



Review Article

URINE FORMATION AND ITS VARIOUS DIAGNOSTIC METHODS W.S.R. TO AYURVEDA**Dhimdhime R.S^{1*}, Pawar K.B², Kodape D.T³, Dhimdhime S.R⁴, Shewale Yogesh Kashinath⁵**¹Professor and H.O.D, ²Assistant Professor, ³Associate Professor, ⁵PG Scholar, Dept. of Kriya Sharir, Govt. Ayurvedic College, Osmanabad, Maharashtra, India.⁴Professor and H.O.D, Dept. of Rasashastra, A.D. Ayurvedic Medical College, Ashta, Sangli, Maharashtra, India.**KEYWORDS:** *Mutra, Pariksha, Tailabindu, Urine Formation, Yogratanakar.***ABSTRACT**

Ayurveda is ancient science which is based on holistic approach of disease. It treats the patient as whole. Preliminary thought of signs and symptoms of specific disease will help to eliminate disease initially before it occurs. The knowledge of disease diagnosis and prognosis helps to select treatment regimens in order to ensure the permanent cure. To begin with firstly *Vyadhiparikshan* is done and then treatment is opted for. Early diagnosis of diseases helps to cure the diseases successfully without much discomfort in planning treatment. So the examination of the diseases is very important for the knowledge of vitiated *Dosha, Dushya* and *Mala*. *Vaidya* who has the proper knowledge about the underlying vitiated *Dosha* in the disease, can give proper *Chikitsa* to that disease. There are various methods of examination, which are explained by various *Acharyas* but *Ashtasthan (Ashtavidha) pariksha* i.e. *Nadi* (pulse), *Mala* (bowel), *Mutra* (urine), *Jivha* (tongue), *Shabd* (speech), *Sparsh* (touch), *Drik* (eyes), *Aakriti* (built) has its own importance, precisely explained by *Yogratanakara*.

In *Mutrapariksha, Yogratanakara* has described *Tailabindupariksha*, which has its applicability in therapeutics even today, which states it's important. *Sadhyasadhyatva* (prognosis) of the *Vyadhis* can be understood with the help of this *Pariksha*. In different disease conditions, due to the excretion of various excretory substances in urine the various changes occur in the properties of the urine. It can be assessed by the pattern formed by spreading drop of oil on surface of the urine with help of *Tailabindupariksha*. During diseases condition due to alteration of the body's normal physiological functions and also the changes in chemical composition of urine is occurs which ultimately affects the pattern of *Tailabindupariksha*. With clinical application of this examination in day-to-day practice, one can do more successful *Ayurvedic* treatment.

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INTRODUCTION

Acharya Sushruta described the features of a healthy person as *Samadosha*, balanced *Agni* (digestive fire) and balanced state of *Dhatu, Malas* and physiological processes. Pleasant state of *Atma, Indriya* (sensory organs), *Mana* are important.⁽¹⁾ Ayurveda is ancient science which is based on holistic approach of disease. It treats the patient as whole. Preliminary thought of signs and symptoms of specific disease will help to eliminate disease initially before it occurs. The knowledge of disease diagnosis and prognosis helps to select treatment regimens in order to ensure the permanent cure. Development of any *Vyadhi* depends upon the *Dosha-dushya Samurcchana*.⁽²⁾ There are several methods of examination in Ayurveda. *Astasthanapariksha* consists of *Nadi, Mutra, Mala, Jivha, Shabda, Sparsha, Drik, Akriti*. *Mutrapariksha* is important for assessing the *Dosha* influence.⁽³⁾

In various Ayurvedic texts, many diseases are described in which the changes in physical properties of urine have observed. *Acharyas* explained various symptoms of the diseases in which changes in properties of urine have occurred. Not only in *Mutravaha Srotas Vyadhi* (diseases) i.e., *Mutrakruccha, Prameha, Ashmari* etc but also in other *Srotas Vyadhi* i.e., *Jwara, Pandu, Kamala, Arsha, Atisar, Amavaat* etc has changes in urine is explained. *Acharya Charak* described that the common characteristic of *Prameha* as increase in frequency and turbidity of urine. *Nidana* (Diagnosis) is very important for successful treatment.

The examination of the excretory products of the body is very important for the diagnosis of the disease. Now a day, there are many diagnostic tools developed for clinical assessment but they become a very costly for the patients. So to minimize the cost of diagnosis, old

diagnostic methods explained in Ayurveda classical texts like *Tailabindupariksha* is employed.

