
Recurrent Kidney Stones

A Naturopathic Approach

**Silena Heron, N.D.,
and Eric Yarnell, N.D.**

The excesses of holiday feasting sometimes set patients up for urolithiasis, one of the most dreaded medical conditions. This condition is dreaded not so much for its complications but for the extreme pain that is often associated with passing a kidney stone. Although kidney stones can cause potentially dangerous complications, including hydronephrosis and ureteric tearing (although these are rare), most patients will not worry about these complications while writhing in agony.

Allopathic medicine continues to lag behind in nutritional preventive approaches for urolithiasis as well as in nontoxic approaches to the acute passage of stones. Natural approaches to kidney stones are reviewed here, with an emphasis on the use of botanical medicines. As in any disease state, proper diagnosis and monitoring are crucial for determining when a naturopathic approach is sufficient or when referral for other therapies becomes necessary.

The material in this article deals largely with the most common type of stone by far: calcium oxalate/calcium phosphate. Uric acid stones, although the second most common type of stone, are still quite a bit rarer and are treated somewhat differently. Other types of rare stones

require different approaches. Because these stones are only very rarely encountered in practice they are not discussed here.

Preventing Chronic Recurrence

Long-term prevention of urolithiasis (also called nephrolithiasis) remains as the most important concern in treating most patients. For reasons that are not clear, men are affected approximately three or four times more commonly than women are affected. It has been estimated that 12 percent of men and 5 percent of women in the Western world will develop a kidney stone by age 70.¹ Nephrolithiasis is relatively unknown in the developing world. As discussed below, this suggests strongly that environmental and dietary factors are important in the formation of kidney stones. Obviously, kidney stones are a major problem in the developed world and preventing the severe symptoms of acute passage is critical.

Dietary factors are paramount in the pathogenesis of calcium oxalate stones and hence nutritional therapies are extremely important in prevention. Hyperoxaluria (elevated urine levels of oxalic acid) and hypercalciuria both contribute to urolith formation, with hyperoxaluria being the more important factor.² It has been shown that this is because calcium oxalate saturation of urine proceeds much more rapidly in the presence of hyperoxaluria than it does in the presence of hypercalciuria.³

The relationship between dietary intake of oxalate and oxalate levels in the body is complex and confusing. Only approximately 10 percent of oxalates in the body come directly from food. Oxalic acid is also very poorly absorbed; only

approximately 5 percent of oxalic acid actually gets into the body.⁴ Nevertheless, according to Steve Austin, N.D., a naturopathic physician and widely acclaimed nutritional expert, Center for Natural Medicine, Portland, Oregon, diet still contributes significantly to the body oxalate burden out of proportion to the small amounts of oxalate eaten and absorbed directly from food. Other sources of oxalate are vitamin C (roughly 40 percent), glycine (an amino acid encountered in many foods, roughly 40 percent), and other endogenous sources of oxalate (approximately 10 percent).

One study examined a group of 207 patients who suffer from recurrent oxalate stones.⁵ Of these, only approximately 20 percent had hyperoxaluria and only 45 percent of this 20 percent improved when oxalates were restricted. In other words, only 10 percent of the original group did better while avoiding high-oxalate foods. In addition, this points out that routine urinalysis looking for oxaluria or oxalate crystals is relatively worthless—many stone formers will have false negative findings while many non-stone formers will have false positive findings.

The good news is that only eight foods have been related consistently to increasing urinary oxalate levels in people with oxalate absorption and secretion problems.⁶ These foods (or herbs, depending on one's outlook) are spinach, rhubarb, nuts, chocolate, tea, wheat bran, beet greens, and strawberries. While wheat and nuts are quite common in most people's diets and will require more work to help a patient avoid, the other foods tend to be consumed only sporadically, which is particularly unfortunate in the case of spinach!

This paper appeared in a different form in the Proceedings of the Southwest Botanical Conference, 1996, Scottsdale, Arizona. Published by Southwest College of Naturopathic Medicine, Scottsdale, Arizona, 1996.

Supplemental calcium taken with meals reduces stone formation.

Dietary calcium *restriction* is a major factor in many patients with calcium oxalate stones and hyperoxaluria. This is because calcium taken with oxalate at a meal reduces oxalate absorption dramatically.⁷ Because of this relationship, calcium apparently is responsible for much of the problem with oxalate. Calcium is part of what the body normally uses for excreting oxalate, along with citrate, pyrophosphate, glycosaminoglycans, and magnesium, among other elements. An increase in dietary calcium is actually related to a reduction in urinary calcium levels in many cases.⁸ Supplemental calcium taken *with meals*, especially in the afternoon and evening (meals that tend to contain higher oxalate amounts), reduces stone formation as well, according to the latest large-scale study.⁷

