

## GOUT IN THE WRITINGS OF EMINENT ANCIENT GREEK AND BYZANTINE PHYSICIANS

### GIHT U DJELIMA ZNAMENITIH GRČKIH I BIZANTSKIH LIJEČNIKA

Konstantinos C. Gritzalis<sup>\*,\*\*</sup>, Marianna Karamanou<sup>\*\*</sup>,  
George Androutsos<sup>\*\*</sup>

#### SUMMARY

*Gout is a medical condition with typical recurrent attacks of acute inflammatory arthritis. The severity of this illness has been recognised from antiquity, and several ancient physicians studied it intensively. This paper presents the pathogenesis of the disease, approaches to therapy and preventive measures based on a number of original medical scripts from Hippocrates to the end of the Byzantine era.*

**Keywords:** *podagra, gout, Hippocrates, ancient Greek physicians, Byzantine medicine*

#### INTRODUCTION

Gout is a common arthritis caused by deposition of monosodium urate crystals within joints after chronic hyperuricaemia and has been recognised since antiquity. The most typical site of involvement is the first metatarsophalangeal joint of the big toe followed by the other joints of the feet and hands. In ancient Greek medicine gout was called *podagra* from

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\* Hellenic Center for Marine Research, Anavyssos, Greece.

\*\* History of Medicine Department, Medical School, University of Athens, Greece

Corresponding author: Marianna Karamanou, M.D. Address: 4, str. Themidos, Kifissia, 14564, Athens, Greece, e-mail: mariannakaramanou@yahoo.com, Tel: +30 697 3606804. Fax :+30 2108235710

the words *pous* meaning a foot and *agra* a seizure [1]. This paper has gathered information and knowledge of the past from several medical scripts written by ancient Greek physicians from the Hippocratic era till the fall of the Byzantine Empire.

### ON GOUT'S PATHOGENESIS

Hippocrates regarded gout as being the result of an excessive accumulation of one of the bodily humours, probably phlegm that distended the affected joint painfully. The three famous surviving aphorisms of Hippocrates that refer to gout have often been quoted: "Eunuchs do not take the gout nor become bald", "A woman does not take the gout unless her menses is stopped", and "A young man does not take the gout until he indulges in coitus". Hippocrates also believed that gouty affections raveled in the spring and in the autumn [2].

An eminent Greek physician Diocles of Carystus (4<sup>th</sup> century BC) believed that gout was an inflammation caused by the concentration of humours on the nerves of the feet joints. He said that choleric humours created cold podagra, and phlegmatic ones warm podagra [3].

The eminent Greek physician Galen (130- ca. 215) based on Hippocrates described tophi as the manifestation of longstanding gout and stated that a female body was unlikely to be affected by gout, arthritis, and pleurisy [4].

Rufus of Ephesus (1<sup>st</sup> century CE) was the first to recognise the systemic complications as he wrote on the concept of visceral gout. He believed that the internal organs could become affected mortally by the gouty humour. He said that such sudden revulsion of the humours from the joints would provoke pulmonary or cerebral complications and renal failure resulting in death [5].

Aretaeus of Cappadocia (2<sup>nd</sup> century CE) described the disease based on Hippocrates view, but he suggested first that the cause of gout could lie in the presence of a specific toxic humour in blood rather than the imbalance of the four humours that maintained the human body in health [6].

Ancient physicians also observed that gout affected not only humans but animals as well. Apsyrtus (2<sup>nd</sup> century CE), probably the most important veterinarian of Antiquity, mentioned that this disease occurred in horses and he described various clinical symptoms (inability to stand, warm mouth, dry palate, loss of appetite) [7].

Oribasius (c. 320-400 CE), who was the personal physician of Emperor Julian the Apostate, mentions that gout affects the feet, while arthritis affect the hands, knees, elbow joints, buttocks, and shoulders [8].

In turn, Byzantine physician Aëtius Amidenus (6<sup>th</sup> century CE) proposed in his manuscript *De morbis acutis et chroniis* the humoural theory of the disease, as he believed that sciatica, podagra, and arthritis were similar diseases and that its cause was a humour that concentrated at the nerve network of the affected joint [9]. He proposed a classification of gout according to various types of humours and he attributed gout development to lifestyle, season, internal air of the human body, age, habits, and skin, and that all these should be used as criteria for gout diagnosis [9,10].

In his medical encyclopaedia, Leo Medicus (9<sup>th</sup> century CE), Archbishop of Salonica and professor of medicine, distinguished polyarthritis and gout; he believed that choleric humour provoked arthritis in hand joints and gout in foot joints [11].

