

Aphorisms related to nephrological subjects in Rhazes' *Kitāb al-Murshid aw al-Fuṣūl (The Guide Book or The Book of Aphorisms)*



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ABSTRACT

We present the aphorisms related to nephrology in *The Guide Book or The Book of Aphorisms (Kitāb al-Murshid aw al-Fuṣūl)* by Rhazes (865-925 AD), based on the edited version of the book by the noted historian of Islamic Medicine A. Z. Iskandar published in 1961. We briefly discuss the aphorisms related to nephrology presented in the Guide Book under the titles of “diuresis”, “the urine”, “discharge of excretions of the kidneys”, “discharge of excretions of the bladder”. The aphorisms contain basic and general physiological and pathological information on diuresis and urine based on traditional humoral principles. They do not address any specific diseases.

KEYWORDS: Rhazes, Medieval medicine, The Guide Book, The Book of Aphorisms, History of Nephrology

Introduction

Abū Bakr Muḥammad ibn Zakariyyā al-Rāzī (865-925 AD), also known as Rhazes in the Western world, was an eminent physician and philosopher during the golden age of the Islamic world in medieval times. He compiled over 200 works on various chemical, philosophical, ethical subjects, with over half of them on medicine (1). The founding father of the history of science, George Sarton (1884-1956), says that “Rhazes was the greatest physician of Islam and the Middle Ages” (2). His originality, clinical acumen and observational aptitudes are best known for his most celebrated works, the *Liber Continens (Kitāb al-Ḥāwī fī al-Ṭibb)*, *Liber medicinalis ad Almansorem (Kitāb al-Manṣūrī fī al-Ṭibb)*, and *De Variolis et Morbilis (Kitāb al-Jadarī wa al-Ḥaṣba)* (2). Less well known is his *Kitāb al-Murshid aw al-Fuṣūl* (3), which means *The Guide Book or The Book of Aphorisms* (4). Written late in his career this is a relatively short general treatise based on his earlier observations and meant as an introduction of basic principles for students of medicine (4). Although Salomon Negri (1665-1727), a teacher of Oriental Languages in Early Modern Europe, mentions this book as *Liber directionis et vocatur Liber sectionum* in his Latin translation of Ibn Abī Uṣaybi‘a’s *‘Uyūn al-Anbā’ fī Ṭabaqāt al-Aṭibbā’* (5), actually *The Guide Book* was never translated into Latin (4). Although it appears to have continued to be used in learning medicine as mentioned by Maimonides (1135-1204) as one of the books he read for his medical education after settling in Fustat in Egypt following his exile from Cordoba in 1148 (6).

In brief, in the prologue of *The Guide Book*, Rhazes criticizes Hippocrates’ *Aphorisms* and states that he wrote this book as a gateway to the art of medicine and to show a way to learners:

Abū Bakr Muḥammad ibn Zakariyyā al-Rāzī, God bless

his glorious soul, said [the following]: What made me angry is the confusion and lack of order, the obscurity and remissness of the whole or most of the comprehensive art of Hippocrates’ Aphorisms, and his advice on the easiness to memorize aphorisms and attach them to people motivated me to present the comprehensive art of medicine and its phrases through aphorism. I managed to do that by explaining, representing, and leaving out overstatements and details that lead into obscurity. Where contradiction exists, it necessitates investigation and further scrutiny to this gateway to the art and a way for learners. God guides to the right (3, p 17).

Materials and Methods

The edited version of Rhazes’ *The Guide Book or The Book of Aphorisms* by the noted historian of Islamic Medicine, Dr. Albert Zakī Iskandar was studied (3). The edited text was arranged by Iskandar using the copies of *Kitāb al-Murshid aw al-Fuṣūl* in the İstanbul Süleymaniye Manuscript Library, Ayâşöfyâ, Nr. 3724, and in Dār al-Kutub al-Miṣriyya, Tibb Tal‘at, Nr. 594 (3). This is a relatively short book of 377 aphorisms. Table 1 shows the sections of this book (3). Aphorisms related to nephrological subjects in *The Guide Book* by Rhazes are translated from Arabic into English and briefly discussed in this study.

Results

As shown in Table 1, the first title of aphorisms related to nephrological subjects regards diuresis. The first aphorism under diuresis states that diuresis is one of the strongest bodily discharges necessary to protect health:

Aphorisms on diuresis

#149 Diuresis is one of the strongest discharges that are needed in many conditions; the ancients preserved health through diuresis (3, p 55).

