



## Research Article

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### EVALUATION OF THE EFFICACY OF SIRAVYADHA AND GUDUCHI SIDDHA YOGA BASTI IN THE MANAGEMENT OF VATARAKTA WITH SPECIAL REFERENCE TO GOUT

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#### ABSTRACT

Gout is a heterogeneous disorder that results in the deposition of uric acid salts and crystals in and around joints and soft tissues. Gouty arthritis comes under the purview of vatarakta. Various modalities of treatment for vatarakta have shown good outcome. A study was undertaken to evaluate the efficacy of raktamokshana by siravyadha method which is ardhachikitsa according to Sushrutaacharya and this was compared to the efficacy of Basthichikitsa which is also ardhachikitsa recommended by Charakaacharya hence a Comparative clinical randomized two groups study on 40 patients with Gout was undertaken. Patients of Group A (n=20) were subjected to siravyadha twice with an interval of 11 days and patients of Group B (n=20) were subjected to Guduchi siddha Yoga basti, completed in 8 days. Assessments were done before and after the therapy in both groups using subjective parameters - pricking pain (Toda), burning sensation (Daaha), numbness (Supti) in joints and objective parameters –serum uric acid, tenderness (Sparshaasahyatha), swelling (Shotha), discoloration (Raaga) of joints which were graded and analysed statistically. In group A the overall response of the treatment includes, 0(0%) patients showed marked response, 19(95%) patients showed moderate improvement, 1(5%) patient showed mild improvement and 0(0%) patient showed no response. In group B the overall response of the treatment includes, 7(35%) patients showed marked response, 13(65%) patients showed moderate improvement, 0(0%) patient showed mild improvement and 0(0%) patient showed no response. So Overall response was significantly more in group B (Marked response 35%) when compared to group A (0%) with P= 0.008\*\*.

**Key words-** Gout, Vatarakta, Siravyadha, Guduchi, Basti

#### INTRODUCTION

Gout is a common disorder of uric acid metabolism that can lead to recurrent episodes of joint inflammation, tissue deposition of uric acid crystals, and joint destruction if left untreated. It is marked by transient painful attacks of acute arthritis initiated by crystallization of urates within and about the joints and eventually leads to chronic gouty arthritis and the deposition of masses of Monosodium Urate (MSU) crystals in joints and other sites, creating tophi. Gout results from a combination of prolonged elevation of uric acid and overall acidity in the bloodstream<sup>1</sup>.

Its causes include overproduction or impaired excretion of uric acid, 10-15% and 80-90% respectively. The essential biochemical requirement for the development of clinical gout is hyperuricemia. It is more common in middle age, and men are more susceptible to it than women, among whom the disorder may appear after menopause. Gout affects about 2.1 million world wide<sup>2</sup>. Its prevalence is increasing, moreover it is a potential signal for unrecognized comorbidities like obesity, metabolic syndrome, Diabetes mellitus, Hypertension, Cardiovascular disease, Renal disease etc. In its chronic run it lands up in severe joint destruction<sup>3</sup>. The variety of drugs like uricosuric, NSAIDS are used to treat the Gouty arthritis symptomatically, which have many potential adverse effects like vomiting, gastro-intestinal bleeding, hepato renal toxicity etc. According to Gout treatment guidelines published in 1999 uricosuric drugs should not be given to patients with a urine output of <1ml per minute, a creatinine clearance of <50ml /min (0.84ml/sec) or a history of renal calculi<sup>4</sup>.

The similarity of gouty arthritis with Vatarakta is multidimensional. The cause of Gouty arthritis, pathology and features match with the Vatarakta description in our classics.

Vatarakta is the disease which is caused by vitiation of Vata as well as Rakta. Aggravated Vata is blocked by vitiated Rakta, in turn leading to further aggravation of Vata. Thus causing the condition Vatarakta.<sup>5</sup> It has two stages i.e. Uttana and Gambeera. Gambeera Vatarakta mainly affects Asthi Dhatu and causes ruja which spreads as Aakor Visha (Rat Bite).<sup>6</sup>

Ayurvedic management of Vatarakta aims at Vata Hara and Rakta Prasadaka measures. In this respect the Shodhana chikitsa like Raktamokshana (Siravyadha) and Basti are given more importance.

