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IMPORTANT ASPECT OF AYURVEDIC TAILA BINDU PARIKSHA TO ASSESSES DISEASE PROGNOSIS

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ABSTRACT

Ayurveda which is not only a system of medicine but a way of life, advocating prevention of disease as its primary aim and following holistic approach in dealing with different diseases. Prognosis is an important aspect of diagnosis and treatment. From ancient time predicting, prognosis has always been a big challenge to the medical profession. Patients want to have access to accurate prognostic information. Knowing prognosis plays an important role in end of-life decisions and it helps to determine whether it makes more sense to attempt certain treatments or to withhold them. If we look into Ayurvedic texts then we will find that art of prognosis was well developed in ancient times. In 16th century *Taila Bindu Pariksha*, a urine test for knowing prognosis was popular. In this test, urine is taken in a glass vessel over which an oil drop is placed and characteristic of oil spread (rate, shape and direction of spread) is noted down. These parameters are indicative of prognosis of diseases. They were popular prognostic tools in the past but now-a-days they are not specifically used, so there is need to re-establish their results so that they can be used in future. In the present article Taila Bindu Pariksha in various aspect of the disease, as prognosis approach are described.

KEYWORDS: *Ayurveda, Diagnostic methods, Taila Bindu Pariksha, Prognosis.*

INTRODUCTION

The recent decade has witnessed many landmark observations, which have added to the scientific credentials of *Ayurveda*. It is however believed that instead of a retrospective approach of looking into the *Ayurveda* through the scientific reappraisals, a prospective approach through primary understanding of *Ayurveda* followed by a search into scientific

linkage would be more appealing. This article brings the simplified yet scientific decoding of the core concepts of *Ayurveda* that form the framework of this ancient science of health.

Prognosis is an important aspect of diagnosis and treatment. From ancient time predicting prognosis has always been a big challenge to the medical profession. Patients want to have access to accurate prognostic information.[1,2] Knowing prognosis plays an important role in end of-life decisions and it helps to determine whether it makes more sense to attempt certain treatments or to withhold them. Improved prognostication may facilitate better patient care, giving patients the ability to make better informed choices about treatment.[3] On the other hand, it may help patients to make better use of the time remaining to them, and may give them the opportunity to make appropriate preparations for their own impending death.[4]

Few prognostic parameters are presently used for assessing the disease outcome. prognostic indicators are used is in Drug-Induced Liver Injury (DILI) (Hy's Low) and use of an exercise stress test as a prognostic indicator after myocardial infarction. Recently, few models have been developed to aid in prognostication. However, even the best prognostic models performs imperfectly. For instance, the Study to Understand Prognosis and Preferences for Outcomes and Risks of Treatment (SUPPORT) developed prognostic models and supplied patients' prognosis estimates to their physicians. The model-which combined variables from the Acute Physiology, Age and Chronic Health Evaluation (APACHE II), with disease-specific variables was only able to identify 50% of the patients who died within 6 months.

Importance *of Mutra Pariksha (Taila Bindu Pariksha)*

Urine is formed in the kidneys, is a product of ultra filtration of plasma by the renal glomeruli. liquid tissue biopsy of the urinary tract-painlessly obtained it yields great deals of information quickly and economically It helps detect alterations in the composition of the urine which help in the diagnosis of many disorders.

The 21st century has marked the beginning of a new era, receptive to eastern healthcare philosophy through positive attitudes. Epitomizing eastern philosophy for its concern to values related to health, Ayurveda is by and large considered to showcase traditional health care. If we look into Ayurvedic texts then we will find that art of prognosis was well developed in ancient times. In 16th century *Mutra pariksha* i.e. *Taila Bindu Pariksha*, a urine test for knowing prognosis was popular.

In this test, urine is taken in a glass vessel over which an oil drop is placed and characteristic of oil spread (rate, shape and direction of spread) is noted down. These parameters are indicative of prognosis of diseases. *Taila Bindu Pariksha* can be used to assess prognosis in any disease as they are not disease specific. They were popular prognostic tools in the past but now-a-days they are not specifically used. Preliminary standardization of this test has been done in Dept.,of vikriti vigyan ,IMS, BHU.

