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Oil Drop Test (*Taila Bindu Pariksha*): Study of Ayurvedic Diagnostic Assessment of Urine in Cancer Patients

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Abstract

Background: Taila Bindu Pariksha is an Ayurvedic examination of urine used as a diagnostic and prognostic method to assess various pathologies. This test depends on pattern, shape, and direction of spreading of oil dropped over a stable surface of urine sample. In this study, this test was applied in patients of different cancers to assess prognosis of the disease. So, assessment of oil drop pattern was carried out with a developing device to keep all parameters fixed like procedure of collection of urine sample, distance at which Sesame oil is dropped and the distance over head light sources etc. *Methods and Material:* Fifty randomly selected cases were divided into two groups. Group I consisted of 10 healthy volunteers and group II consisted of 40 pre-diagnosed cases of different types of cancer. The oil-drop dispersal pattern was recorded photographically. The results were drawn by analyzing oil drop spreading pattern of its direction and shape of oil drop over urine surface in them. *Results:* The results showed that among 40 cases of different cancers, maximum 30% cases having Pearl shape oil-drop while 36% were ill defined in term of classical expression. The results on direction of oil drop showed that 14 % of cases move towards west- south while 20 cases were of ill defined pattern. *Conclusions:* It was concluded that wherever the intensity of the disease increased or decreased, the direction and shape as well as size of dispersion of drop of sesame oil were changed. The modified device is helpful to standardize all parameters of test in each case and also make reproducibility of procedure accurately. This procedure is simple and cost effective.

Keywords: Mutra Taila Bindu Pariksha; Cancer; Oil Drop Pattern; New Device for Prognosis.

Introduction

As an established procedure, the disease needs to be adequately diagnosed prior to the application of any treatment [1]. Proper diagnosis of the disease and patho-physiological conditions of the patient are examined under the broad heading *Ashtavidha* Pariksha [2] (Eight types of examining the diseases in a patient). It includes examination of *Nadi* (Pulse), *Mutra* (Urine), *Mala* (Feces), *Jihwa* (Tounge), *Shabda* (Speech), *Sparsha* (Touch), *Druka* (Eyes) and *Akruti* (Posture), which are routinely used in Ayurvedic practice.

Among these examinations, *Mutra Taila Bindu Pariksha* (MTBP) is one of the effective tools of diagnosis regarding prognostic angle as per Ayurvedic point of view [3] (Fig. 1). More validation of this test depends on pattern of oil drop spreading and direction over surface of patient's urine [3, 4]. On that basis curability and incurability of disease may be assessed. In Cancer patients, tumor markers and radiological investigations are usual tests for recording different stages of cancer and rule out severity of disease, which are expensive, also. In this study, this test was carried out to assess the prognosis of the disease in cancer patients.

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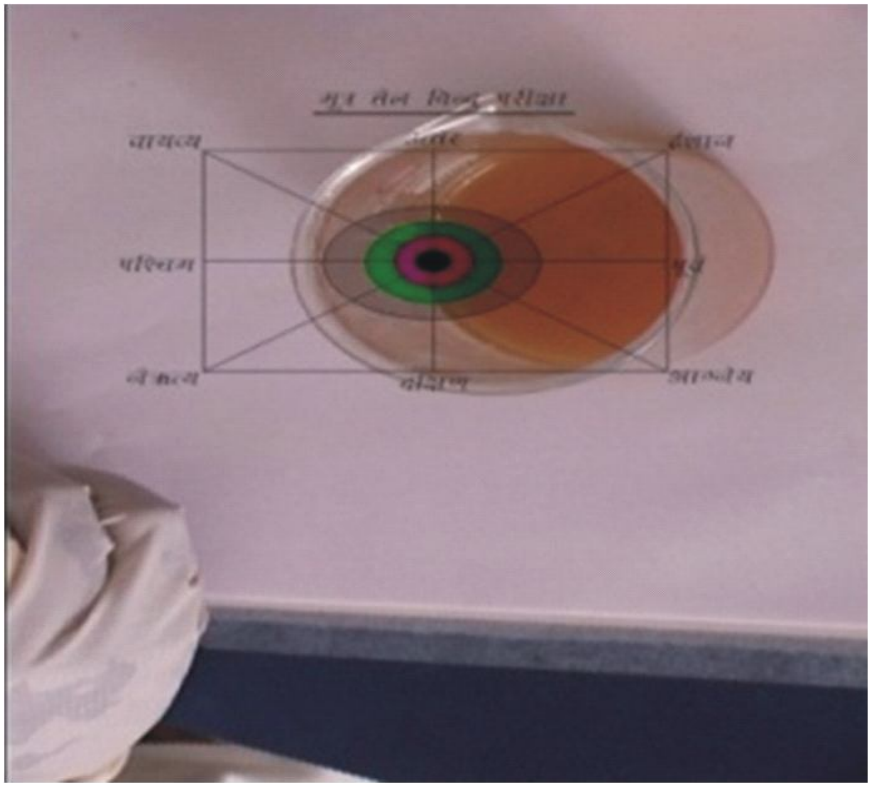
Fig. 1: Procedure of *Mutra Taila Bindu Pariksha (MTBP)*



