

# The Chinese Medical Treatment of Gout

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## Biomedical Disease Explanation of Gout

Gout represents a recurrent acute arthritis of peripheral joints that results from deposition of urate crystals secondary to an increased serum uric acid level (hyperuricemia). The arthritis may become chronic and deforming.<sup>1</sup> Uric acid is produced from the catabolism of purines. Purines, if not derived from diet, may stem from increased cell turnover with a high nucleoprotein (RNA/DNA) breakdown (which occurs in such diseases as lymphoma, leukemia, or hemolytic anemia) or may occur in cases where cellular proliferation and cell death is increased (such as in psoriasis). Furthermore, ethanol consumption accelerates ATP catabolism and slightly decreases glomerular filtration rate, thus increasing uric acid levels in the blood. Because in these instances an underlying cause for the hyperuricemia can be determined, one refers to this as *secondary gout*. If purines are synthesized *de novo* or if an unexplained decrease in urinary clearance of uric acid leads to hyperuricemia, gout is called *primary gout* (no underlying disease is present). A decreased urinary clearance of uric acid is by far the more common cause of primary gout and 75% to 90% of all cases suffering from primary gout “result from an as yet unexplained impairment of uric acid excretion by the kidneys.”<sup>2</sup>

At 37.0°C, plasma is saturated with uric acid at levels above 7.0 mg/dL. Urate solubility at 30°C is 4 mg/dL. Therefore, urate crystals precipitate and deposit in the distal peripheral joints and in cooler tissues such as the ears. Such crystals may also deposit in the kidneys and lead to renal failure (leading to an even further decrease of uric acid clearance) and urate stones.

Clinically, gout is divided into four stages: asymptomatic hyperuricemia often precedes acute attacks of gout and does not manifest with any symptoms. During acute gouty arthritis, the second stage, the joints of especially the metatarsophalangeal joint of the big toe, but also the ankles, knees, and possibly upper arm joints are involved. The attacks commonly start at night and are very painful. The involved joint or joints are swollen, red, and exquisitely tender. The overlying skin is often tense, warm, shiny, and red or purplish. Acute gout may be precipitated by a large and rich meal (lots of fats and purine containing foods), alcohol, trauma, emotional stress and medical stress. The third stage is the intercritical period (henceforward referred to as the quiescent period) during which no acute attacks occur and which can last up to ten years. However, subsequent attacks “tend to be increasingly severe, prolonged, polyarticular, and even febrile.”<sup>3</sup> Initial acute attacks last only a few days but later untreated attacks may persist for weeks. The fourth and last stage is termed tophaceous gout. This appears in patients with uncontrolled gout in whom the uric acid levels are not stabilized at normal or only slightly elevated levels. Tophi appear in the cartilage, synovial membranes, tendons, and soft tissues, and they represent crystal aggregates and, during the later stages of gout, can be felt as subcutaneous nodules. If they rupture, a chalky white mass of urate crystals may be discharged. The bursa walls and tendon sheaths are frequently affected and chronic joint symptoms with joint deformity and limitation of motion may develop during the later stages of disease when acute attacks are more frequent. Crystal deposits in the kidneys lead to urate stones which account for 10% of all renal calculi; up to 25% of patients with gout are affected by this ailment. Furthermore, renal failure secondary to urate deposits in the renal interstitium account for 10% of deaths in patients

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<sup>1</sup>*The Merck Manual*, 16<sup>th</sup> ed. (Rahway, NJ: Merck & Co., 1992), 1346.

<sup>2</sup>Emanuel Rubin and John L. Farber, *Essential Pathology*, 2<sup>nd</sup> ed. (Philadelphia: J. B. Lippincott Co., 1995) 704.

<sup>3</sup>*Ibid.*, 705.

suffering from gout.<sup>4</sup>

Western medical treatment of gout is threefold. First, acute attacks need to be relieved. Colchicine is the drug of choice and is often immediately effective. However, the side effects of vomiting and diarrhea frequently prohibit or at least complicate administration. Second, serum urate levels must be lowered and dissolution of urate deposits increased. Besides avoiding foods high in purines and abstaining from alcohol, drugs such as allopurinol, which inhibits uric acid synthesis, and uricosuric drugs such as probenecid and sulfinpyrazone which inhibit urate resorption by the renal tubules are frequently administered during the quiescent period. Allopurinol can actually dissolve established calculi; however, it causes GI distress, skin rashes, and leukopenia. Third, future attacks may be prohibited by administering colchicine prophylactically during the quiescent period. Furthermore, nonsteroidal anti-inflammatory drugs are often administered for 2 to 3 days during acute attacks. Here, it is important to avoid salicylates as they antagonize uricosuric drugs; acetaminophen provide comparable analgesia without interfering with uricosuric drug actions.

