

LIMITATION OF TAILA BINDUPARIKSHA IN CRITICALLY ILL PATIENTS**BV Prasanna¹, Nagaraj S², Subramanya P³, Mahesh Hirulal⁴**¹Professor and Former HOD ²Professor and HOD ³Assistant Professor ⁴P.G. scholar Dept of RogaNidan, SDMCA, Udupi, Karnataka, India**ABSTRACT**

Ashtavidhpariksha (8 Sets of Examination) are contribution of Ayurveda towards examination of patient. *Mutrapariksha (Urine Examination)* is one among them which plays an important role in diagnosis and prognosis of disease. *Mutrapariksha (Urine Examination)* gives an idea of *dosha* involved, disease and prognosis of disease. Especially *Tailabindupariksha (Oil drop examination)* helps in diagnosis of disease and also in predication of prognosis. *Tailabindupariksha (Oil drop examination)* is one of observations practiced in the medieval period and used as diagnostic and prognostic tool. However in the modern era diagnostic methods have significantly changed and the art of ancient methods have become almost obsolete. Study was undertaken with the following objectives: 1) Validity of *Tailabindupariksha (Oil drop examination)* in prognosis of critically ill Patients. 2) Comparison of prognostic criteria in critically ill patients between *Ayurveda* methods and the modern methods of assessment. 3) Standardization of *Tailabindupariksha (Oil drop examination)*. **Outcome:** Comparing the observations of both Group-A and Group-B there is no significant changes in spreading and splitting time of oil drop. The range of normal, fast and slow spreading and splitting time of oil drop cannot be made by this study because of inconsistency distribution of data. There are no significant changes in area covered by oil drop when compared between both groups. The different directional movements told in classics like towards east, west etc. are not matched with any sample of this study. Maximum of oil drop took the circular shape. Remaining shapes did not match with any shapes of classical explanations. It is concluded that there is no significant resemblance of observations in *Tailabindupariksha (Oil drop examination)* of critically ill patients to the classical explanation of *Tailabindupariksha (Oil drop examination)*. Many factors like treatment interventions, collection of urine, preservation, timing, method of test may have influenced on results of *Tailabindupariksha (Oil drop examination)*.

Keywords: *Tailabindupariksha (Oil drop examination)*, critically ill.**INTRODUCTION**

Ayurveda explains about prognosis by many aspects like *sadhyaadh-yathaoofvyadhi, arista lakshana (Fatal signs and symptoms), ojokshaya* etc. *Trividhpariksha(3 sets of examination), Dashavidhpariksha(10 sets of examination), Dvadashpariksha(12 sets of examination)* and *Astavidhpariksha(8 set of*

examination) are different tools for diagnosis and prognosis of disease. Prognosis of disease mainly depends on available treatment protocol at given time.

Assessment of prognosis is needed to facilitate the clinical decision making for choice of proper treatment. The predic-

tion of prognosis helps in patient and family education and counseling.

Tailabindupariksha (Oil drop examination) is a technique added to the system of Ayurveda after *Samhitakala* (after 12 AD) and became obsolete in the present era. No explanation about *Tailabindupariksha* (Oil drop examination) in ancient texts like *Charakasamhita*, *Sushruthsamhita*, *AstangaHrudaya* is questioning the utility of *Tailabindupariksha* (Oil drop examination). The description of *Tailabindupariksha* (Oil drop examination) gives the idea of diagnosis and prognosis of disease by behaviors of *Tailabindu* like shapes movements etc. The present studies were done with the main intentions to see the utility of *Tailabindupariksha* (Oil drop examination) in critically ill patients and compare the prognostic criteria of Ayurveda and contemporary medical system.

OBJECTIVES OF THE STUDY

1. Validity of *Tailabindupariksha* (Oil drop examination) in prognosis of critically ill Patients.
2. Comparison of prognostic criteria in critically ill patients between Ayurveda methods and the modern methods of assessment.
3. Standardization of *Tailabindupariksha* (Oil drop examination).

CONCEPT OF TAILA BINDU PARIKSHA

The wise physician should collect urine in morning. The mid-stream urine has to be collected in *kachapaatra* (Glass vessel), avoiding the first stream and last stream of urine. Then he has to wait for 4 *Ghatika* (about 2 hours). After the sun rise a drop of oil has to be dropped in to urine by use of a *Truna* (Grass). Then carefully he has to observe the behavior of oil, movement of oil and shapes of oil^{1,2,3,4}. With this he can make the diagnosis and predict the prognosis.