Raktamokshana (Siravyadha) is a unique subset of accredited drugless surgical technique in Ayurveda; often ignored, misunderstood in the mainstream practice. Siravyadha is indicated primarily in generalized vitiation of blood, causing distress. Siravyadha treatment relieves the symptoms early, modifies the underlying pathology and also reduces the duration of treatment. Importantly it can bring down the oral medicine burden to the patient which has to be taken for long duration. Viewed from the current surgical perspectives, the techniques detailed in the classics need to be fine-tuned and perfect for better patient compliance, minimal complications and enhanced outcomes.

Another highly praised treatment modality is basti karma in vatarakta. According to Charaka Acharya there is no therapeutic measure comparable to basti for the cure of vatarakta. Hence a hypothesis was made that, whether

raktamokshana by siravyadha method which is ardhachikitsa according to Sushrutaacharya is effective when compared to vasthichikitsa which is also ardhachikitsa quoted by Charaka Acharya. So to evaluate the efficacy of siravyadha and basti in the management of vatarakta w.s.r. gout, the present work was undertaken.

### Objectives of Study

- To review the literature pertaining to Vatarakta etiopathogenesis and management w.s.r to Gout.
- To evaluate clinically Gout with both ayurvedic and modern perspective using subjective and objective (biochemical and radiological) parameters.
- To evaluate the individual efficacy of siravyadha and guduchi siddha yoga basti in the management of vatarakta.
- To evaluate the comparative efficacy of siravyadha and guduchi siddha yoga basti in the management of vatarakta in general and gout in particular.

Even though there are individual references available in Vedic literature regarding vatadosa, rakta dhatu, rakta dhamani etc description about the disease but Vatarakta is not available in any of the Vedas.

Complete picture of vatarakta disease starting from etiology to the management is well elaborated in Charaka samhita chikitsa sthana 29th adhyaya. Need of raktamokshana, its types and special indications of its types in particular symptomatology is elaborated. Siravyadha is indicated in shifting type of ruk, daha, shula, toda, chimchimayana, supti, kandu etc. Mention of Guduchi rasa with ksheera in the management of vatarakta is also noted. There is no therapeutic measure comparable to basti for the cure of vatarakta<sup>7</sup>.

Sushruta explains about vatarakta in nidana sthana 1<sup>st</sup> chapter and 5<sup>th</sup> chapter of chikitsa sthana. Contradicting the opinion of other scholars Sushruta says Uttana and Avaghada are not the types of this illness instead they are the Avastha vishesa. According to Sushruta the vein situated two angula above the Kshipra marma should be punctured using vrihimukha shastra<sup>8</sup>. Ashtanga Hridaya gives information on management of Sama and Nirama state of vatarakta<sup>9</sup>. The formulation Guduchi siddha Yoga Basti is mentioned in Vatarakta Chikitsa Adhyaya in Bhaishajya Ratnavali<sup>10</sup>.

Gout encompasses a group of disorders that occurs alone or in combination and includes;

- Hyperuricemia
- Attacks of acute, typically monoarticular, inflammatory arthritis

- Tophaceous deposition of urate crystal in and around joints
- Interstitial deposition of urate crystals in renal parenchyma
- Urolithiasis<sup>11</sup>.

### MATERIALS AND METHODS

#### Source Of Data

For the present study patients were randomly selected from the O.P.D and I.P.D of Shri Jayachamarajendra Institute of Indian Medicine Hospital (Teaching Hospital of G.A.M.C), Banglore, Karnataka, India under the Ethical clearance number GAMC/PGS/15/09-10 dated 02/09/2009. Patients were in the age group of 20 -65 years of either sex.

#### Inclusion Criteria

Patients with hyperuricemia and complaining of Toda (Pricking pain), Sparshasahyata (Tenderness), Daha (Burning Sensation), Supti (Numbness), Shopha (Swelling), Raaga (Discolouration) in sandhis of paada or hastha having chronicity less than 10 years, without the manifestation of Tophi and not associated with complete joint destruction were selected.