Urine Formation According to Ayurveda

After the *Sthula Pachana Prakriya* (digestive process) the ingested food converts into *Sara* and *Kitta* portion. The *Sara* portion is used for nourishment of *Dhatus*. The *Kitta* portion contains some nutrients that are useful for nourishment of *Malas*. *Sandra* part of *Kitta* converts into *Purisha* whereas the *Drava* part of *Kitta* converts into *Mutra*. According to *Acharya Sushruta*, *Pakvashaya* is the main organ where formation of *Mutra* takes place and then it comes into *Basti*. *Basti* is filled up with oozing of urine through *Shookshmasiraas* present in *Basti* and at that stage it is termed as *Mootra*. After that it is expelled out through *Mootravahasrotasa* under the control of *Apaanavaayu*. This process is carried out day and night by the channels from the region between *Amashaya* and *Pakvashaya*. Urine carrying channels saturate urine to bladder as rivers do for the sea.⁽⁴⁾

Sushruta has stated the another example of a new pitcher sunk into water up to its neck gets filled up from the minute pores on its walls similarly the *Basti* is filled with urine through these minute channels.⁽⁵⁾

Examination of Urine

In *Ayurveda*, *Astavidharogipariksha* is described as one of the main diagnostic tools. *Acharya Yogratanakar* has described *Astavidha Rogi Pariksha* in his classic. It includes the examination of *Nadi* (pulse), *Mala* (bowel), *Mutra* (urine), *Jivha* (tongue), *Shabd* (speech), *Sparsh* (touch), *Drik* (eyes), *Aakriti* (built). These parameters enables to assess the condition of patients as well as the diagnosis of the diseases.⁽³⁾ In *Astavidhpariksha*, *Mutra-pariksha* is on the second place after the *Nadipariksha* so it states the importance of *Mutra Pariksha*.

Collection method

A doctor should collect a sample of urine from patient in glass container before sunrise (about 5 O'clock) and should examine the urine sample in day light. And he should avoid the very first stream of urine. Mid-stream of urine should be collected for the examination of urine.⁽⁶⁾

According to modern science

First Morning Specimen- choice for urinalysis and microscopic analysis because urine is generally more

concentrated (due to the length of time the urine is allowed to remain in the bladder) and contains relatively higher levels of cellular elements and analytes. Abnormal constituents are also likely to be present in higher concentration and more likely to be detected.⁽⁷⁾

Midstream Clean Catch Specimens- are strongly recommended for microbiological culture and antibiotic susceptibility testing because of the reduced incidence of cellular and microbial contamination. The patient should then void the first portion of the urine stream into the toilet. These first steps significantly reduce the opportunities for contaminants to enter the urine stream during collection of the clinical specimen. The urine midstream is then collected into a clean container after which the remaining urine is voided into the toilet. This method of collection can be conducted at any time of day or night.⁽⁷⁾

According to Ayurveda as well as in modern science, first morning specimen and mid-stream of urine should be collected for examination of urine. From ancient time, *Ayurved Acharya* mentioned this point in their classics and modern science also proves the importance of this.

Diagnosis of Dosh in urine^(8,9)

All the physiological and pathological function controlled by three *Dosha* (bio-humor). They also effect on urine *Ayurvedaacharyas* has given some indications when any pathology occurs in the urine. Collected urine sample within the glass container, should be examine in bright light.

- Appearance or colour of urine is *Pandu Varniya* (whitish), *Nilam* (bluish) and *Ruksha* due to *Vata* vitiation.
- Appearance of urine is *Phenayukta*, *Snigdha* due to *Kapha* vitiation.
- Appearance or colour of urine is *Raktavarniya* (reddish), *Peeta* (yellowish), *Arun* and like oil due to *Pitta* vitiation.
- Appearance of urine is mixed or as per predominate *Dosha* due to *Dwandwaj Dosha* vitiation.
- Appearance or colour of urine is *Krushna* (blackish) *Varniya* in *Sannipataj* state.
- Appearance of urine is *Snigdha*, *Ushna* and *Raktavarniya* (reddish) due to *Rakta* vitiation.

Table 1: Abnormal urine color and its causes⁽¹⁰⁾

Sr. No	Color of urine	Causes
1.	Cloudy or milky (<i>Panduvarna</i>)	urinary tract infection
2.	Milky urine (<i>Arunvarna</i>)	Bacteria, crystals, fat, RBC or WBC, or mucus in the urine.
3.	Dark brown but clear	Liver disorder such as acute viral hepatitis or cirrhosis, which causes excess Bilirubin in the urine.
4.	Pink, red, or lighter brown	Hemolytic anemia, Injury to the kidneys or urinary tract, Urinary tract disorders that cause bleeding.
5.	Dark yellow or orange (<i>Peeta / Raktavarna</i>)	B complex vitamins or carotene, Rifampin and warfarin.
6.	Green or blue (<i>Neelavarna</i>)	Artificial colors in foods or drugs, Bilirubin, Urinary tract infections.

