Gout: a history of theories and treatments

In the overindulgent festive season the stereotypical gout sufferer looms large: an obese man drinking significant quantities of port.

Briony Hudson, keeper of the museum of the Royal Pharmaceutical Society collections, looks at how gout was understood in the past.

Medical writers and practitioners in ancient civilisations identified gout as a specific disease. Prehistoric evidence shows that people in ancient China treated rheumatic disease, including gout, with acupuncture and moxibustion, in which small cones of the dried herb artemisia were burnt on the affected joint. The Greek doctor Hippocrates (460–375 BC) thought gout was caused by one of four humours, phlegm, settling in the joints. He called gout “the disease of the rich”, and blamed it on an excess of wine, food and sex, showing that the 18th century stereotype had ancient origins.

Galen (129–216 AD) was the first doctor to describe the tophi (lumps of crystallised uric acid under the skin) that some gout sufferers develop. In the Byzantine empire surrounding today’s city of Istanbul, physicians introduced Colchicum autumnale, commonly known as meadow or autumn crocus, as a specific treatment for gout. Centuries later, Victorian proprietary medicines for gout continued to rely on colchicum, and some still contain it today.

The English word “gout” comes from the Latin word gutta, meaning a drop. Its first recorded use was in the 1200s by the Dominican monk Randolphus of Bocking. The word’s origin followed the Hippocratic theory that phlegm dropped into a joint, causing pain and swelling. Consequently, the ancient remedies of bleeding and purging to restore humoral balance remained popular.

Like the Byzantines, medical men in England also suggested plant-based preparations. Nicholas Culpeper in his ‘Complete herbal’ (1653) advocated horseradish and ground elder (or gout-herb): “the very heart of it about one case of the pains of the gout and defends him that bears it from the disease.”

Meanwhile in Europe, a treatment suggested by Lorenz Fries, writing in 1518, was: “Roast a fat old goose and stuff with the sirens of the kitchen and the houris of his stomach to relinquish all serious flirtation.” Sydney Smith’s advice to gout patients in “Christmas miscellany” with the sirens of the kitchen and the houris of his stomach to relinquish all serious flirtation was: “The gout sufferer must enter into a solemn pact with the sirens of the kitchen and the houris of his stomach to relinquish all serious flirtation.”

To prevent gout, scientists worked on treatments, such as probenecid and sulfinpyrazone, which successfully increased the amount of uric acid excreted. The major breakthrough was allopurinol, an enzyme (xanthine oxidase) inhibitor that limits the body’s production of uric acid. George Hitchings and Gertrude Elion were awarded the 1988 Nobel prize in medicine for their work in its development. It is now the most frequently used uric acid lowering drug.

In May 2008, febuxostat was the first new type of gout medicine in four decades to receive EU marketing authorisation. Soon to be launched, it works as a selective xanthine oxidase inhibitor, lowering the levels of uric acid in the body so that crystals cannot form.

Effective drugs to lower uric acid levels in the bloodstream (whether by flushing it out or limiting its production) means that tophi are now rarely seen. However, the stereotypical 18th century overindulgent gout sufferer has a basis in today’s science. Purines present in meat, seafood and some alcoholic drinks increase the build-up of uric acid. Inherited gout is due to a purine enzyme deficiency, so that the patient’s body does not process this chemical effectively.

Recent medical research has also confirmed that darker coloured alcoholic drinks, such as port, claret and porter, which were popular in the 1700s, are more likely to trigger acute attacks. Although the learned references may not be familiar, Reverend Sydney Smith’s advice to gout patients in 1829 does not seem out of place today: “The sufferer must enter into a solemn pact with his stomach to relinquish all serious flirtation with the sirens of the kitchen and the houris of the wine cellar.”

Two decades later, in 1848, modern treatments began. In his milestone book ‘The nature and treatment of gout and rheumatic gout’ (1859), he wrote: “the deposited urate of soda may be either the cause, and not the effect, of the gouty inflammation.”

Some of the earliest “cure-alls” included gout in their sights, although dealing with the acute pain was all that most medicines could attempt. Daffy’s Elixir “the Health-Bringing Drink” was invented by Reverend Thomas Daffy in around 1650. Although a secret recipe, its laxative properties were due to ingredients including senna and liquorice, alongside coriander seeds, raisins and brandy. Other than for gout, it was sold to treat conditions ranging from dyspepsia to convulsions. Thomas Dower invented his Dower’s Powders to treat the pain caused by gout using ippecacuanha and opium. In ‘The ancient physician’s legacy to his country’ (1732) he claimed that: “in two or three hours, at farthest, the patient will be perfectly free from pain.”

From the 1800s, companies marketed specific proprietary medicines for gout and rheumatism in large numbers. Balms and liniments containing camphor, mace and methyl salicylate and had brand names such as Maorix and Uritika Nervine Balm. Internal preparations included Bishop’s Gout Varalettes, which contained lithium tetrade, guaiacum resin and powdered smallage. Martindale: the extra pharmacopoeia, recommended X-rays, after their invention in 1895, alongside radium and radioactive waters, as a gout treatment in its 1915 and 1932 editions.

Modern treatments

In the early 20th century, scientists proposed morphine injections, liniments including chloroform, and preparations that included aspirin for the pain of a gout attack. A high dose of a salicylate drug also helped the body to excrete uric acid, but it had significant side effects. Researchers found that phenoxin or enophen was successful as an alternative to aspirin, but risked vomiting and severe liver poisoning. In 1932, Martindale still supported the idea of purging the system, even though the ancient humoral theory had vanished: “A bacterial toxin is the primary factor. Adequate removal of the intestinal contents at the commencement of the attack will reduce the symptoms.”

Non-steroidal anti-inflammatory drugs recommended for gout have included phenylbutazone (since the 1950s), indomethacin (1960s), propionic acid derivatives, such as naproxen and piroxicam (1970s), and diclofenac (1980s).