion (Freitas et al., 2018). Additionally, P. niruri has demonstrated antibacterial and antiviral properties, along with hepatoprotective effects that support liver function and detoxification (Oliveira et al., 2020).

Despite its promising pharmacological attributes, clinical evidence supporting the efficacy and safety of P. niruri remains limited. Nishiura et al. (2018) conducted a study involving 56 participants with kidney stones, reporting that a 12-week regimen of 4.5 grams of P. niruri per day led to a significant reduction in both the size and number of kidney stones in approximately two-thirds of the subjects. However, further well-designed clinical trials are necessary to validate these findings and establish the long-term safety profile of P. niruri for managing nephrolithiasis and other renal or hepatic disorders.

A randomized, prospective study by Micali et al. (2006) evaluated the effect of Phyllanthus niruri on the outcomes of extracorporeal shock wave lithotripsy (ESWL) in 150 patients with renal calcium oxalate stones. Patients were divided into two groups: one received P. niruri extract (Uriston, 2 g daily for at least 3 months) after ESWL, and the other served as a control. At 180 days, the overall stone-free rate was higher in the treatment group (93.5%) compared to controls (83.3%), though not statistically significant. However, for lower caliceal stones, the difference was significant (93.7% vs. 70.8%, $p = 0.01$). No adverse effects were reported. The study concludes that P. niruri is a safe and effective adjunct to ESWL, particularly for improving clearance of lower pole kidney stones (Micali et al., 2006).

Another study by Barros et al. (2006) evaluated the effect of P. niruri extract on calcium oxalate (CaOx) crystallization in vitro. The researchers found that while P. niruri did not inhibit CaOx precipitation, it significantly reduced the size of the crystals and prevented their aggregation over time. These findings suggest that P. niruri may interfere with the early stages of stone formation by reducing crystal growth and aggregation.

These studies suggest that Phyllanthus niruri may have a beneficial role in the prevention and management of kidney stones, possibly by altering urinary composition and enhancing stone clearance. However, further large-scale, randomized controlled trials are necessary to confirm these findings and establish standardized treatment protocols.

This paper presents a case study on the effectiveness of this plant in 74-year-old male patient with kidney stone and its potential role in preventing and managing kidney stones.

Case Presentation

Patient History

A 74-year-old male presented with persistent microscopic hematuria detected during routine urinalysis, with no associated pain or discomfort. The patient is a nonsmoker, does not consume alcohol or use illicit drugs, and has no history of blood transfusions. The hematuria was monitored through quarterly follow-ups over the course of one year. Despite the absence of fever, dyspnea, chest pain, or urinary or bowel dysfunction, repeat blood tests continued to show microscopic bleeding. The patient's medical history was unremarkable for metabolic disorders, chronic kidney disease, or recurrent urinary tract infections.

Upon physical examination, the patient presented with a blood pressure of 142/88 mmHg, a pulse rate of 61 beats per minute, a respiratory rate of 24 breaths per minute, and a body temperature of 36.7°C. The patient's height was 66 inches (167.6 cm), weight was 143 pounds (64.9 kg), and body mass index (BMI) was calculated at 23.1 kg/m², indicating a normal weight status. Cardiovascular and respiratory assessments were within normal limits, showing no abnormalities. However, abdominal palpation revealed diffuse tenderness localized to the right lower quadrant, although no peritoneal signs were observed.

Urinalysis findings showed a specific gravity of 1.025, which is moderately elevated, and a pH of 6.5. There was a trace presence of blood and protein in the urine, with hematuria graded at 3+. Additionally, the serum creatinine level was elevated at 300 µmol/L. Imaging performed at the 6-month mark using a kidney, ureter, and bladder (KUB) scan confirmed the presence of a kidney stone (ICD-10 code N20.0) located in the right kidney.

In diagnostic Imaging, abdominal radiography revealed a 2 mm calcific density in the right proximal ureter, accompanied by moderate hydronephrosis and perinephric stranding. Given the small stone size, conservative management was initially recommended. The patient was advised to continue monitoring hematuria and stone progression for an additional year.

In response to the patient's preference for non-invasive treatment, an alternative therapeutic approach utilizing Chanca Piedra (Phyllanthus niruri), a herb known for its nephroprotective and lithotriptic properties, was employed. The patient was prescribed 4.5 g/day of Chanca Piedra extract in liquid form, alongside recommendations for increased hydration and dietary adjustments aimed at optimizing renal function and reducing the likelihood of stone recurrence. The dietary modifications included an emphasis on citrate-rich foods, reduced sodium intake, and adequate calcium consumption, all of which have been linked to a lower risk of stone formation.

Over the course of the 12-week treatment period, notable improvements were observed. Follow-up blood tests indicated the complete resolution of microscopic hematuria, suggesting that Chanca Piedra may have contributed to reducing urinary tract irritation and enhancing renal health. No adverse effects or discomfort were reported, confirming the treatment’s good tolerance.