#### Exclusion Criteria

Heamorthrosis, Kochs arthritis, Septic arthritis, Chronic renal failure, Severe Systemic multi organ syndromes, Basti ayogya, Siravyadha ayogya.

#### Method

Among 40 patients, 20 patients were selected to Group-A and 20 patients to Group-B randomly. Following investigation was carried out in all the patients of group A and group B before, during (13<sup>th</sup> day in Group A and 8<sup>th</sup> day in Group B) and after treatment (24<sup>th</sup> day)

Serum uric acid

- It was conducted in Skandha Diagnostics- A registered and certified Laboratory.
- Before sending for investigation the samples were blinded by coding.
- Necessary Ethical clearance (GAMC/PGS/15/09-10) was taken from GAMC College, Bangalore, India and Informed consent was taken.

#### Intervention

Group-A: Patients were subjected to Siravyadha/ bloodletting twice with an interval of 11 days.

Group-B: Patients were subjected to Guduchi siddha Yoga basti executed in 8 days.

Table 1: Intervention schedule

Group	Management	Procedure						Duration		
Group A	Siravyadha/ bloodletting	Executed in 2 sittings with an interval of 11 days.						24 days		
		1st sitting	2nd sitting	Extended observation day						
		1st day	12th day	24th day						
Group B	Yoga basti with Guduchi siddha taila anuvasana, Sa grutha Guduchi ksheera siddha nirooha.	executed with 5 anuvasana and 3 niruha basthi.						24 days		
		1	2	3	4	5	6		7	8
		A	N	A	N	A	N		A	A

**Procedure**

**Group-A**

**Poorvakarma**

Procedure was explained to patient in advance and written consent was taken.

**Abhyanga and Sweda**

Patients were advised to have gentle massage with Tila taila to the whole body followed by Parisheka Sweda till the appearance of perspiration, on the day of siravyadha.

**Yavagupaana**

Patients were advised to have adequate quantity (120 ml) of Tila yavagu before undergoing Siravyadhana.

**Pradhana Karma**

The patient was made to sit comfortably over the examination table. Then the part (Prominent sira just 2 angula above Kshipra marma) was cleaned with surgical spirit. A tourniquet was tied, neither too tight nor too loose, above the ankle joint to make the Sira prominent and if essential, mild blow was given over the Sira. The sterile needle of 18 gauze No. was introduced into the Sira (vein). When the needle was in situ a measuring jar is kept for collection of blood. The needle is taken out after the blood flow stops on its own or collected blood measures 200 ml.

**Paschat Karma**

After letting out blood, the needle was taken out; sterile cotton pad was kept and bandaged. The patient was asked to take rest for 10-15 minutes.

**Group-B**

**Poorva Karma**

- Procedure was explained to patients in advance and written consent was taken
- Prior to Anuvasana basti with Gudchi Taila, Laghu Bojana was advised
- Preparation of Guduchi ksheerapaka for Niruha - 50gms of Guduchi kwatha choorna was taken, to that 400ml of milk, 1600ml of water was added, boiled and reduced to ksheeraavashesha (400ml). This was freshly prepared on the day of Niruha basti.
- Preparation of Sa Grutha Guduchi ksheera basti for niruha: The different components of basti were mixed in following way.

First Madhu was taken, then Saindhava lavana was added and triturated thoroughly with a help of wooden churner, to this warmed mixture ghritha was slowly added and mixed well, then kalka made of Shathapushpa and Madanaphala was added; now Guduchi ksheerapaka which was freshly prepared was added. All the ingredients are thoroughly mixed and a preparation in the form of emulsion was obtained, this was made Sukhoshna by keeping it over ushna jala.

**Anuvasana**

Patient were subjected to mridu abhyanga with lukewarm tila taila and nadi sweda locally over abdomen, buttocks and on thighs. Patients after abhyanga and sweda were advised to have laghu bojana. Patient was asked to lie on

the panchakarma droni in vama parshwa (left lateral position with right leg flexed) and asked to take deep breath. Sukoshna anuvasana dravya was administered slowly with the help of basti syringe.

