

A CLINICAL STUDY ON THE MANAGEMENT OF PANDUROGA WITH THE YOGA ‘YOGRAJ’

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ABSTRACT

Panduroga is a very well known and dreadful disease since ages which strikes children, young and old alike. It is therefore essential to find out effective and harmless treatment of Pandu. Abundant has been depicted in various Ayurvedic classics by Acharyas about its etiopathogenesis, signs and symptoms and about its management. According to the therapy of choice for Panduroga, the yoga ‘Yograj Rasayana’ was administered in 20 patients of Panduroga, selected for the clinical study, on the basis of classical symptoms of Panduroga as described in our Ayurvedic texts. Evaluation of overall effect of therapy reveals that significant improvement was observed on general conditions of the patients as majority of drugs having rasayana properties.

KEYWORDS: Pandu, Yograj, Rasayana.

INTRODUCTION

AYURVEDA is the name which Indians give to their science of medicine. **AYUS** means life and **VEDA** means to know or attain. Ayurveda balances and rejuvenates an organism reducing its susceptibility and empowering its immunity to prevent new diseases from developing. Ayurveda the most indigenous system of medicine propagated treatment of various illnesses.

‘**Panduroga**’ has been described in minute details in the ancient Ayurvedic texts- Bruhatrayai as well as Laghutrayi. **In Charak Samhita**, Pandu Roga has been described in Sutra -Sthana in the Chapter "Ashtodariya Adhyaya"^[1] as well as in Chikitsa- Sthana 16th Chapter "Panduroga"

Roga Chikitsa".^[2] Acharya Charak emphasized that Pandu is a disease of Rasavaha Srotas. He has mentioned Pandu in Santarpanjanya Vyadhi also.^[3]

Here by Santarpana, we may take overeating, specially of rich but imbalanced diet. This imbalanced diet through may be rich in fat but deficient in vitamins and other minerals, may cause Anaemia or Pandu roga.

Acharya Sushruta has mentioned Pandu Roga in Uttar-tantra Adhyaya - 44, "Pandu Roga Pratishedhanam Adhyaya".^[4] He considered Pandu as a Raktavaha-Srotodusti disease. **Acharya Vagbhata** has described Pandu in Nidan Sthana 13th Chapter "Pandu Roga-Shopha- Visarpa Nidan"^[5] and in Chikitsa Sthana 16th Chapter, "Pandu Roga Chikitsa."^[6]

In Madhav Nidana the description of Pandu Roga is in 8th Chapter "Panduroga- Kamla - Kumbhkamaladi Nidan".^[7] **In Sharangdhar Samhita:** Purva Khand 7th Adhyaya.^[8] **In Bhavprakash :** Madhyam Khand 8th Adhyaya.^[9]

In Ayurvedic classics, the description of Pandu-Roga is available in three forms i.e. Pandu as a disease, Pandu as a complication, Pandu as a sign or symptom. Signs and symptoms such as Panduta, Mandagni, Daurbalya, Hridadravatvam, Akshikutashotha^[10] etc. are so often observed in such patients that such clinical feature in combination are considered the cardinal features of Panduroga.

Panduroga can be termed as Anaemia in modern terminology. Anaemia may be diagnosed with confidence when the haemoglobin concentration is lower than the level considered normal for the person's age/ sex group. It is estimated that about 30% of the world's population of 5000 million people are anaemic. Anaemia may be caused not only by a deficiency of iron but by other conditions also. **Iron Deficiency Anaemia (IDA)** is the most prevalent nutrition problem in the world. At greatest risk are young children and women of reproductive age group especially pregnant and lactating women.

The key role that haemoglobin plays in transporting oxygen to the tissues account for the diminished work capacity and physical performance of persons with a diminished concentration of haemoglobin. If left untreated, it may progress to severe fatal complications. Thus it has stood out as a major silent killer among all diseases at present.

The aim of Ayurveda is to relieve the mankind from the ailments. Many drugs like Amalaki, Guduchi, Pippali, Shilajitu, Triphala, Loha Bhasma etc. have been used for its treatment by our learned Acharyas. For the purpose, according to Chikitsa Sutra, 'YOGRAJ'^[11] has been selected for the clinical study. 'YOGRAJ' would be given with reference of Charaka Samhita Chikitsa Sthana Pandurogadhikara- 16/80- 86 and come out with the possibilities of eradicating this great rampant.

