



## "UTILITY OF MUTRA PAREEKSHA IN CLINICAL PRACTICES"

**Dr. Savita B Padashetti**

Professor And Head Department Of Basic Principles Shri B M K Ayurveda Mahavidyalaya, A Constituent Unit Of KLE Academy of Higher Education & Research, Belagavi, Karnataka, India

**Dr Manjula B Karlwad**

Professor Department Of Kaya Chikitsa Shri Jagadguru Gavisiddheshwar Ayurvedic Medical College And Hospital Koppal.

## KEYWORDS :

## DEFINATION OF URINE

## According To Modern

- Urine is a liquid by product of metabolism in humans which is excreted from the body through the urethra.

## According To Ayurveda

- Mutra is the ahara mala which is produced as a result of Ahara Parinama.
- Function attributed to Mutra is Kledavahana. That is to remove the excess of kleda.
- Mutra is considered as Mala as it has got the property of Maleenikarana. Both healthy as well as diseased state of the body is reflected by Prakruta and Vaikruta Mutra.

## Properties Of Normal Urine

- Quantity- normal quantity passed in 24 hours is about 1500cc generally voided during the day or at the most, the normal ratio of day urine to night is 4:1.
- Ph- normally urine is slightly acidic to litmus due to presence of acid sodium phosphate, it becomes alkaline on standing due to decomposition (conversion of acid phosphate into alkaline phosphate)
- Colour- pale yellow or amber
- Odour- mildly aromatic due to presence of volatile fatty acids.
- Specific gravity- 1.005-1.030

## According To Ayurveda

- Mutra Pramana- is mentioned as 4 Anjali (Ca Sh 7/15). Predominance of aap mahabutha and 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.
- Varna- resembles kupa jala/ Avivarnam, i.e., not having pathological color. It refers to normal pale yellow color of urine (Ka. Su. 28).
- Gandha - Only Acharya Kashyapa has mentioned about normal Gandha of urine. According to him, normally urine is Natigandhi, i.e., an odor which is not irritating (Ka. Su. 28)
- Ghanatwa - Normal urine is Drava, Sara, and Laghu (Ch. Sh. 7/94).

## Normal constituents of the urine

- Total solids excreted in normal urine per day is about 50gms of which 20gms are voided as inorganic and about 30gms as organic constituents.

| A. Inorganic constituents: | Output pre day |
|----------------------------|----------------|
| 1. Chlorides               | 10-12 gms      |
| 2. Phosphates              | 2-3gms         |
| 3. Sulphates               | 1.5-2gms       |
| 4. Oxalates                | 0.015gms       |
| 5. Sodium                  | 4gms           |
| 6. Potassium               | 2gms           |
| 7. Calcium                 | 0.2gms         |

| 8. Other minerals        | In traces      |
|--------------------------|----------------|
| B. Organic constituents: | Output pre day |
| 1. Urea                  | 25gms          |
| 2. Ammonia               | 1gms           |
| 3. Uric acid             | 0.5gms         |
| 4. Creatinine            | 1.5gms         |
| 5. Purine bodies         | 1-2gms         |

## Clinical Examination Of Urine

## According To Modern

- Interrogation
- Physical examination
- Chemical analysis

## According To Ayurveda

- Prashna Pariksha
- Darshana pariksha
- Sparshana pariksha

## Interrogation/ Prashna Pariksha

## According To Modern

- A. Interrogation- particularly inquire into family history, personal history, past history.

## B. Symptoms

|            |           |              |      |
|------------|-----------|--------------|------|
| Haematuria | Polyuria  | Oliguria     |      |
| Dysuria    | Frequency | Incontinence | Pain |

## According To Ayurveda

## A. Prashna Pariksha-mutravaha srotodusti karanas.

- Mootrita udaka bhakshya stree sevanaat.
- Mutra nigrahaat
- Ksheena
- Abhikshata

## B. Mutravah Srotodusti Laxanas-

- Ati srushtam
- Ati baddham
- Prakupitam
- Alpam alpam
- Bahalam
- sashulam

## Collection Of Urine

## According To Modern

- Males**- urine passed into clean glass vessel is sufficient for ordinary tests.
- Female**- a catheter specimen is preferable to exclude contamination from vaginal discharge.
- For Diabetes**- a 3 hour post-prandial urine is desirable.
- In Nephritis**- a morning specimen should be examined.