### **Chinese Medical Disease Explanation and Treatment**

Relatively little material can be found in the English language literature on the Chinese medical treatment of gout. The main symptom of this disease are characteristic of acute arthritis, *i.e.*, an arthritis manifesting with red, swollen, and hot joints. Therefore, the acute stages of this disease fall into the Chinese medical disease category of hot impediment (*re bi*) or damp heat impediment (*shi re bi*), and the treatment of acute gout focuses on clearing heat and eliminating dampness. Applicable formulas are *Bai Hu Jia Gui Zhi Tang* (White Tiger Decoction Plus Cinnamon Twig), modified *Er Miao San* (Mysterious Two Powder), or *Xuan Bi Tang* (Impediment-Diffusing Decoction). External liniments which help to clear heat and resolve dampness, and quicken blood and stop pain are also helpful. After the acute attack has subsided, patients go into the quiescent phase which, as I pointed out above, can last for years without another acute attack. The quiescent period of gout is characterized by tophaceous calculi (tophi) in various locations in the body and by joint deformities. In Chinese medicine, such changes are due to phlegm stasis. However, as the material below points out, the source of such phlegm stasis and of gout in general is mostly an underlying vacuity of the spleen and kidneys. Therefore, the successful treatment of gout with Chinese medicine should not only focus on resolving the impediment but also needs to incorporate the underlying vacuity, the renal problems, the joint deformities and joint pain, and the recurrent flare-ups. The following translation of an article published in the May 1999 issue of *Xin Zhong Yi (New Chinese Medicine)*<sup>5</sup> outlines the Chinese medical disease causes and mechanisms of gout and explains the fundamental treatment strategies in dealing with gout during the quiescent phase. Furthermore, it lists applicable medicinals for the treatment principles under discussion, gives dietary advice, and illustrates all its main points with a representative case history.

### **The Main Treatment is Supplementation**

Gout (*tong feng*) was called impediment (*bi*) or joint running (*li jie*)<sup>6</sup> in ancient time. The *Ji Sheng Fang*

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<sup>4</sup>Ibid., 705

<sup>5</sup>He Chui-ting, "The Chinese Medical Treatment of the Quiescent Period of Gout," *Xin Zhong Yi (New Chinese Medicine)* 31 (May 1999): 3-5.

<sup>6</sup>Joint running is short for joint running wind (*li jie feng*). This disease was mentioned for the first time in the *Jin Gui Yao Lue (Prescriptions of the Golden Coffer)* and refers to redness and swelling of the joints with acute pain and difficulty bending and stretching. It is usually attributed to transformation of wind-cold-damp into

(*Aiding Prescriptions*) in its chapter on impediment says the following about the disease cause and disease mechanism: “The cause is bodily vacuity with vacuous and empty interstices contracting wind-cold-damp qi which [then] cause impediment.” The *Yong Lei Qian Fang* ( *Perpetually Sealed Prescriptions*) further points out: “[If] people with a vacuous body contract wind, cold and damp toxic qi, blood and qi and sinews and vessels congeal and become stagnant; this affects the joints of the four limbs. The color of the flesh does not change [but there is] bone pain as if bitten by a tiger. [The pain is] calm during the day and acute during the night.” These statements clearly show that gout occurs in patients with bodily vacuity and that the main disease mechanism is related to a loss of harmony of the function of the earlier heaven, the spleen, and the kidneys.