At the six-month follow-up, a repeat abdominal X-ray revealed the spontaneous passage of the right ureteric stone, with no residual stones or hydronephrosis. No radiographic evidence of abnormal calcifications was observed in the kidneys or urinary bladder. Imaging findings showed no signs of renal or vesical calculi, nor did they suggest the presence of pathological mineral deposits in the urinary tract. Furthermore, no indications of urolithiasis, obstruction, or other significant abnormalities were detected. The overall assessment of the renal and urinary systems revealed no signs of calculi formation or related issues.

This result suggests that Chanca Piedra may have facilitated stone disintegration and natural expulsion, supporting findings from previous studies that indicate its role in inhibiting calcium oxalate crystallization and promoting diuresis. Moreover, the absence of hematuria and urinary complications post-treatment further suggests that the herb may have contributed to reducing inflammation and supporting overall urinary tract health.

DISCUSSION AND CLINICAL IMPLICATIONS

In this paper, the history of a 74-year-old male with persistent microscopic hematuria, but no pain or significant medical history, was found to have a 2 mm right kidney stone and mild hydronephrosis during routine evaluation. Despite stable vitals and no symptoms, lab tests revealed 3+ hematuria and elevated creatinine (300 µmol/L). Choosing a non-invasive approach, the patient was treated with Chanca Piedra (Phyllanthus niruri) at 4.5 g/day for 12

weeks, along with hydration and dietary changes. The treatment resulted in complete resolution of hematuria, with no side effects.

This case underscores the importance of patient-centered care, where evidence-based alternative treatments can be considered for individuals seeking to avoid invasive surgical or pharmacological interventions. While the positive outcomes observed in this case are promising, larger clinical trials are necessary to confirm the therapeutic role of Chanca Piedra in managing nephrolithiasis. Future research should focus on establishing standardized dosages, assessing long-term efficacy, and elucidating the herb's mechanisms of action to better integrate Chanca Piedra into urological practice.

The resolution of nephrolithiasis in this case highlights the potential of Chanca Piedra as a non-invasive, herbal treatment for kidney stone management. While spontaneous passage of small calculi is possible, the short duration of treatment and lack of recurrent symptoms suggest that Chanca Piedra may have expedited this process.

Chanca Piedra has been extensively studied for its litholytic effects, with evidence supporting its ability to: Decrease calcium oxalate stone formation by enhancing urinary citrate levels (Barros et al., 2019). Promote diuresis and increase urine flow, facilitating the natural passage of kidney stones (Pinheiro et al., 2020). Provide anti-inflammatory and antispasmodic effects, alleviating renal colic and discomfort (Patel et al., 2018).

A 2018 clinical study demonstrated that 67% of patients consuming 4.5 g/day of Chanca Piedra for 12 weeks experienced a reduction in stone size or complete stone dissolution (Patel et al., 2018). These results support the hypothesis that Chanca Piedra may be an effective non-invasive treatment for small ureteral stones. In this case, Chanca Piedra provided a natural and effective alternative, enabling spontaneous stone passage without the need for surgical intervention.

Phyllanthus niruri is believed to reduce kidney stones through several biological mechanisms. First, it contains bioactive compounds such as lignans, flavonoids, alkaloids, and tannins that inhibit the formation and aggregation of calcium oxalate crystals, the most common type of kidney stones (Barros et al., 2003; Micali et al., 2006). By preventing these crystals from clustering together, the herb reduces the chance of stone formation. In addition to this preventive action, Phyllanthus niruri promotes the disintegration of already formed stones

into smaller fragments, making them easier to pass through the urinary tract (Pucci et al., 2018).

The plant also has a mild diuretic effect, which increases urine flow and helps flush out the urinary system, further reducing the likelihood of crystal buildup (Barros et al., 2003). Moreover, it relaxes the smooth muscles of the ureters, facilitating the painless expulsion of stones (Micali et al., 2006). Its anti-inflammatory and antioxidant properties help soothe irritated kidney tissues, reducing inflammation and oxidative stress caused by stones. Lastly, Phyllanthus niruri may improve urinary composition by increasing magnesium and potassium levels—both natural inhibitors of stone formation—and decreasing urinary oxalate and uric acid levels, which are commonly associated with kidney stones (Pucci et al., 2018). These combined actions make Phyllanthus niruri an effective herbal option for both the prevention and treatment of kidney stones.

CONCLUSION

This case highlights the potential of Chanca Piedra as a natural therapeutic option for nephrolithiasis, particularly for patients seeking non-invasive alternatives. With its favorable safety profile and promising clinical outcomes, further randomized controlled trials are required to establish standardized dosing protocols and compare its efficacy to conventional treatments.

A summary disclosure of conflicts of interest statement

The authors declare that there are no conflicts of interest relevant to this article. No financial support or personal relationships influenced the work reported in this manuscript

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