Prognosis by movement of oil drop^{1,2,3,4}

If the oil spreads fast then disease is curable. If it don't spread then it is difficult to cure and if oil drop sinks in the urine then it is incurable.

Indication of dosha by different shapes^{1,2,3,4}

In *vata* dosha vitiation urine color will be *neela* Varna and oil drop shows the movement like snake. In *pitta* dosha vitiation urine color will be *peeta* or *rakta* Varna, oil drop will give shape like *Chathra* (umbrella). In *kapha* dosha vitiation urine will be like water and oil drop will show the shape like pearl.

Indications by different directions^{1,2,3,4}

When oil is dropped it may move into different direction, which will indicate the prognosis. If oil drop moves to east then patient will get relief. If oil spreads to south direction person will become healthy after a course of *jvara* (fever). If it moves to north, then definitely person will become free from disease. If oil spreads towards west then person will get *sukha* (Happy) and *aarogya* (Health).

If the oil drop moves to *Eshaanya* (North-East) then person will die in a month. If oil moves to *aaganeya* or *nairuthya* (South-West) and if oil drop splits then person will die definitely. If oil drop moves to *vaayavya* (North-West) then also person will die.

Indications by different shapes^{1,2,3,4}

When oil is dropped in to urine sample it may show some shapes which will indicate the prognosis. If oil drop takes the shapes of *kurma* (tortois), buffalo, headless body, split body, *shastra* (surgical instrument), *khadga* (sword), *dhanus* (bow), *trishula*, *shrugala* (jakkle), *sarpa* (snake), *vrischika* (scorpion), *mushika* (Rat), *Marjara* (cat), *vyaghra* (tiger), *markata* (monkey), *simha* (lion), four, three or two legged

animal then it indicate incurability of disease. If oil drop shows shapes like *hamsa*(swan), lotus, *chamara*, *torana*, *parvata* (mountain), elephant, tree, umbrella and house then person can be cured.

Diagnosis on colour of urine^{1,2,3,4}

In *ajirnatandulodhak* like urine will be seen, in *navinajvaradhumravarna*, in *vatapittajvaradhuma* and water like urine, in *vatakaphajjvarashwetha*, in *kapha pitta jvararakta* colour urine will be seen.

Bhoota dosha^{1,2,3,4}

If oil drop takes the shape of *chalini* then it is indication of *kula dosha*(genetical disorder). If it takes the shape of human being or skull then person should be considered as affected by *bhoota dosa*.

Apache II Scoring System⁵

The APACHE II system is the most commonly used SOI scoring system in North America. Age, type of ICU admission (after elective surgery vs. nonsurgical or after emergency surgery), a chronic health problem score, and 12 physiologic variables (the most severely abnormal of each in the first 24 hour of ICU admission) are used to derive a score. The predicted hospital mortality is derived from a formula that takes into account the APACHE II score, the need for emergency surgery, and a

weighted, disease-specific diagnostic category. Updated versions of the APACHE scoring system (APACHE III and APACHE IV) have been published. APACHE III is derived from a larger database than APACHE II and utilizes a daily clinical update protocol to provide daily modification of predicted mortality. APACHE IV uses a modified statistical model of logistic regression; it is the most recently released version of this scoring system.

METHODOLOGY

It is a Clinical observational study. 50 healthy male volunteers were taken as group-A and 50 patients who are suffering from critical illness were selected as group-B

Instrumentations

A standard instruments and procedure is used throughout study.

- Shape and size of *patra*- Circular, glass Petri-dish of 8 inch
- Volume of urine- Mid stream urine 200ml
- Size of oil drop- 12 micro liter
- Height from which oil is dropped- 1 cm above the surface of urine
- Time of *Taila bindupariksha*(Oil drop examination)-

Sample no	Collection time	Procedure time
1	4-4.30 AM	At sun rise as per <i>panchanga</i> (Calender)
2	8AM	10 AM
3	12 noon	2PM
4	4 PM	6 PM

Preparations of healthy volunteer and patient

A day before procedure, explanation and instructions are given to healthy volunteers and are asked to avoid protein rich diet, roots specially beet root, alcohols, vitamin and protein supplements. At night they are

asked to take sufficient quantity of water. After voiding urine for every sample volunteers are again asked to take normal quantity of water. They are instructed to collect mid-stream urine each time.