The Guide Book or The Book of Aphorisms (Kitāb al-Murshid aw al-Fuṣūl)	
[1] Aphorisms on the four elements	[23] Aphorism[s] on summary of the deduction of diseases of internal organs
[2] Matter regarding every composition which is composed	[24] Aphorisms on urine
[3] Aphorisms on temperament	[25] Aphorisms on pulse
[4] Moderation	[26] Aphorisms on respiration
[5] On the moderate temperament of the body	[27] Aphorisms on crisis
[6] Aphorisms on airs, waters, foods, and drugs	[28] Aphorisms on days of crisis
[7] Aphorisms on waters, snow, and ice	[29] Aphorisms on times of diseases
[8] Aphorisms on extracting the power of drugs and foods	[30] Aphorisms on maturation
[9] Aphorisms on exercise	[31] Aphorisms on fevers
[10] Aphorisms on bath	[32] Common aphorisms, rules and methods of the common people
[11] Aphorisms on sleep and wakefulness	[33] On the prohibition of food and use of the discharge
[12] Aphorisms on the necessity of food and using in the right manner	[34] Discharge of excretions of the brain
[13] Aphorisms on fullness	[35] Discharge of excretions of the stomach
[14] Aphorisms on the badness of humor	[36] Discharge of excretions of the spleen
[15] Aphorisms on purgative drugs	[37] Discharge of excretions of the intestines
[16] Aphorisms on the use of vomiting and emetic drugs	[38] Discharge of excretions of the kidneys
[17] Aphorisms on diuresis	[39] Discharge of excretions of the bladder
[18] Aphorisms on the copious flow of other secretions	[40] Discharge of excretions of the uterus
[19] Aphorisms on beverages	[41] Aphorisms on venesection
[20] Aphorisms on coition	[42] [Aphorisms on nature]
[21] Aphorisms on the composition of drugs	[43] Bad signs
[22] Aphorisms on diseases, causes, and presentations	[44] Aphorisms on the art of medicine

Table 1 - Subject titles in *The Guide Book or The Book of Aphorisms* by Rhazes

The second aphorism mentions the benefits of diuresis and lists diseases for which diuresis is beneficial:

#150 Diuresis expels excretions of the second and third digestion; it is beneficial for aches of the joints and back. It desiccates the body, and he [the patient] is cleared from dropsy and many humid diseases. However, violence in and permanence of it can result in demise of the patient due to emaciation and fatal collapse and can cause ulcers in the urinary bladder and the penis. It provokes thirst: those affected by this illness always drink water and have white watery urine (3, p 55).

The third aphorism lists diuretic drugs:

#151 Diuretic drugs: Seed of Celery and aniseed, and seeds of watermelons/melons and the flesh of watermelons/melons. Furthermore, many aromatic spices, seasonings, and oxymels have a moderate diuretic effect. However, cantharides, musk, stavesacre, and māhīzahraj [herbals that poison fish] are bad; these should not be used, except in case of need and provide improvement, if harm has not taken place (3, p 55).

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The second heading of aphorisms is related to urine. The first aphorism under this heading states that urine reflects the condition of blood:

Aphorisms on urine

#192 Urine reflects the condition of blood; therefore, it is separated on what we will mention, if God will (3, p 68).

The second aphorism explains the formation of urine:

#193 When water and food arrive at the stomach, it [the stomach] comprises them and grinds them, until it becomes something like thick water of barley, which physicians call chyle. Then, the chyle is passed to the duodenum and jejunum. Blood vessels, called "the lacteals", grow from inside the liver to the bottom of the stomach and to the intestines. They absorb the chyle like the absorption of substances from the earth by tree roots, until the chyle is placed in the blood vessels, located in the flesh of the liver, where it changes into blood. While cooking and transforming [of the chyle], foam, which is yellow bile, and dreg, which is black bile, are generated in it [the liver] just as it is generated in other juices that are cooked. Then, the gall bladder attracts this foam, while the spleen attracts the dreg and the kidneys attract the residual thin water, which is in them. Thereafter, the blood is purified and is good for the flesh covering the body. Hence, the urine reflects the condition of blood, which is short in cooking amount or excessive (3, p 69).