The spleen governs movement and transformation; a loss of this function leads to the engenderment of phlegm turbidity internally. The kidneys govern stool and urine. If the kidneys’ function of qi transformation loses its harmony, then the discharge of dampness and turbidity is slow and phlegm turbidity collects internally. Furthermore, external contraction of wind, cold, damp, and heat evils, internal damage by the seven affects, food and drink, taxation fatigue, or joint damage [*i.e.*, trauma] may all also lead to phlegm turbidity pouring into the joints, flesh, and bones, and there inhibit qi and blood, impeding and obstructing the channels and vessels and thus leading to the arising of gout. Thus, the root of gout is liver and kidney depletion vacuity with loss of fortification of the spleen, and the branch is wind, cold, damp, and heat, phlegm turbidity, and static blood blocking the channels and vessels. The root is vacuity and the branch repletion. Therefore, during the quiescent period, the source treatment is supplementing vacuity.

#### Regulating and supplementing the liver and kidneys

The kidneys are the earlier heaven source, store the original yin, are the abode of original yang, and govern qi transformation and water and fluid metabolism. The liver stores the blood, governs the sinews, and is the root of stopping extremes. Primary gout is [most commonly] due to a congenital purine metabolism disorder. Thus, even before clinical symptoms appear, there already exists an earlier heaven insufficiency, manifesting as a depletion and vacuity of the liver and kidneys. If the disease is in its quiescent period, if the disease is prolonged and there is bodily vacuity, or if an acute flare-up of the disease requires the taking of chemical drugs which damage source qi, depletion and vacuity of the liver and kidneys are particularly obvious. If the liver and kidneys are depleted and vacuous, [then] essence blood is insufficient, the sinews, bones, channels, and vessels lose nourishment, and the kidneys’ governing of the stool and urine loses regulation. Damp turbidity gathers internally, pours into the joints, sinews, bones, and flesh, and blocks the channels and vessels. This leads to gout with aching and pain of the joints, recurrent effusions [*i.e.*, flare-ups], resistance to treatment for prolonged periods of time, [and a disease condition which is] sometimes light and sometimes severe. There is the possible formation of tophi which do not disperse or there may be joint deformities with inhibited bending and stretching. Thus, the suitable treatment is to supplement the liver and kidneys and supplement and boost qi and essence. A commonly used formula is modified *Du Huo Ji Sheng Tang* (Duhuo and Mistletoe Decoction). Frequently used medicinals are Cortex Eucommiae Ulmoides (*Du Zhong*), Radix Achyranthis Bidentatae (*Huai Niu Xi*), Ramulus Loranthi seu Visci (*Sang Ji Sheng*), cooked Radix Rehmanniae Glutinosae (*Shu Di*), Radix Albae Paeoniae Lactiflorae (*Bai Shao*), Radix Codnopsitis Pilosulae (*Dang Shen*), Radix Angelicae Sinensis (*Dang Gui*), Sclerotium Poriae Cocos (*Fu Ling*), Radix Duhuo (*Du Huo*), and Radix Gentianae Macrophyllae (*Qin Jiao*). For a tendency towards yin vacuity, *Zuo Gui Wan* (Left-Restoring [Kidney Yin] Pills) is the common choice. Frequently used medicinals are cooked Radix Rehmanniae Glutinosae (*Shu Di*), Fructus Lycii Chinensis (*Gou Qi Zi*), Semen Cuscutae (*Tu Si Zi*), Fructus Corni Officinalis (*Shan Zhu You*), Ramulus Loranthi seu Visci (*Sang Ji Sheng*), Plastrum Testudinis (*Gui Ban*), Carapax Amydae Sinensis (*Bie Jia*), and Radix

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heat in patients suffering from liver and kidney vacuity, and it falls within the scope of impediment (*bi*).

Polygoni Multiflori (*He Shou Wu*). For a tendency towards yang vacuity, *Jin Gui Shen Qi Wan* (Golden Coffer Kidney Qi Pills) or *You Gui Wan* (Right-Restoring [Life Gate] Pills) are the common choices. Frequently used medicinals are cooked Radix Rehmanniae Glutinosae (*Shu Di*), Fructus Psoraleae Corylifoliae (*Bu Gu Zhi*), Rhizoma Drynariae (*Gu Sui Bu*), Herba Epimedii (*Yin Yang Huo*), Rhizoma Cibotii Barometz (*Gou Ji*), and Radix Dipsaci (*Xu Duan*).