## According To Ayurveda

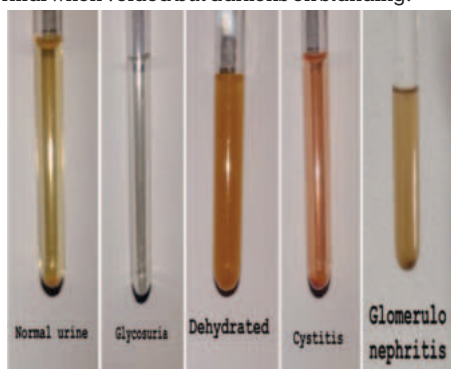
- Time Of Urine Collection:** All texts have stated that urine collection should be done in the morning while Yogaratanakara and Vangasena have specified that the

time should be when four Ghatikas are left in the last Yama of the night. This period on calculation comes to be about 1 h 36 min before sunrise.

- **Patra For Urine Collection:** Various Patras have been described for urine collection by the texts as – glass or bronze Supatra and Shveta Kachamaye Patra. Urine after collection has been to be properly covered with a cloth.
- **Collection Of Midstream Urine:** Midstream urine has to be collected for examination discarding the first and the last part.

#### Physical Examination Of Urine According To Modern Alteration In The Color Of Urine:

1. Pale
2. High colored
3. Yellowish
4. Yellowish- green
5. Reddish smoky or brownish
6. Pinkish
7. Orange
8. Port wine
9. Greenish
10. Blackish
11. Cloudy
12. Milky
13. Opalescent
14. Blue
15. Normal when voided but darkens on standing.



#### Darshana Pariksha Of Mutra

- **Mutra Chakshu Pariksha:** Mutra varna pariksha for Dosha and doshaprakopa

| Dosha prabhava on mutra | Mutra varnadi guna                       |
|-------------------------|------------------------------------------|
| Vata dosha              | Pandur varna                             |
| Pitta dosa              | Rakta varna                              |
| Kapha dosa              | safen                                    |
| Vata prakopa            | Nilam, ruksha                            |
| Pitta prokapa           | Pita, aruna, tailasam                    |
| Kapha prakopa           | Snigdha, kamal jal tulya                 |
| Rakta prakopa           | Ushna, rakta varna                       |
| Pitta-vata prakopa      | Dhumjalbh(dhum-mishrit jal sam) ushna.   |
| Vata-kapha prakopa      | Shweta, budbudabham                      |
| Kapha-pitta prakopa     | Rakta, avilata                           |
| Sannipataja             | Mishra varna, jeernajwara sadrush pitam. |

#### Darshana Pariksha Of Mutra Cont...

- **Mutra Chakshu Pariksha:** Mutra varna Pariksha in different vyadhi:

| Mutra rupa                   | Vyadhi                   |
|------------------------------|--------------------------|
| Avila mutra                  | Prameha .                |
| Anavil mutra                 | Prameha nivriti .        |
| Accham mutra                 | Udakameha .              |
| Sikta in mutra               | Sikta meha .             |
| Sandrata in mutra            | Sandrameha .             |
| Bhasmodaka pratikash         | Mutrashukra, mutraghata. |
| Shankh churnavat/gorochanvat | Mutrasada, mutraghata.   |

#### Physical Examination Of Urine According To Modern Cont...

- Consistency – generally transparent with no deposits.
  - If cloudy, it may be due to presence of mucus, pus, bacteria, oxalates, urates or alkaline phosphates. If the turbidity has a pinkish color, it is due to salts of uric acid.
- Darshana pariksha of mutra cont...