MATERIALS AND METHODS

For the present study, patients from OPD and IPD of Government Akhandanand Ayurved College/ Hospital, Ahmedabad were selected. Those patients having Pandu as an independent disease and not as purvarupa, rupa or upadrava were taken into consideration. Patients were drawn by random sampling technique irrespective of age, sex, caste, religion and profession. 20 patients of Pandu fulfilling the diagnostic criteria were selected for the present study.

An extensive temporal profile showing signs and symptoms of Pandu including dosha, dushya, strotas, pariksha for assessment of general health status of the patient was prepared. Before and after treatment a detailed physical systemic examination was carried out. Haemoglobin estimation as well as other investigations were carried out to exclude other pathologies. Haemoglobin level below 10 gm% was also kept as main diagnostic criteria for selection. They were advised to visit the hospital every week for regular checkup and to assess the effect of therapy. Diet related restrictions and advises based on Ayurvedic Classics were followed strictly.

With the reference of Ch. Chi. 16/ 80- 86, a yoga named 'YOGRAJ' was selected for research purpose. The contents are: (1) Plant materials: Haritaki, Bibhitaki, Amalaki, Sunthi, Maricha, Pippali, Chitraka, Vidanga (2) Mineral materials: Shilajitu, Raupya Makshika Bhasma, Suvarna Makshika Bhasma, Lauhabhasma (3) Other: Mishri & Madhu. Among them the plant materials are 1-1 part each, mineral materials are 5-5 parts each. Mishri is of 8 parts and Madhu is added as per the requirements. The formulation was prepared in Gujarat State Co-operative Ayurvedic Pharmacy, Ahwa, Dang, Gujarat; as per the instructions of the reference, in the form of vati each of 500 mg. The concerned pharmacy was directed to adopt the methodology laid by Acharya Sharangdhara to prepare vati.^[12] The patients were advised for 6 gms per day intake in three divided doses, i.e. 4 tablets thrice a day with milk as anupana. The properties of Dravyas of 'YOGRAJ' are illustrated in Table 1.

Criteria for Assessment

The assessment of the result was made on the basis of improvement in clinical findings as well as laboratory investigations which were repeated after the completion of treatment also. Such improvements were assessed by adopting the following scoring method.

1. Panduta

	Symptoms	Score
1	Absent	0
2	In any two of these	1
3	In any three of these	2
4	In any four of these	3
5	In any five of these	4

2. JWARA

	Symptoms	Score
1	Absent	0
2	Occasional	1
3	Daily Once	2
4	Constant	3

3. HATANALTVA

	Symptoms	Score
1	Person feels hunger at proper time	0
2	Feeling hunger at second aharakala but not before that	1
3	Feeling no hunger at any time	2

4. ANNADWESHA

	Symptoms	Score
1	Absent	0
2	Dislike of touch and smell of food	1
3	Presence of hunger but dislike for food	2
4	Person refuses to take food due to sharir and mansadosha	3

5. GATRASHULA

	Symptoms	Score
1	Absent	0
2	Occasional, tolerable	1
3	Frequently, tolerable	2
4	Regular, tolerable	3
5	Regular, severe, requires medicine	4

6. SWASA

	Symptoms	Score
1	Absent	0
2	Present after heavy work, relieved soon and tolerable	1
3	After moderate work, relieved later and tolerable	2
4	After little work, relieved soon and tolerable	3
5	After little work, relieved soon and intolerable	4
6	Even in resting condition	5

7. BHRAMA

	Symptoms	Score
1	Absent	0
2	Occasional	1
3	Frequently	2
4	Regular	3
5	Constant	4

8. OTHER SYMPTOMS

	Symptoms	Score
1	Absent	0
2	Improvement	1
3	Present before treatment	2
4	No change	2

Each patients were assessed separately and percentage of score reduction in the signs and symptoms were determined by statistical calculations.

Table 2 shows clinical features found in 20 patients of Pandu. It is very clear from the table that Panduta is found in all patients.

