



Research Article

THE ROLE OF SWEDAKARMA IN THE MANIFESTATION OF OCULAR PATHOLOGICAL FINDINGS AMONG DIABETIC PATIENTS-A PROSPECTIVE OBSERVATIONAL STUDY

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ABSTRACT

Diabetes mellitus (DM) is a chronic metabolic disorder involving almost all systems with delayed complications. Ophthalmic complications of diabetes rapidly cause blindness and are preventable with early screening and timely management. There are many modifiable risk factors for ocular complications associated with DM. It is very much essential to identify such risk factors to prevent complications. *Swedana* (Sudation therapy), the prerequisite for *Panchakarma* (fivefold purification therapy in Ayurveda) is contraindicated in *Prameha* and explained as an etiological factor of eye diseases. *Swedana* can become a risk factor for diabetic eye diseases. Repeated *Swedakarma* is a common practice to treat neurological complications in diabetic patients. Diabetic patients exposed to *Swedakarma* are more vulnerable to ocular complications. **Aim:** To analyse the role of *Swedakarma* in the manifestation of ocular pathological findings among diabetic patients. **Methodology:** This hospital-based, prospective observational study was conducted at Government Ayurveda College, Tripunithura. The study participants included 108 diabetic patients with matched cases and controls. The Chi-square test was used to analyze various sudation factors and ocular complications. **Result:** There is a 3.74-fold increase in ocular complications in patients exposed to *Swedakarma*, compared to patients who did not receive *Swedakarma*. **Conclusion:** There is a significant association between *Swedakarma* and ocular complications in DM.

INTRODUCTION

The classics of Ayurveda provide an in-depth understanding of *Prameha*. Ayurveda is the only system of medicine to classify *Prameha* into 20 different types^[1]. *Prameha* shares many of the same characteristics as diabetes mellitus. Ayurveda considered *Prameha*, a condition associated with overnutrition (*Santharpanotha vyadhi*)^[2], to arise primarily from metabolic disturbances in fat (*Medo dushti*)^[3], whereas modern medicine explains diabetes as a state of metabolic dysfunction of carbohydrates. Studies have shown that glucose metabolism and fat metabolism are closely linked^[4].

Prameha is one of the *Ashta mahagadas*^[5] (the eight incurable diseases), mainly due to the occurrence of complications. As per modern medicine, vascular complications are the chief cause of morbidity and mortality in diabetes^[6]. It causes extreme alterations in the micro and macrovascular system affecting nearly every organ in the body^[7]. Diabetes can cause changes to almost all parts of the eye. Ocular complications of diabetes include diabetic retinopathy, diabetic maculopathy, glaucoma, cataract, and ocular surface diseases^[8]. There is no direct reference to diabetic eye diseases in Ayurveda, and we can infer that diabetic eye diseases might have been absent at that time. Diabetic eye diseases are the *Upadravavyadhi* (complication) of *Prameha*, having the same *Dusyas* (body tissues) and *Dosas* (humors of the body) as *Prameha*. Vitiating of *Kapha* and *Pitta* occur in the initial stages of diabetic eye diseases (*Pramehajanya netrarogas*) also. These vitiated *Dosas* develop vascular changes in the eyes and present as diabetic eye

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diseases. The role of *Rakta* is evident in diabetic eye diseases due to the formation of neovascular changes and retinal and vitreous haemorrhages.

As diabetes is a multisystem disorder, many neurological complications like diabetic neuropathy, stroke and facial palsy are associated with it⁹. Studies have estimated that approximately one-third of all stroke patients have diabetes¹⁰. For such neurological disorders of diabetes majority of people seek Ayurvedic treatments. In *Keraleeya Panchakarma*, *Swedana* (Sudation therapy) is the most widely used treatment for neurological disorders. *Swedana* is also a *Poorvakarma* in all *Panchakarma* procedures. Even though *Swedana* (Sudation therapy) gives optimal heat as the stimulus to restore flexibility, permeability and vitality, sometimes it may not be beneficial for diabetic patients. Because *Prameha* is a *Yapyavyadhi*^[11] (a disease which can be maintainable with a wholesome diet and regimens), even mild changes in *Ahara viharas* (diet and regimen) and inappropriate selection of *Panchakarma* procedures can cause exacerbation of the disease.

Acharya Susruta included *Sweda* as one of the etiological factors of eye diseases^[12]. *Acharya Susruta* also states that eyes are always accustomed to cold^[13]. Since *Sweda* is *Agneya*, it vitiates *Pitta*, one of the main *Dosas* involved in the pathogenesis of eye diseases^[14]. So generally, Ayurveda contraindicated *Swedakarma* (Sudation therapy) in the eyes^[15].

During this study, even repeated *Swedakarma* did not produce complications in some diabetic patients, whereas even a single *Swedakarma* developed complications in certain rare patients. The complications of *Swedakarma* depend on many factors like *Prakriti* of the patient, diet and regimens, lack of *Shodhana karma* in between *Panchakarma* procedures, lack of application of *Talam* and even inappropriate internal medications. *Swedana* in diabetic patients is the least explored area. It is the need of the hour to find out the impact of *Swedana* on ocular health in diabetic patients.