#### Mutra Vishesh Rupa:

| Mutra rupa                   | Vyadhi                   |
|------------------------------|--------------------------|
| Avila mutra                  | Prameha .                |
| Anavil mutra                 | Prameha nivriti .        |
| Accham mutra                 | Udakameha .              |
| Sikta in mutra               | Sikta meha .             |
| Sandrata in mutra            | Sandrameha .             |
| Bhasmodaka pratikash         | Mutrashukra, mutraghata. |
| Shankh churnavat/gorochanvat | Mutrasada, mutraghata.   |

#### Physical Examination Of Urine According To Modern Cont...

- Odour –mildly aromatic due to presence of volatile fatty acids. On standing the urine is decomposed and has an ammoniacal smell. A cloudy urine with an ammoniacal smell suggests pyelitis or cystitis. In ketosis the urine may have the smell of rotten apples due to the presence of actone.
- Mutra Gandha Pariksha-
- Normal gandha of the mutra is mutragandha.
- This can be altered in various disease condition. Nighandha mutra is present in udakameha [Ashtanghridyam, Nidansthanm, Chap 10 Verse 8-16]
- Vidgandha mutra is found in Vidvighata Mutraghata [Madhvakara's Madhav Nidanam, Chap 31, Verse 19-20] .
- Madhugandh mutra is present in madhumeha.
- Amragandha mutra also found in manjishta meha.
- Rasana Pariksha of mutra:
- In context to the prameh Acharya charaka has described that mutre abhidhavantati pipilikasca i.e. crawling of ants towards the urine due to presence of sharkara in mutra. [Ashtanghridyam, Nidan Chap 10, Verse 39] .
- Amla rasa mutra in Amla meha, kshararasa in kshara meha [Ashtanghridyam Nidan 10/14 page 254].
- Madhur rasa in madhumeha and ikshumeha are the diagnostic features of the respective prameha.
- With help of modern urine chemical examination the rasa of the mutra can be identified by the anumana praman.
- By urine glucose test we can confirm the madhur rasa, like wise amla rasa and kshara rasa of the mutra can be indentify by the testing the PH of the urine. If ph less than 7 then it is amla rasa or if the ph of the urine is found more than 7 then it is kshara rasa can be confirmed.

#### Chemical Analysis Of Urine With Interpretation

**Chlorides-** chief inorganic constituent of norml urine. Daily excretion 10-12gms.

- Diminished in-
- fevers
- vomiting
- severe diarrhoea
- excessive sweating
- during diuretic therapy
- cushing's syndrome
- primary aldosteronism
- chronic nephritis.

**Phosphates-** found in alkaline urine as a cloudy precipitate.

- Daily excretion is about 2gms.
- They are found in excess in vegetarians.
- Increased in nervous diseases.
- Considerably diminished in renal disorders.
- Fresh urine contains deposits of phosphates indicates an infection of urinary tract.

**Sulphates-** daily excretion is 2gms.

- Increased in fevers in general.
- Increased in conditions where there is increased protein metabolism.

**Oxalates**- daily excretion 0.015gms.

- Increased on taking certain vegetables such as cabbage, spinach and rhubarb.
- Best seen under microscope as envelope like crystals and also as dumb bells.

**Organic constituents** of the urine are mostly nitrogenous substances whose total output is 30gms/day of which 85% is voided in form of urea.

**Urea**- daily excretion 25gms.

- Increased in excessive protein intake, fevers, diabetes, convalescence, phosphorus and arsenical poisoning.
- Diminished in starvation, CKD, Liver destruction.

**Ammonia**- daily excretion-1gm

- Increased in ketosis, such as in advanced diabetes.
- Delayed chloroform poisoning.
- In severe vomiting of pregnancy.
- In those conditions where there is failure to synthesis urea in the body as in liver cirrhosis.

**Uric Acid**- daily excretion 0.5gms

- Excess in urinary passages may lead to gravel/stone formation.
- Increased by intake of food containing nucleo-proteins.
- Increased when ever a large destruction of nucleins is going on in the body as in myeloid leukaemia, acute fevers, resolving pneumonia, acute yello atrophy and other acute destructive diseases of liver.
- Increased during X-RAY treatment, after attack of gout.
- Diminished during an attack of gout and during quinine administration.

**Creatinine**- daily output 1.5gms.

- Increased in pneumonia, typhoid and tetanus.
- Decreased in anaemia, leukaemia, thyrotoxicosis, advanced degeneration of the kidneys and liver, muscular atrophy.