Kopanatva is found in majority of patients i.e. 95%. Daurbalya and Pindikodwestana were found in 90% of patients each. Sadana score 85% in 20 patients. Bhrama and Nidralutva were found in 80% patients each of Pandu. Gatrashula and Agnisada were seen in 75% patients each. Hriddratva and Ayashajaswasa were found in 70% patients each. Hatprbhatva was noted in 55% patients. Alpavakatva and Swetakshitva were noted in 45% of patients each. 40% patients were suffering from the complain of Ururuka and Shunakshikuta. 35% patients had complain of Shishirdwesa. Jwara was found in 20% patients while 10% patients were reported suffering from Karnakshweda.

RESULT

The effect of therapy on individual, signs and symptoms have been assessed, as presented in Table 3. Apart from cardinal and associated ones, the signs and symptoms practically encountered have also been scored and assessed.

Table 1: The Properties of Dravyas of 'Yograj'

NO.	DRUG	RASA	GUNA	VIPAK	VIRYA	DOSHAGHATA	KARMA	ROGAGHATA
1	Haritaki (Terminalia Chebula)	Panchrasa (LavanaVarjita) Kasaya Pradhan	Laghu , Ruksha	Madhura	Ushna	Tridosahara (Visheshtaha-Vatakshamaka)	Shothahara, Shonitsthapana, Dipana, Yakruduttejaka, etc	Shotha, Shoola, Krimi, Yakrit, Jwaraetc
2	Bibhitaka (Terminalia Bellerica)	Kashaya	Laghu, Ruksha	Madhura	Ushna	Tridosahara (Visheshtaha-Kaphahara)	Shothahara, Vednasthapana, Dipana, Dhaturvardak	Shotha, Krimiroga, Raktavikara, Jwara, Rasavikaraetc
3	Amalaki (EmbllicaOfficinalis)	Panchrasa (LavanaVarjita) Amla Pradhan	Laghu, Ruksha	Madhura	Shita	Tridosahara (Visheshtaha-Pittashamaka)	Dahaprashamana, Shonitsthapana, Dipana, Anulomanaetc	Aruchi, Agnimandhya, Raktapitta, Raktavihar, Shotha, Daurbalya, Jwaraetc
4	Sunthi (ZingiberOfficinalis)	Katu	Laghu, Snigdha	Madhura	Ushna	Kaphavata-shamaka	Shitprashamana, Shothahara, Rochana, Pachana, Dipanaetc	Amavata, Shaitya, Shotha, Shitapitta, Jwaraetc
5	Maricha (Piper Nigrum)	Katu	Laghu, Tikshna	Katu	Ushna	Vatakapha-shamaka	Raktokleshaka, Lekhana, Yakruduttejak, Balya, Dipana, Krimighna, Uttejakaetc	Shotha, Shoola, Agnimandhya, Rajorodha, Shitjwaraetc
6	Pippali (Piper Longum)	Katu	Laghu, Tikshna, Snigdha	Madhura	Anushnashita	Kaphavata- Shamaka	Raktokleshaka, Dipana, Raktashodhaka, Triptighnaetc	Aruchi, Agnimandhya, Ajirna, Raktavikar, Hriddaurbalya, Kushthaetc
7	Vidanga (Embelia ribs)	Katu	Laghu, Tikshna, Ruksha	Katu	Ushna	Kaphavata- Shamaka	Krimighna, Dipana, Pachana, Raktashodhaka, Anulomanaetc	Krimiroga, Krimidanta, Kushtha, Daurbalya, Agnimandhya etc.
8	Chitraka	Katu	Laghu, Tikshna, Ruksha	Katu	Ushna	Kaphavata- Shamaka	Raktapitta, Kopaka, Lekhana, Dipana, Krimighna, Uttejakaetc	Shotha, Ajirna, Daurbalya, Dipana, Agnimandhya,