Concept of Taila Bindu Pariksha of Mutra

Taila Bindu Pariksha, a method of urine examination has been described in number of Ayurvedic texts of medieval period like *Vangasena Samhita, Vasavarajiyam, Yoga tarangini, Yogaratnakara*, Hansarajanidana. And many more. *Taila Bindu Pariksha* is described in Siddha system of medicine. In Siddha system of medicine urine examination is placed after pulse examination. The important physical principles which regulates the spread of oil on urine are being reviewed first.

It was reported to be very popular at the end of the seventeenth century by foreign scholar John Ovington. In this test a drop of oil is dropped on the patient's urine and observations are noted. The shapes related to good prognosis as described in various Ayurvedic texts are *Hansa, Karanda, Tadaga, Kamala, Gaja, Chamara, Chatra, Torana* etc. and can be broadly classified in to a geometrical shapes as circular, semi-circular and triangular in nature. They are normally uniform in all directions. The shapes related to bad prognosis as described in various Ayurvedic texts are *Hala, Sairibha, Kurma, Siravihina nara, Gatrakhanda, Shastra, Khadga, Mushala, Pattisha* etc. and can be broadly classified as either irregular linear directing to specific direction or irregular shapes with projections and so multi-directional in nature. Directions related to good prognosis include four basic directions i.e. east, west, north, and south (in case of *jwara*) whereas directions related to bad prognosis are in between these four basic directions as well as southward direction in case of diseases other than *jwara.*

Characteristics of normal urine as described in Ayurveda

Characteristics of normal urine are not described separately in the medieval period texts through urine examination has been given due importance. If we look into the description in the texts, which are scattered in various chapters of text of Ayurveda we can conclude the following points.

***Mahabhuta*:** *Charaka* states predominance of *apya bhava* (*Ch.Sh.7/94*). According to *Ashtanga Hridaya*, urine is *ashraya* or seat of *kapha*.

***Rasa*:** According to *Charaka* (*Ch.Su.1/94*)and *Sushruta, (Su.Su.45/218) rasa* of normal urine is *katu* and *lavana* and according to *Acharya Harita* (*Ha.Sm.19/11*), it is *kshara, katu* and *madhura.*

***Gandha*:** Only *Acharya Kashyapa* has mentioned about normal *gandha* of urine. According to him, normally urine is *natigandhi* i.e. an odour which is not irritating (*Ka.Su.28*).

Sparsha: *Ushna* (when freshly passed it is slightly warm), *Tikshna guna* (can be attributed to *agneya* predominance), *apichhila* and *aruksha* (*Ka.Su.28*).

***Varna*:** Normally it is *avivarnam* i.e. not having pathological colour. It refers to normal pale yellow colour of urine (*Ka.Su.28*). *Roughly indicates the degree of hydration and urine concentration.*

***Ghanatwa*:** Normal urine is *drava* (liquid), *sara* (with low density) and *laghu* (light)., *(Ch.Sh.7/94)*

***Vaishadya*:** It is *vishada* i.e. transparent in nature.

Parimana: *Four anjali* is the normal *parimana* of urine as described by *Charaka.*

Methodology of *Taila Bindu Pariksha*

Almost all the texts describing this examination have stated the same basic concepts which can be put as Taila Bindu Pariksha.

Time of urine collection

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All texts have stated that the urine collection should be done in the morning while *Yogaratnakara* and *Vangasena* have specified that the time should be when 4 *ghatikas* are left in the last *yama* of the night. This period on calculation comes to be about 1 hour 36 minute before sunrise. There is a rapid fall in the surface tension of urine before the so called static value is attained.[16]

Specific Gravity of Urine: Specific gravity measures the kidney's ability to concentrate or dilute urine in relation to plasma. Because urine is a solution of minerals, salts, and compounds dissolved in water, the specific gravity is greater than 1.000. The more concentrated the urine, the higher the urine specific gravity. An adult's kidneys have a remarkable ability to concentrate or dilute urine. In infants, the range for specific gravity is less because immature kidneys are not able to concentrate urine as effectively as mature kidneys. The specific gravity may play an important role in spreading pattern of oil on urine.

