

**AYURVEDIC MANAGEMENT OF PREGNANCY INDUCED
HYPERTENSION - A CASE REPORT**

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ABSTRACT

Pregnancy induced hypertension is one of the major health issues in the obstetrics which is becoming one of the leading cause of maternal and perinatal morbidity and mortality. The WHO estimates that at least one woman dies every seven minutes from complications of hypertensive disorders of pregnancy. Pregnancy induced hypertension can be correlated with *Garbhini Shotha*. In this paper, a case report of patient with Pregnancy induced hypertension is discussed with successful *Ayurvedic* treatment. A 25 years old female patient came with complaints of bipedal edema, facial puffiness and generalized fatigue with raised blood pressure. The condition was diagnosed as Pregnancy induced hypertension and the *Ayurvedic* medication was administered accordingly. The patient was treated with *Ayurvedic* formulation and *Pathya* (wholesome diet) regimen. Patient was assessed with investigations for microalbuminuria before and after

treatment. *Ayurvedic* management has given her successful results within 28 days from commencement of treatment.

KEYWORDS: Pregnancy induced hypertension, *Garbhini Shotha*, microalbuminuria, *Ayurvedic* formulation.

1. INTRODUCTION

Hypertension in pregnancy is an absolute rise of blood pressure of at least 140/90 mm of Hg. The rise in both Systolic and diastolic blood pressure along with proteinuria and edema marks as an identification of Pregnancy induced hypertension. This occurs after 20 weeks of gestation in women with previously normal blood pressure. Pre-eclampsia is defined as new onset of hypertension and either proteinuria or other signs of end organ dysfunction after 20 weeks of gestation in a previously normotensive women. The incidence of pre-eclampsia in hospital practice varies widely from 5 to 15%. The incidence in primigravidae is about 10% and in multigravidae 5%.^[1] According to a study, the prevalence of hypertensive disorder of pregnancy was 7.8% with preeclampsia in 5.4% of the study population in India.^[2] Pregnancy induced Hypertension can be correlated with *Garbhini Shotha*. Amongst the eight *Garbhopadrava* as described by *Acharya Harita*, *Shotha* is considered one amongst it. *Garbhini Shotha* is caused due to *agnimandya* which is observed in last trimester due to increased *Dosha* and *mala* from *Garbha* in large quantity. If the *Garbhini* fails to expel these *Dosha* and *mala* from thier body through excretion, their accumulation results in *Garbhini Shotha*.^[3] *Acharyas* in *Bruhatrayi* or in *Laghutrayi* has not described *Shotha* as *Garbhopadrava Shotha* but has described *Shotha* in general. *Acharya Charaka* has included *Shotha* in *ashta mahagada*.^[4]

Etiopathogenesis of Pre eclampsia^[5]

1. Hypertension: The underlying basic pathology is endothelial dysfunction and intense vasospasm due to abnormal placentation ultimately affecting almost all the vessels, particularly those of uterus, kidney, placental bed and brain. Normally, there is invasion of the endovascular trophoblasts into the walls of the spiral arterioles of the uteroplacental bed. In Pre-eclampsia, there is failure of the second wave of endovascular trophoblast migration and there is reduction in the blood supply to the fetoplacental unit.

2. Edema: The cause of excessive accumulation of fluids in the extracellular tissues spaces is not clear. It might be due to increased oxidative stress leading to endothelial injury ultimately

leading to increased capillary permeability. On this basis, the leaky capillaries and decreased blood osmotic pressure are the probable explanations.

3. Proteinuria: Proteinuria is defined as urinary excretion of > 300 mg of protein in a 24 hour urine collection or urine protein-creatinine ratio of more than 0.3 mg or dipstick >1+ of random urine sample. The probable chain of event is as follows: Spasm of the afferent glomerular arterioles leading to anoxic change to the endothelium of the glomerular tuft causing glomerular endotheliosis ultimately leading to increased capillary permeability thus increased leakage of protein. Tubular reabsorption is simultaneously depressed. Albumin constitutes 50%- 60% and alpha globulin constitutes 10 -15 % of the total protein excreted in the urine.

Samprapti of Garbhini Shotha Fig. No. 1.



Garbhini Shotha Chikitsa^[6]

Internal formulations

Decoction of root of *Varshabhru* (*Punarnava*) mixed with paste of *devdaru* and *murva* or only *bhadradaru* along with honey cures *Shotha*.