Most of critically ill patients are catheterized. Hospital nurses and patient attenders

are instructed to continue input methods as per advice of consultant. No modifications are done in input like water intake, vitamins and protein supplementations. The catheter cleanliness is also seen, if it is too old and with sedimentation new catheter is inserted. Before 3 to 4 hours of collection of urine catheter is clamped. Catheters are released and avoid the first steam urine. Middle stream urine is collected for *Taila-bindupariksha(Oil drop examination)*.

Procedure

Urine will be kept for settlement in Petri dish. 12 micro liters of *Tilataila(Sesame oil)* is taken in pipette and pipette is fixed to standard height with a help of a stand. A drop of *tilataila (Sesame oil)* is dropped at center of Petri dish and observations are noted.

Observations

Spreading time-It is the time taken for oil to spread on surface of urine. Stop watch is started exactly at the time of dropping oil drop and noted up to settlement of a particular shape.

Splitting time-It is the time taken by oil drop to split after a particular shape.

Area covered- Area covered by oil is noted with the background diagram. The dia-

gram is drawn as a multiple square boxes of 0.5cm. Area is noted from center of Petri dish up to maximum area covered by oil drop.

Directional movement- The direction of movement of oil drop is noted with help of compass box.

Shape- The shape of oil is noted as circular or ill defined. Shape resembling to any object is also noted.

Precautions

Some precautions are taken while doing *Taila bindupariksha(Oil drop examination)*.

To avoid interference of air *Taila-bindupariksha(Oil drop examination)* is carried out in closed room and fans are switched off.

Horizontal calibration is done to see the uniformity of ground level.

The instruments like Petri dish and urine containers are sterilized by hot air oven time to time.

Observations

1) **Distribution of 50 Healthy volunteers and 50 critically ill patients according to the urine colour**

Table no: 1: Group-A: Healthy volunteers

Urine Colour	Total Tests(200)	%	Test at sun rise(50)	%	Test at 10Am (50)	%	Test at 2Pm (50)	%	Test at 4Pm (50)	%
Yellow	12	6%	7	14%	3	6%	2	4%	0	0%
Pale yellow	178	89%	36	72%	47	94%	46	92%	49	98%
Dark yellow	10	5%	7	14%	0	0%	2	4%	1	2%

Table no: 2: Group-A: Critically ill patients

Urine Colour	Total Tests (200)	%	Test at sun rise(50)	%	Test at 10Am (50)	%	Test at 2Pm (50)	%	Test at 4Pm (50)	%
Yellow	80	40%	4	8%	21	42%	26	52%	29	58%
Pale Yellow	79	39.5%	27	54%	19	38%	16	32%	17	34%
Dark yellow	41	20.5%	19	38%	10	20%	8	16%	4	8%

Among 200 urine samples of 50 healthy volunteers, maximum of 89% urine colour was pale yellow.

Among 200 urine samples of 50 critically ill patients, maximum of 40% urine colour was yellow.

2) Distribution of 50 healthy volunteers and 50 critically ill patients according to spreading time of tailabin-du(oil drop).

Table no: 3: Group A: Healthy volunteers

Spreading Time	Total Tests (200)	%	Test at sun rise(50)	%	Test at 10Am (50)	%	Test at 2Pm (50)	%	Test at 6Pm (50)	%
1-10sec	28	14%	8	16%	5	10%	8	16%	7	14%
11-20 sec	42	21%	11	22%	10	20%	10	20%	11	22%
21-30 sec	91	45.5%	21	42%	25	50%	23	46%	22	44%
31-40 sec	38	19%	10	20%	10	20%	9	18%	9	18%
41-50 sec	1	0.5%	0	0%	0	0%	0	0%	1	2%

Table no: 4: Group B: Critically ill patients

Spreading Time	Total Tests (200)	%	Test at sun rise(50)	%	Test at 10Am (50)	%	Test at 2Pm (50)	%	Test at 6Pm (50)	%
1-10 sec	40	20%	11	22%	8	16%	11	22%	10	20%
11-20 sec	44	22%	9	18%	13	26%	11	22%	11	22%
21-30 sec	90	45%	26	52%	21	42%	22	44%	21	42%
31-40 sec	25	12.5%	4	8%	7	14%	6	12%	8	16%
41-50 sec	1	0.5%			1	2%				

Among 200 Tailabindupariksha(Oil drop examination)of 50 healthy volunteers showed the maximum of 45.5% showed spreading time between 21 to 30 seconds. In maximum of 42%, 50%, 46% and 44% same spreading time was noted at tests at time of sun rise, 10AM, 2PM and 6PM respectively.