Rogakrant shareerasy sthananyashtau parikshayet,

Nadi Mutram Malam Jihwa Shabda Sparsh Drugakruti. "Yoga Ratnakar"

Materials and Method

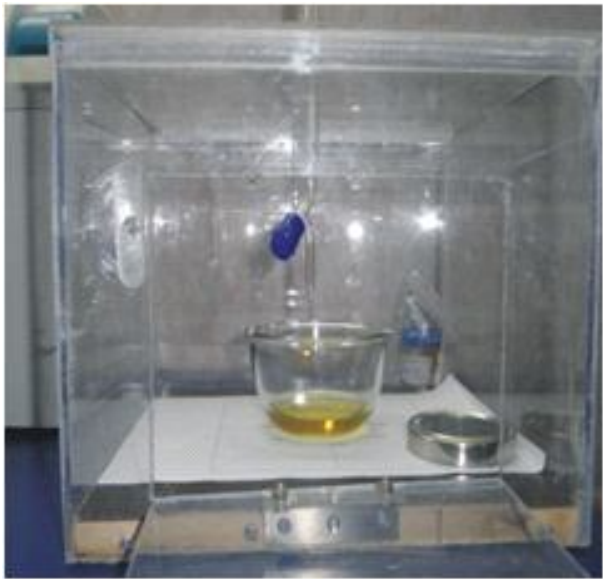
Standard procedure: This procedure was performed by keeping all parameters fixed like procedure of collection of urine, distance at which Sesame oil was dropped, devoid of air-wave interference and capturing the image of oil pattern changes during interaction with urine.

Equipment: A specified cabinet of glass and Acrylic fiber sheet was specifically designed to record observational changes in oil drop pattern. This equipment was attached with a photographic device in roof of that cabinet.

Features of Cabinet (Fig. 2)

- Solid wood base cover with glass plate of 45cms and 45cms was surrounded by cubic shaped body of Acrylic fiber sheet with 45 X 45 X 45cms on each side.
- Top portion of the cabinet was of sliding manner made up of Acrylic sheet of suitable size.
- Round large mouthed glass bowl of 250 ml capacity.
- Burette of 10 ml capacity.
- Photographic device of 14.1 Mega pixels attached with cabinet.
- Milky white light was maintained with fluorescent tube which was placed over one and half meter in height from the designed cabinet.

Fig. 2: Specific design of Cabinet of *Mutra Taila Bindu Pariksha*



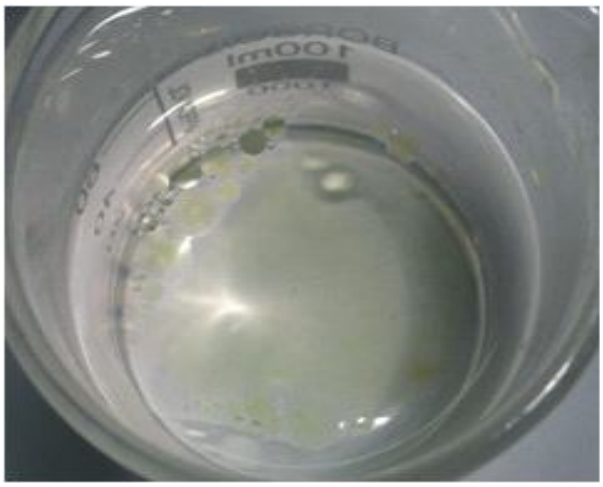
Materials for Taila Bindu Pariksha

- Urine of the patient
- *Tila taila* (Sesame oil) as per requirement in burette.