Decoction of *prishnaparni*, *bala* and *vasa* relieves *Shotha*.

External Applications

Sudation with hot water should be used in *Shotha*, developing as a complication of pregnancy.

An External Application of paste made up of *chandan*, *madhuka*, *usheer*, *nagpushpa*, *tila*, *ajashringi*, *manjishtha*, root of *ravi* and *punarnava* is beneficial.

Preventive measures

1. *Garbhini Paricharya*.
2. In sixth month *Gokshur sidhha ghrita* (*Gokshura* helps to increase in *praman* of *mutra* due to this *vahan* of *kleda* occurs properly).
3. *Acharya Sushruta* has mentioned *Punarnava* as *Shotha nashaka*.

Antihypertensive Drugs used in Pregnancy^[7]

Table No. 1: Commonly used drugs in the management of Pregnancy Induced Hypertension.				
Drug	Mode of Action	Dose	Precautions	In Severe Hypertension
Labetelol	Adrenoceptor antagonist (alpha and beta blockers)	100 mg TID or QID	Avoid in Asthma, heart block, bradycardia, myocardial disease	10-20 mg IV every 10 minutes upto maximum of 300 mg IV. Maintainance dose- 40mg/hr
Nifedipine	Calcium channel blocker	10-20 mg BID	Causes tachycardia and headache	10-20 mg oral repeated in 30 minutes upto maximum dose of 240 mg/24 hr
Hydralazine	Vascular smooth muscle relaxant	10- 25 mg BID	Causes Maternal hypotension, headaches, abnormal FHR tracings	5 mg IV every 30 minute upto maximum 30 mg. Maintainance dose- 10 mg/h
Abbreviations: mg-miligrams, h-Hour				

2. MATERIAL AND METHODS

- For this paper, a case report of 25 years old female patient having signs and symptoms of bipedal edema, facial puffiness and generalized fatigue with raised blood pressure is discussed with detailed history taking.
- For this single case report, informed consent was taken in patient's language before starting the study and for publication also.
- The patient was treated with *Shamana* (pacification) with Ayurvedic oral medications and *Pathya* (wholesome diet) regimen.
- Patient was assessed with Urine examination for microalbuminuria before and after treatment. *Ayurvedic* management has given her better successful results. Symptoms subsided with normal blood pressure within 28 days.

Patient information and clinical findings

A 25 years old female patient from Alandi, Pune came to Dr. D. Y. Patil Ayurved Hospital OPD on 15/3/24 with gestational age of 24 weeks primi with signs and symptoms as shown in Table No. 1. She was advised investigations and managed on OPD basis.

Table No. 2: Chief Complaints of Patient.		
SR. NO.	CHIEF COMPLAINTS	DURATION
1.	Bipedal edema	4 to 5 days
2.	Facial puffiness	4 to 5 days
3.	Generalized fatigue	4 to 5 days

History of present complaints

Patient was alright before 4 to 5 days then she started suffering from Patient had no previous associated illness. She was diagnosed as Pregnancy induced hypertension (pre-eclampsia) *Garbhini shotha*.

Past medical / surgical / family History

Patient was not a known case of DM / HTN / IHD / Surgical history / Family history.

Menstrual & Obstetric History

Patient is primi with 24 weeks gestational age. Menarche was achieved at the age of 13 year.

General Examination

On examination, built and nourishment of patient were moderate with normal vitals. Patient had normal appetite, thirst, micturition and bowel. She had bipedal pitting type of edema with generalized fatigue.

Ashtavidha pariksha (Eight-fold Examination)

Eight-fold Examination revealed medium built, regular unsatisfactory bowel along with normal pulse, urine, tongue, speech, touch and eyes.

Systemic examinations and vitals

Systemic examinations showed raised blood pressure 160/100 mm of Hg.

Investigations

Routine investigations like CBC with ESR, Urine routine microscopic, BSL Random and C-Reactive protein were also within normal limits. Urine Albumin was done before commencing treatment and at the end of treatment.

Table No. 3: Urinary Albumin Reports.