In critically ill patients maximum 45% of them spreading time is observed between 21 to 30 seconds. In maximum of 52%, 42%, 44% and 42% same spreading time was noted at tests at time of sun rise, 10AM, 2PM and 6PM respectively.

3) Distribution of 50 healthy volunteers and 50 critically ill patients accord-

ing tosplittingtimeofTialabindu(oil drop).

Table no: 5: Group-A: Healthy volunteers

Splitting Time	Total Tests(200)	%	Test at sunrise (50)	%	Test at 10Am (50)	%	Test at 2Pm (50)	%	Test at 6Pm (50)	%
1-10 sec	3	1.5%	1	2%	0	0%	0	0%	2	4%
11-20 sec	24	12%	7	14%	4	8%	7	14%	6	12%
21-30 sec	26	13%	4	8%	9	18%	5	10%	8	16%
31-40 sec	18	9%	4	8%	4	8%	7	14%	3	6%
41-50 sec	49	24.5%	13	26%	14	28%	12	24%	10	20%
51-60 sec	31	15.5%	11	22%	8	16%	5	10%	7	14%
61-70 sec	20	10%	5	10%	3	6%	6	12%	6	12%
71-80 sec	25	12.5%	5	10%	6	12%	6	12%	8	16%
81-90 sec	4	2%	0	0%	2	4%	2	4%	0	0%

Table no: 6: Group-B: Critically ill patients

Splitting Time	Total Tests (200)	%	Test at sunrise (50)	%	Test at 10Am (50)	%	Test at 2Pm (50)	%	Test at 6Pm (50)	%
1-10 sec	1	0.5%	1	2%	0	0%	0	0%	0	0%
11-20 sec	22	11%	7	14%	4	8%	7	14%	4	8%
21-30 sec	24	12%	4	8%	7	14%	7	14%	6	12%
31-40 sec	19	9.5%	3	6%	5	10%	4	8%	7	14%
41-50 sec	46	23%	13	26%	10	20%	13	26%	10	20%
51-60 sec	43	21.5%	14	28%	10	20%	7	14%	12	24%
61-70 sec	23	11.5%	3	6%	6	12%	6	12%	8	16%
71-80 sec	17	8.5%	4	8%	6	12%	5	10%	2	4%
81-90 sec	5	2.5%	1	2%	2	4%	1	2%	1	2%

Among 200 Tailabindupariksha of 50 healthy volunteers in a maximum of 24.5% oil drop splits within 41-50seconds.In maximum of 26%, 28%,24% and 20% oil drop were splits within 41-50 seconds of tests at sun rise,10AM,2PM and 6PM respectively.

Among the 50 critically ill patients in a maximum 23% of splitting time is observed between 41 to 50 seconds. Maxi-

imum of 28%, 20% and 24% splitting time is observed between51 to 60 seconds at time of sun rise, 10AM and 6PM respectively. Test at 2PM showed maximum i,e 26% splitting time between 41 to 50 seconds.

4) Distribution of 50 healthy volunteers and 50 critically patients according to area covered by tailabindu.