Surface tension of Urine: Surface tension is caused by the attraction between the liquid's molecules by various intermolecular forces. The cohesive forces between liquid molecules are responsible for the phenomenon known as surface tension. The surface tension of human urine is related directly to the specific gravity; the higher the specific gravity the lower the surface tension. Surface tension measured by "KRUSS Tensometer".

Some studies have been done regarding surface tension of urine. One of the studies states that there is a rapid fall before the so called static value of Surface tension is attained. The time taken to reach this static value in case of normal urine is around 30 minutes and around 20 minutes in case of pathological urine. Unusual exercise causes a fall in surface tension and a rise in density. One cause of the variation in the surface tension of normal urine, therefore, is the varying dilution with water. Bile salts possess the unusual property of lowering the surface tension of urine very markedly even when present in small concentrations.

The stability of surface tension maintained up to 2hrs. But it is better to perform the test within 1hr 30 min of collection as advised by the text. Surface tension plays an important role in deciding the spreading pattern of oil on the urine.

***Patra* for urine collection:** Various *patras* have been described for urine collection by the texts as – Glass or Bronze *Supatra* and *Shveta Kachamaye Patra.*
The urine after collection has been told to be properly covered with a cloth.

Collection of mid stream urine: Mid stream urine has to be collected for examination discarding the first and last part.

The oil: *Yogaratnakara* and *Vasavarajiyam* have specifically described the use of *tila taila* for *Taila bindu parkisha* while other authors have merely mentioned the term '*taila'*. Out of

two types of Tila i.e. Black and white type, the black variety is more sutaible to be used as this variety is used for tail bindu pariksha.

Time of performance of *Taila bindu pariksha*: The various texts as *Yogaratnakara, Vangasenasamhita, Hansaraja Nidan, Vasavarajiyam* etc. have described the early morning time for the performance of *Taila bindu parkisha* describing it by various names as – *Suryodaye, Prabhate, Suryatape, Bhaskaro udaye bela etc.*

Yama is a period equivalent to 8th part of a day i.e. 3 hrs. So, last *yama* of night refers to last 3 hrs before sunrise. *Ghatika* is equivalent to 24 minutes as described in Monier William's dictionary and adopted by Ayurvedic *Pharmacopoeia Committee*. 4 *ghatikas* on calculation comes around 1 hour 36 minutes. From the calculation, it is clear that time of collection is 1 hr 36 min before sunrise.

Parameters described about the spread of oil drop on urine

Most of the Ayurvedic texts have described three parameters regarding prognosis and spreading of oil drop on Urine surface

1. Shape of the oil drop after spread.
2. Direction of the oil drop spread, and
3. Rate of the oil drop spread.

Shape of Spread: The texts have described various shapes for good as well as bad prognosis using Sanskrit terminologies prevalent at that time. Thus, it is very difficult to understand the exact meaning of these terms as those people might have meant. An attempt has been made by the previous worker – *Dr. Reetu Sharma et al*, 2009 & *Dr. Madhu Rani Verma et al*, 2011 to understand these terms and they have analyzed the shapes related to various *sadhya* and *asadhya* conditions. Hence, only their names are being quoted here.

Shapes showing good prognosis (*sadhya* conditions): *Hansa, Karanda, Tadaga, Kamala, Gaja, Chamara, Chhatra, Torana, Harmya, Parvata, Vriksha and Matsya.*

Shapes showing grave prognosis (*asadhya* conditions): *Hala, Kurma, Sairibha, Shiro Vihina Nara, Gatra Khanda, Shastra, Khadga, Mushala, Pattisha, Shara, Laguda, Trichatushpatha, Khara, Ushtra* and *Vrishchika*. Besides these, there are also several other shapes described in various texts which depict grave prognosis as.

Hansaraja Nidana has described - *Kshura, Danda, Kodanda, Tunira, Gada, Chakra, Vikrita akriti, Bheri, Dundubhi, Shankha, Gomukha, Turi, Mridanga, Veena*.