Microalbumin/creatinine Ratio	0 Day 15/03/24	42 nd Day 24/04/2024
Albumin/microalbumin in urine	1.9 mg/dl	24.10 mg/dl
Creatinine in Urine	35.6 mg/dl	39.40 mg/dl
Albumin-Microalbumin/creatinine Ratio	5.34 microgram/mg	61.17 microgram/mg

Differential Diagnosis

- Primary Hypertension
- Gestational Hypertension

Diagnosis: Garbhini Shotha (Pregnancy induced hypertension)

On the basis of signs and symptoms (Table 2 & 3) and etiopathogenesis (Table 4) of the disease, the patient was diagnosed as *Garbhini Shotha* (Pregnancy induced hypertension).

Table No. 4: Samprapti ghatak of Garbhini Shotha.

1.	<i>Doshaj Prakruti</i>	Vata Pitta Kapha
2.	<i>Manas prakruti</i>	Rajas, Tamas
3.	<i>Aaharaj hetu</i>	Excessive salt intake, less water intake
4.	<i>Viharaj hetu</i>	Excess anger, grief, sorrow, garbha
5.	<i>Dosha</i>	Tridoshaja (all three Doshas involved)
6.	<i>Dushya</i>	Rakta (blood), Sira (veins)
7.	<i>Mala</i>	Mutra, Sweda
8.	<i>Srotas</i>	Rasavaha, Mutravaha
9.	<i>Swabhav</i>	Darun
10.	<i>Agni</i>	Jatharagni, Dhatvagni (digestive fires)
11.	<i>Srotodushti prakara</i>	Vimargagamana (Doshas moving in different directions), Sanga (obstructive pathology)
12.	<i>Udabhava sthana</i>	Vrukka, Basti and Gavini
10.	<i>Adhishtan / vyaktasthan</i>	Twak, mamsa
11.	<i>Rogamarga</i>	Madhyam rogamarga

Treatment Advised

Considering the *Samprapti* (etiopathogenesis) of Disease in this patient, following treatment plan was prescribed. The treatment was provided in the form of *Shaman Chikitsa* (Ayurvedic oral medications) shown in Table No. 5, and *Pathya* (wholesome diet).

Table No. 5: Shaman chikitsa (Ayurvedic oral medications and external applications)

SR. NO.	DRUGS	DOSE	TIME OF ADMINISTRATION	DURATION
1.	Decoction* (Devdaru, Shunthi, Punarnava and Haritaki 5gm each)	40ml BD	before meals	days

(BD- Twice a day, gm- gram, ml- mililiters)

* Contents of decoction used

Ingredients of decoction used are *Devdaru*, *Shunthi*, *Punarnava* and *Haritaki* in equal quantity that is 5 grams each.

Pathya Apathya

Patient was asked to follow proper diet regimen for further pregnancy period. Patient was advised to take *Pathya* (wholesome) diet regimen which included salt restricted diet, jawar roti and milk intake daily, green leafy vegetables and calcium rich diet, read books, use pillow under the feet while sleeping, listen to soothing music, lie down on left lateral position every 2 hourly for 15 mins.

Patient was asked to avoid raw food, salty food, pickles, papad, bakery items, restrict caffeine containing beverages like coffee, travelling, watching violent movies or series, heavy weight lifting and eating processed meat.

3. OBSERVATION AND RESULTS

After taking *Ayurvedic Formulation (Shaman Chikitsa & Pathya)*, the patient experienced significant relief in signs and symptoms. Assessment of patient was done on 0, 11th, 22nd and 42nd day which are shown in Table No. 6 according to Signs & Symptoms to Blood pressure and Investigation. Thus this study has shown that *Ayurvedic* treatment along with wholesome diet regimen proves to be fruitful and effective in Pregnancy Induced Hypertension patient along with relief in all signs and symptoms.

Table No. 6: Assessment of Patient according to Signs And Symptoms, Blood pressure and investigation.

SR. NO.	Type of assessment Signs And Symptoms & Investigation findings	0 Day (15/03/24)	11 th Day (26/03/24)	22 nd Day (06/04/24)	42 nd Day (24/04/24)	Till date 15/06/24
1.	Bipedal edema	++++	+++	+	-	-
2.	Facial puffiness	++++	+++	+	-	-
3.	Generalized fatigue	++++	+++	+	+	+
4.	Blood Pressure	160/100 mm of Hg	150/90 mm of Hg	140/80 mm of Hg	110/70 mm of Hg	110/80 mm of Hg
5.	Albumin/microalbumin in urine	1.9 mg/dl	-	-	24.10 mg/dl	29 mg/dl

4. DISCUSSION

The ingredients used in the decoction for treating this case acts as *Vata Kaphashamak* (reduces *Vata* and *Kapha Doshas*) by removing *Ama* and *Kleda* by *Agnideepan* and

Amapachan thus digesting byproducts of indigested *Garbha* contents and altered metabolism thus reducing *Garbhini Shotha* which are opposite to the etiopathogenesis of *Garbhini Shotha* (Pregnancy Induced Hypertension). Mode of action of each ingredients used are explained below.