A Byzantine physician Demetrius Pepagomenus (13<sup>th</sup> century CE) believed that the disease was the consequence of a failure of the bile and phlegm to keep blood under physiological condition. He pointed out that gout could become chronic and refractory and sometimes lead to immobility and general paralysis [12].

Finally, Johannes Actuarius (1275-1328), chief physician to Andronikos II Palaiologos, believed that the humoural theory, lifestyle, and age played an important role in the development of the disease [13].

## TREATMENT OF GOUT

Hippocrates believed that diet could efficiently control gout, referring not only to types of food to be taken or avoided but also methods of preparing them. For therapy he recommended high doses of white hellebore, pointing out that “the best natural relief for this disease [was] an attack of dysentery” [2].

In addition, various drugs of plant or animal origin were used to treat gout either through skin or taken orally. Crateuas (120-63 BC), court physician to Mithridates VI, king of Pontus, recommended the root of asphodels for gout treatment [14]. Dioscorides (40-90 AD) offered a vast list of medicines against gout such as boiled cyclamen root, duckweed, and other weeds. He also recommended a preparation based on mashed salix

bark and leaves, warmed in the cortex of a pomegranate with attar of rose [15].

Galen also offered a wide range of dressings applied on the affected joint and made of various ingredients such as mandrake, caper, and henbane. For the acute phase of the disease he also administered tablets made of Aloë and creams containing seeds of conium, mushroom, and deer brain. In his writings he recommended preparations established by other physicians (e.g. Heras) which contained olive oil, white lead, litharge, and vinegar [4].

To patients suffering from gout, sciatica, and all types of arthritis Oribasius recommended to take the *Remedy of Proclus* every day. This drug contained 9 ounces of germander and 8 ounces of white centauray [8]. Alexander of Tralles introduced oral administration of hermodactylus (meaning the finger of Hermes, the messenger God of ancient Greeks) a constituent of *Colchicum autumnale* which in turn is a source of colchicine. He also recommended placing hare ankle on the suffering joint and suggested Mediterranean monk seal's skin as an internal cover for the shoes. The palliative process would be complete if the suffering person were reciting a specific Homeric verse written on a golden horse shoe when the moon is in Libra or Leo. Moreover, he recommended carrying a magnet on joints for an optimal therapeutic result. Alexander of Tralles also suggested that sheep horns should be burnt to ashes and thereafter mixed with wine in a thuja pot. The obtained unction should be applied to the affected leg [16].

To treat the warm type of podagra, Paulus Aegineta (7<sup>th</sup> century CE) recommended various ingredients such as opium, pure bread, and crocus. For optimum effect, he also proposed that 1 L of olive oil should be boiled with smashed vine branches in a basement on 5 March. When the oil starts boiling an electric ray should be added and four Greek ounces (109.16 g) of common mole blood; the preparation should then be administered in the form of plaster on the affected joint [17].

*Anonymi Medici*, a Greek medical treatise of the 1<sup>st</sup> century CE by an anonymous writer known as Anonymous Parisinus Darembergii sive Fuchsii, recommended bloodletting or clysters [18]. Bloodletting received some remarkable comments among physicians such as Galen and Erasistratus [4]. In general, bloodletting had a wide variety of therapeutic uses in ancient Greek medicine. However, it was not applied uniformly in all gout cases. Pepagomenus recommended that bloodletting should take

place during the first attack of gout. If the gout affected the right foot, then blood was to be let from the right elbow vein, and vice versa [12].

### PREVENTIVE MEASURES

Hippocrates' dietary measures for gout prevention influenced his followers. Diocles of Carystus proposed a strictly vegetarian diet (legumes and vegetables) to preserve the normal function of the gastrointestinal tract. He noticed that the neglectful and inappropriate lifestyle caused podagra, arthritis, sciatica, haemorrhoids, diarrhoea, dysentery, and apoplexy [3].

Alexander of Tralles proposed the use of the first virgin's menstrual blood in the form of a dressing as a highly effective way of prevention. Moreover, he suggested that the patient should have with him buzzard's feet [16].

Finally, Paulus Aegineta emphasised that the quantity and quality of diet and lowering alcohol consumption were efficient preventive measures [17].

### CONCLUSION

In ancient Greece gout was well studied, its pathogenesis and treatment in particular.

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#### SAŽETAK

*Giht je stanje koje se obično opisuje rekurentnim napadima akutnog upalnog artritisa. Težina ove bolesti uočena je još u antici kada te ju je proučavalo više starih liječnika. U našem radu predstavljamo patogenezu bolesti, terapijski pristup i preventivne mjere temeljene na brojnim liječničkim zapisima, od Hipokratova vremena do završetka bizantskoga razdoblja.*

**Ključne riječi:** *kostobolja, giht, Hipokrat, stari grčki liječnici, bizantska medicina*