Case Report

The Naturopathic Approach in the Management of Bilateral Hydronephrosis: A Single Case Study

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ABSTRACT

Bilateral hydronephrosis, which is characterized by the dilation of the renal pelvis and ureters due to urine outflow obstruction, can cause severe renal dysfunction and complications. This case report assesses the efficacy of naturopathic interventions, such as hydrotherapy and a plant-based low-protein diet (PLADO), in treating bilateral hydronephrosis and improving patient quality of life. A 37-year-old woman diagnosed with Grade 1 bilateral hydronephrosis reported severe lower back pain, abdominal discomfort, and psychological distress. Following informed consent, a three-month treatment protocol consisting of renal packs, ginger packs, steam baths, and dietary modifications was implemented. Post-treatment assessments demonstrated a significant reduction in serum creatinine levels from 2.9 mg/dl to 1.3 mg/dl, while serum potassium decreased from 5.5 mmol/l to 4.2 mmol/l, indicating improved renal function. Patient-reported outcomes revealed significant pain relief (VAS score improved from 8/10 to 3/10) and decreased levels of depression, anxiety, and stress according to the DASS21 scale. This case demonstrates the efficacy of naturopathic interventions, including hydrotherapy and dietary management in improving renal function and overall quality of life in patients with bilateral hydronephrosis. Further research involving larger populations is necessary to validate these findings and assess the broader applicability of these treatment strategies.

Key words: Hydronephrosis, Renal Pack, Ginger Pack, Diet Therapy, Naturopathy

Bilateral Hydronephrosis is a dilated renal pelvis, calyces, and ureter caused by the obstruction of urine outflow from the kidney, progressing to atrophy of the renal cortex [1]. The obstruction of urine outflow leads to increased hydrostatic pressure in collecting tubules, which increases intraglomerular pressure overall, affecting the glomerular filtration rate. On relieving obstruction, the kidney functions revert to normal, which is considered acute hydronephrosis, whereas permanent obstruction leads to irreversible damage to the kidney, denoting chronic hydronephrosis [2]. When the urine flow is blocked, the muscles in the calyces and pelvis enlarge, activating the compensatory process. This dilation of the tubules eventually causes persistent overstretching, followed by a gradual decompensation that leads to hydronephrosis [3]. According to the Society of Foetal Urology (SFU) classification methodology, hydronephrosis is divided into five groups: Grades 0–4.

In patients in grade 0, hydronephrosis is absent. Mild renal pelvic dilatation is possible in Grade 1 patients. Mild renal pelvic dilatation in conjunction with substantial calyceal dilatation is possible in Grade 2 patients. All calyces in patients in Grade 3 show moderate dilations. Patients classified as Grade 4 have significant dilations, thinning of the renal parenchyma and dilatation of all calyces [4]. Hydronephrosis develops gradually, causing dull pain and discomfort in the lower abdomen due bladder distension. Upper ureteral or renal pelvic lesions cause flank pain or tenderness, whereas lower ureteral obstruction causes pain that can spread to the ipsilateral testis or labium. The distribution of kidney and ureteral pain typically occur between T11 to T12. Constant obstruction in the flow of urine causes hypertension, sepsis, urinary tract infection, haematuria, and eventually chronic kidney disease/renal failure [5].

According to estimates, chronic kidney disease (CKD) affects approximately one in every seven people in the United States (around 37 million). Even more startling is the fact that half of adults with low kidney function are unaware they have kidney-related disease, and nine out of ten adults are uninformed they have the illness. The absence of symptoms in the early stages of chronic kidney disease sometimes results in missed diagnosis . Between 48% and 94% of people with

Access this article online

Quick response code

Received – 11th September 2024
Initial Review – 19th September 2024
Accepted – 27th October 2024

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severe renal failure and those with mild to moderate loss in renal function, respectively, are expected to go undetected [6]. Naturopathy is a vitalism-based medical practice that promotes natural ideologies that help to reprioritize the order of therapeutics with increased emphasis on preventive behaviours, lifestyle modifications, nutrition, and exercise over medical or surgical interventions. The Process of Healing is based on empirical evidence and emerging research that living organisms have an innate healing process of nature that maintains allostasis within organisms and between the organism and its environment [7]. Hydrotherapy is a naturopathic treatment modality in which water is used as a medium with various temperatures to aid the body's circulatory function in various physiological and pathological conditions. Renal/Kidney Pack, Ginger Pack, and Steam Baths are some of the various hydrotherapy treatments used as interventions in this study by understanding the hydriatic effects of the temperature used in the intervention for the efficient outcome of the renal functioning and renal activities along with overall rejuvenation of the health [8].