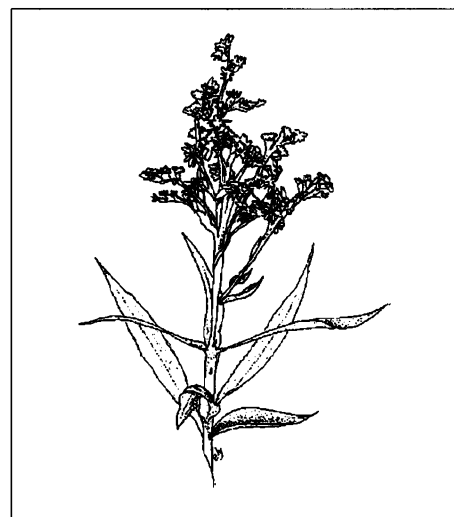
Etiologic Implications of Western Diet

Simple sugar and sodium chloride both promote urinary calcium excretion and very consistently contribute to renal lithiasis.^{9,10} Obviously, both are consumed in great excess by most people in the United States and in western Europe. Another area of malnutrition through excess frequently encountered in the developed world is consumption of exorbitant quantities of animal products. This consumption has also been linked fairly consistently to urolithiasis.¹¹ Ethanol, caffeine, and lack of dietary fiber are also all potentially important in the etiology of kidney stones. The oversimplified recommendations of allopathic practitioners to restrict calcium and oxalate intake while ignoring the contributions of meat, fat, salt, sucrose, caffeine, and insufficient fiber intake may actually make the prob-

lem worse rather than better. Reducing dietary calcium is definitely contraindicated for the vast majority of people.⁸

In one area everyone agrees: drinking at least enough water to produce 2–3 quarts of urine per day is very important. In a wet climate, 8 glasses of water a day usually suffices. In a dry climate, for patients who exercise frequently, and for some chronically underhydrated patients, more water is likely to be very useful. Maintaining a urinary specific gravity below 1.025 is a useful way to gauge sufficient water intake. An interesting twist on the fluid intake saga comes from studies using lemonade to treat urolithiasis.¹² Four ounces of reconstituted lemon juice was mixed with water to make two liters of lemonade daily. Sweetener was added to taste, although, as noted above, sucrose intake should be limited because it contributes to stone formation. Lemon juice is extremely high in citrate, a critical antilithogenic compound in the urine.¹³ In this study, the lemonade therapy greatly increased citruria. This is one way to get people who do not like water to drink fluids and it is cheaper than using citrate pills. Lemonade therapy will also help to maintain a urinary pH between 6 and 7, which prevents uric acid (hence uric acid stones) and calcium phosphate from precipitating.

A number of nutritional supplements are important as part of a regimen for preventing kidney stones. Pyridoxine (vitamin B₆) is necessary for oxalic acid catabolism and treatment with pyridoxine is beneficial for retarding stone formation.¹⁴ Pyridoxine works synergistically with the mineral magnesium, which increases calcium oxalate solubility.¹⁵ These two nutrients, together with citrate, which helps to inhibit precipitation of



Solidago canadensis.

stone-forming compounds, are a very effective approach. Magnesium citrate is commonly available and is a useful way to deliver both nutrients simultaneously.

Ascorbic acid has been blamed for causing kidney stones because a breakdown product of this critical vitamin is oxalic acid. However, at doses under 6 g daily, urinary oxalate levels are not changed significantly in most people compared to changes in these levels resulting from the consumption of a typical Western diet.¹⁶ In most cases it will not be necessary to give patients a dose that is much higher than 6 g. If an infection arises necessitating higher doses of vitamin C, it is wise to increase citrate intake simultaneously, have the patient drink more water than usual, and generally increase protective measures to offset the relatively small increase of risk high doses of vitamin C represent.

Saw palmetto makes it easier for patients to pass stones.

Table 1. The “Prevent Renal Calculi” Formula

Latin Binomial	Common Name(s)	Part Used	Parts ^a
<i>Taraxacum officinale</i>	dandelion	leaf	1.5
<i>Rubia tinctoria</i>	madder	root	1.5
<i>Serenoa serrulata</i>	saw palmetto	fruit	1.5
<i>Aesculus hippocastanum</i>	horse chestnut	fruit	1
<i>Berberis vulgaris</i>	barberry	root	1
<i>Agropyron repens</i>	couch grass	root	1
<i>Eupatorium purpureum</i>	gravel root	root	0.5
<i>Alchemilla arvensis</i>	parsley piert	flowering tops	0.5
<i>Hydrangea arborescens</i>	hydrangea	root	0.5
<i>Equisetum arvense</i>	horsetail	leaf	0.5 (syrup)
<i>Parietaria diffusa</i>	pellitory of the wall	flowering tops	0.5

^aAll are ethanol extracts (tinctures) unless otherwise mentioned.

Botanical Approach to Urolithiasis

Two areas must be addressed when considering medicinal herbs for preventing urinary calculi. First, intake of those plants generally eaten as food and claimed by the realm of nutrition must be optimized. Second, specific plants can be added as medicinal extracts.

