



Research Article

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STUDY OF TAILA BINDU PARIKSHA ON ARTIFICIAL URINE

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ABSTRACT

Taila bindu pariksha is an ancient technique described in medieval Ayurvedic texts by which prognosis of disease can be predicted. For revival of this ancient technique efforts have been made and procedure of Taila bindu pariksha has been standardized but till date reference range in healthy and diseased condition has not been established. For establishing reference range it is needed that study should be done at large scale. It is quite difficult to get urine of same individual repeatedly to check consistency of test as well as urine of various pathological states as desired. So, it was planned that an observation on artificial urine matches with that of normal urine then it can be used easily in future for performing Taila bindu pariksha. For this aim it was decided to prepare stock solution which can be turned into urine of different pathological conditions by adding various constituents so that observations can be recorded and thus both normal as well as abnormal range can be established easily. Test was performed on artificial urine prepared at two different times but result didn't match with that of normal urine. Hence, it was concluded that spread in Taila bindu pariksha depends on para-magnetic constituents present in traces which are undiscovered till date.

Keywords: Taila bindu pariksha, artificial urine, oil, spread

INTRODUCTION

A specialized technique of urine examination, Taila bindu pariksha has been described in Ayurvedic texts.¹ In Taila bindu pariksha, urine is taken in a glass vessel over which an oil drop is dropped and characteristic of oil spread (rate, shape and direction of spread) is noted down. These parameters are indicative of prognosis of disease.²⁻⁴ The use of this technique for prognosis assessment has now become obsolete. Research studies are going on to revive this ancient technique.⁵ Procedure of Taila bindu pariksha has been standardized⁶ in which 12 µl of sesame oil is dropped over urine (morning mid-stream sample) collected in glass petri dish of 8 inch diameter and observations are noted. Reference ranges in healthy individuals have been preliminary established in a group of healthy individuals. Before a conclusive statement is stated about reference values of Taila bindu Pariksha, it is necessary that this test should be done in large number of healthy individuals as well as patients. Such large scale study needs repeated observations. It is quite difficult to get urine of same individual repeatedly for confirmation of results and patients of various pathological states as per needed. To overcome this difficulty it was planned to perform Taila bindu pariksha on artificial urine with an idea that it can be used for large number of experiments without going through tiring and time consuming work of urine collection. Various constituents in required proportions can be added in artificial urine once prepared thus converting stock solution into urine of various pathological conditions. Beside this there are number of factors like diet, sleep, exercise, mental condition etc. which can affect urine constituents which ultimately alters

findings of this test. To check reliability it is necessary that this test is performed repeatedly on urine having fixed constituents so to avoid interference of above factors artificial urine was prepared.

MATERIAL AND METHODS

To avoid regular use of normal urine, artificial urine was prepared with all major constituents of urine. It was prepared from two different methods for the study by adding various constituents which are normally present in urine. Constituents were mixed in the water and their physio-chemical properties were adjusted in the range of normal urine. Two different methods reported earlier were used for this purpose and they are briefly summarised below:-

Method One

To 1.5 litres of distilled water 36.4 g of urea was added and mixed until all the crystals dissolved. Then 15.0 g of sodium chloride, 9.0 g of potassium chloride and 9.6 g of sodium phosphate were added in the solution and was mixed until the solution became clear. The pH was checked with indicator to ensure that the pH is within the 5 to 7 pH range. (If the solution is out of this pH range, the pH can be lowered with 1 N HCl or raised with 1 N NaOH). A urinometer was placed into the solution and specific gravity of the solution was measured. Solution was diluted with water until specific gravity range was within 1.015 to 1.025. This solution served our purpose as storage stock solution of "Normal urine solution" (This solution can be kept refrigerated for several weeks or

frozen in plastic containers for months). Before use, the stock solution should be warmed to room temperature. For the similarity to human urine 4.0 g of creatinine and 100 mg of albumin was slowly mixed into the 2 litres of the prepared normal urine solution⁷.

Method Two

The second method of artificial urine was adopted from article "Simple artificial urine for the growth of urinary pathogens".⁸ Artificial urine was prepared by dissolving following components as mentioned in Table 1.

Procedure of Taila Bindu Pariksha

For this study, standardized procedure by Kar *et al.* was used.⁶ In this standardized procedure Urine was taken in clean petri dish of 8 inch diameter and 12 µl sesame oil was dropped on the surface of urine from 1 cm. height with the help of Pasteur pipette. The test was done in environment free from dust, wind and other disturbing elements. All observations were recorded in the form of video clips. Still photographs were taken from the clips afterwards for the assessment of shape and direction of oil spread. Following the standardized procedure Taila bindu pariksha was performed on artificial urine prepared from methods mentioned above. Shape, direction and spread time of oil drop over surface of urine was observed. By each method artificial urine was prepared ten times and test was performed on each sample for three times to confirm the results. Thus to check reliability of test, total

60 times test was done in artificial urine prepared from above mentioned two tests.