Table no: 7: Group-A: Healthy volunteers

Area covered	Total Tests(200)	%	Test at sun rise (50)	%	Test at 10Am (50)	%	Test at 2Pm (50)	%	Test at 6Pm (50)	%
2cm	2	1%	0	0%	0	0%	1	2%	1	2%
2.5 cm	2	1%	0	0%	1	2%	1	2%	0	0%
3 cm	15	7.5%	9	18%	3	6%	1	2%	2	4%
3.5 cm	14	7%	6	12%	2	4%	3	6%	3	6%
4 cm	31	15.5%	7	7%	9	18%	6	12%	9	18%
4.5 cm	27	13.5%	8	16%	7	14%	.7	14%	5	10%
5 cm	32	16%	5	10%	11	22%	.8	16%	8	16%
5.5 cm	11	5.5%	2	4%	2	4%	5	10%	2	4%
6 cm	28	14%	2	4%	7	14%	8	16%	11	22%
6.5 cm	9	4.5%	2	4%	2	4%	2	4%	3	6%
7cm	8	4%	0	0%	3	6%	3	6%	2	4%
7.5 cm	4	2%	2	4%	1	2%	0	0%	1	2%
8 cm	12	6%	7	14%	0	0%	3	6%	2	4%
8.5 cm	2	1%	0	0%	1	2%	1	2%	0	0%
9 cm	2	1%	0	0%	1	2%	0	0%	1	1%
9.5 cm	0	0%	0	0%	0	0%	0	0%	0	0%
10 cm	1	0.5%	0	0%	0	0%	1	2%	0	0%

Table no: 8: Group-B: Critically ill patients

Area covered	Total Tests (200)	%	Test at sun rise (50)	%	Test at 10Am (50)	%	Test at 2Pm (50)	%	Test at 6Pm (50)	%
2cm	2	1%	1	2%	0	0%	0	0%	1	2%
2.5 cm	0	0%	0	0%	0	0%	0	0%	0	0%
3 cm	6	3%	1	2%	0	0%	2	4%	3	6%
3.5 cm	10	5%	4	8%	3	6%	3	6%	0	0%
4 cm	13	6.5%	4	8%	5	10%	2	4%	2	4%
4.5 cm	24	12%	9	18%	6	12%	6	12%	3	6%
5 cm	29	14.5%	5	10%	8	16%	6	12%	10	20%
5.5 cm	11	5.5%	1	2%	3	6%	5	10%	2	4%
6 cm	33	16.5%	8	16%	7	14%	8	16%	10	20%
6.5 cm	9	4.5%	1	2%	1	2%	3	6%	4	8%
7cm	14	7%	3	6%	6	12%	2	4%	3	6%
7.5 cm	17	8.5%	3	6%	6	12%	4	8%	4	8%
8 cm	19	9.5%	8	16%	2	4%	4	8%	5	10%
8.5 cm	6	3%	1	2%	1	2%	2	4%	2	4%
9 cm	0	0%	0	0%	0	0%	0	0%	0	0%
9.5 cm	0	0%	0	0%	0	0%	0	0%	0	0%
10 cm	7	3.5%	1	2%	2	4%	3	6%	1	1%
2cm	2	1%	1	2%	0	0%	0	0%	1	2%

Among 200 Tailabindupariksha of 50 healthy volunteers in a maximum of 16% oil drop was covered the area of 5cm. In maximum of 18%,16%, 16% and 20% oil drop were covered the area of 3cm,5cm,5cm and 6 cm each, and 6cm at sun rise,10AM,2PM and 6PM respectively.

Among 200 Tailabindupariksha of 50 critically ill patients in a maximum of 16.5% oil drop covered the area of 6cm. In maximum of 18%, 22%,16% and 22%oil drop were covered the area of 4.5 cm, 5 cm,6 cm and 6cm at sun rise,10AM,2PM and 6PM respectively

5) Distribution of 50 healthy volunteers and critically ill patients according to directional of movement of tailabindu(oil drop).

Table no: 9: Group-A: Healthy volunteers

Group-BCritically ill patients

Direction	No of Tests(200)	Percentage
Uniform	194	97%
Irregular	6	3%

Among 200 Tailabindupariksha(Oil Drop examination)of 50 healthy volunteers,in a maximum of 97% oil drop had uniform spread..

Among 200 tailabindupariksha(Oil Drop examination)of50 critically ill patients,in a

Table no: 10: Group-A: Healthy volunteersGroup-B Critically ill patients

Shape	No of Tests(200)	Percentage
Circular	194	97%
Ill de-fined	6	3%

Among 200 Tailabindupariksha(Oil drop examination)of 50 healthy volunteers, maximum of 97% oil drop took circular shape.

Among 200 Tailabindupariksha(Oil drop examination)of 50 critically ill patients,

Direction	No of Tests(200)	Percentage
Uniform	169	84.5%
Irregular	31	15.5%

maximum of 84.5% oil drop had uniform spread.

6) Distribution of 50 healthy volunteers and 50 critically ill patients according to shape of tailabind(Oil drop).