Some vegetables are urinary-tract tonics and diuretics, and will therefore be helpful in the long run in preventing urolithiasis. Among these vegetables are celery, asparagus, parsley, and carrots. Vegetables, fruits, and grains with a high magnesium-to-calcium ratio are also highly recommended. These plants include avocados, bananas, potatoes, soy, barley, buckwheat, rye, oats, and rice. A low ratio of these two minerals in the diet has been linked to increased risk of calculi formation.¹⁷

A useful combination of tinctures of various medicinal plants dubbed the

“Prevent Renal Calculi” formula is presented in Table 1. Some of the components of this formula are discussed later on regarding management of acute ureteric pain related to passage of kidney stones. Those used exclusively or primarily for long-term management are reviewed directly below.

Serenoa serrulata (saw palmetto), also known as *Serenoa repens*, contains a number of ethyl esters of fatty acids, enzymes, tannins, resins, terpenoids, and sosterols. Saw palmetto is deservedly famous for its reliable benefit in treating patients with benign prostatic hyperplasia.¹⁸ Saw palmetto also has a spasmolytic effect, making it easier for patients to pass stones and also benefiting patients with dysuria and tenesmus. Saw palmetto is believed to reduce the pressure on the neck of the bladder and to have a sedative effect when there is an irritated detrusor. This can be the case in all kinds of prostate and bladder problems. Saw pal-

metto is included as a central ingredient in the preventive formula because of the herb's general tonic effects on the entire urinary tract. The herb is equally indicated in male and female patients.

Parietaria diffusa (pellitory of the wall), a relative of *Urtica dioica* (stinging nettle), is known to contain flavonoids, including quercetin. Unfortunately, *Parietaria diffusa* has not received much scientific study. Traditionally it is used as a diuretic and demulcent for cystitis, pyelonephritis, and kidney stones. The herb is thought to relieve edema when the cause of the edema is related to the urinary tract.

Berberis vulgaris (barberry) and other berberine-containing herbs found around the world are primarily used for inflammation and infestations in the intestinal tract (including the liver and gall bladder). The herb is also used in eye washes. This particular species is employed homeopathically to relieve radiating pains in the kidney region and to aid in the passage of kidney stones. Clearly, berberine and other alkaloids in barberry are antimicrobial,¹⁹ and therefore might be considered if there is an indication of an infection and stones. Recurrent urinary-tract infection without another obvious cause in someone known to be a stone former is just one hint of the presence of infection and stones.

Alchemilla arvensis (parsley piert), also referred to as *Aphanes arvensis*, is an uninvestigated plant that has a strong reputation in England. It is particularly noted for its diuretic, demulcent, and antilithic properties.

Managing the Acute Stage

In dealing with patients who have kidney stones, one must address the renal colic and assist passage of the stone dur-

Some patients can be managed with medicinal plants alone.

ing the acute phase. Obviously, a great deal of clinical supervision is necessary to ensure that the patient gets through the acute stage without complications. While this condition is usually excruciatingly painful and may require narcotic analgesics or other pharmaceutical drugs, some patients can be managed with medicinal plants alone. The diuretic drugs, nonsteroidal anti-inflammatory drugs (NSAIDs), and narcotics often prescribed to treat acute urolithiasis have numerous side effects not seen with the botanical approach. For example, diuretics can cause dangerous mineral depletion and NSAIDs can have an impact on the kidneys, intestines, joints, and liver.

A dedicated patient with a typical calcium oxalate stone often can get through the passage of a stone without complications with this approach. Generally, 85 percent of patients with a stone under 4 mm in diameter will pass it spontaneously anyway,²⁰ and natural therapies can enhance the process safely. Patients with unusual types of stones (staghorn, cystine, and stones larger than 2 cm diameter) may require a different approach, which is not discussed here.

In the acute stage, a hot bath is advised along with hot compresses directly over the kidney or ureter where the pain is felt. If the pain is not so acute as to warrant an emergency room visit to get major painkillers, then botanical teas with diuretic, anti-inflammatory, and spasmolytic effects directed at the urinary-tract organs will often move the calculus successfully. Combination tinctures, along with large volumes of *Taraxacum officinale* (dandelion) leaf tea, or just hot water, are quite effective. Dandelion leaf is more difficult to locate than root, although it

Table 2. The "Pass Stone" Formula

Latin Binomial	Common Name(s)	Part Used	Parts ^a
<i>Lobelia inflata</i>	lobelia, Indian tobacco	leaf, flowers, seed	2 (vinegar extract)
<i>Rubia tinctoria</i>	madder	root	2
<i>Ammi visnaga</i>	khella	seed	2
<i>Eupatorium purpureum</i>	gravel root	root	1.5
<i>Aesculus hippocastanum</i>	horse chestnut	fruit	1.5
<i>Zea mays</i>	corn silk	stigmata (silk)	1
<i>Taraxacum officinale</i>	dandelion	leaf	1
<i>Solidago canadensis</i>	goldenrod	leaf, flower	1
<i>Hydrangea arborescens</i>	hydrangea	root	1
<i>Equisetum arvense</i>	horsetail	leaf	1 (syrup)
<i>Agropyron repens</i>	couch grass	root	1
<i>Serenoa serrulata</i>	saw palmetto	fruit	0.5