#### Fortifying and moving the spleen and stomach

The spleen governs movement and transformation and is the root of the later heaven. The insufficiency of the earlier heaven in gout leads to a loss of regulation of yin and yang; this affects the spleen and causes it to lose fortification and movement, [which has two consequences]. First, if water is not transformed into liquids, it is instead transformed into water dampness. [Following the statement of fact that] the spleen is the source of phlegm engenderment, [water dampness] congeals and gathers and leads to phlegm turbidity. Second, if foods, and especially rich flavored foods and alcohol, are not moved and transformed, phlegm turbidity is engendered internally. Such phlegm turbidity stagnates and lodges in the joints. If the spleen is vacuous, then engenderment and transformation have no source and qi and blood are not full; thus the joints, channels, and vessels are not nourished. This also leads to gout. Clinically, the above scenario often presents in gout patients who suffer from spleen vacuity and obesity. The suitable treatment is therefore to primarily fortify the spleen and move the stomach, assisted by transforming dampness and dispersing turbidity. *Shen Ling Bai Zhu San* (Ginseng, Poria, and Atractylodis Powder) type medical formulas are the common choice. Medicinals such as Radix Codonopsis Pilosulae (*Dang Shen*), Radix Astragali Membranacei (*Huang Qi*), Radix Dioscoreae Oppositae (*Shan Yao*), and Rhizoma Atractylodis Maccephalae (*Bai Zhu*) are used to fortify and move the spleen and stomach. Aromatic dampness transforming medicinals as well as water disinhibiting and dampness percolating medicinals to disperse and eliminate dampness and turbidity are also necessary. The primary medicinals with these functions are Herba Agastache seu Pogostemi (*Huo Xiang*), Herba Eupatorii Fortunei (*Pei Lan*), Rhizoma Atractylodis (*Cang Zhu*), Cortex Magnoliae Officinalis (*Hou Po*), Fructus Amomi (*Sha Ren*), and Fructus Amomi Cardamomi (*Bai Dou Kou*). Secondary medicinals with these functions are Sclerotium Poriae Cocos (*Fu Ling*), Radix Stephaniae Tetrandrae (*Fang Ji*), Semen Coix Lachryma-jobi (*Yi Yi Ren*), Fructus Chaenomelis Lagenariae (*Mu Gua*), Rhizoma Dioscoreae Sativae (*Bei Xie*), and Talcum (*Hua Shi*).

#### Supplementing but not forgetting dispersal

Gout is a prolonged disease in which the qi and blood circulation is inhibited; “prolonged diseases enter the network vessels” and “prolonged diseases lead to blood stasis.” Furthermore, “if blood collects and is static, dampness congeals and becomes phlegm.” The *Lei Zheng Zhi Cai (Treatments of Different Patterns)* in the chapter on impediment patterns clearly states that if impediment is prolonged, then “damp phlegm will lead to blood stasis and stagnation in the vessels and network vessels.” If phlegm and stasis mutually bind, then the channels and network vessels are obstructed and blocked. If phlegm stasis pours into the joints, phlegm nodes as hard as stone arise. Because phlegm stasis is like glue, stiffness, swelling, distension and deformity arises. [Furthermore,] prolonged depletion and vacuity of the spleen and kidneys leads to non-transformation of water dampness which brews, accumulates, and transforms heat, brewing the fluids into stone strangury. Thus it is important that, during the quiescent phase of gout, one also employs treatment methods that disperse and eliminate phlegm turbidity, static blood, and accumulation and stagnation, like [the treatment of] dispelling stasis and flushing phlegm, dispersing stones and freeing strangury.

#### Dispelling stasis and flushing phlegm

During the quiescent phase of gout, inflammation has [commonly] not been entirely resolved. Slight swelling and pain of the joints recurrently effuses, and tophi bind underneath the skin and cannot be