Vasavarajiyam has described - *Dhanusha, Shrigala, Sarpa, Marjara, Vyaghra, Markata, Singha, Vanara, Vidala, Nagavalli dala, Kumbha, Hasti balaka, Vrisha, Manava, Manduka, Abhushana.*

Vasavarajiyam has further given some more shapes which depict bad prognosis (*Krichhra – Sadhyata) - Valli, Mridanga, Anuja, Bhanda, Chakra, Mriga.*

Direction of Spread: *Yogaratnakara, Yogatarangini* and *Vangasena Samhita* have described the spread in east, west and north direction as showing good prognosis. Similarly, spread in all directions and in south direction in case of only *jvara* has also been related to good prognosis.

The spread in all diagonal direction i.e. North – East (*Ishaana Kona*), North – West (*Vayavya Kona*), South – East (*Aagneya Kona*), South – West (*Nairitya Kona*) and also South ward spread (only by *Vangasena Samhita*)has been described to show grave prognosis.

Rate of Spread

Yogaratnakara and *Yogatarangini* have mentioned that

If drop of oil spreads	:	Disease is easily curable.
If drop of oil spreads slowly	:	Disease is difficult to treat.
If drop of oil sinks	:	Disease in incurable.

If drop of oil does not spread and stays like a dot then also the disease is incurable – described by *Yogaratnakara, Vangasena Samhita, Vasavarajiyam, Yogatarangini, Hansaraja Nidana.*

Variation of shape as per *doshic* predominance: -The shape of oil drop in urine has been told to show variation according to predominance of *doshas* as.

1. In *vata* predominance – Oil lengthens like a serpent or takes the shape of a *mandala.*
2. In *pitta* predominance – The oil drop becomes *chhatrakara* and bubbles production.
3. In *Kapha* predominance – The oil drop stays like a pearl or a dot.
4. In *Tridoshaja* predominace – The oil drop sinks in urine.

5. The oil drop takes sieve like appearance in *preta dosha* involvement and the appearance of two heads, *Narakara akriti in bhuta dosha* involvement.

As stated above procedure has been standardized at department of Vikritivigyan in collaboration with Dept. of Biophysics, Faculty of Medicine, I.M.S, B.H.U-2010, Preliminary standardization of *Taila Bindu Pariksha* has been done in the department. Petri dish (Dimension-8 inch diameter) is filled with urine and test is performed when urine surface becomes calm and quiet. Test is performed within 2hrs of collection to get the accuracy of the result as the surface tension of urine is static during this period. When urine surface becomes quiet, oil drop of 12µl volume is dropped with micro pipette from a height of around 1 cm. Grid is used as background (i.e. comprising of white squares over brown, back –ground paper). The lines are used as indicator of direction and area covered by oil film is assessed by counting the blocks.

CONCLUSION

Contrary to the global scene, *Ayurvedic* schools in India consistently urge for scientific rooting of Ayurvedic principles. A connotation of linking science and making globalization to *Ayurveda*. There is no any test is available till now which can be used as perfect predictor of prognosis estimation in chronic diseases. So research work will needed to establish results of Mutra pariksha . Interpretation of the available literature related to diseases are in light of scientific knowledge will also be done so that it can pave the way for assessment of prognosis of diseases in future.

Prognostic assessment based on Ayurvedic principals related to Mutra pariksha i.e. Taila Bindu pariksha will add to the armamentarium of available prognostic indication. Scientific validation of these Ayurvedic principles in light of modern medical science will be landmark in the field of prognosis determination.

Finally it may concluded that *Taila bindu pariksha* can be used as tool for study on prediction of prognosis of diseases. On the basis of mutra pariksha assessing the prognosis and severity of diseases to plan the treatment. This simple technique may also be helpful in diagnosis of the diseases as well as in assessing the healthy conditions. But it requires observations in large number of cases. Since no laboratory test is available to instantly assess or forecast the prognosis of the diseases, this method which is very cost effective may be proved to be useful technique in this field.

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