



## Observational Study of Diabetes Mellitus Required Surgical Management of Last Three Years

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### ABSTRACT:

**Abstract-** Diabetes mellitus is reaching potentially epidemic proportion in India. The level of morbidity and mortality due to diabetes and its potential complications are diabetes is now being shown to be associated with a spectrum of complications and to be occurring at a relatively younger age within the country.



Patients suffering from *Prameha* may develop *Pramehapidika* are of tentypes. Among this types most are resembles with carbuncle and abscess, these must be treated surgically. This study was designed in questionnaire to study details of diabetes patients and evaluate incidence rate of surgical interventions required in Diabetes mellitus which is described in Ayurveda as *Prameha* and its prevalence in current scenario. Surgical interventions include amputation, debridement and fasciotomy followed by skin grafting in few cases.

This is retrograde observational study, include of surgical interventions in IPD patients of Diabetes mellitus in an equipped hospital from eastern region of Pune, having OPD 70 to 100 patients per day of surgery department.

**KEYWORD:** Diabetes mellitus, amputation, debridement and fasciotomy

## INTRODUCTION:

Ayurvedic literatures described *Madhumehavyadhi* which can be correlated with Diabetes mellitus in modern medical science. They characterized by excessive urination and increased level of glucose in human body. When *Prameha* is not treated properly then it leads to formation of *Madhumeha* (Diabetes Mellitus).<sup>1</sup>

### *Prameha-*

Diabetic mellitus is a metabolic disorder characterised by hyperglycaemia, glycosuria, hyperlipidaemia, negative nitrogen balance and sometimes kitonaemia. Pathological changes are thickening of capillaries basement membrane increase in vessel wall matrix and cellular proliferation resulting vascular complication like<sup>2</sup>.

- Lumen narrowing
- Early atherosclerosis
- Sclerosis of glomerular capillaries
- Retinopathies
- Neuropathy
- Peripheral vascular insufficiency

Prediagnosed patients of diabetes patients were admitted to indoor patient department at SANE GURIJI HOSPITAL located at eastern region of highly populated Pune

part of Maharashtra. Differing in educational standard and socio economical standered.it was naturally needed different planning for diabetes mellitus.

It is aim to assess different combination of treatment which required surgical intervention.

Prevalence of diabetes mellitus in India for 15-49years age group is 1.9% and above 50years is 6.9%.<sup>3</sup>Goal of WHO is – scale up prevention, strengthen care and enhance surveillance of diabetes. Ministry of AYUSH working on developing new drug on scientific line, fighting diabetes through *Yoga*.

This study will create a notion about to increase awareness about complication which may cause sacrificing any body part (amputation) or non- healing ulcer or wound and prolonged hospitalizations for vastly debride wound and therefor present study said these all complication can be avoid by consisting and educating the patient.

### **Study rationale:**

It is non-commercial retrograde study of pre-diagnosed diabetes mellitus patient to evaluate surgical need and quality of life.

**AIM:** Treatment trials and quality of life trials to explore ways to improve comfort



and quality of life for individuals with diabetes mellitus

### OBJECTIVES:

- To study the quality of life in diabetes mellitus patient.
- To study the requirement of surgical interference in diabetes mellitus patient in three years
- To study the no. of patient who underwent surgery for diabetes mellitus complication in last three years.

### MATERIAL METHODS

#### Observational Study of Diabetes Mellitus Required Surgical Management of Three Year

Prevalidated questionnaire with main focus on surgical management required for pre-diagnosed DM patients with other factors which directly or indirectly affect quality of life of diabetic patient were prepared. It was administered to 30 patients of Diabetes mellitus and asked them to tick the option provided in questioners. These questions were analysed.

#### Methodology-

Sampling method- Non probability purposive sampling method

Sample size- 30 patients.

30 diagnosed patients of Diabetes mellitus has been taken for this observational study.

30 patients of Diabetes mellitus between the age group 20-80 years were selected irrespective of their gender, religion, economic status.

### STUDY DESIGN:

Screening of admitted 30 patients



Initial assessment was done



Cases were recorded according to questionnaires



Statistical data analysis



Discussion was done on the available statistical data.

Conclusion



Results were drawn from the statistical data.



**Place of work:** From IPD Department of *Shalyatantra* from the Sane Guruji Hospital Malwadi, Hadapsar, Pune-411028, Maharashtra, India

**Inclusion criteria:** Pre-diagnosed diabetes mellitus patient having history of diabetes mellitus zero day to 15 years.

