GMR
The Original

# AYURVEDIC MANAGEMENT OF GRADE II HYPERTENSIVE RETINOPATHY WITH AMALTASADI NIRUHA BASTI AND TILA TAILA ANUVASANA BASTI: A CASE STUDY

**Dr. Sarala Dudhat[1], Dr. Mayuri Gopnarayan[2*], Dr. Niraj s Mishra[3], Dr.Vedangi Sawant[4]**

[1]Associate Professor Shalakya Tantra Department, R A Podar Ayu Medical College, saraladudhat63@gmail.com
Orchid Id-0009-0001-4226-6056
[2]3rd year pg scholar, Shalakaya Tantra Department, R A Podar Ayu Medical College , mayurigopnarayan37@gmail.com Orchid Id-0009-0000-5131-2790
[3]3rd year pg scholar, Shalakaya Tantra Department, R A Podar Ayu Medical College, Niru.m9270@gmail.com
Orchid Id-0009-0000-0174-3760
[4]2nd year pg scholar, Shalakya Tantra Department, R A Podar Ayu Medical College, vedsawant32@gmail.com , Orchid Id-0009-0006-4595-1397

## ABSTRACT

**Background:** Hypertensive retinopathy is an important ocular manifestation of chronic hypertension resulting from progressive retinal microvascular changes. Grade II disease is characterized by definite arteriolar narrowing and arteriovenous (AV) crossing abnormalities such as AV nicking.

**Case Presentation:** A 52-year-old male with a 4-year history of hypertension, receiving Amlodipine 5 mg, was diagnosed with Grade II hypertensive retinopathy during routine ophthalmic examination. Fundus examination revealed AV nicking and tortuosity of the retinal blood vessels. From an Ayurvedic perspective, the condition was considered in relation to Rasadi Dhatu, Rasavaha di Srotas and Tridosha involvement. The patient received **Amaltasadi Niruha Basti and Tila Taila Anuvasana Basti** for 14 days perl cycle over three cycles, while conventional antihypertensive therapy was continued.

**Outcome:** Biochemical investigations showed stable hepatic and renal parameters. Total cholesterol decreased from 210 to 160 mg/dL and triglycerides from 206 to 150 mg/dL. However, standardized post-treatment fundus findings were available; therefore, regression of retinal vascular changes cannot be conclusively established.

**Conclusion:** This case highlights an integrative Ayurvedic approach using Amaltasadi Niruha Basti and Tila Taila Anuvasana Basti as supportive management for Grade II hypertensive retinopathy. Further controlled studies with objective retinal imaging and serial blood-pressure assessment are recorded to establish efficacy.

**KEYWORDS:** Hypertensive retinopathy; AV nicking; Amaltasadi Niruha Basti; Tila Taila Anuvasana Basti; Ayurveda; Panchakarma

## 1. INTRODUCTION

Hypertension is a major chronic vascular disorder and an important risk factor for damage to multiple target organs, including the eye. Persistent elevation of blood pressure produces structural and functional changes in the retinal microcirculation, resulting in a spectrum of retinal vascular abnormalities collectively termed hypertensive retinopathy. Since the retinal vasculature can be directly visualized by fundus examination, retinal vascular changes provide an important clinical window into the microvascular consequences of systemic hypertension. Studies have also demonstrated that certain retinal vascular signs are associated with an increased risk of cardiovascular and cerebrovascular complications, emphasizing the clinical significance of recognizing hypertensive retinal changes. [1,2]

The retinal response to hypertension varies according to the severity and duration of blood-pressure elevation. Early changes include generalized and focal arteriolar narrowing, while chronic hypertension may produce structural thickening of the vascular wall, arteriolar sclerosis, arteriovenous crossing abnormalities and AV nicking. With progressive vascular injury, disruption of the blood-retinal barrier may result in retinal hemorrhages, cotton-wool spots and hard exudates, while severe hypertensive disease may be associated with optic-disc swelling. [2,3] Arteriovenous nicking occurs at retinal arteriovenous crossing sites and is related to structural changes in the retinal arteriolar wall and compression of the underlying venule. Retinal arteriolar and venular tortuosity has also been associated with chronic hypertensive vascular changes. [3,4]

The Keith–Wagener–Barker classification is one of the historically established systems for describing hypertensive retinal changes. In this classification, Grade I is characterized mainly by mild generalized arteriolar narrowing, whereas Grade II demonstrates more definite arteriolar narrowing with arteriovenous crossing changes or AV nicking. Grade III includes additional retinal hemorrhages, exudates and cotton-wool spots, while Grade IV is associated with optic-disc edema. [5] Thus, the presence of AV nicking and retinal vascular tortuosity in the present patient is clinically compatible with chronic hypertensive retinal vascular involvement.

From the Ayurvedic perspective, hypertensive retinopathy does not have a direct one-to-one equivalent in the classical disease classification. Therefore, its interpretation should be considered a conceptual clinical correlation rather than an exact nosological equivalence. The clinical manifestations may be considered in relation to Rasadi Dhatu, Rasavaha di Srotas,Tridosha involvement and the principles concerning Netra and Drishti. Rasadi Dhatu is considered important in the nourishment and physiological maintenance of body tissues. Hence, disturbance involving Rasadi dhatu and Tridosha may provide an Ayurvedic framework for understanding vascular manifestations affecting ocular tissues.