**Purine Bodies**- daily output 1-2gms

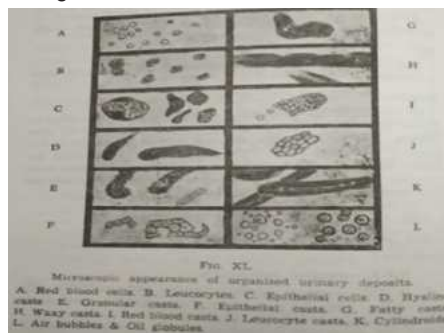
Increased just as uric acid- in conditions associated with increased destruction of nucleins as in leukaemia etc.

• **Abnormal constituents-**

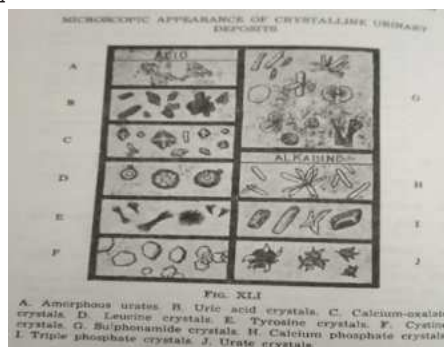
1. **Proteins**- Bence-Jone's protines are found in myeloma, leukaemia, osteomalacia, nephritis with high BP and oedema.
2. **Sugar**- DM
3. **Acetone** – in diabetic patients a progressive increase in acetone is a grave prognostic sign. Also present in starvation, toxæmic vomiting of pregnancy, high ketogenic diet and chloroform poisoning.
4. **Aceto**- Aceti acid- typically present in diabetes along with acetone.
5. **Blood**-
6. **Bile Pigments**- obstructive or infective jaundice.
7. **Bile acid**-
8. **Indican** – increased in intestinal obstruction, cholera, typhoid, lack of bile in the intestine, conditions like intestinal putrefaction.
9. **Chyle**- parasitic infection wuchereria bancrofti.
10. **Pus** – bacterial urinary tract infection, sepsis, older people with pneumonia.
11. **Urobilin** – toxic necrosis of liver, haemolytic and pernicious anemia, nearly absent in obstructive jaundice.

**Microscopic urine examination**- use sediment after centrifuging the urine.

1. **RBC**- Signifies haematuria
2. **WBC**- pyelitis, cystitis, urethritis and non- catheter specimen in female.
3. **Epithelial Cells**- not much significant, coming from bladder.
4. **Cast** – significant of renal disease.



- Epithelial Casts**- chronic inflammation of the prostate, toxæmias, poisoning by heavy metals and in amyloid disease.
- Blood Cast**- typically present in acute nephritis.
- Granular Casts**- commonly present in sub acute and chronic parenchymatous nephritis.
- Hyaline Casts**- present in normal urine. Frequently seen in chronic nephritis, nephrosis, congestive heart failure, eclampsia, dehydration and diabetic coma.
- Fatty Casts**- sclerotic diseases of the kidney and nephrosis.
- Waxy Casts**- amyloid disease of the kidney, advanced stages of glomerulonephritis and myelomas.
- Bacteria.
- Ova and parasites.
- Crystals.



- Uric Acid**- reddish brown in appearance. Their presence suggests a stone in urinary tract or abnormal uric acid metabolism as in gout.
- Urates** – brick coloured. Found in urine during fever.
- Phosphates** – present only in alkaline urine. Found in excess in neurasthenia, osteitis fibrosa and in disorders that give rise to alkalosis.
- Oxalates** – excess intake of veggis like tomato, spinach etc, presence in fresh urine indicates calculi
- Carbonates** – calculi

**Sparshana Pariksha**

Freshly collected Mutra should be examine by thermometer to know the Ushana/sheet Sparsha of mutra. In sheet Meha and Udak Meha the freshly collected urine temperature is comparatively less.

Acharya Yogaratnakar have described a specialized, scientific and systematic method of examination mutra which have a great prognostic value in Ayurveda.

**Taila Bindu Pareeksha**

Mutra pariksha vidhi should be carried out after the sunrise in

a natural light on a vidhivata collected urine sample. Mutra should be taken in a kanch patra(glass dish) or kansya patra(bronz dish) or mrutta patra (earthan dish) in a sufficient amount. A drop of tila taila is dropped in mutra with the help of trina kashta on the surface of the urine. Then the movement and the behavior of the taila bindu is observe.