Methodology

A prospective observational study was conducted at Government Ayurveda College, Tripunithura. Patients from the IPD & OPD were selected. The study included 108 diabetic patients as controls and cases. Cases were diabetic patients who had exposure to *Swedakarma* and controls were diabetic patients without exposure to *Swedakarma*. By using a questionnaire, detailed history was taken from all patients. Different factors related to sudation, were also assessed in patients exposed to *Swedakarma*. To assess the ocular signs and symptoms, a detailed ocular examination such as visual acuity, slit lamp examination and fundus examination under mydriasis with 1% tropicamide eye drops were carried out. Due to ethical concerns, sudation therapy was discontinued for diabetic retinopathy patients on the advice of the physician who recommended *Swedana*. During the study three such patients with diabetic retinopathy, were identified. There was a 3-month follow-up for all patients. Chi -square test was used to analyze various sudation factors and ocular complications.

Sampling procedure: Purposive sampling method.

Selection and Withdrawal of Subjects

Subject Inclusion Criteria

Known cases of Diabetes mellitus.

The age group of 35-75 years irrespective of gender

Patients with informed consent.

Patients who are competent to give consent are included in the study.

Subject Exclusion Criteria

Patients with a history of diabetic nephropathy.

Patients with diabetic retinopathy changes in fundus examination.

RESULTS AND ANALYSIS

Data Related to the Association of *Sweda* with Ocular Complications

The ocular complications of diabetic patients were checked for any association with *Swedakarma*. The ocular changes were observed for three months in diabetic patients.

Association between Watering of Eyes and Swedakarma

Table 1: Relative Risk

	Watering of eyes			RR
	Present	Absent	Total	
Exposed	9	45	54	16
Unexposed	1	53	54	
Total	10	98	108	

The Relative Risk is 16. There is 16-fold increase in watering of eyes in patients exposed to *Swedakarma*, compared to patients who did not receive *Swedakarma*.

Table 2: The Chi-Square Test with Yates Correction

	Watering of eyes			X ²	Df	P
	Present	Absent	Total			
Exposed	9	45	54	5.4	1	0.021
Unexposed	1	53	54			
Total	10	98	108			

As the P value is less than 0.05, the difference is statistically significant. That means there is a significant association between watering of eyes and *Swedakarma*

Association between Redness of Eyes and *Swedakarma*

Table 3: Relative Risk

	Redness of eyes			RR
	Present	Absent	Total	
Exposed	8	46	54	14
Unexposed	1	53	54	
Total	9	99	108	

The Relative Risk is 14. There is 14-fold increase in redness of eyes in patients exposed to *Swedakarma*, compared to patients who did not receive *Swedakarma*.

Table 4: Chi-Square Test

	Redness of eyes			X ²	Df	P
	Present	Absent	Total			
Exposed	8	46	54	4.364	1	0.0367
Unexposed	1	53	54			
Total	9	99	108			

As the P value is less than 0.05, there is a significant association between redness of eyes and *Swedakarma*.

Overall Association between Ocular Complications and *Swedakarma*

Table 5: Relative Risk

	Total number of people with ocular complications			RR
	Present	Absent	Total	
Exposed	15	39	54	3.74
Unexposed	4	50	54	
Total	19	89	108	

The Relative Risk is 3.74. There is a 3.74-fold increase in ocular complications in patients exposed to *Swedakarma*, compared to patients who did not receive *Swedakarma*.

Table 6: The Chi-Square Test with Yates Correction

	Total number of people with ocular complications			X ²	Df	P
	Present	Absent	Total			
Exposed	15	39	54	6.387	1	.01
Unexposed	4	50	54			
Total	19	89	108			

As the P value is 0.01 there is a significant association between overall ocular complications and *Swedakarma*.

DISCUSSION

Panchakarma treatments in Kerala are mostly *Purvakarma* (preparatory) procedures, usually practiced as various sudation therapies. These sudation treatments are mostly done as pacificatory treatments, with less emphasis on purification. *Prameha* patients have highly vitiated *Doshas* in the

body, so need more purificatory therapy. *Kleda* is produced excessively in *Prameha*, and *Swedakarma* will lead to the retention of *Kleda* in the body again. If *Kleda* is not expelled, it can disrupt the functioning of *Dhathus*, which could result in many complications. Most of Kerala's *Panchakarma* treatments are

Brimhana in nature. Despite its beneficial effects on neurological and musculoskeletal disorders, *Swedakarma* sometimes cause problems for diabetic patients. *Brimhana* therapies may accelerate the development of new vessels in the eye, resulting in retinal and vitreous haemorrhages and blindness as a result. Before doing *Snigdha swedas* examination of paranasal sinuses, ear, nose, throat and eyes are important. Patients with any inflammation in these areas should be strictly avoided from *Snigdha swedas*. During this study patients developed more complications after *Snigdha Swedas*. After *Kayaseka* with *Taila*, one diabetic patient developed severe giddiness and tinnitus of five to six hours duration.