Shape	No of Tests(200)	Percentage
Circular	169	84.5%
Ill defined	31	15.5%

maximum of 84.5% oil drop took circular shape.

7) APACHE-II Physiology score wise distribution of 50 critically ill patients

Table no: 11 Group-B Critically ill patients

Score	No of patients	Percentage
0	7	14%
1	5	10%
2	11	22%
3	10	10%
4	8	16%
5	4	8%
6	4	8%
7	1	2%

8) Glasgow coma scale wise distribution of 50 critically ill patients

Table no: 12 Group-B Critically ill patients

Score	No of pts	Percentage
<3	10	20%
4-7	10	20%
8-10	6	12%
>11	24	48%

9) Total APACHE-II Score wise distribution of 50 critically ill patients

Table no: 13 Group-B Critically ill patients

Score	No of pts	Percentage
1-10	5	10%
11-20	23	46%
21-30	22	44%

DISCUSSION

Urine color:

Urine colour mainly depends on urobilinogen, Normal urine color varies from pale yellow to dark yellow. In critically ill patients maximum 40% yellow color urine is observed. The IV fluids, electrolyte supplements, diuretics and multivitamin injections will change the urine color. Urine color and volume are major indicators of hydration of tissues and renal functions.

Spreading time:

It is told that if the oil drop spreads fast then disease is curable. If it does not spread then it is difficult to cure and if oil drop sinks in the urine then it is incurable. Even though there is no range for fast and slow spreading, this study shows that there is no significant change in spreading time of *Tailabindupariksha* (Oil drop examination) between healthy volunteers and critically ill patients groups.

Splitting time: Among 200 *Tailabindupariksha* (Oil drop examination) of 50 healthy volunteers maximum of 24.5% showed splitting time between 41 to 50 seconds. In maximum of 26%, 28%, 24% and 20% same spreading time was noted at tests at time of sun rise, 10AM, 2PM and 6PM respectively.

In critically ill patients maximum 23% of splitting time is observed between 41 to 50 seconds. Maximum of 28%, 20% and 24% splitting time is observed between 51 to 60 seconds at time of sun rise, 10AM and 6PM respectively. In 26% test at 2PM showed splitting time between 41 to 50 seconds. This study shows that there is no significant change in splitting time of *Tailabindupariksha* (Oil drop examination)

between healthy volunteers and critically ill patients groups.

Area covered by tailabindu (Oil drop): Among 200 *Tailabindupariksha* (Oil drop examination) of 50 healthy volunteers in maximum of 16% oil drop was covered the area of 5cm.

Among 200 *Tailabindupariksha* (Oil drop examination) of 50 healthy volunteers in maximum of 16.5% oil drop covered the area of 6cm.

There is no consistency for area covered by oil drop, which ranged from 2cm to 10cm so data cannot be generalized.

Direction of movement of tailabindu (oil drop): When oil is dropped at centre of Petri dish it will spread to peripheral area uniformly, if it spreads more towards one direction or if oil drop shifts to other direction from centre is noted as irregular. Among healthy volunteers 97% and in critically ill patients group 84.5%, it is uniform directional spread. The different directional movements told in classics like towards east, west etc don't match with any sample of this study.

Shape of tailabindu (oil drop): When oil is dropped at centre it will take circular shape after spread. Different shapes explained in classic are not observed in this present study. Among healthy volunteers group 97% *tailabindu* (oil drop) took circular shape and in critically ill patients group 84.5% took the circular shape. Remaining shapes not matched with any shapes of classical explanations.

CONCLUSION

- It can be concluded that there is no significant resemblance of observations in *Tailabindupariksha* (Oil drop

examination)of critically ill patients to the classical explanation of *Taila-bindupariksha*(*Oil drop examination*). Many factors like treatment interventions, collection of urine, preservation, timing, method of test may have influenced on results of *Tailabindupariksha*(*Oil drop examination*).

- The assessment of *dosha, dushya, srothas, rogamarga, ojas, jnanendriya, karmendriya*and*arishtalakshana* in critically ill patients holds good even in present scenario.
- The contemporary trend in assessment of critical illness is mainly inclined towards physical examinations, biochemical parameters, invasive and non-invasive techniques, which help for better prediction of prognosis and for prompt interventions.

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