Among the therapeutic modalities of Ayurveda, Basti Karma occupies a prominent position, particularly in the management of disorders involving Tri Dosha. Classical Ayurvedic literature describes Basti as an important therapeutic modality and provides detailed descriptions of different types, indications, preparation, administration and post-procedure care. [6,7] Niruha Basti is predominantly decoction-based, whereas Anuvasana Basti employs an unctuous substance such as medicated oil. The Bastisutriyam Siddhi chapter of Charaka Samhita describes the principles and procedures of both Niruha and Anuvasana Basti, including their preparation, administration and appropriate procedural considerations. [6]

In the present case, Amaltasadi Niruha Basti combined with Tila Taila Anuvasana Basti was selected as an integrative therapeutic approach. The treatment rationale was based on the traditional principles of

Tridosha management and Rasadi dhatu regulation. Tila Taila was used as the unctuous medium for Anuvasana Basti, consistent with the traditional use of oil-based Basti in Vata-oriented therapeutic planning. Conventional antihypertensive therapy with Amlodipine 5 mg was continued throughout the treatment, recognizing that adequate systemic blood-pressure control remains fundamental in the management of hypertensive retinopathy. [2,3]

The present case describes a 52-year-old male with a four-year history of hypertension and Grade II hypertensive retinopathy, identified by AV nicking and tortuosity of the retinal blood vessels. The patient underwent three cycles of a 14-day Panchakarma-based protocol consisting of Amaltasadi Niruha Basti and Tila Taila Anuvasana Basti. The purpose of this case report is to document the clinical presentation, Ayurvedic therapeutic rationale and available clinical and biochemical observations associated with this integrative management approach. Since standardized Pre and post-treatment fundus documentation were recorded.

**Case Presentation**

A 52-year-old male patient presented for a routine ophthalmic check-up. He was a known case of hypertension for approximately 4 years and was receiving tablet Amlodipine 5 mg. On ophthalmic evaluation, hypertensive retinopathy was diagnosed as Grade II, with arteriovenous (AV) nicking and tortuosity of the retinal blood vessels. These findings are compatible with chronic hypertensive retinal

vascular change; in the commonly used Keith–Wagener–Barker system, Grade II is characterized by definite arteriolar narrowing and AV crossing/nicking changes. [1–4]

**Patient Information**

**Table 1.** Patient information.

| **Patient name** | X/Y (as recorded in the clinical note) |
|---|---|
| Age / Sex | 52 years / Male |
| Occupation | - |
| Known illness | Hypertension for approximately 4 years |
| Current conventional medication | Amlodipine 5 mg tablet |
| Reason for consultation | Routine eye check-up |
| Ophthalmic diagnosis | Hypertensive retinopathy, Grade II |
| Recorded retinal signs | AV nicking and tortuosity of retinal blood vessels |

**History of Present Illness**

**Patient information and clinical findings**

A 52-year-old man attended for a routine ophthalmic check-up. He had been hypertensive for about four years and took amlodipine 5 mg once daily.He is retired from private job. He had no documented acute visual complaint. Fundus examination showed AV nicking and tortuous retinal vessels, with no retinal haemorrhage, cotton-wool spots, hard exudates or optic-disc oedema, and a diagnosis of Grade II hypertensive retinopathy was made. Blood pressure before treatment was 130/90 mmHg. Distance visual acuity was 6/18 in each eye, improving to 6/9 with spectacles, and near vision was N8 in each eye.

Baseline and post-treatment investigations are shown in Table 2.

**Table 2. Investigations before and after Ayurvedic treatment.**

| Investigation | Before | After | Reference/interpretation |
|---|---|---|---|
| Fasting blood Glucose | 100 mg/dL | 110 mg/dL | Within/near laboratory reference shown |
| Post-prandial blood Glucose | 120 mg/dL | 126 mg/dL | Within laboratory reference shown |
| Total bilirubin | 0.3 mg/dL | 0.3 mg/dL | Within range |
| Direct bilirubin | 0.2 mg/dL | 0.2 mg/dL | Within range |
| Indirect bilirubin | 0.2 mg/dL | 0.2 mg/dL | Within range |
| AST (SGOT) | 27 IU/L | 25 IU/L | Within range |
| ALT (SGPT) | 21 IU/L | 20 IU/L | Within range |
| Total protein | 7.0 g/dL | 7.1 g/dL | Within range |
| Albumin | 4.0 g/dL | 3.9 g/dL | Within range |
| Alkaline phosphatase | 123 IU/L | 124 IU/L | Within range |
| Blood urea | 30 mg/dL | 25 mg/dL | Within range |
| Serum creatinine | 0.75 mg/dL | 0.72 mg/dL | Within range |
| Uric acid | 4.0 mg/dL | 3.9 mg/dL | Within range |
| Total cholesterol | 210 mg/dL | 160 mg/dL | Within range |
| Triglycerides | 206 mg/dL | 150 mg/dL | Before elevated; after at upper limit of supplied range |
| Blood pressure | 130/90 mmHg | 130/90 mmHg | Remained unchanged during the treatment period |

Date of the post-treatment blood sample: 13 June 2025. Laboratory reference ranges: Laboratory reference intervals provided by the institutional clinical biochemistry laboratory, supplemented where necessary by standard clinical biochemistry textbooks

**Ahara Hetu (Dietary Etiological Factors)**

- Excessive Lavana (Salty) & Amla (Sour) Rasa: High intake of salty and sour foods directly causes fluid retention (Kleda Vriddhi) and vitiates Pitta and Rakta Dhatu.[8,9]
- Katu (Pungent), Kshara (Alkaline), & Vidahi Ahara: Consumption of excessively spicy, fermented, or burning foods introduces Ushna (hot) and Tikshna (sharp) qualities into circulation, provoking Pitta and inducing inflammatory damage to the vascular endothelium.[10]
- Atisnigdha & Guru Ahara: Overconsumption of heavy, deep-fried, fatty, or fast foods impairs Dhatvagni (metabolic fire) and generates Ama (metabolic toxins). This leads to Sroto-Avarodha (vascular/microchannel obstruction) and increases peripheral resistance against Vyana Vayu.[8]
- Adhyashana & Vishamashana: Eating before previous meals are fully digested, or consuming incompatible foods (Viruddha Ahara), disturbs Jatharagni and impairs metabolic homeostasis, leading to Rakta-Dusti [11].