Selection of cases: A comparative observational screening was conducted on subjects of either sex between the age group of 20- 65 years. They were divided into two groups. Group I consisted of 10 healthy volunteers and Group II consisted of 40 pre-diagnosed cases of different types of cancer. Out-door patients of different types of cancer on their first visit were randomly selected.

Method: Patients were kept a sleep at 9 PM. On next morning (5 AM) mid stream urine of the first urination was collected in a standard sized glass bowl of 250ml. Sample bowl was kept at the centre of a specifically designed cabinet which was devoid of airwave. A 10 ml glass burette filled with *Tila taila* (Sesame oil) was fixed over middle of bowl containing urine. One drop of sesame oil was slowly dropped over the stable surface of urine from a distance of 2cms. It was left for two minute for proper reaction. The oil drop dispersal pattern on the surface of collected urine sample was recorded photographically. It was analyzed periodically at monthly intervals for three times with pre treatment pattern.

Fig. 3: Spreading of oil without specific pattern in Group I cases



Precautions

i. Mid stream of the day's first urine was considered for the test.
ii. Bowl in which the urine was kept should be placed on center of point of base of cabinet at which drop of oil was to fall.
iii. Oil was slowly dropped only when the urine becomes stable without any movement.
iv. Oil drop was dropped from a low height (2cm height from the lower end point of the oil drop) without touching the urine with the drop end, some interaction between oil and urine should be forced much height can disturb the urine and give false results.

Criteria of analysis: The results of oil spreading nature, direction and shape over urine surface were calibrated with biochemical, hematological and radiological parameters in different stages and types of cancer patients.

Results

Totally 40 cases suffering from different types of cancer were included in the study. Distribution of patients is shown below in Table-1 based on their sex and type of cancer.

Table 1: Sex-wise distribution of cases in Group II according to the types of cancer

Type of Cancer	No. of Patients	Male	Female
Breast	12	-	12
Bone Marrow	5	4	1
Liver	8	3	5
Lungs	3	3	-
Prostate	4	4	-
Uterine	8	-	8
Total cases	40	14	26

Table 2: Age-wise distribution of cases of Group I and II

Age group	Group I	Group II	Total %
20- 30	2	2	4 (8%)
31- 40	2	12	14 (28%)
41- 50	4	15	19 (38%)
51- 65	2	11	13 (26%)
Total	10	40	50 (100%)

Distribution of cases based on *Tridosh* prominence, direction of oil spread and formation of different shapes after oil drop on urine surface was analyzed in Tables 3-5. Their shape and spread of oil were photographed in each case by digital camera 14.1 mega pixel with aforesaid specified light source.

Table 3: Distribution of cases in Group I and II according to Dosha dominance

Dosha	Group I	Group II	Total %
Vata	2	4	6 (12%)
Pitta	2	8	10 (20%)
Kapha	3	13	16 (32%)
Vata- kapha	1	3	4 (8%)
Kapha- pitta	-	5	5 (10%)
Vata- pitta	2	4	6 (12%)
Tridosha	-	3	3 (6%)
Total	10	40	50 (100%)

Table 4: Distribution of Group I and II cases according to Oil-drop dispersal pattern

Direction	Group I	Group II	Total %
Purva (East/ E)	4	-	4 (8%)
Paschim (West/ W)	2	2	4 (8%)
Uttar (North/ N)	3	-	3 (6%)
Dakshin (South/ S)	1	6	7 (14%)
Eshanya (E- N)	-	5	5 (10%)
Vayavya (N- W)	-	5	5 (10%)
Nairutya (W- S)	-	7	7 (14%)
Agneya (S- E)	-	5	5 (10%)
Ill defined	-	10	10 (20%)
Total	10	40	50 (100%)

Table 5: Distribution of cases in groups I and II according to the shape of oil drop on urine

Shape	Group I	Group II	Total %
Bindu vat	-	11	11 (22%)
Motiya kar	-	15	15 (30%)
Chhatrakar	-	6	6 (12%)
Ill defined	10	8	18 (36%)
Total	10	40	50 (100%)