The third aphorism states that urine, which reflects the condition of blood, also indicates the condition of the kidneys, bladder, and urinary tract. The color and consistency of urine indicate the cooking amount of

blood:

#194 Urine, which indicates the condition of blood, can reflect many conditions of the kidneys and urinary bladder because it is the place where the urine passes and because urine is only separated from blood after being cooked with it. Urine indicates the cooking amount of blood with its color and consistency. Thus, if the amount of cooking was less, it [the urine] will be thin and white, if it [the amount of cooking] was excessive, it [the urine] will be thick and red, and if it [the amount of cooking] was moderate, it [the urine] will be yellow and moderate in thinness and thickness. If the heat in the liver is exceeded highly, it [the urine] will be black and intensely thick, similar to how it exists in fatal acute diseases (3, pp 69-70).

The fourth aphorism addresses uroscopy. Urine should be left to rest a while before the sediment is examined:

#195 Likewise, whatever turbidity and thickness in water and other fluids descend and settle, when it has sat for a while, also conditions the urine. Therefore, anyone who wants to examine urine should leave it to rest for hours and then inspect it (3, p 70).

The fifth aphorism asserts that urine should be obtained after the person has slept for a long time and before drinking:

#196 Urine should be collected after the patient awakes from a very long sleep and before he drinks something. This is because if it is taken after he drinks something, the condition of urine will be corrupted (3, p 70).

The sixth aphorism explains the conditions in which urine darkens:

#197 Urine becomes darker, unless the person eats and drinks. Therefore, errors in the coloring [of the urine] should be considered. For example, when urine collection is delayed from the morning to noon, the patient has not yet eaten or drunk anything; hence, urine becomes strongly colored compared to the one collected in the morning. It should not be decided on predominance of heat that accounts for the amount of that dye, since nothing of it had been dyed for that period [of dietary abstinence], urine becomes darker, unless the person drinks. It [dyeing] is only indicative of the amount of cooking in the liver, which exists shortly after the completion of digestion and not after a long period (3, pp 70-71).

The seventh aphorism clarifies how the vessel, the matula, should be and for how long urine should be left for before the inspection of the urine sediment:

#198 One interested in examining the condition of sediments should collect urine in a big white and round vessel and leave it for three to ten hours to stand for whatever should settle in it (3, p 71).

The eighth aphorism asserts that frequent urination is no indication of the condition of cooking:

#199 Urine that comes out quickly and successively like in illness called "passing urine by driblets [dysuria]" is not a matter of the cooking; therefore, such kind of water does not dry in the liver when the cooking is completed, but comes out quickly. Thus, we find someone with "diabetes" urinating this kind of water because he passes water shortly after drinking (3, pp 71).

The ninth aphorism mentions that things (gravel?) in the urine of people having difficulty in passing their urine are only generated in the kidneys, bladder, and urinary tract:

#200 We find exquisite things in the urine of those who have difficulty in passing urine and passing urine in driblets, which were generated only in the kidneys, urinary bladder, and urinary tract and not in the liver when it is cooked (3, p 71).

The 10th aphorism reports that sediments settle at the bottom of the vessel when the cooking has been complete. Sediments that float or remain suspended in the urine reflect the condition of the cooking:

#201 When the ripeness is complete, sediments settle at the bottom of vessel, and when it [the ripeness] was intermediate, they [the sediments] were suspended, and when it [the ripeness] was at the beginning, they [the sediments] floated (3, p 71).

The 11th aphorism clarifies that bright white sediments are the best indicators of a complete cooking:

#202 The bright white sediment is praiseworthy and indicative of complete ripeness because cooking power is complete; the white suspended [sediment] is about half of the ripeness; the white cloud is of beginning matter being excreted in the urine, because torrential [sediment] only suspends and floats and that of a complete cooking does not exist in it (3, pp 71-72).

The 12th aphorism states that all sediments that are not white are bad, but that the black ones are the worst:

#203 All sediments different from the white colored ones are bad; therefore, they indicate an excess cooking, but black ones are the worst. Thus, things that are cooked do not turn black, but they do when burned by strong heat (3, p 72).

The 13th aphorism explains conditions of black sediments:

#204 The matter of black sediments can be in contrast to that of white [ones]; therefore, the sediment is evil, while the floating sediment is less evil, and the suspended one is evil in the middle because the sediment indicates the completeness of cooking by ripening or combustion; the suspended [sediment] indicates that the ripening is] in the middle, and the cloud [indicates that it is] at the beginning (3, p 72).