								Rajorodha, Shitjwaraetc
9	Shilajita	Tikta	Guru, Yogvahi, Snigdha	Katu	Ushna	Tridosahara	Rasayana, Balya, Jantunashaka, Chhedan, Vrishyaetc	Shothes, Shoola, Pandu, Kamala, Pliha, Mandagni, Ashmari, Unmada, Madhumehaetc
10	SuvarnaMakshikaBhasma	Madhura	Laghu	Katu	Shita	Tridosahara	Viryavardhaka, Lekhana, Rasayana, Netrahitkaretc	Panduroga, Mandagni, Prameha, Udarroga, Anidra, Kshya, BastiVikar, Kanduetc
11	RaupyaMakshika, bhasma	Amla, Eshata- Kashaya & Madhura	Laghu	Madhura	Shita	Tridosahara	Viryavardhaka, Lekhana, Rasayana, Netrahitkaretc	Panduroga, Mandagni, Prameha, Udarroga, Anidra, etc
12	LauhaBhasma	Tikta, Kashaya	Guru, Ruksha	Madhura	Shita	Kaphapitta- Nashaka	Ayudata, Dipana, Kantakaraka, Lekhana, Rasayana, Netrahitkaretc	Pandu, Shothes, Shoola, Prameha, Yakrit, Arsha, Halimakaetc
13	Madhu	Madhura Kashaya- anurasa	Laghu, Ruksha, Vishad, Yogvahi	Madhura	Shita	Tridosahara	Dipana, Lekhana, Yogvahi, Balvardhaka, Srotosuddhikara, Chhedanetc	Shosha, Raktaviha, Vibadha, Daha, Trishna, Arshaetc
14	Mishri	Madhura	Laghu, Snigdha	Madhura	Shita	Pitta Nashaka	Viryavardhaka, Vamana- nashaka, Netrahitkaretc	Raktapitta, Daha, Trishna, Vrana, Kushthaetc

Table 2. showing clinical features found in 20 patients of Pandu.

CLINICAL FEATURES	NO. OF PATIENTS	% OF INCIDENCE
Panduta	20	100
Daurbalya	18	90
Hriddravatvam	14	70
Swasa (Ayashaja)	14	70
Bhrama	16	80
Gatrashula	15	75
Pindikodwestana	18	90
Karnakshweda	02	10
Agnisada	15	75
Annadweshya	12	60
Jwara	04	20
Hatprabhatva	11	55
Shishirdweshya	07	35
Sadana	17	85
Alpavakatva	09	45
Ururuka	08	40
Gaurava	12	60
Shunakshikuta	08	40
Kopanatva	19	95
Nidralutva	16	80
Swetakshitva	09	45

The data presented in Table 2 shows the statistical analysis of the effect of 'YOGRAJ RASAYANA' on signs and symptoms of 20 patients of Pandu. Symptoms were statistically analysed on the basis of scoring given for them before and after the treatment.

Mean score of Panduta was 2.35 before treatment while it got reduced to 0.45 after treatment. 80.85% relief was noted, which was statistically highly significant ($p < 0.001$).

Maximum relief was found in Shunakshikuta i.e. 87.50% which was also highly significant ($p < 0.001$).

Table 3. showing the effect of 'YOGARAJ RASAYANA' on mean symptom score of 20 Pandu patients.

Symptoms	Mean (BT)	Mean (AT)	% Relief	SD	SE	t	P value
Panduta	2.35	0.45	80.85	0.74	0.16	14.68	<0.001
Daurbalya	2.35	0.95	59.57	1.30	0.29	08.10	<0.001
Hriddravatvam	2.10	0.65	69.04	1.30	0.29	07.20	<0.001
Swasa (Ayashaja)	1.05	0.25	76.19	0.94	0.21	05.00	<0.001
Bhrama	1.95	0.60	69.23	1.14	0.25	07.80	<0.001
Gatrashula	2.10	0.50	76.19	1.29	0.28	07.50	<0.001
Pindikodwestana	2.00	0.65	67.50	1.33	0.29	06.89	<0.001

Agnisada	1.70	0.60	64.70	0.92	0.20	8.50	<0.001
Annadweshya	2.25	0.70	68.89	0.91	0.20	11.25	<0.001
Jwara	1.00	0.40	60.00	0.85	0.19	05.26	<0.001
Hatprabhatva	1.05	0.40	61.90	1.05	0.23	04.50	<0.001
Shishirdweshya	1.75	0.90	48.57	1.61	0.36	04.86	<0.001
Sadana	1.95	0.75	61.53	0.82	0.18	10.83	<0.001
Alpavakatva	2.00	1.00	50.00	1.52	0.34	05.88	<0.001
Ururuka	1.40	0.45	67.85	1.27	0.28	05.00	<0.001
Gaurava	0.95	0.40	57.89	0.94	0.21	04.50	<0.001
Shunakshikuta	0.40	0.05	87.50	0.68	0.15	02.66	<0.001
Kopantva	1.70	0.90	47.05	1.12	0.25	06.80	<0.001
Nidralutva	2.35	0.19	61.70	1.56	0.35	06.71	<0.001
Swetakshitva	0.75	0.45	40.00	0.91	0.20	03.75	<0.01
Karnakshweda	0.90	0.25	72.22	1.25	0.28	03.21	<0.001