अथातः संप्रवक्ष्यामि मूत्रस्य च परीक्षणम् येन विज्ञातमात्रेण रोगचिह्नं प्रकाश्यते // १ //

निशान्त्ययामे घटिकाचतुष्टये उत्थाप्य वैद्यः किल रोगिणं च / मूत्रं धृतं काचमये च पात्रे सूर्योदये तत्सततं परीक्षेत् // २ //

### By Spreading Nature Of The Oil

- If inserted oil spreads quickly over the surface of urine, that disease is Sadhya (curable).
- If the oil does not spread it is considered as Kashta sadhya (difficult to treat).
- If the dropped oil directly goes inside the urine and touches the bottom of the vessel, then it is regarded as Asadhya (incurable).
- In another text. it is mentioned that if the oil does not spread and remains as a droplet in the middle of the urine the disease is considered incurable.

विकासितं तैलमथाऽशु मूत्रे साध्यः स रोगी न विकासितं चेत् / स्यात्कष्टसाध्यस्तलगे त्वसाध्यो नागार्जुनैव कृता परीक्षा //

## Picture : Quick



- If the oil spreads in the direction of Purva (east) – then the patient gets relief from the disease.
- If the oil spreads in the south direction, the individual will suffer from jwara (fever) and gradually recovers.
- If the oil spreads in the northern direction, the patient will definitely be cured and become healthy.
- If the oil spreads towards the west, he will attain Sukha (happy) and Arogya (healthy).
- If the oil spreads towards the Ishanya (Northeast), the patient is bound to die in a month's time.
- If the oil spreads in the direction of Purva (east) – then the patient gets relief from the disease.
- If the oil spreads in the south direction, the individual will suffer from jwara (fever) and gradually recovers.
- If the oil spreads in the northern direction, the patient will definitely be cured and become healthy.
- If the oil spreads towards the west, he will attain Sukha (happy) and Arogya (healthy).
- If the oil spreads towards the Ishanya (Northeast), the patient is bound to die in a month's time.

## Picture : North



- It is a good prognosis if the oil creates the images of Hamsa (swan), Kamala (lotus), Chamara (chowri composed of the tail of Yak). Torana (arch), Parvata (mountain) elephant, camel, tree, umbrella and house.
- If the Taila attains the shape of a fish, then the patient is free of dosha and the disease can be treated easily.
- If the drop of the Taila attains the shape of Valli (creeper), Mudanga (a kind of drum), Manushya (human being), Bhandra (pot), Chakra (wheel) or Mriga (deer) then the disease is considered as the Kashtasadhya (difficultly curable).
- If the spreading oil creates the shapes of tortoise, buffalo, honey-bee, bird, headless human body, Astra (instrument used in surgery, like knife etc), Khanda (piece of body material) physician should not treat that patient as that disease is incurable.
- If the shape of the drop of Taila is seen as four-legged, three-legged, two-legged that patient will die soon.
- If the shape of the drop of Taila is seen in the shape of Shastra (sharp instruments), Khadga (sword), Dhanus (bow), Trishulam (type of weapon with three sharp edges), Musalayudham (pestle), Shrugala (jackal), Sarpa (snake), Vrishchika (scorpion), Mushika (rat), Marjara (cat), arrow, Vyaghra (tiger), Markata (monkey) or Simha (lion), then it is understood that the patient will die soon.
- The main determinant of urine surface tension is bile salt concentration. Presence of bile salts in urine will lower the surface tension. As Bile is an emulsifying agent it helps insoluble fat to slowly mix with water till it becomes a homogenous mixture. This is the reason, why oil produces different shapes on the surface of urine.

### Picture : Chalinivat



### Picture : Shrugala (jackal)



### Dosha Involvement Based On Shape Of Bindu

- The shape of Bindu resembles Sarpakara (snake shape) in Vataja Vikara.
- Chatrakara (umbrella) in Pitta.
- Mukta (pearl shape) in Kaphaja Vikara.

सर्पाकार भवेद्वाताच्छत्राकारं तु पित्ततः / मुक्ताकार बलासात्स्यादेतन्मूत्रस्य लक्षणम् // २२ //

Due to the change in the constituents of urine sample there may be variations in movement, shape of Taila. Hypothesis made in order to explain the basis of procedure & reason for Taila to show such variations in Mutra are as follows.