**Vihara & Manasika Hetu (Lifestyle & Psychological Factors)**

- Manasika Hetu (Psychological Stress): Mental stress, anxiety (Chinta), anger (Krodha), and fear (Bhaya) directly disturb Sadhaka Pitta, Prana Vayu, and Vyana Vayu. [11] Sympathetic overactivity leads to immediate neurohormonal vasoconstriction.[8]
- Ratri-Jagarana (Night Awakening): Suppressing natural sleep cycles induces Rukshata (dryness) and severely aggravates Vata Dosha, leading to sustained arterial stiffness and hypertension.[8]
- Divasvapna (Daytime Sleeping): Excessive daytime sleep promotes Kapha and Medas (adipose tissue), contributing to dyslipidemia, vessel lumen narrowing, and circulatory resistance. [8]

- Vega-Dharana (Suppression of Natural Urges): The suppression of physiological urges—particularly urine, defecation, and sleep—forces Vata into erratic reverse movement (Udavarta), heightening systemic vascular pressure. (12)

**Diagnosis**

Clinical diagnosis: Grade II hypertensive retinopathy associated with established hypertension.

The retinal findings of AV nicking and vascular tortuosity are consistent with chronic hypertensive retinal vascular remodeling. The Keith–Wagener–Barker classification places definite focal arteriolar narrowing/AV nipping in Grade II, while more advanced grades include hemorrhages, exudates, cotton-wool spots and papilledema. [1–4,13,14]

**Ayurvedic Clinical Correlation**

Hypertensive retinopathy does not have a direct one-to-one equivalent disease name in the classical Ayurvedic texts. The Ayurvedic interpretation in this case should therefore be regarded as a clinical framework rather than a claim of exact nosological equivalence. The retinal vascular changes may be considered in relation to Rasadi dhatu, Rasavahadi Srotas, Vatadi dosha involvement and the ocular structures described under Netra/Drishti. Basti is classically regarded as an important therapy for disorders involving tri dosha, and Niruha and Anuvasana Basti are described as distinct forms of Basti therapy. [5–7]

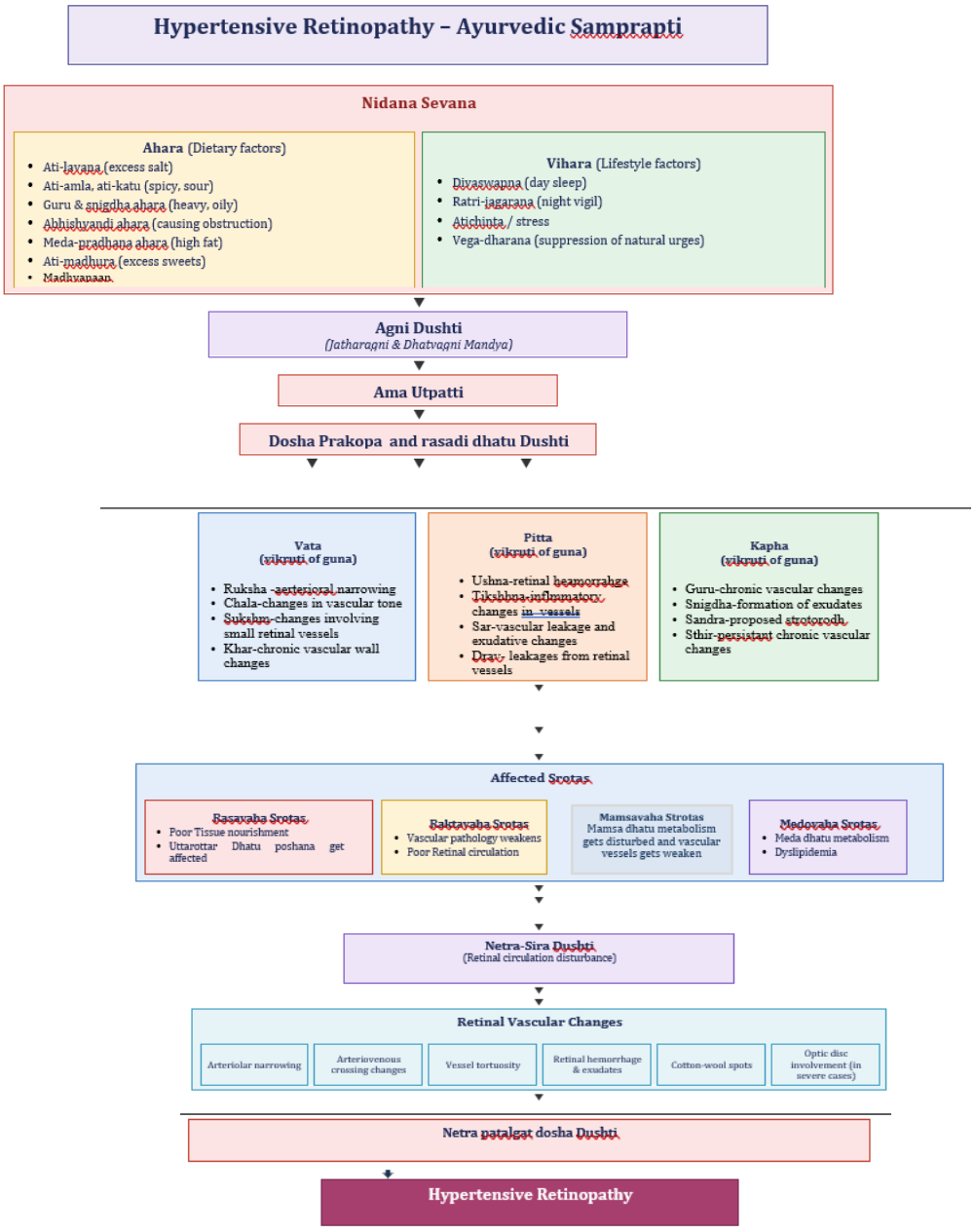



**Figure 1.** Hypertensive retinopathy – Ayurvedic Samprapti.

**MATERIAL AND METHOD**

1)Deepana-Pachana
Shankhvati 250 mg BD twice daily
Bhunimbadi Kadha 15 ml twice daily
Deepana -Pachana is given until nirama Avastha is achieved.
This initial phase aimed to restore Agni (digestive fire) and prepare the system for subsequent therapeutic interventions.