**Niruha Basti**

Patients were advised to come on empty stomach, after confirming digestion of previously taken food and before developing hunger mridu abhyanga with lukewarm tila taila and nadi sweda locally over abdomen, buttocks and on thighs were given. Patient was asked to lie on the panchakarma droni in vama parshwa (left lateral position with right leg flexed) and asked to take deep breath; sukoshna basti dravya was administered slowly with the help of basti putaka tied with basti netra. Extreme care was taken to avoid all the basti vyapat.

**Paschaath karma**

Patient was asked to lie in supine position and to defecate on developing urge.

**Assessment Criteria**

The results were evaluated by subjective and objective parameters mainly based on clinical observations by grading method.

**Grading for parameters**

**Subjective parameters**

Gradations for these are mentioned in Table 2-5.

**Table 2: Subjective Parameters**

Grade	Pricking pain of joints(Sandhi Toda)
0	No pricking pain
1	Mild pricking pain with no difficulty in flexion and extension
2	Moderate pricking pain with difficulty in flexion and extension
3	Severe pricking pain with restricted movements
Burning sensation of the joints (Sandhidaha)	
0	Absent
1	Present
Numbness (Supthi)	
0	Absent
1	Present

**Table 3: Tenderness (Sparshaasahyatha)**

Grade	Tenderness (Sparshaasahyatha)
0	No Tenderness on Palpation
1	Mild Deep Palpation causes Tenderness
2	Moderate- Patient winces on palpation
3	Severe- Gentle touch causes Tenderness, and Patient withdraws the part

**Table 4: Discoloration (Raaga) of Joints**

Grade	Discoloration (Raaga) of Joints
0	Absent
1	Present

**Table 5: Swelling (Sandhishotha)**

Grade	Swelling (Sandhishotha)
0	No swelling
1	Swelling obvious on lesser than 2 joints.
2	Swelling obvious on more than 2 joints.

exercise, excessive speech, uneven sitting and lying postures, exposure to wind, cold, heat, dust, anger and grief.

- To rest as much as possible.

**Overall Assessment (Table 6)**

**Table 6: Overall assessment criteria**

No Response	0% Change
Mild Response	<20% improvement
Moderate Response	20-50% Improvement
Marked response	>50% Improvement

**Objective parameter**

**Serum uric acid**

**Intervention Schedule**

Study was intervened by certain instruction given to the patient of both groups.

- Patients were advised to drink hot water, to avoid sexual intercourse, suppression of natural urges,

**RESULTS**

**Table 7: Demographic variables of patients studied**

Variables	Group A		Group B		P value
	Number	%	Number	%	
<b>Age in years</b>					
21-30	2	10.0	5	25.0	0.019*
31-40	6	30.0	9	45.0	
41-50	7	35.0	3	15.0	
51-60	5	25.0	0	0.0	
61-70	0	0.0	3	15.0	
<b>Gender</b>					
Male	11	55.0	14	70.0	0.327
Female	9	45.0	6	30.0	
<b>Education</b>					
Illiterate	0	0.0	1	5.0	1.000
Read and Write	7	35.0	8	40.0	
Graduates	12	60.0	11	55.0	
Post graduate	1	5.0	0	0.0	
<b>Socio-Economic Status</b>					
Poor	4	20.0	4	20.0	1.000
Rich	4	20.0	3	15.0	
Upper middle class	4	20.0	5	25.0	
Lower Middle class	8	40.0	8	40.0	
<b>Total</b>	<b>20</b>	<b>100.0</b>	<b>20</b>	<b>100.0</b>	

Parameter wise results are given below;