RESULTS

Taila bindu pariksha was performed on artificial urine prepared by the first method. The spread of oil drop occurred within a second and oil drop touched the margins of the Petri dish. The spread was so fast that it was difficult to note down observations. Results did not match the observations of Taila bindu pariksha on normal urine as reported earlier⁶ in which spread occurs slowly and takes around 1 min for complete spread. Observations were repeated thrice in artificial urine of various batches which were prepared separately ten times by first method as mentioned above. Thus total 30 observations were noted. Each time spread was fast and occurred within one second. As spread was very fast and it did not serve our purpose second method for preparation of artificial urine was tried. The observations in this sample were also same as recorded by first method. The spread was too fast and it was difficult to capture it in the form of photograph, even when photograph was taken immediately after dropping of oil. Spread was similar to that of oil spread on water as during spread different colours were noted but margins could not be demarcated. Test was repeated for 30 times by this method also but each time spread didn't match with that of normal Taila bindu pariksha range. The idea of using artificial urine in place of normal urine was discarded for setting reference range of Taila bindu pariksha.

Table 1: Constituents of Artificial Urine

Component	Quantity (g)	Concentration (m/mol)
Peptone L37	1	
Yeast extract	0.05	
Lactic Acid	0.1	1.1
Citric Acid	0.4	2
Sodium Bicarbonate	2.1	25
Urea	10	170
Uric Acid	0.07	0.4
Creatinine	0.8	7
Calcium Chloride.2H ₂ O	0.37	2.5
NaCl	5.2	90
Iron II sulphate.7H ₂ O	0.0012	0.005
Magnesium sulphate. 7H ₂ O	0.49	2
Sodium sulphate.10.H ₂ O	3.2	10
Potassium dihydrogen Phosphate	0.95	7
Di-potassium hydrogen phosphate	1.2	7
NH ₄ Cl	1.3	25
Distilled Water	1 L	

DISCUSSION

The art of prognosis was fully developed in ancient time.^{8,9} Taila bindu Pariksha is one such test described for knowing prognosis of diseases. Spread of oil drop performed on artificial urine prepared by two different methods was different from observations in normal urine which indicates that certain constituents responsible for oil spread pattern were absent in artificial urine. All constituents normally found in urine were added while preparation of artificial urine even though spread was quite different from normal spread and so it can be

postulated that spread of oil drop on urine depends upon surface active molecules and other metabolites which are present in traces and are undetectable till date. These may be substances which normally determine the spreading pattern of oil. Various shapes of oil drop have been described for poor prognosis in texts. Irregular shape may occur only if surface active molecules are expected to remain in patches letting oil spread in between such patches making the spread different from uniform and circular. Some of these minor constituents may be magnetically active and thus may align themselves to a particular pattern and direction. This may be the reason

for appearance of different shapes in various clinical conditions. It may be presumed that the amount of these trace substances changes in different diseases thus causing change in spread pattern. These molecules though in very small number, may prove to be very important indicators of health and pathological state. Further study on the standardization of the measurements, their correlation with components of urine present in micro/nano levels (for example, HPLC findings of urine) in different physiological, psychological and pathological status can provide a wide and very important dimension to the scope and utility of Taila bindu pariksha.

CONCLUSION

By this work it was proved that oil spread on urine is dependent on metabolites present in small quantities which are not identified and measured till date. Exact nature of minor constituents responsible for spread of oil is unknown till now and further research is needed in this field to prove it scientifically.

REFERENCES

1. Anonymous. Yogaratnakara, Vidya Lakshmi Shastri Vidyotini Hindi commentary, edited by Brahma Shankar Shastri, 7th ed. Varanasi: Chaukhambha Sanskrit Bhavan, Purva khanda; 1993. p. 10.
2. Bhatta Trimalla, Yoga tarangini, edited and translated by Shri Dutta Mathur. Chaukhambha Vidya Bhawan, Samsthan, Varanasi, 14th Tarang, Mutrapariksha; 2003.
3. Vasavaraja. Vasavarajiyam, edited by Govardhan Sharma, 1st edition, Gorakshana yantralaya Mudritava Prakashitama, Tiritiya Prakarana; 1930. p. 69-71.
4. Vangasena. Vangasena Samhita; edited by Nirmal, 1st ed. Varanasi: Chaukhambha Sanskrit Series; 98th chapter; 2009. p. 997.
5. Sangu PK, Kumar VM, Shekhar MS, Chagam MK, Goli PP, Tirupati PK. A study on Tailabindu pariksha – An ancient Ayurvedic method of urine examination as a diagnostic and prognostic tool. AYU (An International Quarterly Journal of Research in Ayurveda) 2011; 32(1): 76-81. <http://dx.doi.org/10.4103/0974-8520.85735>
6. Kar AC, Sharma R, Panda BK, Singh VP. A study on the method of Taila Bindu Pariksha (oil drop test). AYU (An International Quarterly Journal of Research in Ayurveda) 2012; 33(3): 396-401. <http://dx.doi.org/10.4103/0974-8520.108851>
7. Brian R. Shmaefsky, How To Do It - Artificial Urine for Laboratory Testing.
8. T Brooks and CW Keevil. Simple artificial urine for the growth of urinary pathogens, Letters in Applied Micro Biology 1997; 24: 203-206. <http://dx.doi.org/10.1046/j.1472-765X.1997.00378.x>
9. Sharma Reetu, Byadgi PS, Paliwal Murlidhar. Glimpse on Roganidan by Vagbhata: A Bird's eye view, Int. J. Res. Ayurveda Pharm 2011; 2(5): 1402-1404.

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