2)Amaltasadi Basti
Material used for basti-

1. Amaltas
2. Erand
3. Punarnva
4. Ashgandha
5. Karchur
6. Sariva
7. Kantakari
8. Shalparni
9. Prushnaparni
10. Gokshur
11. Bala
12. Rasna
13. Giloy
14. Devdaru
15. Madanfal
16. Pipali
17. Nagarmotha
18. Hapusha
19. Souf
20. Indradvya
21. Priyangu
22. Vacha
23. Mulethi
24. Rason
25. Saindhav
26. Madh
27. Til tel

**Table 3. Dravya used in Amaltasadi Basti with their botanical names and Rasa, Virya, Vipaka and Karma.**

| No. | Dravya | Botanical / other name | Rasa | Virya | Vipaka | Karma |
|---|---|---|---|---|---|---|
| 1 | Amaltas (*Aragvadha*) | *Cassia fistula* | Madhura | Sheeta | Madhura | *Kapha-pittahara*, *mridu virechana* |
| 2 | *Eranda* | *Ricinus communis* | Madhura | Ushna | Madhura | *Vata-kaphahara*, *shothahara*, *shoolahara* |
| 3 | *Punarnava* | *Boerhavia diffusa* | Katu, Kashaya | Sheeta | Katu | *Kapha-vatahara*, *shothahara*, *mutrala*, *rasayana*, *deepana* |
| 4 | *Ashwagandha* | *Withania somnifera* | Tikta, Katu, Madhura | Ushna | Madhura | *Vata-kaphahara*, *rasayana*, *balya*, *vajikarana* |
| 5 | *Karchura* | *Curcuma zedoaria* | Katu, Tikta | Ushna | Katu | *Kapha-vatahara*, *deepana*, *pachana*, *shothahara*, *vedanasthapana* |
| 6 | *Sariva* | *Hemidesmus indicus* | Madhura, Tikta | Sheeta | Madhura | *Raktashodhaka*, *Deepana* |
| 7 | *Kantakari* | *Solanum xanthocarpum* | Tikta, Katu | Ushna | Katu | *Shwasahara*, *kasahara*, *krimighna*, *deepana*, *shothahara*, *mutrala* |
| 8 | *Shalaparni* | *Desmodium gangeticum* | Madhura, Tikta | Ushna | Madhura | *Tridoshahara*, *grahi*, *vrishya*, *hridya* |
| 9 | *Prishniparni* | *Uraria picta* | Madhura, Tikta | Ushna | Madhura | *Tridoshahara*, *balya*, *brimhana*, *hridya*, *shothahara* |
| 10 | *Gokshura* | *Tribulus terrestris* | Madhura | Sheeta | Madhura | *Balya*, *deepana*, *bastishodhana*, *shothahara*, *anulomana*, *raktapittashamaka* |
| 11 | *Bala* | *Sida cordifolia* | Madhura | Sheeta | Madhura | *Balya*, *rasayana*, *vranahara*, *stambhana*, *vrishya* |
| 12 | *Rasna* | *Pluchea lanceolata* | Tikta | Ushna | Katu | *Deepana*, *pachana*, *vedanahara*, *kapha-vatahara* |

| No. | Dravya | Botanical / other name | Rasa | Virya | Vipaka | Karma |
|---|---|---|---|---|---|---|
| 13 | *Guduchi* | *Tinospora cordifolia* | Tikta, Kashaya | Ushna | Madhura | *Tridoshahara*, *deepana*, *pachana*, *raktashodhaka*, *rasayana* |
| 14 | *Devadaru* | *Cedrus deodara* | Tikta | Ushna | Katu | *Deepana*, *pachana*, *raktaprasadana*, *raktashodhaka* |
| 15 | *Pippali* | *Piper longum* | Katu | Anushna-sheeta | Madhura | *Deepana*, *pachana*, *rasayana*, *vrishya*, *kapha-vatahara*, *shwasahara* |
| 16 | *Nagarmotha* | *Cyperus rotundus* | Tikta, Katu, Kashaya | Sheeta | Katu | *Deepana*, *pachana*, *raktaprasadana* |
| 17 | *Hapusha* | *Juniperus communis* | Katu, Tikta | Ushna | Katu | *Deepana*, *pachana*, *mutrala*, *vatahara* |
| 18 | *Shatapushpa* (Saunf) | *Foeniculum vulgare* | Madhura, Katu, Tikta | Sheeta | Madhura | *Dushtishaktivardhaka*, *raktaprasadana* |
| 19 | *Indrayava* | *Holarrhena antidysenterica* | Tikta, Kashaya | Sheeta | Katu | *Kaphapittashamaka*, *deepana*, *raktashodhaka* |
| 20 | *Priyangu* | *Callicarpa macrophylla* | Tikta, Kashaya, Madhura | Sheeta | Katu | *Deepana*, *anulomana*, *raktashodhaka*, *raktastambhaka*, *dahashamaka*, *tridoshashamaka* |
| 21 | *Vacha* | *Acorus calamus* | Katu, Tikta | Ushna | Katu | *Kapha-vatahara*, *medhya*, *deepana*, *pachana*, *lekhaniya*, *vatanulomana* |
| 22 | *Yashtimadhu* | *Glycyrrhiza glabra* | Madhura | Sheeta | Madhura | *Tridoshahara*, *rasayana*, *vayasthapana*, *shothahara*, *vranaropana* |
| 23 | *Rasona* | *Allium sativum* | Madhura, Lavana, Katu, Tikta, Kashaya | Ushna | Katu | *Vata-kaphahara*, *balya*, *brimhana*, *rasayana*, *deepana*, *pachana*, *hridya* |
| 24 | *Madanaphala* | *Randia dumetorum* | Madhura, Tikta, Kashaya, Katu | Ushna | Katu | *Kapha-vatahara*, *vamana*, *asthapanopaga*, *deepana*, *pachana* |
| 25 | *Saindhava lavana* | Rock salt (NaCl) | Lavana | Sheeta | Madhura | *Tridoshashamaka*, *chakshushya*, *rochana*, *deepana*, *pachana*, *anulomana* |
| 26 | *Madhu* | Honey | Madhura, Kashaya | Ushna | Madhura | *Tridoshahara*, *yogavahi*, *lekhana*, *ropana*, *srotoshodhaka* |
| 27 | *Tila taila* | *Sesamum indicum* (sesame oil) | Madhura, Tikta, Kashaya | Ushna | Madhura | *Vatahara*, *balya*, *snehana*, *twachya* |

**Squence of basti administration** –

First day anusavasn basti with til tel 60 ml then alternate Amaltasadi niruh basti 650 ml and on 14th day anuvasan basti for 14 days.Total 3 cycle given.And after every cycle 14 days gap is taken.Total 70 days treatment period.