removed. The skin is dark and static and, if severe, the joints are stiff and deformed. This is due to phlegm turbidity and static blood lodging internally and obstructing the channels and network vessels, the joints, and the flesh. If stasis obstructs the vessels and network vessels, the joints become swollen and painful. If phlegm and stasis effuses into the skin, phlegm nodes, hard bindings, and static and dark skin appear. If evil qi enters deeply and obstructs the sinews and bones, joint stiffness and deformities with difficult bending and stretching arises. Thus, simultaneously to supplementing and boosting the spleen and kidneys, it is [also] necessary to strongly quicken blood and transform stasis, flush phlegm and free the network vessels, and soften hardness and dissipate bindings. A commonly used [formula] combination is *Tao Hong Yin* (Peach Kernel and Carthamus Beverage) and *Er Chen Tang* (Two Matured Ingredients Decoction). Frequently used medicinals are Semen Persica (*Tao Ren*), Flos Carthami Tinctorii (*Hong Hua*), Radix Ligustici Wallichii (*Chuan Xiong*), prepared Rhizoma Pinelliae Ternatae (*Fa Ban Xia*), Sclerotium Poriae Cocos (*Fu Ling*), Rhizomae Arisaematis (*Tian Nan Xing*), Semen Sinapis Albae (*Bai Jie Zi*), Herba Sargassi (*Hai Zao*), and Thallus Algae (*Kun Bu*). If impediment has been prolonged and evils lie deeply, or if phlegm and stasis are mutually binding, herbs which outthrust are not generally necessary, but insect herbs which strongly bore and penetrate, track wind, and pick out the network vessels are indicated and of true benefit. Such medicinals include Buthus Martensi (*Quan Xie*), Scolopendrae Subspinipes (*Wu Gong*), Lumbricus (*Di Long*), Bombyx Batryticatus (*Jiang Can*), Eupolyphagia seu Opisthoplatia (*Tu Bie Chong*), Squama Manitis Pentadactylae (*Chuan Shan Jia*), Zaocys Dhumnades (*Wu Shao She*), and Agkistrodon (*Qi She*).

#### Freeing strangury and dispersing stones

If the spleen and kidneys are insufficient, then water transformation has no power; furthermore, prolonged accumulation leads to [transformative] heat which wears fluids and leads to stony strangury. Therefore, binding of renal calculi cannot be neglected during the quiescent phase of gout, and besides supplementing vacuity, urine disinhibiting, strangury freeing and stone dispersing substances are commonly added in order to promote the expulsion of stones. Frequently used medicinals in clinic are Herba Desmodii Styracifolii (*Jin Qian Cao*), Spora Lygodii (*Hai Jin Sha*), Endothelium Corneum Gigeriae Galli (*Ji Nei Jin*), Talcum (*Hua Shi*), Herba Polygoni Avicularis (*Bian Xu*), Semen Plantaginis (*Che Qian Zi*), Caulis Akebiae (*Mu Tong*), and Radix et Rhizoma Rhei (*Da Huang*).

#### Within freeing, there is supplementation

“If there is free flow, then there is no pain, and if there is pain there is no free flow.” Depletion and vacuity of the liver, spleen, and kidneys is the root of gout, block and non-free flow of qi and blood in the channels and vessels is the branch. During quiescent gout, therefore, it is important to follow the principle of treating the root, but simultaneously attending the branch. Supplementing vacuity is the governing basis of treatment; [however] freeing the channels, quickening the blood, and diffusing impediment [leads] to the free circulation of qi and blood and to the recovery of the constructive and defensive; [thus] within freeing, there is supplementation. In clinical practice, the treatment method of freeing includes two principles; first, a treatment formula can be selected according to the pattern of the quiescent gout; such as for liver and kidney depletion and vacuity, it is suitable to supplement and boost the liver and kidneys and to diffuse impediment and free the network vessels. If there is a tendency towards yang vacuity, then it is suitable to warm and supplement so as to free and dissipate with warmth. If there is a tendency towards yin vacuity, then it is suitable to enrich yin so as to diffuse and free the stirring within tranquility. Second, medicinals that free the channels, quicken the network vessels, and diffuse impediment can be used to treat gout. Commonly used substances that warm and free are Rhizoma Curcumae (*Jiang Huang*), Lignum Pini Nodi (*Song Jie*), Radix Clematidis Chinensis (*Wei Ling Xian*), Caulis Piperis (*Hai Feng Teng*), Fructus Chaenomelis Lagenariae (*Mu Gua*), Caulis Sargentodoxae (*Qian Nian Jian*), Gumma Olibanum (*Ru Xiang*), Myrrha (*Mo Yao*), and Scolopendra Subspinipes (*Wu Gong*). Cool freeing medicinals include

Radix Gentianae Macrophyllae (*Qin Jiao*), Herba Siegesbeckia Orientalis (*Xi Xian Cao*), Caulis Trachelospermi Jasminoidis (*Luo Shi Teng*), Caulis Lonicerae (*Ren Dong Teng*), Rhizoma Dioscoreae Bulbiferae (*Huang Yao Zi*), and Lumbricus (*Di Long*). Clinically, blood quickening medicinals such as vines and insects are also commonly used. These have different strengths [*i.e.*, are stronger] in freeing the network vessels and stopping pain. Therefore, in the treatment of quiescent gout, regardless of pattern differentiation, besides aiming at the disease mechanism by supplementing vacuity, one also needs to assist with channel freeing, network vessel quickening, and impediment diffusing medicinals so as to increase the strength of the “freeing” function and therefore improve clinical symptoms and achieve a higher treatment effect clinically.