Duration of study: January 2014 to July 2017

### Assessment tools:-

#### Special formed Questioners details of:

1. Known cases of diabetes mellitus.(yes/no)
2. family history (present or not)
3. disease diagnosis age
4. dietary habit (veg or mix)
5. occupation (stressful or not)
6. medicine (oral or injectable)
7. blood sugar level monitoring (monthly or 2 monthly or irregular)
8. exercise (regular or irregular)
9. wound healing duration
10. treatment : (conservative or debridement or amputation)

#### Interventional procedures:-

**Standard Operative Procedure:Fasciotomy and debridement (*Pracchanaa karma*):-**According to *Sushrutacharya*, bloodletting (*Raktavistravan*) is done by two methods i.e. with the help of sharpen instrument for ex. scalpel (*Shastra*)&without help of Sharpen instrument.<sup>4</sup> With the help of *Shastra* is subdivided in two types – Multiple incisions on affected part is called *Pracchana* which includes fasciotomy and debridement and from veins *Siravyadha*.<sup>5</sup>

Affected part of body having cellulitis (*DushitRaktadhatu*) located at any part of body superficially is treated by Fasciotomy (*Pracchana karma*), clotted blood is drained by instrument made up of horn of animal (*Shrungadi*) and *dushitRaktadhatu* is treated by bloodletting through veins (*Siravyadha*).<sup>6</sup>

Multiple incisions (*Pracchana karma*) must be straight (*saral*), *asamkirna*, (*sukshma*), same (*Saman*), not too superficial nor too deep (*naati-gambhir or naati –uttan*).<sup>7</sup>

Draining of *dushitRaktadhatu* relieves the patient and improvement in symptoms like pain, disease intensity is seen.<sup>8</sup>

#### Instruments used in Emergency Fasciotomy and debridement (*Pracchana karma*):

Needle, Hawk bill scissors, Scissors, Curved bistoury, Pagets knife, Culture swab bud.

**Incision:** *Sushrutacharya* stated that the width of incision over muscle should be thin like *Yava* & at other parts it must be half of *Yava or Yavamatra*. For this *Vrihimukhayantra* (Thin Trocar & Cannula) should be used.<sup>9</sup> On the bony area, it must be done by *Kutharika* (Axed shaped knife or chisel).<sup>10</sup> Fasciotomy were carried out under Spinal anaesthesia.



**Pre-operative management:-**

1. Routine lab investigations were done prior to surgery.
2. GM dressing TDS
3. Physician fitness done
4. Written informed consent taken
5. Part prepared
6. NBM

**Intra-Operative Procedure:-**

1. Spinal anaesthesia given.
2. Painting and draping of the affected part.
3. Incision taken over most prominent part of infected site.
4. All pus, dead, necrosis tissue removed.
5. Suitable pressure bandage applied

**Post-operative management:-**

1. Antibiotic, analgesic, antacid
2. Elevation of limb
3. Daily dressing.

**OBSERVATIONS AND RESULT:**

It is a retrograde observational study. This study was carried out to evaluate quality of life in diabetes mellitus patient. Total thirty pre diagnosed patients of diabetes mellitus of IPD having cellulitis or infected wound on foot were included in this study. Out of thirty patients three patients were dead after two months of

discharge. Statistical analysis of thirty patients were analysed and data was generated and conclusion was drawn.

**Statistical data:-****Age:-Table no.1 - Showing distribution of age in Diabetes Mellitus patients.**

Age Group	Frequency	Percentage
20-30 Years	1	3.3
30-40 Years	2	6.7
40-50 Years	10	33.3
50-60 Years	8	26.7
60-70 Years	7	23.3
Above 70 Years	2	6.7
<b>TOTAL</b>	<b>30</b>	<b>100.0</b>

**Gender: Table no.2-Showing statistical data of gender**

Gender	Frequency	Percentage
Male	21	70.0
Female	9	30.0
<b>TOTAL</b>	<b>30</b>	<b>100.0</b>

**Family History:-Table no.3-Showing statistical data of family history**

Family History	Frequency	Percentage
Yes	10	33.3
No	20	66.7
<b>TOTAL</b>	<b>30</b>	<b>100.0</b>



**History of Diabetes Mellitus:-Table no.4  
- Showing statistical data of history of  
Diabetes mellitus**

Disease Since	Frequency	Percentage
1-3 Years	7	23.3
3-6 Years	15	50.0
6-9 Years	2	6.7
9-12 Years	4	13.3
12-15 Years	2	6.7
<b>TOTAL</b>	30	100.0

**Diagnosis Age:-Table no 5. Showing  
statistical data of diagnosis age**

Diagnosis Age	Frequency	Percentage
20-30 Years	1	3.3
30-40 Years	4	13.3
40-50 Years	14	46.7
50-60 Years	6	20.0
60-70 Years	4	13.3
Above 70 Years	1	3.3
<b>TOTAL</b>	30	100.0

**Diet:-Table no.6 - Showing statistical  
data of diet**

Diet	Frequency	Percentage
Veg	5	16.7
Mixed	25	83.3
<b>TOTAL</b>	30	100.0

**Stress:-Table no.7-Showing statistical  
data of stress**

Stress	Frequency	Percentage
Yes	14	46.7
No	16	53.3
<b>TOTAL</b>	30	100.0

**Medicine data:Table no.8-Showing  
statistical data of medicine**

Medicine	Frequency	Percentage
Oral	22	73.3
Injectable	8	26.7
<b>TOTAL</b>	30	100.0