**Table 4. Clinical course, vision and fundus findings across the three Basti cycles and follow-up.**

| DATE | VISION | FUNDAL SINGN | TREATMENT GIVEN |
|---|---|---|---|
| **FIRST CYCLE OF BASTI FROM 22/03/25 TO 4/04/2025** | RT EYE- 6/18<br>LT EYE- 6/18<br>NEAR RT EYE-N8<br>LT EYE-N8<br>WITH SPECT BOTH EYES 6/9 | RT EYE-TORTOUS VESEELS++<br>LT EYE- TORTOUS VESSELS ++<br>AV NICKING++ | AMALTASADI NIRUH BASTI AND ANUVASAN TIL TEL BASTI FOR 14 DAYS IN ALTERNATE PATTERN<br>Shankhvati 250 mg BD twice daily<br>Bhunimbadi Kadha 15 ml twice daily |
| **SECOND CYCLE OF BASTI FROM 19/04/25 TO 2/05/2025** | RT EYE- 6/18<br>LT EYE- 6/18<br>NEAR RT EYE-N8<br>LT EYE-N8<br>WITH SPECT BOTH EYES 6/9 | RT EYE-TORTOUS VESEELS++<br>LT EYE- TORTOUS VESSELS ++<br>AV NICKING++ | AMALTASADI NIRUH BASTI AND ANUVASAN TIL TEL BASTI FOR 14 DAYS IN ALTERNATE PATTERN<br>Shankhvati 250 mg BD twice daily<br>Bhunimbadi Kadha 15 ml twice daily |
| **THIRD CYCLE OF BASTI FROM 17/0525 TO 30/05/2025** | RT EYE- 6/18<br>LT EYE- 6/18<br>NEAR RT EYE-N8<br>LT EYE-N8<br>WITH SPECT BOTH EYES 6/9 | RT EYE-TORTOUS VESEELS+<br>LT EYE- TORTOUS VESSELS +<br>AV NICKING+ | AMALTASADI NIRUH BASTI AND ANUVASAN TIL TEL BASTI FOR 14 DAYS IN ALTERNATE PATTERN<br>Shankhvati 250 mg BD twice daily<br>Bhunimbadi Kadha 15 ml twice daily |
| **FOLLOW UP AFTER 3rd CYCLE COMPLETION** | RT EYE- 6/18<br>LT EYE- 6/18<br>NEAR RT EYE-N8<br>LT EYE-N8<br>WITH SPECT BOTH EYES 6/9 | RT EYE-TORTOUS VESEELS+<br>LT EYE- TORTOUS VESSELS +<br>AV NICKING+ | |

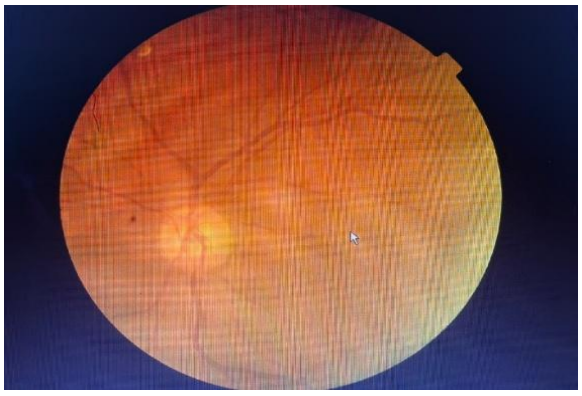


**Figure 2. Before Treatment where it shows a tourtousity of blood vessesls and Av nicking.**

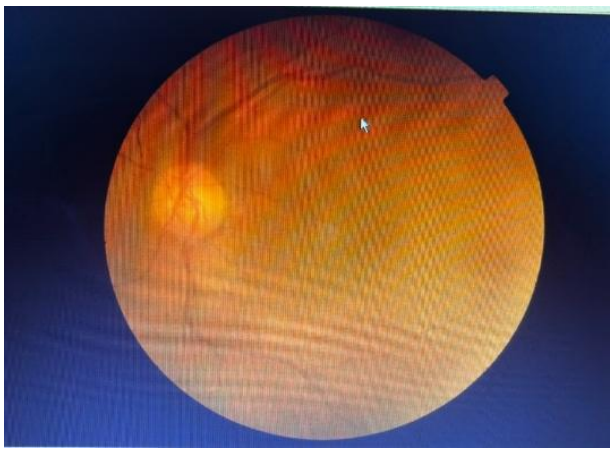


**Figure 3. After Treatment where it shows changes in fundal glow reducing th tourtousity of blood vessels,and mild chmages at Av nicking.**