Ayurvedic *Acharyas* have mentioned in classical textbooks that *Shodhana* therapies should be administered to *Prameha* patients without prior *Sweda karma*. *Yogamrutha*, the ancient Ayurvedic textbook of Kerala, mentions mainly *Kashayadharas* for *Prameha*. *Kashayadharas* and *Takradharas* are beneficial for diabetic patients. *Takra* having *Kashaya rasa*, *Laghu*, *Ruksha*, *Vikashigunas*, and *Ushnaveerya* pacifies the *Kapha medo dushti* and decreases *Shareera Kleda*.

In Ayurveda, many precautions are mentioned before *Swedakarma* to avoid complications. The Practice of *Talam* represents a prophylactic cure that prevents complications by using medicines on the bregma. Before *Swedakarma*, *Talam* should be applied. *Talam* acts as a heat-controlling agent. The medium of *Talam* may be oil, powder in oil/fat or medicinal pastes according to different *Dosa* conditions.

Ancient Kerala physicians used *Nellikka (Amalaka)* *Talam* during *Snehasekam* and *Pinda Swedam* to protect the head. In *Keraleeya Chikitsa Paddhati* (A Textbook of Kerala Ayurveda treatment procedures based on *Dhara kalpah*) the following precautions are mentioned during *Swedakarma* in diabetic patients.

- While performing *Kayaseka* in conditions like *Prameha*, the whole process is done only in the supine position and *Siraseka* with *Takra* is also done correspondingly.
- Traditionally, *Tala* with *Amalaki* is applied in buttermilk before *Kayaseka*.
- The *Talam* should be removed after *Sweda* and suitable oil should be applied.
- After *Dhara*, on the eighth day, *Virechanam* is mentioned and *Vasti* has to be administered on the ninth day.
- In cases where *Kayaseka* is for 14 days, the procedure should be stopped on the eighth day, and then proper *Virechana* or *Vasti* must be administered.
- From the ninth day, the *Seka* should be continued.

- *Siraseka* is usually performed when the rain, mist or heat is not extreme.
- *Gandervahastadi kashaya (Paathikashaya)*, given following the *Swedakarma*, evacuates the body's wastes.

Swedakarma can result in complications even in non-diabetic patients with certain vascular and inflammatory diseases such as uveitis and eale's disease. Such patients were seen in clinical practice with ocular complications after *Swedakarma*. Obtaining an accurate ocular history is therefore crucial before undergoing *Swedakarma*. In addition, patients who have undergone local *Swedana* procedures in eyes for prolonged periods have presented with ocular complications. Also it has been found that diabetic retinopathy patients often show severe complications following *Swedakarma*. Due to ethical reasons diabetic retinopathy patients were excluded from the study. But we have seen one non proliferative diabetic retinopathy (NPDR) patient who developed haemorrhages in both eyes immediately after *Snigdha pinda sweda* and in another NPDR patient, cataract changes got worsened during *Swedakarma* leading to severe vision impairment.

According to Ayurveda, even pouring hot water over the head harms eyes and hair. And in clinical practice some patients approached Out Patient Department with macular oedema and macular telangiectasia with a history of head baths with hot water. Also, cooks who have prolonged exposure to heat present with retinal complications even without diabetes.

Most of the ocular complications in diabetes occur painlessly. It is extremely tough to identify ocular complications during *Swedakarma*. A thorough detailed eye examination is quite essential before and after *Swedakarma*. The control of blood sugar levels before *Swedakarma* is also essential to prevent complications.

Understanding the adverse effects of *Swedakarma* is equally important as learning the positive impacts of *Swedakarma*. By analysing the causes of complications, we can immediately take measures to prevent the worsening of the disease.

CONCLUSION

- There is a significant relationship between *Swedakarma* and ocular pathological findings in diabetic patients.
- Ocular complications of *Swedakarma* depend on many factors like the *Prakrithi* of a patient, duration of *Swedakarma*, nature of *Swedakarma*, number of *Swedakarma* and precautions taken during *Swedakarma*.

- *Swedakarma* in diabetic retinopathy patients produces more severe complications than patients without diabetic retinopathy.
- The *Swedakarma* of diabetic patients can even lead to blindness. So *Swedana* must be performed safely on every patient.
- Those with Proliferative Diabetic Retinopathy should avoid all forms of *Swedakarma*.
- *Drava swedas* like *Kashayadhara* and *Takradhara* are not harmful to diabetic patients.
- *Snigdha Swedes* like *Shashtika pinda sweda*, *Tailadhara* and *Shirovasti* produced more complications in diabetic patients.
- All patients having diabetes mellitus should undergo routine ocular evaluation with both anterior and posterior segment examination before and after *Swedakarma*.
- It is also necessary to evaluate the fundus with both a fundus camera and indirect ophthalmoscopy.
- It is imperative to diagnose these diabetic eye diseases early enough, to reduce the overall ocular morbidity caused by diabetes.
- Moreover, it is important to closely follow these patients who have undergone *Swedakarma*, to identify immediate and delayed ocular complications and to provide appropriate management.

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