^aAll are ethanol extracts (tinctures) unless otherwise mentioned.

is available in fresh form in some produce sections. Goldenrod (see below) is one possible substitute. The botanical formula works by relieving edema in the ureteral mucosa, decreasing spasm caused by irritation by the calculus, and promoting the flow of urine. This enhances expulsion by pressure and fluid volume.

The Pass Stone Formula (see Table 2) can be given at 3–5 ml (5 ml is 1 tsp) every 30 minutes to 2 hours as needed, with as many cups of dandelion leaf or goldenrod tops tea as possible. Use 2 tsp of dandelion or goldenrod per cup to make the tea. Add the leaves to 1 cup of boiling water and allow to steep for 15 minutes. An entire day's batch can be mixed in the morning and kept in the refrigerator, then heated up or drunk at room temperature when each cup is to be taken. Each component of this special formula is discussed below.

Botanicals for Easing the Passage of Acute Urinary Calculi

Lobelia inflata (lobelia) serves primarily as a respiratory stimulant and spasmolytic and assists in stopping smoking. However, its powerful relaxant and antispasmodic effects make it beneficial in helping patients to pass urinary stones through the ureters. Lobeline and other alkaloids in lobelia are acetylcholine antagonists,²¹ although other mechanisms may account for its broncho- and ureterodilating effects. As in any application, the dose is limited by the tendency of the patient to become nauseous, mediated by the nicotine-like lobeline. If a patient is particularly susceptible to this nausea, reduce the proportion of this ingredient in the formula. In highly sensitive people, the lobelia can be taken separately and a nonnauseating dose can be found by gradually increasing the num-

Studies in mice have shown no toxicity from madder administration, even in very large doses.

A Prevention Protocol for Urolithiasis

This protocol can be used for the prevention of urolithiasis:

- 8 glasses of water may be drunk per day to maintain a urinary specific gravity of <1.025.
- Lemonade without sucrose or artificial sweeteners and herbal teas can be substituted for some of the water, or added in addition to it. *Taraxacum officinale* (dandelion) leaf or *Solidago* spp. Goldenrod tea is particularly useful.
- 250 mg of pyridoxine may be given daily.
- Magnesium citrate (providing approximately 150 mg of elemental Mg) capsules may be given two times daily.
- 500 mg of calcium citrate may be given three times daily with meals.
- Patients should eat low on the food chain and moderate oxalate intake. This includes few animal products (including fish and dairy products), high fiber, whole foods (avoiding refined sugars in particular), low salt, plenty of fruits and vegetables (except spinach, beet greens, and strawberries). Patients should also avoid nuts, all caffeinated beverages and foods, and alcohol.
- "Prevent Renal Calculi" formula (Table 1), 1 tsp three times daily, which should not be taken with food.

ber of drops from 2–3 up to 15 per dose as frequently as needed. This tendency to provoke emesis has always prevented the use of lobelia in too high a dose.

Rubia tinctoria (madder) root enjoys a long tradition of use in Europe including Russia.²² While madder has not been well studied, it is suspected that the active principles are anthraquinone glycosides, such as alizarin. This is the red pigment in madder and is the source of its fame as a

dye plant. Therefore, it is important to warn the patient that his or her urine may turn red when taking madder. In the small quantities suggested here, this tint in the urine is likely to be only a light pink. Madder has long been regarded as a diuretic, though it is probably only mildly so. It probably has a spasmolytic effect on the ureters, thus helping stones to pass. Studies on a related plant, *Rubia cordifolia* (Chinese madder, chien tsaio), have shown it to have calcium channel antagonizing effects,²³ which might contribute to relaxing of smooth muscle. Madder is also used to prevent calcium and phosphate oxalate salts from forming stones. Other studies in mice have shown no toxicity from madder administration, even in very large doses.²⁴

Ammi visnaga (khella) originates from North Africa where it is primarily used as a spasmolytic in treating asthma²⁵ and in treating angina pectoris.²⁶ This, as in the case of lobelia, highlights that antispasmodic plants used in the respiratory tract are frequently also of value in the urinary tract. Khellin, the main active compound in khella, as well as visnadin, may act as a mild calcium channel blocker, explaining its dilating effect on the ureters.²⁷ Visnagin, another furanocoumarin from khella, also has interesting smooth muscle relaxing effects related to nonstandard calcium channel activity.²⁸

In Egypt, khella is a popular medicine for kidney stones because it relieves ureteric spasms. Kidney, ureter, and bladder stones are quite common in Egypt because of the frequency of bilharziasis in that country. Interestingly, *Ammi majus* (Bishop's weed), a relative of khella, has been shown to kill *Schistosoma mansoni* (one of the organisms that causes bilharziasis).²⁹ Khella's active compounds are

absorbed excellently and have low toxicity as evidenced by the almost total lack of side effects in long-term use in treating people with asthma. Khella's spasmolytic effects last approximately 6 hours and, thus, more frequent dosing than this will potentiate the effect of previous doses that are still active in the body.