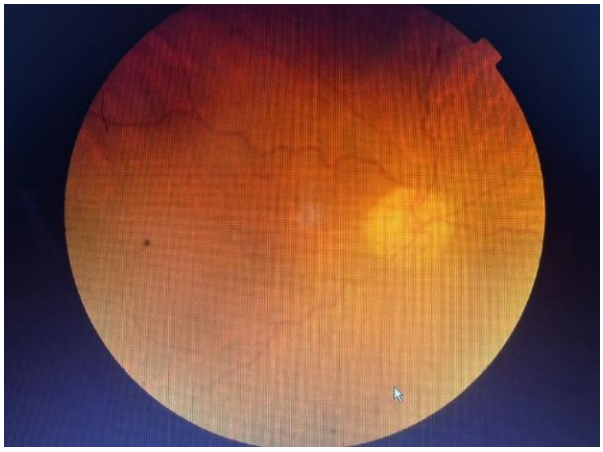


**Figure 4. Before Treatment it shows dull fundal glow,blood vessels disrupted**

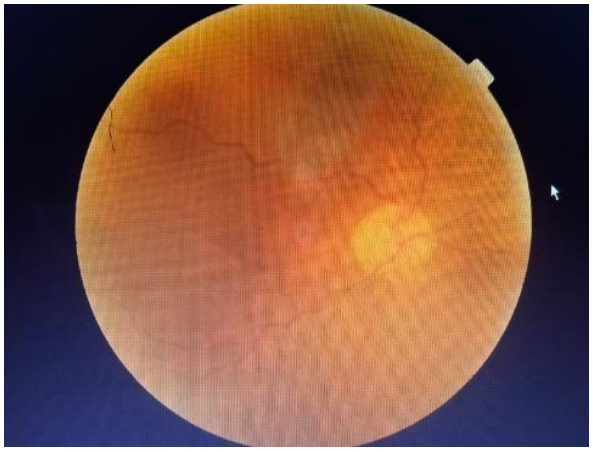


**Figure 5. After Treatment it shows changes in fundal glow and good flow at blood vessels**

**Mode of Action of Basti**

The medicated Basti was administered through the anorectal route, where the drug came into contact with the rectal and colonic mucosa. The active constituents were absorbed through the intestinal mucosa into the systemic circulation. [15] Simultaneously, stimulation of the enteric nervous system occurred, activating the submucosal (Meissner's) and myenteric (Auerbach's) plexuses. Neural impulses were transmitted through autonomic pathways to the central nervous system, including higher neurovascular regulatory centers. This neurohumoral response, together with systemic absorption of the active phytoconstituents, facilitated their circulation throughout the body. The hydrophilic and lipophilic molecules reached the ocular circulation through the bloodstream and crossed the blood-retinal barrier via transcellular and paracellular transport across the retina. Consequently, therapeutic concentrations of the drug were achieved in the retinal and choroidal tissues. [16] These pharmacological actions helped improve retinal microcirculation, reduce vascular inflammation and oxidative stress, stabilize the blood-retinal barrier, and alleviate the clinical signs and symptoms of hypertensive retinopathy.

**Mode of action of Basti**

Drug administered through anorectal route

↓

It get absorbed in intestinal mucosa

↓

Enteric nervous system is stimulated

↓

Exites mesenteric and submucosal plexus

↓

Neurotransmitter carries information to cellular CNS tissue called retina

↓

This small hydrophilic and hydrophobic molecules generated through outer and inner blood retina

↓

Hence drugs active principal transports across RPE by transcellular and para cellular routes

↓

Achieving appreciable concentration in retina

↓

Curing various types of sign and symptoms of hypertensive retinopathy

**ACTION OF AMALTASADI BASTI**

↓

Amaltasadi Basti was administered.
It contained Amaltasa, Eranda, Punarnava, Ashwagandha, Karchura, Sariva, Kantakari, Shalaparni, Prishnaparni, Gokshura, Bala, Rasna, Guduchi, Devadaru, Madanaphala, Pippali, Nagarmotha, Hapusha, Shatapushpa, Indrayava, Priyangu, Vacha, Yashtimadhu, Rasona, Saindhava Lavana, Madhu, and Tila Taila.

↓

The drugs possessed the following properties.
Tri dosha Shamaka, Deepana, Pachana, Rasayana, Raktashodhaka, Raktaprasadana, Netrya, Shothahara, Antioxidant, Anti-inflammatory, Anti-spasmodic, Vasoprotective and Anti-atherosclerotic.

↓

The following actions were produced.
Aggravated tri Doshas were pacified.
Agni was improved and Ama was reduced.
Rasadi Dhatu was purified and nourished.Microcirculation was improved.
Vascular inflammation and oxidative stress were reduced.

↓

The following vascular and tissue level effects were obtained.
Vasospasm and vascular resistance were reduced.
Sclerotic changes in retinal blood vessels were minimized.Endothelial function was protected.
Retinal tissue perfusion and oxygenation were improved.

↓

Consequently,
the signs and symptoms of hypertensive retinopathy gets reduced

**DISCUSSION-**

**Effect on Doshas**

Overall, the statistical findings suggested that Amaltasadi Basti was effective in improving retinal vascular abnormalities, particularly vascular tortuosity, which showed a statistically significant reduction. The disease involves derangement of Rasa rakatadi Dhatu. Amaltasadi Basti, prepared with herbs such as Aragvadha (Amaltas), Eranda, Punarnava, Ashwagandha, Guduchi, Bala, Rasna, Devadaru, Sariva, Kantakari, Gokshura, and others, possesses Vatahara, Pittahara, Raktaprasadana, Shothahara, Rasayana, and Srotoshodhana properties. These actions make it beneficial in correcting the underlying Ayurvedic pathogenesis of hypertensive retinopathy. [17]

Herbs such as Bala, Ashwagandha, Eranda, and Rasna nourish tissues which reduces dearranged Vatadi thereby protecting retinal neurons from degenerative changes. [18]

Sariva, Guduchi, Punarnava, Bala, and Aragvadha, which possess Pitta-shamaka and Raktaprasadana properties. Guduchi reduces inflammatory changes and oxidative stress, Sariva purifies Rakta, while Punarnava reduces edema through its anti inflammatory and diuretic actions. [19,20]

Ingredients like Punarnava, Devadaru, Kantakari, Rasna, and Pippali exhibit Kapha-reducing and Srotoshodhana properties. These herbs reduce fluid accumulation, improve vascular patency, and restore tissue metabolism and improve micro circulation.