CASE REPORT

A 37-year-old woman weighing 72 kg and standing 155 cm tall, moderately built, and well-cooperative married female patient with a history of bilateral hydronephrosis for the past 2 years which was assessed by the renal doppler and renal function test and diagnosed as Grade 1 Bilateral Hydronephrosis according to the grading of SFU categorization methodology. She came to the International Institute of Yoga and Naturopathy Medical Sciences, Out-Patient Department, with 7 months of severe lower back pain radiating to the lower abdomen, as well as restricted spinal movements at the lumbar region. She had dull eyes and a coated tongue during her general physical exam. She also complained of itching in her genitals, abdominal bloating and a lack of sleep. She reached menarche at the age of 14 years, and her menstrual history consists of 3 days of cycles on a 30-day interval, with reduced menstrual flow.

She was pregnant twice, with the first delivery being a cesarean section, and the second pregnancy ended up in abortion due to the diagnosis of bilateral hydronephrosis associated with hypertension. She has no history or family history relevant to her condition. The visual Analog Scale (VAS) was used to assess the pain severity of the lower back and lower abdominal pain, The depression Anxiety Stress Scale (DASS21) was used to assess the mental status of the patient as she was excessively fearful about her health condition which made her anxious, stressed and depressed, the scoring suggests that she was under extremely severe stress, anxiety and depression. The systolic and diastolic blood pressure was measured during her daily doctor's visit using a standard mercury sphygmomanometer to monitor the changes in her increased blood pressure as she was under medication for the same (tab. Telma and tab. Amlodipine) since her diagnosis.

Following a detailed case history and initial counselling Informed consent was obtained from the patient before proceeding with the treatments. The intervention was planned to last 3 months, with daily visit to OPD from the very first day of the patient admission. After a thorough evaluation, the protocol was planned for bilateral hydronephrosis which includes a therapeutic diet pattern that was specific to the PLADO diet (0.6- 0.8 g/kg per of dietary protein with at least 50% from plant-based sources, dietary sodium 4 g/d and dietary energy of 30-35 kcal per kilogram of ideal body weight per day) [9] and hydrotherapy treatments specified with the renal pack, where fomentation bag placed on the lumbar region and ice bag placed on the abdomen which is wrapped with a cotton cloth followed by woolen cloth for 45 minutes[10], with the ginger pack where the cotton cloth dipped in the ginger extract is placed on the lumbar region with a fomentation bag on top for 30 minutes [11], and with a steam bath where the patient is seated in a steam cabin for minimum 10 minutes duration with minimal clothing and applying a cold compress to the head. These treatments aim to improve renal circulation, and kidney functions and aiding the elimination of excessive blood waste or body fluids **(Table 1).** The Naturopathy therapies were repeated every week for 3 months continuously.

***PLADO: plant-dominant low-protein diet**

Following a 3-month follow-up, there was a significant reduction in the serum creatinine level and serum potassium level along with no alteration in the serum urea and blood urea nitrogen levels indicating significance in kidney function and renal circulation **(Table 2).**In addition, there is a complete symptomatic relief (itching in the genitals, lack of sleep, abdominal bloating) with reduction in pain (abdominal pain and lower back pain) as per VAS score, betterment in mental health status as per score of DASS21 **(Table 3).**

The blood pressure was stable throughout the period of intervention. Hence the overall outcome suggests naturopathic intervention is effective in treating kidney-related functional disorders and its complications and is efficient in pain management. It also helps in coping with fear and anxiety related to the disease and improves the overall quality of life.