Eupatorium purpureum (gravel root), as its name implies, has been used traditionally for treating urinary gravel. The Eclectics, physicians who employed natural therapies at the end of the nineteenth and beginning of the twentieth centuries, considered it to be mildly astringent, a stimulant, and a tonic with a specific action in the urinary tract.³⁰ Gravel root was said to have the power to dissolve concretions.³⁰ It is also prescribed for patients with cystitis, urethritis, fluid retention, and irritable bladder.

Aesculus hippocastanum (horse chestnut) is used in a variety of conditions that require the antiedematous effects of escin. This compound decreases small pore number and diameter dramatically in capillary endothelium, thereby reducing fluid seepage into the tissue space.^{31,32} The late R.F. Weiss, a German medical doctor who used medicinal plants for decades, reported that escin is 600 times more effective than rutin and is used most often to improve the tone of the venous walls.³³ In the case of calculi caught in the ureter, horse chestnut's antiedematous properties result in an enlargement of the internal diameter of the ureter. As a result, such stones can move more easily, even in resistant cases. In preventing recurrences of urolithiasis, horse chestnut appears to help gravel pass smoothly. Simultaneously, it benefits the circulatory and respiratory systems if there are concomitant conditions.

Goldenrod is probably an excellent herb to use shortly after the passage of a stone to flush out the kidney.

Zea mays (corn silk) reputedly increases urine flow and has a demulcent effect, making it applicable in decreasing irritation from stones and facilitating their passage. One human study unfortunately did not confirm the diuretic action of corn silk.³⁴ However, it was unclear what quality of corn silk was studied. This is one herb that is best used in fresh form and one that should be carefully collected so as to contain only the green or yellowish parts. Those stigmata that have dried out and darkened—especially those from corn that has been sprayed to prevent worm infestations—are suspect. Most commercially available corn silk is of low quality as a result.

Taraxacum officinale (dandelion) leaf is simultaneously a much maligned weed and is an important medicine. While the whole plant is useful for both liver and kidney tonification and detoxification, the leaf is most reliable as a diuretic. It has been favorably compared with furosemide in animal studies,³⁵ and has been observed clinically in humans to have a similar effect if one takes a large enough quantity. Thus, a fluid extract is used in the formula along with an infusion. Animal studies have also shown dandelion leaf to be beneficial in treating urolithiasis.³⁶

While many drug diuretics deplete potassium, dandelion leaf is one of the best plant sources of potassium. Dandelion leaf has been reported to contain up to 4.25 percent potassium.³⁷ For this reason and probably many other reasons that have not been documented scientifically, dandelion leaf can be used as a food and as a medicine for extended periods of time. This is because dandelion leaf enhances, rather than interferes with, physiologic functioning

in urinary, biliary, and rheumatic conditions.

Solidago canadensis (goldenrod) and related species have been used as urinary stimulants, both as diuretics^{38,39} and to decrease albuminuria. One must remember to watch carefully for acute blockage, which can cause urinary reflux into the kidney. In this way, overstimulating renal output can be avoided. One urologist managing a case commented that partial blockage for even as long as 2 weeks would not damage the kidney, but it is preferable to err on the conservative side in such a case. Because goldenrod is considered to be useful in acute nephritis,³⁸ it is probably an excellent herb to use shortly after the passage of a stone to flush out the kidney. Goldenrod also has a very high content of flavonoids, which aid in the repair of kidneys, blood vessels, and connective tissues throughout the body. It has been demonstrated to be anti-inflammatory³⁹ and to reduce edema by reducing capillary permeability.⁴⁰

Hydrangea arborescens (hydrangea) is a native U.S. plant that has been investigated only minimally by scientists. Its traditional use is primarily for all manner of urinary complaints, including the passage of kidney and bladder stones, and for prophylaxis. Hydrangea is also employed in helping patients with urinary-tract infections and with prostatic inflammation or enlargement.

Equisetum arvense (horsetail) contains silicic acid,³³ as corn silk does. Horsetail is therefore used for connective tissue repair, particularly in the lungs and in the urinary passages. Here, the silica is found in the water-soluble form so it is best extracted in the old traditional manner, with water and honey. This provides an alkaline pH that helps to maintain the

solution. *Equisetum* also contains β -sitosol, which has been shown elsewhere to reduce prostatic hyperplasia.⁴² Saw palmetto also contains a fair amount of β -sitosterol. Horsetail also causes some degree of diuresis, as was confirmed in humans using another, related species of the plant.⁴³ Several similar species had a similar magnitude of effect as spironolactone in animal studies.⁴⁴ Because it is a general metabolic stimulant and increases connective tissue resistance, horsetail is useful in formulas used to treat both acute and chronic calculi.