**Effect on Dhatus**

**1**. **Effect on Rasa Dhatu** - Rasa Dhatu is the first tissue formed after digestion and is responsible for nourishment of all subsequent Dhatus. It also maintains hydration and proper circulation. In hypertensive retinopathy, impaired circulation results in defective nourishment of retinal tissues. Amaltasadi Basti improves Agni, removes Ama, and enhances formation of healthy Rasa Dhatu. Improved Rasadi circulation ensures adequate oxygen and nutrient supply to retinal cells, preventing ischemic injury and maintaining normal retinal metabolism.

**2. Effect on Rakta Dhatu** - Rakta Dhatu is the Dhatu involved in hypertensive retinopathy. Classical Ayurveda states that Rakta and Pitta have an intimate relationship. Vitiated Rakta manifests as vascular fragility, hemorrhage, congestion, and inflammatory changes. Amaltasadi Basti purifies Rakta through the action of Sariva, Guduchi, Punarnava, Aragvadha, and Bala. These herbs reduce Rakta Dushti, strengthen blood vessels, and improve capillary integrity. Healthy Rakta Dhatu restores adequate retinal perfusion, reduces vascular leakage, and minimizes progression of retinal damage.

**3. Effect on Mamsa Dhatu** - Mamsa Dhatu supports structural integrity of organs and blood vessels. Chronic hypertension weakens vascular walls and alters tissue architecture. Ashwagandha, Bala, and Guduchi strengthen

Mamsa Dhatu through their Brimhana and Rasayana actions. Improved tissue integrity protects retinal capillaries from rupture and degeneration.

**4. Effect on Meda Dhatu** - Abnormal Meda metabolism contributes to obesity, dyslipidemia, and vascular stiffness, all of which aggravate hypertension. Punarnava, Devadaru, Pippali, and Eranda improve Meda metabolism by stimulating Agni and reducing metabolic obstruction. Healthy Meda Dhatu improves vascular elasticity and decreases endothelial dysfunction.

**Effect on Lipid Metabolism**

Basti therapy demonstrated a favorable effect on the serum lipid profile, as evidenced by a reduction in serum triglyceride and total cholesterol levels after completion of treatment.

According to Ayurveda, derangement of Agni (digestive and metabolic fire) and accumulation of Ama (metabolic toxins) are the primary factors responsible for impaired dhatu metabolism. Dysfunction of rasadi Dhatu results in abnormal accumulation of lipids within the body, which can contribute to vascular disorders. Basti, particularly when administered with herbs possessing Deepana (appetite-stimulating), Pachana (digestive), Lekhana (scraping), and Medohara (lipid-reducing) properties, helps restore Agni, eliminate Ama, and normalize the metabolism of Dhatu. Consequently, improved lipid metabolism may explain the reduction in serum triglyceride and cholesterol levels observed in the study.

From a physiological perspective, Basti facilitates absorption of bioactive phytochemicals through the rectal mucosa, allowing them to enter systemic circulation while partially bypassing hepatic first-pass metabolism. The colon is richly supplied with blood vessels and autonomic nerve endings, enabling therapeutic substances to influence neuroendocrine and metabolic pathways. Several herbal ingredients commonly used in Basti formulations, such as Guduchi (Tinospora cordifolia), Punarnava (Boerhavia diffusa), Gokshura (Tribulus terrestris), Eranda (Ricinus communis), and Dashamoola, have demonstrated antioxidant, anti-inflammatory, hepatoprotective, and hypolipidemic activities in experimental and clinical studies. These pharmacological actions may contribute to improved lipid metabolism and reduction of oxidative stress associated with dyslipidemia. [19–21]

Improvement in lipid profile is particularly relevant in patients with hypertension and hypertensive retinopathy, where dyslipidemia accelerates endothelial dysfunction, vascular stiffness, and microvascular damage. Elevated triglycerides and cholesterol promote atherosclerosis, impair retinal circulation, and worsen retinal ischemia. Therefore, reduction in these parameters following Basti therapy may help improve vascular health and potentially slow the progression of retinal damage. The observed changes support the concept that Basti provides systemic benefits by improving both metabolic and vascular functions. [22]

Overall, the reduction in serum triglyceride and cholesterol levels observed after Basti therapy indicates its beneficial systemic metabolic effects. These findings reinforce the Ayurvedic principle that Basti is not merely a local therapeutic procedure but a comprehensive treatment capable of regulating metabolic processes, improving vascular health, and reducing risk factors associated with hypertensive retinopathy.

Thus, the present study suggested that Amaltasadi Basti was more effective in improving functional vascular changes than irreversible structural retinal changes.

**Before-and-After Clinical Assessment**

**Table 5.** Before-and-after clinical assessment.

| Outcome parameter | Before | After |
|---|---|---|
| Hypertensive retinopathy grade | Grade II | Grade II (follow-up fundus examination performed) |
| AV nicking | Lt eye ++ | Lt eye + |
| Retinal vessel tortuosity | Rt eye ++<br>Lt eye ++ | Rt eye +<br>Lt eye + |
| Blood pressure | 130/90 mmHg | 130/90 mmHg |
| Triglycerides | 206mg/dl | 150mg/dl |
| Total cholesterol | 210mg/dl | 160mg/dl |
| Serum creatinine | 0.75mg/dl | 0.72mg/dl |

**CONCLUSION**

This case documents the integrative management of a 52-year-old male with Grade II Hypertensive Retinopathy and established hypertension (130/90 mmHg) treated with Amlodipine 5 mg combined with three 14-day cycles of Amaltasadi Niruha Basti and Tila Taila Anuvasana Basti.