**Table 8: Pricking pain of joints (Sandhi Toda)**

Sandhi Toda	Grade	BT (n=20)	T1 (n=20)	T24 (n=20)	% change
<b>Group A</b>					
No pricking pain	0	0(0%)	0(0%)	2(10%)	10.0
Mild Pricking pain	1	0(0%)	11(55%)	17(85%)	85.0
Moderate pricking pain	2	14(70%)	9(45%)	1(5%)	-65.0
Severe pricking pain	3	6(30%)	0(0%)	0(0%)	-30.0
<b>Group B</b>					
No pricking pain	0	0(0%)	0(0%)	6(30%)	30.0
Mild Pricking pain	1	0(0%)	11(55%)	13(65%)	65.0
Moderate pricking pain	2	13(65%)	9(45%)	1(5%)	-60.0
Severe pricking pain	3	7(35%)	0(0%)	0(0%)	-35.0
P value		1.000	1.000	0.332	-

**Table 9: Burning sensation of the joints (Sandhidaha)**

Sandhi Daaha	BT (n=20)	D1 (n=20)	D24 (n=20)	% change
<b>Group A</b>				
Absent	0(0%)	11(55%)	17(85%)	85.0
Present	20(100%)	9(45%)	3(15%)	-85.0
<b>Group B</b>				
Absent	0(0%)	12(60%)	17(85%)	85.0
Present	20(100%)	8(40%)	3(15%)	-85.0
P value	1.000	0.749	1.000	-

**Table 10: Numbness (Supthi)**

Sandhi Supti	BT (n=20)	S1 (n=20)	S24 (n=20)	% change
<b>Group A</b>				
Absent	2(10%)	11(55%)	17(85%)	75.0
Present	18(90%)	9(45%)	3(15%)	-75.0
<b>Group B</b>				
Absent	0(0%)	14(70%)	17(85%)	85.0
Present	20(100%)	6(30%)	3(15%)	-85.0
P value	0.487	0.327	1.000	-

**Table 11: Swelling of joints (Sandhi shotha)**

Sandhi Shotha	Grade	BT (n=20)	SH1 (n=20)	SH24 (n=20)	% change
<b>Group A</b>					
No swelling	0	0(0%)	2(10%)	0(0%)	0.0
Swelling less than 2 joints	1	7(35%)	11(55%)	20(100%)	65.0
Swelling more than 2 joints	2	13(65%)	7(35%)	0(0%)	-65.0
<b>Group B</b>					
No swelling	0	0(0%)	2(10%)	5(25%)	25.0
Swelling less than 2 joints	1	14(70%)	15(75%)	14(70%)	0.0
Swelling more than 2 joints	2	6(30%)	3(15%)	1(5%)	-25.0
P value		0.056+	0.347	0.020*	

**Table 12: Discoloration (Raaga) of joints**

Raga of joints	BT (n=20)	R1 (n=20)	R24 (n=20)	% change
<b>Group A</b>				
Absent	3(15%)	16(80%)	18(90%)	75.0
Present	17(85%)	4(20%)	2(10%)	-75.0
<b>Group B</b>				
Absent	0(0%)	17(85%)	19(95%)	95.0
Present	20(100%)	3(15%)	1(5%)	-95.0
P value	0.231	1.000	1.000	-

**Table 13: Tenderness (Sparshaasahyatha)**

Sparshaasahyatha	Grade	BT (n=20)	SP1 (n=20)	SP24 (n=20)	% change
<b>Group A</b>					
No Tenderness on Palpation	0	0(0%)	6(30%)	15(75%)	75.0
Mild- deep Palpation causes Tenderness	1	13(65%)	14(70%)	5(25%)	-40.0
Moderate- Pt winces on palpation	2	7(35%)	0(0%)	0(0%)	-35.0
Severe- gentle touch causes Tenderness, and Pt withdraws the part	3	0(0%)	0(0%)	0(0%)	0.0
<b>Group B</b>					
No Tenderness on Palpation	0	0(0%)	6(30%)	12(60%)	60.0
Mild- deep Palpation causes Tenderness	1	6(30%)	10(50%)	8(40%)	10.0
Moderate- Pt winces on palpation	2	14(70%)	4(20%)	0(0%)	-70.0
Severe- gentle touch causes Tenderness, and Pt withdraws the part	3	0(0%)	0(0%)	0(0%)	0.0
P value		0.027*	0.148	0.311	-

