

Research Article

An Analysis of Etiopathogenesis of Black Urine as viewed by Unani Medicine and Conventional Medicine

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ABSTRACT:

Uroscopy is the macroscopic examination of urine sample. It can be traced back 6,000 years ago in ancient Sumerian and Babylonian texts. Greco-Arab physicians discussed in detail about diagnosis of diseases through urine examination. They recommended guidelines to be followed prior to the uroscopy. There are eight parameters by which uroscopist is able to diagnose diseases; color, texture, clearness, sediments, quantity, odor and foam of urine. They divided the color of urine into 5 types, namely; Asfar (yellow), Ahmar (red), Akhzar (green), Asvad (black), and Abyaz (white). In our study we focus on etiopathogenesis of Bawl-e-Asvad (black urine). Unani scholars believed that black urine is an indicator of excessive oxidation, intense cold, extinction of the innate heat, crisis and expulsion of atrabillious superfluties (Fuzlat-e-Saudavia) by the physis. In conventional medicine, intrinsic pigments, malignant melanoma, alkaptonuria, several medications and poisoning are responsible for production of black urine. Etiopathogenesis of black urine in Unani medicine as well as conventional medicine is analyzed in this paper.

Keywords: *Uroscopy, Bawl-e-Asvad, Unani medicine, Conventional medicine*

INTRODUCTION:

The macroscopic examination of urine, known as uroscopy, is as old as medicine itself. Analysis of urine can be traced back 6,000 years ago in ancient Sumerian and Babylonian texts¹. They recorded their assessment of urine on clay tablets. They engraved their evaluations of urine into clay tablets as early as 4,000 B.C². Later, Buqrat, Jalinoos, Razi, Jurjani, Ibn Sina and almost all physicians in antiquity referred to the value of

urine examination in the diagnosis and prognosis of diseases. These Greco-Arab physicians gave ample space to the diagnosis of diseases through uroscopy in their writings. It is interesting to mention what Ruth Harvey wrote regarding importance of uroscopy during that period; "While the symbols of a modern physician are the stethoscope and white coat, their medieval counterparts usually appeared in a long furred

robe, proudly holding a flask of urine”³. The physicians of the era performed urinalysis in scientific manner, very similar to what is conventionally in the 21st century. They recommended the guidelines which must be followed prior to uroscopy⁴:

- The urine sample should be the first voided urine in the morning.
- The patient should not eat or drink for a long time before examination (from the night prior to examination).
- The patient should not take any foods or drugs that could change the color of the urine such as the beetroot or saffron.
- He pointed out various artifacts and determined that external use of some coloring herbs like henna can change the color of the urine⁵.
- Urine should be examined as soon as possible after voiding as it would not be useful for examination after six hours. Ibn Sina insisted that urine should be examined in the first hour. He reported that if the urine was examined later, the color would change and the foam, if present, would disappear.

Ibn Sina paid great attention to the examination of urine in the chapter on uroscopy. Its color, texture, clearness, sediments, quantity, odor and foam, and diseases were classified accordingly⁶.

Within uroscopy, a special meaning was attributed to the colors of urine. Greco-Arab physicians divided the color of urine into 5 types, namely; Asfar (yellow), Ahmar (red), Akhzar (green), Asvad (black), and Abyaz (white)⁷. In this study, we focus on etiopathogenesis of black urine (Bawl-e-Asvad) as viewed by Unani physicians as well as conventional physicians.

Black urine in Unani Literatures: Scholars of Unani medicine have described three shades of black urine^{8,9,10,11}:

1. Dark urine approaching blackness through a saffron color. It occurs in jaundice. It indicates (a) denseness and oxidation of the bilious humour (b) black bile resulting from yellow bile (c) jaundice

2. Deep brown black which indicates the presence of sanguineous atrabilious humour (Sauda-e-Damvi).

3. Greenish black which shows the dominance of pure atrabilious humour (Sauda-e-Khalis).

They also revealed that black urine, in general, denotes (a) excessive oxidation (b) intense cold (c) extinction of the innate heat and its disappearance (d) crisis (e) expulsion of atrabilious superfluties by the physis^{12,13}.

Black urine due to excessive oxidation: It is recognized by following facts (a) there is great combustion in the body (b) previous history of yellow or red urine (c) the sediment of the urine is dispersed and not uniform, and not aggregated and compact and urine is not very dark. It tends to be saffron yellow, yellow or blackish. If it has much of yellowness, it denotes jaundice¹⁴.

Black urine due to intense cold: It is recognized by the facts that (a) the urine previously tended to be green and dusky (b) the sediment is scanty and compact and looks dry, and is more purely black in color.

Black urine due to extinction of the innate heat: It is recognized by the dispersion of vitality.

Black urine due to crisis: When it arises from a critical change in a fever one of the following conditions may be supposed; (a) the termination of a quartan fever (b) the resolution of splenic disease (c) the termination of a fever associated with atrabilious humour (d) termination of nocturnal and diurnal fevers (e) relief from pain of back and uterus (f) retained menses (g) retained blood in case of piles¹⁵.

If in acute illness, urine becomes dark without any critical evacuation it is a sign of bad prognosis as it generally indicates destruction of humours from the excess of heat (metabolic activity)¹⁶. Greater the turbidity of this type of urine, worse prognosis and clearer the urine more favorable for the prognosis. When dark urine is passed during headache, sleeplessness, deafness or disturbance of brain, it is warning of epistaxis. Dark and thin urine is a sign of kidney stone. According to Rofas, the dark colour urine is a good sign in

kidney, urinary bladder diseases and in severe disturbance in body humours. Dark urine passed in fatigue or after exertion is a sign of developing Tashannuj (spasm)¹⁷.

Black urine in conventional medicine: It is documented that black urine is produced due to the presence of intrinsic pigments like hemoglobin, melanin, porphyrin, or myoglobin¹⁸. Urinary excretion of homogentisic acid in patients with alkaptonuria leads to blackening of urine on exposure to oxygen and alkali. Acetaminophen overdose can lead to brown urine due to accumulation of P-aminophenol metabolite^{19,20}. Medications leading to black urine include Metronidazole, Nitrofurantoin, Sorbitol and Phenol derivative Cresol^{21,22,23}.

Intramuscular injection of iron is also associated with black color urine. Several well-recognized causes of brown urine are liver disease and hemolytic anemia, where bilirubin and urobilinogen are responsible for the color. Malignant melanoma is another cause of melanuria which can produce black urine¹⁸.

CONCLUSION:

Unani physicians believed that black urine is an indicator of excessive oxidation, intense cold, extinction of the innate heat, crisis and expulsion of atrabillious superfluities by the physis. In conventional medicine it is documented that this type of urine is produced due the presence of intrinsic pigments. Several medications can produce black urine. Medical conditions like malignant melanoma and alkaptonuria may be responsible for black urine. It is also reported that poisons like cresol and endosulfan can also produce black urine by causing hemolysis and rhabdomyolysis and/or excretion of phenolic metabolites.

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