Discussion

Urine is commonly used for detecting the diseases in the uro-genital system as well as the hormonal profile such as in diabetes. However, it is not routinely employed for the diagnosis of cases of cancer except prostatic carcinoma which Engrailed- 2 (EN- 2) Protein is more diagnostic marker than even Prostate Specific Antigen marker (PSA) [5, 6]. In this study, an specific model was designed, developed and fabricated for study purposes where all other features

were kept constant such as the movement of the air, devoid of shaking, variation in reproducibility of procedure in addition the picture which comes out on the surface on the urine is recorded with the help of the camera which can be quantified. Thus, this procedure is not only quantitative in nature but on the other hand similar to procedure already used by Ayurvedic doctors since a very long period of time in their clinical practice but also prognostic in nature [7] which capable of predicting different stages of malignancies. There is also a correlation with the biochemical, hematological and radiological parameters which could be helpful for prognostic point of view. It was observed that most of the cancer cases showed shape of oil drop was *Muktavat* (like a Pearl) (Fig. 4), *Sthira* (stable) (Fig. 5) and directed towards diversified spread, which showed incurability of diseases. In different interval of analysis it was observed there was little different in oil drop pattern. Effect of Ayurvedic formulations on brain glioma (a case report) [8], tumor suppression gene level [9, 10], and DU 145 (prostate) and COLO 205 (colon) human cancer cell lines etc., [11] are some examples which validate ancient approach scientifically. By adopting these principles of Ayurvedic science, [12] and use of traditional test to diagnosis of cancer patients, improve the wellbeing of the patient, as an adjuvant to chemotherapy and radiotherapy, which increase quality of life and person may enjoy the normal life span.

Fig. 4: Pearl shape of oil spreading on urine sample of one of the Group II patient showing incurability of disease

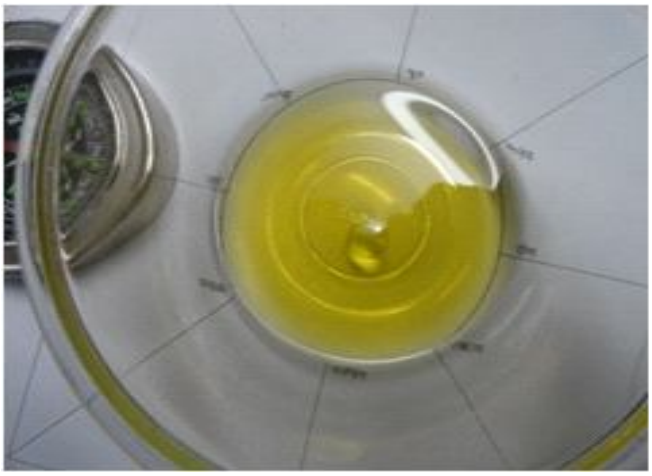
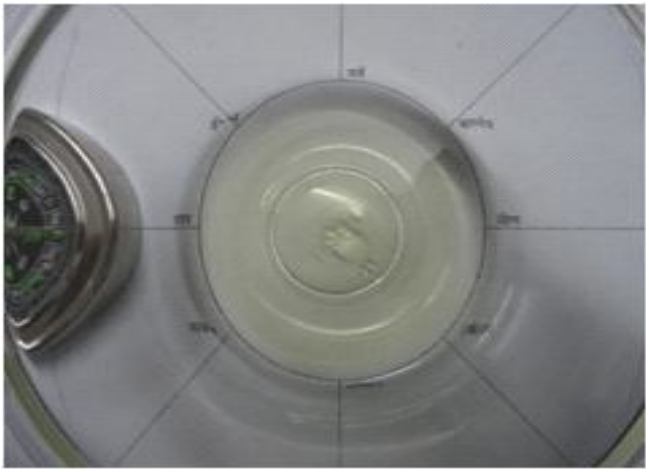


Fig. 5: Stable oil drop over urine sample of one of the Group II patient showing incurability of disease



Conclusion

It was observed that the pattern of dispersal of sesame oil was differing from patient to patient; it shows variation in subjective and objective parameters of individual cases. The comparison with laboratory parameters indicated that where ever the intensity of the disease increased or decreased, the direction and shape as well as size of the *Tail Bindu*

were changed in all cases. The parameters of *Tridosha* estimation were also taken into the account while summarizing the results in all the 40 cases. It was invariably found that this *Mutra tail bindu pariksha* (MTBP) which was in practice in early period of Ayurveda may be assessed on a large scale so as provide more and more conformity on the topic. It is a non-invasive, cost effective diagnostic criteria therefore needs detailed further studies to validate this diagnostic tool comparing with other prognostic tools. In comparison of established conventional methods for diagnosis and prognosis value, this test appears to be easier, simple and cost effective thus can be used for primary diagnosis and prognostic features.

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