In Swasa and Gatrashula, 76.19% relief was noted whereas in Karnakshweda 72.22%, in Hridhravatvam, 69.04%, in Bhrama 69.23%, in Annadweshya 68.89%, in Ururuka 67.85%, in Pindikodwestana 67.50% relief was found. 64.70% relief was observed in Agnisada while 61.90% in Hatprabhatva, 61.53% in Sadana, 61.70% in Nidralutva, 60.00% in Jwara, 59.57% in Daurbalya, 57.89% in Gaurava were observed. 50.00% relief was seen in Alpavakatva, 47.05% in Kopantva, 48.57% in Shishirdweshya and 40.00% was noted in Swetakshitva. Except in Swetakshitva ($p < 0.01$), all above findings were found to be highly significant statistically ($p < 0.001$).

Table 4. shows the effect of therapy on Haemoglobin of 20 Pandu patients.

Laboratory Investigation	Mean (BT)	Mean (AT)	% Increase	SD	SE	t	P value
Haemoglobin %	8.4	9.52	13.00	0.58	0.13	6.53	<0.001

While evaluating the overall effect of therapy based on clinical features, it was found that 15% patients had complete relief, 70% patients were markedly improved, 10% patients were moderately improved, 5% patients were recorded mildly improved while none of the patients remains unchanged.

Table 5. shows the overall effect of therapy on 20 Pandu patients.

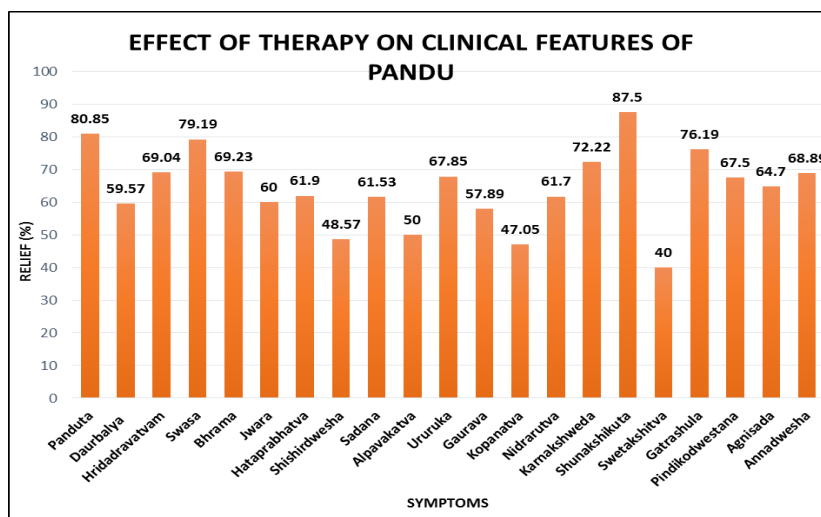
Result	No. of Patients	Percentage (%)
Complete Remission	03	15
Markedly Improved	14	70
Moderately Improved	02	10
Mildly Improved	01	05
Unchanged	00	00

DISCUSSION

Pandu/ Anaemia is a very dreadful prevalent disease in our country. It is defined as a reduction of haemoglobin below normal value. The aim of the present study was to carry out and to study the efficacy of a classical compound, with the utilization of modern parameters. Thus, a yoga- 'YOGRAJ' was selected from Charaka Samhita Ch. 16 Pandurogadhikara. It is a classical compound containing majority of rasayana drugs such as Shilajatu, Triphala, Vidanga, Lauhabhasma, Makshikbhasma etc. Hence the drug has rasayana property in dominance. Moreover, in Pandu, mainly rasa-raktadhatu dusti is predominant. Hence due to raktagnimandya, other proceeding dhatus are also affected causing ojogunakhsya, dhatushaithiliya, shithilendriya etc. Rasayana property works out on all of these symptoms and it promotes dhatvagni regulating metabolic process. Chakrapani Dutta has also stated that rasaraktadi dhatus get adequate nourishment with the the help of rasayana drug and thereby dhatus gets increased. Hence 'YOGRAJ RASAYANA' can be considered as best remedy for Pandu.