Agropyron repens (couch grass) is a common and most unwelcome weed in moist climates. It is a saponin- and mannitol-based diuretic that also contains some silica,⁴⁵ which can be used to repair irritated mucosal walls. Couch grass has been used to treat prostatic adenoma. Again, it is useful to facilitate the passage of stones. It is also useful later to repair any damage and assist in preventing recurrences. The one rat study that has been conducted using couch grass did not find it helpful in preventing urolithiasis, though, once again, the quality of the herb used was not assessed.⁴⁶ As of yet, human clinical trials to investigate couch grass's effects have not been attempted. Couch grass also contains mannose, which is also potentially valuable for treating urinary-tract infections.

In some cases, this formula has helped to break up stones, which are then passed in smaller pieces. It is important to remind the patient to urinate through a fine screen, or, if that is not available, to use a jar. Often, this will cause an audible sound when the stone finally passes completely out of the body and into the container. It is useful to have the content of the stone analyzed (although it is very

Natural medicine has a lot to offer, both preventively and therapeutically, for patients with recurrent urolithiasis.

likely to be calcium oxalate/calcium phosphate) so that even more sound medical advice can be given.

Together, nutritional and botanical approaches provide very potent tools in controlling urolithiasis. Prevention is a very real possibility when a patient is willing to follow a regular program. Acute nephrolithiasis can also be managed sometimes by entirely natural means in the hands of an experienced practitioner who knows when to refer patients who are progressing poorly for allopathic intervention. Someday, the safe, natural approach will be the first step in care and the more risky allopathic approach will be reserved only for severe cases. In this way, the best of both kinds of medical intervention will be maximized while costs are kept as low as possible, particularly because the natural products listed above are inexpensive as compared to allopathic medicines, surgery, extracorporeal shockwave lithotripsy, and other procedures.

A Successful Case

To illustrate the effectiveness of the botanical approach, one patient has followed up very consistently with this protocol over the past several years. He is a good example of a typical, moderately severe case that can be managed safely and effectively by naturopathic means. His mother and maternal grandfather had a history of kidney stones, and his paternal grandfather also had some kidney problems. When he was first seen he had just given up taking 100 mg a day of hydrochlorothiazide (HCTZ). He had previously taken this preparation for more than 5 years during which time he passed two calcium oxalate stones. He was 46

years old at that time. His first renal lithiasis had occurred when he was 20 years old. That calculus had been removed by cystoscopy. The frequency of occurrences had increased throughout his twenties and he had experienced 6 episodes in his thirties. He had passed a stone every month for the year before he started the HCTZ, requiring strong pain medication each time.

This patient took the supplements and botanicals very faithfully with only sporadic adherence to prescribed dietary recommendations. He had only one acute stone during an emotionally stressful period since starting the approach outlined above. He drank copious amounts of dandelion leaf infusion along with the Pass Stone Formula during this acute episode. After several days of alternating renal colic which was milder than he remembered and vaguely lightheaded, toxic feelings, he decided to see a urologist who ordered an intravenous urogram (IVU). Shortly thereafter he passed some gravel in a bit of pink-tinged urine and the sharp pain subsided. The next day the IVU revealed no abnormalities. Over the next 3 days he gradually felt better on a modified botanical formula, which was given to him to soothe and heal his urinary tract. The patient then resumed full activities a few days after that.

This patient has had one recurrence in the 2 years since. His stone, again, passed easily, which he attributed to his use of the botanicals. He continues to be on the supplements and to use an individualized botanical formula. This case illustrates that natural medicine has a lot to offer, both preventively and therapeutically, for patients with recurrent urolithiasis. □