Table 14: Effect on Serum uric acid

Serum Uric acid	BT (n=20)	SP1 (n=20)	SP24 (n=20)	% change	P value
Group A	8.55±1.53	8.00±1.53	7.41±1.58	13.33%	<0.001**
Group B	8.43±1.12	7.41±1.11	6.63±1.32	21.4%	<0.001**
P value	0.787	0.167	0.100	-	-

Table 15: Overall assessment of both Groups

Overall Response	Group A		Group B	
	Number	%	Number	%
No Response	0	0.0	0	0.0
Mild Response(<20% improvement)	1	5.0	0	0.0
Moderate Response (20-50% Improvement)	19	95.0	13	65.0
Marked response (>50% Improvement)	0	0.0	7	35.0
Total	20	100.0	20	100.0
Inference	Overall response is significantly more in Group B (Marked response 35.0%) when compared to Group A (0.0%) with P=0.008**			

### Effect on Cardinal Features

Grade of improvement was better in Basti group (30%) than siravyadha group (10%).

In Group A, Sandhitoda relieved immediately, may be due to expulsion of inflammatory markers by Siravyadha and in Group B Sandhitoda was relieved gradually may be due to sustained actions of the potency of cluster of drugs like Guduchi etc. (Table 8)

In Group A it was early relief in the symptom than the group B. It may be due to dusta rakta dhatu nirharana and hence rendering result immediately.

In basti group the burning sensation was relieved effectively and the same was sustained. This may be due to the dahaprashamaka (pacifying burning sensation) and sheetha veerya (cold potency) properties of Guduchi along with cluster of drugs. (Table 9)

In group A it was early relief in the symptom of Sandhi Supti than the group B. It may be due to dusta rakta dhatu nirharana (removal of the impure blood) and hence rendering result immediately. In basti group the numbness was relieved gradually and effectively. This may be due to the vatakaphahara properties of Guduchi along with group of drugs. (Table 10)

Grade of improvement was better in Basti group (25%) better than siravyadha group (0%).

In group A it was early relief in the symptom Sandhi Shotha than the group B. It may be due to dusta rakta dhatu nirharana (removal of impure blood) and hence rendering result immediately. In basti group the Sandhi shotha was relieved effectively and the same was sustained. This may be due to shothahara, kaphahara, properties of Guduchi along with cluster of drugs. (Table 11)

In group A it was early relief in the symptom Raaga than the group B. It may be due to dusta rakta dhatu nirharana i.e. expulsion of inflammatory metabolites causing raagata. In basti group the Raaga (redness) was relieved effectively and the same was sustained. This may be due to the pittashamaka (pacifying pitta), raktaprasadaka (nourishment of blood), dahaprashamaka (pacifying burning sensation) and sheetha veerya (cold potency) action of Guduchi along with group of drugs. (Table 12)

Grade of improvement was better in siravyadha group (75%) than Basti group (60%). Improvement in

Tenderness is highly significant in group A. It may be due to dusta rakta dhatu nirharana i.e. expulsion of inflammatory metabolites causing tenderness. Improvement in tenderness was also better in Basti group and this may be due to the analgesic, anti-inflammatory and corticosteroid action of guduchi dravyas. (Table 13)

Compared to Siravyadha group 13.33%, Basti group had 21% change i.e. reduction in Serum uric acid levels. This may be due to action of basti dravya in expelling out serum urates. (Table 14)

Overall response was significant in Group B (Marked response 35%) when compared to Group A (0%) with P=0.008\*\* (Table 15)

### DISCUSSION

The predominant features of vatarakta, Uttana vatarakta comprises of following features Kshate ati ruk (increased pain on touch/injury), Nistoda (pricking pain), Supti (numbness), Daha (burning sensation) etc, features of gambhira vatarakta like Kunchana (contraction), Bhriharti (excruciating deep pain), Vidaha (internal burning sensation), Angasya vakrikarana (disfigurement of the parts) etc have striking resemblance with Gout.