Mode of action of contents of Decoction^[8]

- 1) *Devdaru (Cedrus deodara)* being bitter, pungent and astringent in taste; which becomes pungent after digestion, hot in potency with light and dry properties thus relieves *Ama* and *Kleda* which are the byproducts of indigestion and altered metabolism thus reducing *Garbhini Shotha*. Various researches have also proven the anti-inflammatory action and anxiolytic effect of *Cedrus deodara* thus acting as a mild anti-hypertensive and anti-inflammatory action in reducing edema.
- 2) *Shunthi (Zinziber officinalis)* being pungent in taste which becomes sweet after digestion, hot in potency with light and dry properties does *Agnideepan* and ultimately promotes the digestion of *Ama* and *Kleda* thus reducing *Garbhini Shotha*. Various researches have also proven the anti-inflammatory action of dry ginger.
- 3) *Punarnava (Boerhavia diffusa)* is sweet, bitter and astringent in taste which converts to pungent taste after digestion, hot in potency and light and dry in qualities. Due to all these *Punarnava* does *Agnideepan* and *Kledapachan* ultimately causing diuresis (*mootrala*). Thus reducing *Garbhini Shotha* and also due to diuresis acts as an anti-hypertensive.
- 4) *Haritaki (Terminali chebula)* has astringent as dominant taste amongst all 5 tastes except salty taste which converts to sweet taste after digestion, hot in potency, with light and dry qualities. It balances all the three *Doshas* and increase *Jatharagni* and *Dhatvagni* thus leading to *Amapachan*. Various researches have also proven the hypotensive and hypolipidemic action of *Terminali chebula*.

5. CONCLUSION

Ayurvedic formulation has given good results to the patient. This is a single case that got complete relief. The patient is advised to follow wholesome diet and till date patient is better. There is further scope for research on this topic.

6. CONFLICT OF INTEREST: None.

7. SOURCE OF FUNDING: None declared.

8. REFERENCES

1. Dutta D.C., edited by Konar H., textbook of Obstetrics, Jaypee Brothers Medical Publishers (P) Ltd., New Delhi, Revised Reprint 10th Edition 2023, Chapter No. 18, Hypertensive Disorders in Pregnancy, 209 to 210.
2. <https://www.nhp.gov.in>disease>preeclampsia>. (20/06/2018).
3. Tiwari P.V., Ayurvediya Prasuti Tantra evam Stri Rog, New Delhi, India, Chaukhamba Orientalia 1st Jan 2016, multilingual, Pratham Khanda Prasuti Tantra, Chapter No. 6, Garbhini Vyadhi evam Chikitsa, 284.
4. Kushwaha H.S., Mishra S., Charak Samhita. Chaukhamba Orientalia, Varanasi, India, 2018 edition , Vol 2, Chikitsasthan, Chp 12, Shlok No-6, 288.
5. Dutta D.C., edited by Konar H., textbook of Obstetrics, Jaypee Brothers Medical Publishers (P) Ltd., New Delhi, Revised Reprint 10th Edition 2023, Chapter No. 18, Hypertensive Disorders in Pregnancy, 210 to 211.
6. Tiwari P.V., Ayurvediya Prasuti Tantra evam Stri Rog, New Delhi, India, Chaukhamba Orientalia 1st Jan 2016, multilingual, Pratham Khanda Prasuti Tantra, Chapter No. 6, Garbhini Vyadhi evam Chikitsa, 284.
7. Dutta D.C., edited by Konar H., textbook of Obstetrics, Jaypee Brothers Medical Publishers (P) Ltd., New Delhi, Revised Reprint 10th Edition 2023, Chapter No. 18, Hypertensive Disorders in Pregnancy, 217.
8. Deshpande M. A., Deshpande A. P.; Dravyaguna Vijyana; Vol 2; Chaukhamba Sanskrit Pratishthan; Delhi, 2008; 367-370, 377-381, 311-315, 152-159.