

## Diabetes Mellitus in ancient Greek medical writings Aretaeus of Cappadocia, “On the Causes and Symptoms of Acute and Chronic Diseases 2.2”\*

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The very first attestation of the disease of *diabetes mellitus*, yet not of the exact term *diabetes*, is believed to be traced in one of the oldest extant papyri, namely, the ‘Ebers Papyrus’, dating to circa 1550 BC and discovered in 1872 at Luxor by Georg Ebers. This medical document comprises a discussion of a certain “disease involving polyuria, no physical pain, but melting down of the flesh”, also reports that this disease is accompanied by an overall physical fatigue and records prescriptive medicine for treating polyuria. Medical prescriptions of drugs also appear in other ancient papyri (Hearst papyrus, c. 2000 BC; Brugsch papyrus, c. 1350-1200 BC).

In the treatises of the Hippocratic corpus there is no record of the disease. The work by Soranus of Ephesus (1<sup>st</sup>/2<sup>nd</sup> c. AD) entitled *On Acute and Chronic Diseases*, which has been preserved only via the Latin edited translation by the physician Caelius Aurelianus (5<sup>th</sup> c. AD), quotes, in the chapter *De hydropse* (*On hydrops*), what the physician Apollonius of Memphis in Egypt (fl. 250/200 BC) believed of the disease. Apollonius is credited with distinguishing two forms of dropsy, namely, one comprising fluid retention and one where massive fluid discharge through urine occurs. This latter form of dropsy, is identified by modern scholars with *diabetes*. Apollonius associates the disease with the kidneys, as do all subsequent physicians, and recommends, among other therapeutic treatments, such measures as phlebotomy and dehydration. Be that as it may, in the text attributed to him there is no mention of the term *diabetes*; as Caelius Aurelianus notes:

*‘Apollonius of Memphis declares that one form of dropsy is marked by retention <of fluid, and another form as an inability to retain>, so that whatever the patient drinks is immediately discharged as if it is passed through a tube. And, in agreement with the majority of physicians, he asserts that this certain type of thirst that leads to retention appears in three distinct forms.’*

The term *diabetes* was presumably coined by the physician Demetrius of Apamea, Bithynia (late 3<sup>rd</sup> c. BC – early 1<sup>st</sup> c. BC).

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\* Honorary lecture during the opening ceremony

This view, which is the most likely to be true, is also reported by Caelius Aurelianus:

*'but Demetrius of Apamea more properly distinguishes from dropsy the disease in which everything that is drunk is immediately discharged as urine and he (Demetrius) calls this disease diabetes, which we shall further discuss in a separate section'*

[unfortunately this special chapter on diabetes, foreshadowed here, has not been preserved].

The next occurrence of the term *diabetes* is in the work of the physician Aretaeus of Cappadocia, who flourished in all probability in Rome (mid. 1<sup>st</sup> c. AD). He was, according to the model of the Hippocratic physician, an adherent of the clinical practice and the thorough observation. One of the most widely known texts of Aretaeus is the second chapter of the second book of his work entitled *On the Causes and Symptoms of Acute and Chronic Diseases*, where he focuses on *diabetes* (*On Diabetes*). Aretaeus has been credited with introducing the term *diabetes* on the basis of the following text he wrote:

*'The disease appears to me to have got the name of diabetes (which in Greek signifies a siphon) because the fluid (urine) does not remain in the body, but uses the human body as a ladder whereby to find an exit'.*

However, the above phrasing does not imply that Aretaeus actually introduced the term but rather that the term was already current in his era. It is obvious that the Cappadocian physician does not suggest a term for the disease but merely explains why, in his view, the term *diabetes* was coined for the disease by one of his predecessors. This view is corroborated by the passage quoted above, which attributes the coinage of the term for the disease to Demetrius of Apamea. *Diabetes* was presumably linked to Aretaeus owing to the fact that the most thorough clinical description of the disease in antiquity originates in him, while no earlier description has been preserved. The description of *diabetes* according to Aretaeus is as follows:

*'Diabetes is a wonderful affection, not very frequent among men, being a melting down of the flesh and limbs into urine. Its cause is of a cold and humid nature, as in dropsy. The course is the common one, namely, the kidneys and bladder; for the patients never stop making water, but the*

*flow is incessant, as if from the opening of aqueducts. The nature of the disease, then, is chronic, and it takes a long period to form; but the patient is short-lived, if the constitution of the disease be completely established; for the melting is rapid, the death speedy. Moreover, life is disgusting and painful; thirst, unquenchable; excessive drinking, which, however, is disproportionate to the large quantity of urine, for more urine is passed; and one cannot stop them either from drinking or making water. Or if for a time they abstain from drinking, their mouth becomes parched and their body dry; the viscera seem as if scorched up; they are affected with nausea, restlessness, and a burning thirst; and at no distant term they expire. Thirst, as if scorched up with fire. But by what method could they be restrained from making water? Or how can shame become more potent than pain? And even if they were to restrain themselves for a short time, they become swelled in the loins, scrotum, and hips; and when they give vent, they discharge the collected urine, and the swellings subside, for the overflow passes to the bladder. If the disease be fully established, it is strongly marked; but if it be merely coming on, the patients have the mouth parched, saliva white, frothy, as if from thirst (for the thirst is not yet confirmed), weight in the hypochondriac region. A sensation of heat or of cold from the stomach to the bladder is, as it were, the advent of the approaching disease; they now make a little more water than usual, and there is thirst, but not yet great. But if it increase still more, the heat is small indeed, but pungent, and seated in the intestines; the abdomen shrivelled, veins protuberant, general emaciation, when the quantity of urine and the thirst have already increased; and when, at the same time, the sensation appears at the extremity of the member, the patients immediately make water. Hence, the disease appears to me to have got the name of diabetes, as if from the Greek word διαβήτης (which signifies a siphon), because the fluid does not remain in the body, but uses the man's body as a ladder (διαβάθρη), whereby to leave it. They stand out for a certain time, though not very long, for they pass urine with pain, and the emaciation is dreadful; nor does any great portion of the drink get into the system, and many parts of the flesh pass out along with the urine.*

*The cause of it may be, that some one of the acute diseases may have terminated in this; and during the crisis the diseases may have left some malignity lurking in the part. It is not improbable, also, that something pernicious, derived from the other diseases which attack the bladder and kidneys, may sometimes prove the cause of this affection. But if any one is bitten by the dipsas, the affection induced by the wound is of this nature; for the reptile, the dipsas, if it bite one, kindles up an unquenchable thirst. For they drink copiously, not as a remedy for the thirst, but so as to produce repletion of the bowels by the insatiable desire of drink. But if one be pained by the distension of the bowels and feel uncomfortable, and abstain from drink for a little, he again drinks copiously from thirst, and thus the evils alternate; for the thirst and the drink conspire together. Others do not pass urine, nor is there any relief from what is*

*drank. Wherefore, what from insatiable thirst, an overflow of liquids, and distension of the belly, the patients have suddenly burst'.*

Also, in the corresponding therapeutic chapter, namely, in *On the Cure of Acute and Chronic Diseases* 2.2, and more specifically in the first section of the chapter, Aretaeus sums up, so to speak, the pathology of *diabetes* before expanding on the cure.

In nearly all prominent physicians coming after Aretaeus, *diabetes* is mentioned either in passim or in a distinct chapter of their work; however, nothing important is added to the inferences and the description offered by the Cappadocian physician (they all unfailingly follow Aretaeus and Galen). Nevertheless, these medical authors also inform us about the alternative terms for the disease; these terms are 'dropsy in the chamber-pot'; 'diarrhoea in urine'; 'unquenchable thirst sickness'; and leiouria (polyuria).