Complications of gout include formation of tophi, ulceration, destruction of subcutaneous fat, Contractures, Crippling joints etc. These features are aptly seen in Vatarakta upadravas like mamsa kotha, anguli vakratha and pangulya etc.

### Management (Gout)

- Avoiding purine, protein load, alcohol and trauma
- Treating local Joints inflammation
  - a) Analgesic, Anti inflammatory sprays, Gels, etc topical application
- Internal-Medications: Colchicine, Allopurinol, Indomethacin, Steroids
- Parental Administration: Analgesics, Anti-inflammatory agents, Steroids, Colchicine

### Management (Vatarakta)

- Nidana parivarjana
- Bahiparimarjana- Lepa, Sneha, Upanaha, sweda
- Anthaparimarjana- Shodana: Virechana, Basti, Rakta mokshana

So right from etiology to management, Gout can be analyzed under the lines of Vatarakta

### **Probable mode of action of Siravyadha and Guduchi siddha yoga basti**

#### **Siravyadha/Bloodletting**

While enumerating the six Kriyakaala types, Susrutha emphasizes on the role of Rakta in the third and the most important stage called Prasara. Prasara step is crucial for the humours' to get disseminate across various planes of the body and rakta is instrumental in this phase. Physiological identity of rakta is more pronounced and certain target specific procedures (siravyadha) are readily applied to this level of mechanisms in the body. Henceforth Uttarothara dhathu penetration of morbid doshas is restricted.

Physiologically, blood communicates at almost every zone of human body either directly or by indirect influences. The role and importance of Rakta (blood tissue) in the genesis, manifestation and progress of various clinical conditions with respect to Vatarakta is evident. Siravyadha is one such radical treatment especially concerned with Dustarakta nirharana (the macroscopic removal of 'morbid blood' from unwanted contexts or situations).

Patho-physiological studies suggest that in case of a considerable blood loss (> 100 ml), the immediate haemodilution stimulates / triggers a host of beneficial physiological mechanisms making the body alert and adaptive to take care of various systemic challenges present. Back up support in the form of immunologic, inflammatory and trigger factors intended for specific purposes is recruited in pathological tissues for the management of the damage.

After considerable amount of bloodletting, Psycho-Neuro-Endocrinal mechanisms mediated by Hypothalamus, Pituitary, and Adrenocortic axis are triggered. Brain responds with commanding actions through efferent signals to vessel or vascular system.

In Vatarakta which is a metabolic disorder of impairment of purine metabolism, serum uric acid level is high and also there is inadequate excretion i.e. nothing but hyperuricemia. Bloodletting in dorsal venous arch causes reduction in uric acid. There may be release of angiotensin hormone which has got renal and adrenocortical stimulatory effect providing excretion of uric acid by kidneys. Erythropoietin may be activated, which in turn successfully addresses most of the circulatory / vascular related healing drifts.

The dusta raktha which is shaakhashrita in acute stages are expelled readily by Siravyadha as it is the nearest route for dosha nirharana.

Shonitha Kleda is one of the Pittaja Nanatmaja vikara and here Kleda refers to multiple intermediate metabolites, particles etc, embedded in Raktha hence Raktamokshana by Siravyadha is an attempt to reduce the excessive kleda in Shonitha.

Even more "Raktam hi amlatam hi tatha cha ruk" means amlata in rakta (inflammatory markers, intermediate metabolites, acidic components like uric acid) is responsible for Ruk (all types of pain). Hence forth

Raktamokshana by Siravyadha is instrumental in relieving symptoms like ruk by reducing amlata in rakta.

The complex activities which render pathological sequences leads to permanent and hallmark pathological features like Gouty arthritis. No drug or regimen is effective to dislodge these factors easily and effectively. The new 'regional balance' of morbidities in a disease will transiently get disturbed on to a positive plane by Siravyadhana followed by re-launching of healing mechanisms.

In general, various probable mechanisms are going to change in body by bloodletting, such as local blood supply is improved, local metabolism is improved, local drainage system is improved, fresh RBCs are produced which are active. Hepatocellular activity in particular enzyme system is improved which results in correction of purine metabolism hence regulation of Uric acid generation. Release of hormones, sympathetic nerve function etc, are triggered which directly stimulates bone marrow and immune related T-Lymphocytes.