## Picture : Chamara



### Collection Of Urine

- First passed early morning urine sample in empty stomach is collected as this urine will be concentrated. During day time due to consumption of fluids & food, urine may get diluted and may give false picture about the subjects health. To avoid the contamination by discharges & other particles Madhyadhara (Mid stream) of Mutra is selected.

Time interval between collection and performing the Mutra

**Pareeksha.**

- As it causes the deterioration of chemical & cellular components like decrease in glucose levels due to bacterial growth, lysis of red blood cells, decomposition of casts, alkalinity increases as conversion of urea to ammonia by action of bacteria, much gap should not be given between the collection & examination of urine. As the examination requires adequate light, so it is mentioned to perform it after the sunrise.

|       |                                                                                                 |                                 |
|-------|-------------------------------------------------------------------------------------------------|---------------------------------|
| STYLE | SUDATION,THERAPEUTIC EMESIS(VAMANA), THERAPEUTIC PURGATION(VIRECHANA), THERAPEUTIC ENEMA(VASTI) | NATURAL URGES,LACK OF EXERCISE. |
|-------|-------------------------------------------------------------------------------------------------|---------------------------------|

**Selection Of Trina & Taila**

- Selection of Trina is just to make a minimal quantity of Taila Bindu. As there were no availability of dropper or micropipettes. Scientifically we can explain the selection of Taila here, as density of Taila is lesser than urine which has a composition of 93-97% of water, organic compound & dissolved ions. Further there is an interface tension between the dissimilar liquids and since they are non polar molecules the decrease in miscibility will increase the interface thickness. This will help Taila to produce various changes on the surface of urine.

**Chikitsa : A. Single Formulations In Renal/ Ureteric Calculus**

| Sl no | Aushadha kalpana     | AUSHADHA KALPANA | MATRA   | ANUPANA | REFERENCE           |
|-------|----------------------|------------------|---------|---------|---------------------|
| 1     | Gokshura bija churna | churna           | 3gms BD | HONEY   | N.A PART-1 PAGE 212 |
| 2     | KULATTHA             | CHURNA           | 3gms BD | TAKRA   | A.S SU.7            |
| 3     | VARUNA MULA KWATHA   | KWATHA           | 30ML BD | WATER   | N.A PART-1 PAGE 96  |

**Compound Formulations**

| Sl no | Aushadha kalpana   | AUSHADHA KALPANA | MATRA    | ANUPANA     | REFERENCE                          |
|-------|--------------------|------------------|----------|-------------|------------------------------------|
| 1     | GOKSHURADI GUGGULU | VATI             | 500MG BD | WATER MILK  | AFI, PART-1 5.3                    |
| 2     | CHANDRAPRABHA VATI | VATI             | 500MG BD | WATER       | S.S MA.K 7 <sup>TH</sup> CHAPTER   |
| 3     | VARUNADI KWATHA    | KWATHA           | 30ML BD  | 30ML BD     | C.D 34/29                          |
| 4     | SWETA PARPATI      | PARPATI          | 250MG BD | BUTTER MILK | S.Y.S ASMARI MUTRAKRICHRA ADHIKARA |

**Pathyapathy (Do's And Donts)**

|                       | PATHYA (DO'S)                                                                   | APATHYA (DON'TS)                                                       |
|-----------------------|---------------------------------------------------------------------------------|------------------------------------------------------------------------|
| CEREALS               | OLD RICE, BARLEY                                                                | -                                                                      |
| PULSES                | KULATTHA, GREEN GRAM(MUDGA)                                                     | BLACK GRAM                                                             |
| FRUITS AND VEGETABLES | WHITE GOURD MELON(KUSHMANDA)GINGER(ADRAKA), LEAFY VEGETABLES, DRUM STICK(SIGRU) | BRINJAL, TOMATO, SPINACH                                               |
| OTHERS                | -                                                                               | INCOMPATIBLE, ACIDIC, CONSTIPATING, HEAVY AND DISTENDING ITEMS OF FOOD |
| LIFE                  | UNCTION,                                                                        | SUPPRESSION OF                                                         |