The 14th aphorism mentions that sand, stone, fleshy strands, hair, plates and bran present in urine do not indicate the condition of blood:

#205 Sand, stone, strands of flesh, hair, plates, and bran exist in urine. None of these sediments indicate a [pre-] existing condition in the blood because they only occur in urine after its separation from the liver (3, p 72).

The 15th aphorism provides reference books on urine, in case it is required:

#206 If you understood the essence that I explained, comprehending partial matters was easy and does not necessitate looking at [other] sources. There is a special book on urine. In this [book], we guided [the reader] to what we collected in al-Jami' al-Kabir, and there is no agreement, [one should refer] to Kitab al-Magnis [Book of Magnus], and Kitab al-Istafan [Book of Stephan], Kitab

al-Arsīlūs [Book of Archelaus] and what the “excellent” Galen mentioned in Kitāb al-Buḥrān [περὶ χρύσεων/De Crisibus]. The best is to continue investigating; there is no single book but it is acquaintance with these books that it is learned from what is inside. This is not only true for this section but also true for other sections (3, pp 72-73).

There are two aphorisms regarding discharges of excretions of the kidneys and bladder:

Discharge of excretions of the kidneys

#302 Excretions of the kidneys are discharged with diuretics. Their temperaments are altered by mixing them with warming or cooling drugs, or by bandaging the lumbar region while the patient lies down on where he is warmed by them, or by what is administered as clyster (3, pp 98-99).

Discharge of excretions of the bladder

#303 Excretions of the bladder are discharged with diuretics. If the temperament is altered and ulcers develop they are healed up by mixing drugs that cure wounds— different from diuretic drugs— which are used to coat the pubic area that is then bandaged with it, and they are injected into the urethra (3, p 99).

An aphorism under the title of bad signs informs that bad urine is bad in all diseases:

Bad signs

#351 Badness of urine is bad in all diseases. Its goodness in all diseases is not an indication of recovery from that disease but an indication of fevers and diseases of the liver and urinary tract (3, p 115).

Discussion and Conclusion

Rhazes systematically arranged the aphorisms related to nephrological subjects in *The Guide Book or The Book of Aphorisms*. He informed the reader of the importance and benefits of diuresis and diuretic drugs in the first group of aphorisms.

He explains how urine is formed and what the consistency

and color of the urine indicates. Furthermore, he emphasizes how urine should be examined and how the color and consistency of urine, its sediments, and other contents have to be interpreted in the second group of aphorisms.

The basic and general physiological and pathological information on urine and diuresis is based on humoral paradigm. He does not refer to any specific disease subjects. When chapter 19 “On urine and kinds of sediment and colors and consistency of urine” in *Liber Continens* was examined (7), it became evident that the information provided on urine in *The Guide Book* is an abbreviated introduction to medicine presented in his *Liber Continens*.

One of the basic sources for the section on urine in *Liber Continens* is Galen’s *Kitāb al-Buḥrān (περὶ χρύσεων/De Crisibus)* (7) that also mentioned as a reference by Rhazes in his aphorism. The *Book of Magnus*, the *Book of Stephan*, and the *Book of Archelaus* are also part of his sources in *Liber Continens* (7). In addition, Rhazes cites many other authors and their books in *Liber Continens*, including Hippocrates, Galen, Rufus of Ephesus, Stephanus of Athens, Magnus of Emessa, Aaron of Alexandria, Paul of Aegina, Masīḥ al-Dimashqī, Ayyūb al-Ruhāwī al-Abrash, ‘Alī al-Ṭabarī, Ibn Sarābiyūn, Ḥunayn, al-Yahūdī, and Phythagoras al-Iskandarānī (7).

The fourth discourse titled “On the nature of the science of medicine and grades of physicians” of *Four Discourses (Chahār Maqāla)* by Niẓāmī-i-‘Arūḍī-i-Samarqandī contains a list of the syllabuses on medical education in the Islamic world of the 12th century reveals that *Kitāb al-Murshid aw al-Fuṣūl* by Rhazes was considered as one of the reference books alongside with Hippocrates’ *Aphorisms (Fuṣūl)*, Ḥunayn ibn Ishāq’s *Questions (Masā’il)*, and Nīlī’s *Commentary* (8).

Acknowledgement

Preparation for publication of this article is partly supported by Turkish Neurosurgical Society.

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