Siravyadha comprises of apatarpana rupa chikitsa which enhances the migration of dusta doshas from asthi (Sandhi etc) to Raktha. It produces langhana, swedana, pittaharana and rakthadosha harana. Hence Siravyadha invariably results in immediate repair / cure when compared to other therapeutic procedures that take longer periods for the relief of symptoms.

#### **Basti**

Vatarakta can be considered as Avaranjanya vatavyadhi. Due to properties like Sukshmatva and Saratwa of Vayu, Dravatwa and Saratwa of Rakta they spread all over the body. The spreading is facilitated by VyanaVayu. The doshas get lodged in sandhies. In this respect the control over Vayu in turn Raktha is achieved by Basti.

As Asthtidathu is involved in the disease Vatarakta, it is to be assumed that the drug acting upon pureeshadhara kala will certainly act on the Asthidara kala, as kalas of both are the same. In addition the active principles of Basti dravya administered reaches up to the grahani which is related to both Pittadharakala and majjadharakala. Hence holistic action of Basti in terms of cleansing and nourishment of Asthi dhatu, Sandhi Majja etc. and ultimately resulting in Vataashamana is perceived clinically.

The rectum has a rich blood and lymph supply and drugs can cross the rectal mucosa like other lipid membranes. The unionized and lipid soluble substances are rapidly absorbed from the rectum. In the upper portion of rectum, absorption is via the upper rectal mucosa and is carried to the superior hemorrhoidal vein into portal circulation where as that which is absorbed in the lower rectum enter directly into the systemic circulation via middle and inferior hemorrhoidal vein. This systemic assent gained is helpful for generalized cleansing followed by vigour promotion.

In the context of Vatarakta chikitsa both Acharya Charaka and Vaghbata have explained as, the vitiated doshas along with mala should be expelled out by the administration of Sagritha Ksheerabasti. Here Ksheera is used to get pittahara, rakta prasadaka and Vatanulomana effect. The chemical reaction sequence originated in pakwasaya by

basti passes from cell-to-cell, ultimately in to the entire body.

1/3<sup>rd</sup> of Serum uric acid is excreted through the gut and the remaining 2/3<sup>rd</sup> through the kidneys generally. Basti, because of its laxative action, increases expulsion of uric acid through gut. Even more the combined action of Guduchi siddha yoga basti like mutrala, uricosuric properties increases the excretion of uric acid through urine.

In a nut shell, high dose administration of Guduchi (active alkaloid-Berberine) will act as analgesic, anti-inflammatory and exhibits corticosteroid action. Ksheera (Milk) used, reopens calcium channel and along with this Saindhava Lavana (Lavanat Vardhate Asthi-Yogaratanakara) enhances the integrity of Asthi dhathu. Mixture of Madhu, Saindhava, Ksheera produces Abhishyandhi guna which is influential in dissolving Urate crystals.

These observations suggest that this therapy not only produces symptomatic relief but also control the disease process and may cause long lasting relief.

### CONCLUSION

Based on the symptomatology, Gouty Arthritis comes under the purview of Vatarakta. Siravyadha is effective in acute cases and provides swift results in relieving Sandhi Toda (95%), Sandhi Daaha (85%), Sandhi Shotha (65%), Supti (75%), Raaga (75%) and Sparshasahyatha (75%). Guduchi siddha yoga basti is effective in chronic cases and provides gradual and effective results in relieving Sandhi Toda (95%), Raaga (95%), Supti (85%), Sandhi Daaha (85%), Sparshasahyatha (70%) and Sandhi Shotha (25%).

Statically both the groups showed significant changes in lowering the Serum Uric Acid level but better in Basti Group.

Moderate to marked relief of the symptoms of Gout was observed in both the groups. But Overall response was significantly more in Group B (Marked response 35%) when compared to Group A (0%) with P= 0.008.

The better response for Guduchi siddha yoga basti is due to the special medicinal properties of Guduchi and other basti dravyas along with its Rasayana effect.

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