References

1. Unwin, R. Unravelling of the molecular mechanisms of kidney stones: Introduction. *Lancet* 348:1561-1562, 1996.
2. Robertson, W., Peacock, M. The cause of idiopathic calcium stone disease: Hypercalciuria or hyperoxaluria. *Nephron* 26:105-110, 1980.
3. Borsatti, A. Calcium oxalate nephrolithiasis: Defect oxalate transport. *Kidney Intl* 39:1283-1298, 1991.
4. Brinkley, L., McGuire, J., et al. Bioavailability of oxalate in foods. *Urology* 17:534-538, 1981.
5. Laminski, N.A., Meyers, A.M., et al. Hyperoxaluria in patients with recurrent calcium oxalate calculi: Dietary and other risk factors. *Br J Urol* 68:454-458, 1991.
6. Massey, L.K., Roman-Smith, H., Sutton, R.A. Effect of dietary oxalate and calcium on urinary oxalate and risk of formation of calcium oxalate kidney stones. *J Am Diet Assoc* 93:901-906, 1993.
7. Curhan, G.C., Willet, W.C., Speizer, F.E., et al. Comparison of dietary calcium with supplemental calcium and other nutrients as factors affecting the risk for kidney stones in women. *Ann Intern Med* 126:497-504, 1997.
8. Burtis, W.J., Gay, L., Insogna, K.L., et al. Dietary hypercalciuria in patients with calcium oxalate kidney stones. *Am J Clin Nutr* 60:424-429, 1994.
9. Muldowney, F.P., Freaney, R., Moloney, M.F. Importance of dietary sodium in the hypercalciuria syndrome. *Kidney Intl* 22:292-296, 1982.
10. Lemann, J., Jr., Piering, W.F., Lennon, E.J. Possible role of carbohydrate-induced calciuria in calcium oxalate kidney-stone formation. *N Engl J Med* 280:232-237, 1969.
11. Hughes, J., Norman, R.W. Diet and calcium stones. *Can Med Assoc J* 146:137-143, 1992 [review].
12. Seltzer, M.A., Low, R.K., McDonald, M., et al. Dietary manipulation with lemonade to treat hypocitraturic calcium nephrolithiasis. *J Urol* 156:907-909, 1996.
13. Akinci, M., Esen, T., Koçak, T., et al. Role of inhibitor deficiency in urolithiasis. I. Rationale

- of urinary magnesium, citrate, pyrophosphate and glycosaminoglycan determinations. *Eur Urol* 19:240–243, 1991.
14. Murthy, M., Farooqui, S., et al. Effect of pyridoxine supplementation on recurrent stone formers. *Intl J Clin Pharm Ther Tox* 20:43–47, 1982.
15. Prien, E., Gershoff, S. Magnesium oxide-pyridoxine therapy for recurrent calcium oxalate calculi. *J Urol* 112:509–512, 1974.
16. Piesse, J.W. Nutritional factors in calcium containing kidney stones with particular emphasis on vitamin C. *Intl Clin Nutr Rev* 5(3):110–129, 1985 [review].
17. Johansson, G., Backman, U., et al. Magnesium metabolism in renal stone formers: Effects of therapy with magnesium hydroxide. *Scand J Urol Nephrol* 53:125–130, 1980.
18. Braeckman, J. The extract of *Serenoa repens* in the treatment of benign prostatic hyperplasia: A multicenter open study. *Curr Ther Res* 55:776–785, 1994.
19. Amin, A.H., Subbaiah, T.V., Abbasi, K.M. Berberine sulfate: Antimicrobial activity, bioassay and mode of action. *Can J Microbiol* 15:1067–1076, 1969.
20. Kupin, W., Preminger, G.M., Segura, J., Smith, A. A treatment plan for urinary stones. *Patient Care* (May 30):22–38, 1995 [review].
21. Robinson, T. The biochemical pharmacology of plant alkaloids. *Herbs Spices Med Plants* 1:135–165, 1986 [review].
22. Bablumian, I.U.A., Petrosian, B.G. Extract from the roots of *Rubia tinctorum* in the treatment of ureteral calculi. *Zh Eksp Klin Med* 17(6):87–91, 1977 [in Russian].
23. Gilani, A.H., Janbaz, K.H., Zaman, M., et al. Possible presence of calcium channel blocker(s) in *Rubia cordifolia*: An indigenous medicinal plant. *JPMA J Pak Med Assoc* 44(4):82–85, 1994.
24. Ino, N., Tanaka, T., Okumura, A., et al. Acute and subacute toxicity tests of madder root, natural colorant extracted from madder (*Rubia tinctorum*), in (C57BL/6 X C3H)F1 mice. *Toxicol Ind Health* 11(4):449–458, 1995.
25. Kennedy, M.C.S., Stock, J.P.P. The bronchodilator action of khellin. *Thorax* 7:43–65, 1952.
26. Conn, J.J., Kisane, R.W., Koons, R.A., Clark, T.E. Treatment of angina pectoris with khellin. *Ann Intern Med* 36:1173–1178, 1952.
27. Rauwald, H.W., Brehm, O., Odenthal, K.P. The involvement of a Ca²⁺-channel blocking mode of action in the pharmacology of Ammi visnaga fruits. *Planta Med* 60:101–105, 1994.
28. Duarte, J., Perez-Vizcaino, F., Torres, A.I., et al. Vasodilator effects of visnagin in isolated rat vascular smooth muscle. *Eur J Pharmacol* 286(2):115–122, 1995.
29. Abdulla, W.A., Kadry, H., Mahran, S.G., et al. Preliminary studies on the anti-schistosomal effect of *Ammi majus* L. *Egypt J Bilharz* 4(1):19–26, 1978.
30. Felter, H.W., Lloyd, J.U. *King's American Dispensatory*. Portland, OR: Eclectic Medical Publications, reprint of 18th edition, 1898 original, pp. 740–743.
31. Wilhelm, K., Feldmeier, C. Thermometric investigations about the efficacy of beta-escin to reduce postoperative edema. *Med Klin* 72(4):128–134, 1977 [in German].
32. Longiave, D., Omini, C., Nicosia, S., Berti, F. The mode of action of escin on isolated veins. *Pharmacol Res* 10:145–152, 1978.
33. Weiss, R.F. *Herbal Medicine*. Beaconsfield, UK: Beaconsfield Publishers, Ltd., 1985.
34. Doan, D.D., Nguyen, N.H., Doan, H.K., et al. Studies on the individual and combined diuretic effects of four Vietnamese traditional herbal remedies (*Zea mays*, *Imperata cylindrica*, *Plantago major* and *Orthosiphon stamineus*). *J Ethnopharm* 36:225–231, 1992.
35. Racz-Kotilla, E., Racz, G., Solomon, A. The action of *Taraxacum officinale* extracts on the body weight and diuresis of laboratory animals. *Planta Med* 26:212–217, 1974.
36. Grases, F., Melero, G., Costa-Bauzá, A., et al. Urolithiasis and phytotherapy. *Intl Urol Nephrol* 26:507–511, 1994.
37. Hyde, F.F. The leaf of *Taraxacum officinale* L. *New Herbal Practitioner* 1:82, 1975.
38. Tyler, V. *Herbs of Choice: The Therapeutic Use of Phytomedicinals*. New York: Pharmaceutical Products Press, 1994, pp. 74–75.
39. Leuschner, J. Anti-inflammatory, spasmolytic and diuretic effects of a commercially available *Solidago gigantea* herb extract. *Arzneim Forsch* 45:165–168, 1995.
40. von Wagener, H.H. The pharmacology of venous drugs containing an extract of *Solidago*. *Arzneim Forsch* 16:859–866, 1966 [in German].
41. D'Agostino, M., Dini, A., Pizza, C., et al. Sterols from *Equisetum arvense*. *Boll Soc Ital Biol Sper* 60:2241–2245, 1984.
42. Berges, R.R., Windeler, J., Trampisch, J.H., et al. Randomised, placebo-controlled, double-blind clinical trial of β -sitosterol in patients with benign prostatic hyperplasia. *Lancet* 345:1529–1532, 1995.
43. Lemus, I., Garcia, R., Erazo, S., et al. Diuretic activity of an *Equisetum bogotense* tea (platero herb): Evaluation in healthy volunteers. *J Ethnopharmacol* 54(1):55–58, 1996.
44. Perez Gutierrez, R.M., Laguna, G.Y., Walkowski, A. Diuretic activity of Mexican equisetum. *J Ethnopharmacol* 14:269–272, 1985.
45. Paslawska, S., Piekos, R. Studies on the optimum conditions of extraction of silicon species from plants with water. IV. *Agropyron repens*. *Planta Med* 30:216–222, 1976.
46. Grases, F., Ramis, M., Costa-Bauza, A., March, J.G. Effect of *Herniaria hirsuta* and *Agropyron repens* on calcium oxalate urolithiasis risk in rats. *J Ethnopharmacol* 45:211–214, 1995.