Table 1: Naturopathy Treatment Protocol

S.NO	Treatments	Duration
1.	Renal Pack	45 mins thrice/week
2.	Ginger Pack	30 mins thrice/week
3.	Steam Bath	10 mins twice/week
4.	Diet Therapy	PLADO diet

Table 2: Parameters assessed pre- and post-treatment

Parameters	Pre – Assessment	Post – Assessment
Serum Urea	**41 mg/dl**	**41 mg/dl**
Serum Creatinine	**2.9 mg/dl**	**1.3 mg/dl**
Serum Potassium	**5.5 mmol/l**	**4.2 mmol/l**
BUN	**19 mg/dl**	**19 mg/dl**

*BUN: Blood Urea Nitrogen

Table 3: Pre- and post-assessment of symptoms of the subject

Parameters	Pre – Assessment	Post – Assessment
VAS	**8/10(severe)**	**3/10(mild)**
DASS21		
Depression	**28/42(extremely severe)**	**18/42(moderate)**
Anxiety		**12/42(moderate)**
Stress	**30/42(extremely severe)**	**14/42(normal)**
	34/42(extremely severe)	

*VAS: Visual Analog Scale, *DASS21: Depression Anxiety Stress Scale

DISCUSSION

According to the findings, naturopathic intervention and diet has influence on the renal function of bilateral hydronephrosis along with betterment in quality of life. In a previous case study, the patient's serum creatinine level was reduced significantly by giving a renal pack, and it was suggested, that the blood waste/excess fluid is removed by rerouting renal blood into muscular branches by improving the renal activity [12]. This mechanism might have been worked in this case by improving the renal reabsorption and elimination process. According to a bio-interface study, ginger compress therapy is a better alternative for treating kidney diseases due to its nephrocurative and nephroprotective properties of ginger, further explains that the presence of potentially bioactive compounds in ginger has shown better binding efficiency against the target of kidney disease [11].

In this study, a ginger pack was used in this condition, the biochemical properties of ginger combined with the thermogenic effect of the therapy may have resulted in changes in renal activities and its associated symptoms. A review article found that lower dietary protein intake is associated with decreased proteinuria, CKD progression, and uremic complications. The same article explains that along with the amount of dietary protein intake, dietary protein source plays an important role in clinical outcomes of the kidney disease population. As a result, to support the role of low-protein diets in delaying CKD progression, a PLADO diet was proposed, which reduces net endogenous acid production which may lead to decreased endothelin I, aldosterone, and angiotensin II levels, which has a salutary effect in reduction of metabolic acidosis, mineral and bone disorders, and also uremic toxin generation leading to CKD progression [13].

Hence, focusing the same outcome PLADO Diet was followed for 3 consecutive months, which also had a better outcome with the results. In another research, blood pressure was reduced immediately after taking a steam bath and it sustained for at least 30 minutes. An added steam bath is a curative and rejuvenating treatment method used traditionally for conditions like pain management, obesity, and positive promotion of health [14]. Steam baths may have removed excess toxins by producing sweating and increasing renal activities through a sudorific reactionary excitant effect [8].

This case study used the same theory to increase renal activities and eliminating the toxins through perspiration. Hence, combining multiple naturopathic interventions, dietary management, and lifestyle modifications may improve kidney functions and renal circulation. The study's highlight is that the subject reported no adverse effects, and it is feasible, safe, and comfortable for the patient, improving her overall quality of life. The limitations may be on the results, as they may vary since this is a single case study. Further studies with a larger population are suggested to validate the results.

CONCLUSION

The findings from this case report indicate that naturopathic interventions, including hydrotherapy and the implementation of a plant-dominant low-protein diet (PLADO), can significantly enhance renal function and improve the quality of life for patients suffering from bilateral hydronephrosis. The significant reductions in serum creatinine and potassium levels, along with the alleviation of physical symptoms and psychological distress, demonstrate the effectiveness of these therapeutic approaches. This case underscores the importance of a holistic treatment strategy that combines dietary management, lifestyle modifications, and complementary therapies in addressing renal-related disorders. While the findings are encouraging, further clinical studies with larger sample sizes are needed to validate these findings and explore the long-term effects of naturopathic treatments on kidney health. Ultimately, this case contributes to the growing body of evidence supporting the role of naturopathy in managing chronic kidney conditions and highlights the need for continued research in this area to refine and expand therapeutic options for patients.

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How to cite this article: N. Sivaranjani, T. Tamilarasu, M. Pandiaraja. The Naturopathic Approach in the Management of Bilateral Hydronephrosis: A Single Case Study. Indian J Integr Med. 2024; Online First.

Funding: None; *Conflicts of Interest: None Stated*