The protocol demonstrated excellent safety and metabolic efficacy, marked by a significant reduction in total cholesterol (210 to 160 mg/dL) and triglycerides (206 to 150 mg/dL) alongside renal (Serum Creatinine 0.75 → 0.72 mg/dL) and hepatic markers (SGOT/SGPT, Bilirubin) remained stable throughout, with no reported adverse events. stable hepatic and renal safety profiles.
The treatment highlights the value of Basti Karma as a safe, effecti
ve adjunctive therapy for metabolic and vascular risk reduction in chronic hypertensive patients.
To definitively prove the structural reversal of Grade II retinal microvascular changes (AV nicking and vessel tortuosity) [4,23], future studies must incorporate standardized, high-resolution pre- and post-treatment fundus photography, quantitative vessel caliber software analysis [24], and serial long-term blood pressure monitoring. [25,26]

**REFERENCES**


1. Wong TY, Mitchell P. Hypertensive retinopathy: mechanisms and interpretation. Lancet. 2004;363(9420):425-435.
2. Wong TY, Mitchell P. Hypertensive retinopathy. N Engl J Med. 2004;351(22):2310-2317. doi:10.1056/NEJMra032865.
3. Tsukikawa M, Stacey AW. A Review of Hypertensive Retinopathy and Chorioretinopathy. Ther Adv Ophthalmol. 2020;12:2515841420927673. doi:10.1177/2515841420927673.
4. Cheung CY, Zheng Y, Hsu W, Lee ML, Lau QP, Mitchell P, et al. Retinal vascular tortuosity, blood pressure, and cardiovascular risk factors. Ophthalmology. 2011;118(5):812-818.
5. Keith NM, Wagener HP, Barker NW. Some different types of essential hypertension: their course and prognosis. Am J Med Sci. 1939;197:332-343.
6. Agnivesha. Charaka Samhita, revised by Charaka and Dridhabala. Siddhi Sthana, Bastisutriyam Siddhi, Chapter 3. Varanasi: Chaukhambha Bharati Academy. The chapter specifically describes Niruha and Anuvasana Basti procedures.
7. Sushruta. Sushruta Samhita. Chikitsa Sthana, Basti-related chapter(s). Varanasi: Chaukhambha Orientalia. Classical Ayurvedic sources recognize Basti as a major therapeutic modality, particularly in Vata-oriented management.
8. Menon, M., & Shukla, A. (2018). Understanding hypertension in the light of Ayurveda. Journal of Ayurveda and Integrative Medicine, 9(4), 302–307. https://doi.org/10.1016/j.jaim.2017.10.004
9. Agnivesha. *Charaka Samhita*. Edited by Kashinath Shastri and Gorakhnath Chaturvedi. Varanasi: Chaukhambha Bharati Academy; 2009. Chikitsa Sthana, Chapter 4 (Raktapitta Chikitsa), verse 6; p. 235.
10. Agnivesha. *Charaka Samhita*. Edited by Kashinath Shastri and Gorakhnath Chaturvedi. Varanasi: Chaukhambha Bharati Academy; 2009. Chikitsa Sthana, Chapter 29 (Vatarakta Chikitsa), verses 5–8; p. 812–813.
11. Agnivesha. *Charaka Samhita*. Edited by Kashinath Shastri and Gorakhnath Chaturvedi. Varanasi: Chaukhambha Bharati Academy; 2009. Chikitsa Sthana, Chapter 29 (Vatarakta Chikitsa), verse 7; p. 812.
12. Agnivesha. *Charaka Samhita*. Edited by Kashinath Shastri and Gorakhnath Chaturvedi. Varanasi: Chaukhambha Bharati Academy; 2009. Chikitsa Sthana, Chapter 29 (Vatarakta Chikitsa), verse 10; p. 813.
13. Fraser-Bell S, Symes R, Vaze A. Hypertensive eye disease: a review. Clin Exp Ophthalmol. 2017;45(1):45-53.
14. Modi P, Arsiwalla T. Hypertensive Retinopathy. In: StatPearls. Treasure Island (FL): StatPearls Publishing; 2023.
15. de Boer AG, Moolenaar F, de Leede LG, Breimer DD. Rectal drug administration: clinical pharmacokinetic considerations. Clin Pharmacokinet. 1982;7(4):285-311.
16. Cunha-Vaz J, Bernardes R, Lobo C. Blood-retinal barrier. Eur J Ophthalmol. 2011;21(Suppl 6):S3-S9.
17. Danish M, Singh P, Mishra G, Srivastava S, Jha KK, Khosa RL. Cassia fistula Linn. (Amulthus)—an important medicinal plant: a review of its traditional uses, phytochemistry and pharmacological properties. J Nat Prod Plant Resour. 2011;1(1):101-118.
18. Mishra LC, Singh BB, Dagenais S. Scientific basis for the therapeutic use of Withania somnifera (ashwagandha): a review. Altern Med Rev. 2000;5(4):334-346.
19. Sharma P, Dwivedee BP, Bisht D, Dash AK, Kumar D. The chemical constituents and diverse pharmacological importance of Tinospora cordifolia. Heliyon. 2019;5(9):e02437.
20. Mishra S, Aeri V, Gaur PK, Jachak SM. Phytochemical, therapeutic, and ethnopharmacological overview for a traditionally important herb: Boerhavia diffusa Linn. Biomed Res Int. 2014;2014:808302.
21. Chhatre S, Nesari T, Somani G, Kanchan D, Sathaye S. Phytopharmacological overview of Tribulus terrestris. Pharmacogn Rev. 2014;8(15):45-51.
22. Mach F, Baigent C, Catapano AL, et al. 2019 ESC/EAS Guidelines for the management of dyslipidaemias: lipid modification to reduce cardiovascular risk. Eur Heart J. 2020;41(1):111-188.
23. Wong TY, Klein R, Klein BEK, Tielsch JM, Hubbard L, Nieto FJ. Retinal microvascular abnormalities and their relationship with hypertension, cardiovascular disease, and mortality. Surv Ophthalmol. 2001;46(1):59-80.
24. Ikram MK, Ong YT, Cheung CY, Wong TY. Retinal vascular caliber measurements: clinical significance, current knowledge and future perspectives. Ophthalmologica. 2013;229(3):125-136.

25. Chobanian AV, Bakris GL, Black HR, et al. Seventh report of the Joint National Committee on Prevention, Detection, Evaluation, and Treatment of High Blood Pressure. Hypertension. 2003;42(6):1206-1252.
26. Williams B, Mancia G, Spiering W, et al. 2018 ESC/ESH Guidelines for the management of arterial hypertension. Eur Heart J. 2018;39(33):3021-3104.