Diagnosis of disease involvement^(11,12)

- In *Ajirna* patient's urine appears like *Tandulodak* (rice water).
- In *Nava jwara* diseased patient's urine appears like *Dhumravarna* (smoky) and *Bahumutrata* (increased frequency of micturition).
- In *Vata-Pitta jwara* patient's urine appears like *Dhumra* (smoky), watery and hot.
- In *Vata- Shlesmajwara* patient's urine appears like *Shweta* (whitish) with air bubbles.
- In *Shlesma-Pitta jwara* patient's urine appears like *Kalush* (polluted) and is mixed with blood.
- In *Jirnajwara* patient's urine appears like blood and *Pitam* (yellowish).
- In *Sannipatajwara* patient's urine appears in mixed shades as per the predominant *Dosha* involvement.
- In *Prameha*, in Ayurvedic classics there is description of sweetness in patient's urine so there is saturation of ants on the ground or place where micturition is done.^(13,14)

Prognosis of disease by the examination of drop of oil on surface of the urine⁽¹⁵⁾

The oil drop is placed on the surface of urine with help of *Truna*.⁽¹⁶⁾

- *Sadhya* (curable) - if oil drop spreads gently and quickly on the surface of urine.
- *Kashtasadhya*- if oil drop does not spread over the surface of urine.
- *Asadhya* (incurable) - if the oil drop sinks to bottom of the container.

By the direction of the spread of oil drop⁽¹⁷⁾

- *Purva* (East) - then the patient get relief and recovers health early.
- *Dakshin* (South)- then the patient will suffer from *Jwara* and recovers health gradually.
- *Uttar* (North)- then the patient will definitely be cured and will become healthy.
- *Paschim* (West)- then the patient will get *Sukha* and *Aarogya*.
- *Ishanya* (Northeast)- then the patient is expected to be die in time of a month.
- *Agneya* (Southeast) and *Nairutya* (Southwest)-if the instilled oil drop splits, then the patient is bound to die.
- *Vayavya* (Northwest)- then the patient is going to die anyway.

By spreading shapes of the oil

- If the drop of oil spread on the surface of the urine, it creates the images of *Hansa* (swan), *Chamara*, lotus, *Torana* (arch), elephant, umbrella lotus then the prognosis is good.⁽¹⁸⁾
- If the spreading oil on the surface of urine creates the shapes of tortoise, buffalo shape, honey-bee like, headless human body, *Shastra* (instrument used in surgery, like knife etc), bird, *Khanda* (piece of body material), arrow, resembles like three roads or 4

roads meeting each other, then physician should not treat that patient as that disease is incurable.⁽¹⁹⁾

- Sieve shape of oil spread in patients suffering from *Kulaj Dosha* (incurable diseases).⁽²⁰⁾

By the shape of oil drop⁽²¹⁾**Diagnosis of *Dosha* involvement**

- Vataroga* - If the shape of the oil drop takes image of *Sarpa* (snake like).
- Pittajaroga* - If the shape of the oil drop takes an Umbrella shape.
- Kaphajaroga* - If the oil drop spreads like Pearl (*Mukta*).

DISCUSSION

Dr.Pavan Kumar Sangu et al, 2017 NIIMH, Hyderabad conduct the study of sample size 30, they finds that the patterns created by the spread of oil drop on the surface of urine in majority of the patients matched with the description given in literature.⁽²²⁾

Dr.Goli Penchala Prasad et al, 2000 SDM, Hassan concluded that Urine examination is a basic element in the field of diagnosis of the disease. This urine examination has been done in a scientific way from ancient periods not only for the diagnosis but also even the prognosis can also be estimated by this *Mutrapariksha*. They mentioned that there is lack in further research and proper implementation.⁽²³⁾

CONCLUSION

The proper knowledge about *Dosha-dushya* involvement, *Samprapti* and *Sadhyasadhya* of *Vyadhi* (disease) can be diagnosed by assessing the patient. *Yogratnakar* explains the *Ashtavidhpariksha* for examination of patient, of which *Mutrapariksha* is one of them. *Asthavidhpariksha* is very important in diagnosis and curability of the diseases. Acharya Charak described that the common characteristic of *Prameha* as increase in frequency and turbidity of urine. Ayurvedic classics have important references for e.g. Twenty-types of *Prameha* on the basis of the colour and consistency of urine has been described. Our *Acharayas* in that era examined and diagnosed *Vyadhis*, without any advanced tools present today solely on their knowledge.

In different disease conditions, due to the excretion of various excretory substances in urine the various changes occur in the properties of the urine. It can be assessed by the pattern formed by spreading drop of oil on surface of the urine with help of *Tailabindupariksha*. During diseases condition due to alteration of the body's normal physiological functions and also the changes in chemical composition of urine is occurs which ultimately affects the pattern of *Tailabindupariksha*. Finally, concluding that *Tailabindupariksha* will be used as tool for study on prediction of the disease. On the basis of *Mutrapariksha* we can assess the prognosis and severity of disease to plan the treatment.

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