**BSL Monitoring Data:-Table no. 9 -  
Showing statistical data of BSL  
monitoring**

BSL Monitoring	Frequency	Percentage
15 Days	6	20.0
Monthly	14	46.7
> 1 Month	6	20.0
Irregular	4	13.3
<b>TOTAL</b>	30	100.0

**Exercise:-Table no.10 - showing  
statistical data of exercise**

Exercise	Frequency	Percentage
Regular	7	23.3
Irregular	23	76.7
<b>TOTAL</b>	30	100.0

**Duration of wound healing:-Table no.11- Showing statistical data of wound healing duration**

Duration of Wound Healing	Frequency	Percentage
< 1 Month	2	6.7
1 Month	7	23.3
2 Months	18	60.0
> 2 Months	3	10.0
<b>TOTAL</b>	<b>30</b>	<b>100.0</b>

**Mode of treatment:-Table no.12 - Showing statistical data of treatment**

Treatment	Frequency	Percentage
Conservative	1	3.3
Debridement / Fasciotomy	25	83.3
Amputation	4	13.3
<b>TOTAL</b>	<b>30</b>	<b>100.0</b>

**DISCUSSION AND CONCLUSION:-**

**Age:** It was observed that diabetes mellitus is very common in age group of 40-50 years. General causes for DM are insulin resistance, obesity, eating unhealthy food, physical inactivity and smoking. Among stated causes physical inactivity and obesity were found in most of patients 25 patients of this study having age between 40-70. The American diabetes association (ADA) recommend annual

diabetes screening test after the age of 45<sup>11</sup>. This study includes one patient from age group twenty to thirty. Therefore screening for early diagnosis for Diabetes must start from thirty years of age.

**Gender:** Male patients were more sufferers of Diabetes Mellitus. There is a striking observation found in Ayurveda text, according to *VrindaMadhavamale* are more prone to DM because females are having menstrual flow every month which reduces the risk of DM. *Madhava* also stated that females are not sufferer of Diabetes mellitus but also if disease occurs in females' severity is less than male.

**Family history:** Study includes family history of Diabetes Mellitus which includes both parents. Diseases inheriting into offspring are defined as *Aadibalapravrittavyadhi* by *Sushruta*. *Vagbhata* called them *sahajvyadhi*. *Prameha* is included in this. 33% of diabetes patients from study were having family history of diabetes mellitus

**Diabetes history since:** 50%. Of patient were having disease since 3-6 years which was maximum duration in study.

**Newly diagnosed Diabetes mellitus –** Diagnosis of Diabetes for first time was determined in 40-50 years. Study includes 46.7%. Patients were diagnosed first time when they admitted for surgical cause. In



age group of 40-60, patients were developing diabetes at a faster rate, edging out adult aged 65 and older.

**Diet:**Maximum no. of diabetes mellitus patient were consuming mixed diet was 83.3% and 17% are of vegetarian. Ayurveda is having very unique concept for every disease while describing its causes. Dietary, regular code of conduct life (Lifestyle) and every detail of day today's activity. Ayurveda described dietary dos and don'ts for every disease. Aged rice or pulses etc. are recommended by Ayurveda in Diabetes.

**Stress:** Maximum no. of patient having stress was 47% and 53% patients were having comparatively less stress. Long term stress can cause long term high glucose blood level.

**Medicine:**Maximum no. of patient was on oral hypoglycaemic medicine is 73.3% and 26.7% required injectable hypoglycaemic medicine.

**Monitoring of blood sugar level:** Patients were monitoring their BSL monthly which was 46.7%, for every 15 days was 20%, above 1 monthly was 20% and 13% was irregular.

**Exercise:** Exercises includes gym, walking, swimming, Yoga for at least one hour daily can reduce risk of DM in Type

II exercise can reduce glucose in your body<sup>19</sup> while stating different causes of diabetes, all treaties from Ayurveda loudly elaborate that sleeping during day time, sedentary lifestyle and lack of exercise are most important causes. Study shows only 23% of total patients were doing regular exercises and 77% were irregular.

**Surgical management:** Maximum no. of admitted patients of study required Fasciotomy or debridement was 83.3% , amputations were required for 13.3% and 3.3% patient was treated conservatively.

**Wound healing duration:** maximum duration required for wound healing was 2 month in 60% of patients. This excludes size of wound.

**Conclusion:** All admitted patients were taking regular medicine and they give regular follow-up to diabetic OPD. Still they develop cellulitis or infected wound and therefore required debridement and Fasciotomy and few required amputation. It is concluded that regular medicine and blood glucose level monitoring is inadequate and there is serious need to change in life style. Study concludes to increase efforts of awareness about complication of diabetes mellitus in society from Government level, private health sector and other health service providers.





The different etiopathogenesis and there solution are described in ancients texts of Ayurveda are found applicable and can be followed in current scenario.

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**Cite this article:**

Observational Study of Diabetes Mellitus  
Required Surgical Management of Last Three Years  
Mayuri Kamble, Rashmi Kale, Sandip Gaikwad

*Ayurlog: National Journal of Research in Ayurved Science-2018; 6(2): 1-10*

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