Silena Heron, N.D., practices naturopathic medicine in Sedona, Arizona, and is a consultant to Botanical Pharmaceuticals, also in Sedona. She is vice president of the Botanical Medicine Academy. **Eric Yarnell, N.D.**, is a private practitioner in Sedona, Arizona. He is on the board of the Botanical Medicine Academy, a specialty board for using medicinal herbs.

To order reprints of this article, write to or call: Karen Ballen, ALTERNATIVE & COMPLEMENTARY THERAPIES, Mary Ann Liebert, Inc., 2 Madison Avenue, Larchmont, NY 10538-1962, (914) 834-3100.

This article has been cited by:

1. Geovanni Espinosa, Michael T. Murray Kidney Stones (Renal Calculi, Nephrolithiasis) 1564-1573. [[CrossRef](#)]
2. Yarnell Eric, Abascal Kathy. 2011. Spasmolytic Botanicals: Relaxing Smooth Muscle with Herbs. *Alternative and Complementary Therapies* 17:3, 169-174. [[Citation](#)] [[Full Text PDF](#)] [[Full Text PDF with Links](#)]
3. Eric Yarnell, Kathy Abascal. 2008. Holistic Approaches to Prostate Cancer. *Alternative and Complementary Therapies* 14:4, 164-180. [[Abstract](#)] [[Full Text PDF](#)] [[Full Text PDF with Links](#)]
4. Eric Yarnell. 1999. Part 1: The Hormone Link. *Alternative and Complementary Therapies* 5:5, 295-303. [[Citation](#)] [[Full Text PDF](#)] [[Full Text PDF with Links](#)]