Overall Effect of Therapy: Evaluation of overall effect of therapy reveals that significant improvement was observed on general condition of the patients. Results were found highly significant ($p < 0.001$) in symptoms such as Panduta (80.85%), Daurbalya (59.57%), Hridadravatvam (69.04%), Swasa (79.19%), Bhrama (69.23%), Gatrashula (76.19%), Pindikodwestana (67.50%), Agnisada (64.70%), Annadwesa (68.89%), Jwara (60.00%), Hataprabhatva (61.90%), Shishirdwesa (48.57%), Sadana (61.53%), Alpavakatva (50.00%), Ururuka (67.85%), Gaurava (57.89%), Kopanatva (47.05%), Nidrarutva (61.70%). While significant improvement ($p < 0.001$) was observed in Karnakshweda (72.22%), Shunakshikuta (87.50%) and Swetakshitva (40.00%).

Overall result shows that complete remission was obtained in 3 patients i.e. 15% cases. Markedly improvement was observed in 14 patients i.e. 70% cases. Moderately improved group consists of 2 patients i.e. 10% of cases. Only 1 patient i.e. 5% has been found mildly improved. None of the patients have been recorded as unchanged. Thus it can be inferred that results were obtained by our therapy in the form of better statistical significance and percentage relief.



Probable Mode of Drug Action: In 'YOGRAJ', a majority of drugs are having rasayana properties. It contains rasayana drugs like Triphala, Vidanga, Pippali, Shilajatu, Lauhabhasma etc. Rasayana drug promotes dhatvagni and thus regulates the metabolic processes.

Triphala is a well-known rasayana drug.^[13] It contains Amalaki, Haritaki and Bibhitaka which all individually are also having rasayana property. Amalaki^[14] is a famous and proved drug for Pandu. Moreover in the presence of Vitamin C and ascorbic acid of Amalaki, absorption of iron is enhanced. Haritaki,^[14] as described by Acharya Charaka, is always good for health and in the same way Bibhitaki.^[14] Due to gentle and laxative effect of Triphala, constipative effect of iron metal is prevented. Hence like other iron preparations no constipative effect was observed in 'YOGRAJ'.

Mandagni is one of the major and motive cause of Pandu. 'YOGRAJ' contains deepana pachana drugs like Sunthi,^[15] Maricha,^[15] Pippali^[15] and Chitraka.^[15] Hence by the effects of these drugs, Amadosha in Pandu is prevented, mandagni and aruchi are cured and dhatvagni is promoted. Thus further progression of the disease can be stopped by correcting basic etiological factor- mandagni.

Worm infestation is also a cause for Pandu.^[16] Vidanga,^[17] the best Krimighna drug is one of the content of 'YOGRAJ' which helps in improving the worm problem. Moreover, due to its rasayana properties, it also has effect on overall symptoms of Pandu.

Shilajitu^[18] is also a well known rasayana drug. Along with iron it also supplies other mineral constituents such as manganese, sulphur etc. It has Yogvahi guna hence it increases the

properties of other drugs, with which it is mixed and taken internally. Thus it helps in formation of other dhatus also.

The empirical use of iron in the treatment of anaemia, dates from the very ancient period. Hence, Lauha bhasma^[19] in 'YOGRAJ' supplies elemental iron and improves iron deficiency. Makshika bhasma by its iron property enhances and improves rasa and rakta dhatu. Madhu^[20] and Mishri^[21] diminish the provoked pitta dosha by its madhur rasa, vipaka and shit veerya. They also make drug tasty. Apart from above properties rasayana effect of 'YOGRAJ' maintains the healthy status of all dhatus.

Thus it can be inferred 'YOGRAJ' is effective over all the conditions described in the pathogenesis of Panduroga, by the properties of its contents.

CONCLUSION

Overall effect obtained by "YOGRAJ RASAYANA" showed that best results were obtained in the form of better statistical significance and percentage relief. Complete remission was obtained in 3 patients i.e. 15% cases. Markedly improved cases were 70%, moderately improved cases were 10% and mildly improved cases 5%. No case was observed to be unchanged.

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