### **The Importance of Food and Drink**

In patients suffering from gout, the spleen movement has lost harmony and has no power to move and transform water and food. Especially fatty meats, rich flavored foods and alcohol cannot be moved and transformed sufficiently. High purine foods are also a clearly related factor in promoting [acute] attacks of gout. Therefore, the regulation of food and drink during the quiescent phase of gout is of great importance and is directly related to treatment results and disease reoccurrence. So what [foods] need to be avoided? Usually, when gout patients regulate their food and drink, they should avoid excessive fat and decrease the intake of purine-containing foods so as to limit the purine intake to about 150 mg per day. Foods with high purine content, such as animal liver, kidney, heart, and brain, eel, sardines, fish roe, seafood, beans, and fermented foods should be avoided altogether. Alcohol and tobacco need to be stopped. [Instead] one should eat copious [amounts of] vegetables and fruits so as to help expel turbidity and toxins.

### **Representative Case History**

Mr. Xiao, male, 68 years old; examined on April 21, 1995

The patient had been suffering from gout for at least seven years, and a tophi the size of a soybean manifested on the right metatarsophalangeal joint of the big toe. The skin was static dark and the uric acid levels of the blood fluctuated between 453-510  $\mu\text{mol/L}$ . Within the last year, pain of the toe, ankle and knee joints effused frequently. Whenever he was not careful with food and drink or injured his foot, gout effused. During attacks, he commonly took colchicine; when there was no pain (*i.e.*, during the quiescent period) he also occasionally took allopurinol. However, these drugs caused diarrhea which made the persistent taking of them difficult. The patient was obese, had headaches, dizziness, flowery vision, tinnitus, hearing loss, lumbar aching, limp knees, a fatigued spirit, lack of strength, a pale purple tongue with static macules and a white tongue fur. The pulse was deep, fine, stringlike, choppy, and forceless. The diagnosis was gout in the quiescent phase and the differentiating pattern was liver and kidney depletion and vacuity with simultaneous phlegm stasis obstructing and blocking. The treatment [principles] were to regulate and supplement the liver and kidneys, to flush phlegm and dispel stasis, and to free the network vessels and stop pain. The selected formula was modified *Du Huo Ji Sheng Tang*. The ingredients were as follows: Radix Duhuo (*Du Huo*), Radix Achyrantis Bidentatae (*Huai Niu Xi*), Rhizoma Arisaematis (*Nan Xing*), Radix Ligustici Wallichii (*Chuan Xiong*), 15g each, Radix Codonopsis Pilosulae (*Dang Shen*), Radix Gentianae Macrophyllae (*Qin Jiao*), 20g each, cooked Radix Glutinosae Sinensis (*Shu Di*), 18g, Cortex Eucommiae Ulmoidis (*Du Zhong*), Radix Angelicae Sinensis (*Dang Gui*), Sclerotium Poriae Cocos (*Fu Ling*), prepared Rhizoma Pinelliae Ternatae (*Fa Ban Xia*), 12g each, Radix et Rhizoma Rhei (*Da Huang*), 10g, Scolopendra Subspinipes (*Wu Gong*), 3 pieces, and Radix Glycyrrhizae Uralensis (*Gan Cao*), 6g. Seven bags were prescribed. The patient was also urged to pay attention to regulating food and drink and to avoid overworking as well as external trauma to his joints. Reexamination one week later revealed that the joint pain had resolved and that the remainder of the disease had lessened. Seven more bags of the above formula were administered. [Then], besides the tophi, all the symptoms were resolved and the uric acid level of the blood recovered to the normal level of 401  $\mu\text{mol/L}$ . Follow-up one year later revealed no recurrences.

