

# A Single Case Study of Diabetic Ulcer with Charcot's Deformity

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## ABSTRACT

In patients with diabetes the incidence of acute charcot arthropathy of the foot and ankle ranges from 0.15-2.5%. It occurs as a result of arthritis in joint in diabetic patients. In contemporary science the management of wound is by oral and topical antibiotics along with use of betadine solution and eusol are in practice for wound care. Gomutra Arka been widely practiced for Vranshodhana and most of the time it is not accepted by group of people, because of smell and religious factor. So, there is a need for alternate simple and effective formulation which can be used in all wound for Vranashodhana. Hence here is an effort to find better substitute for the wound care and healing. A male patient 62 years old visited OPD Taranath Government Ayurvedic Medical College with complaint of Wound in right foot 3rd toe tip and got diagnosed as T2DM/HTN/Diabetic Ulcer with Charcot's Deformity. Successfully treated the wound with Karanja Arka Prakshalana for wound care. Few internal medication and Pathya Apathya for 21 days.

**Keywords:** Charcot's arthropathy, Prakshalana, Pathya Apathya

## 1. INTRODUCTION

The diabetic Charcot foot syndrome is a serious and potentially limb-threatening lower-extremity complication of diabetes. First described in 1883, this enigmatic condition continues to challenge even the most experienced practitioners. Now considered an inflammatory syndrome, the diabetic Charcot foot is characterized by varying degrees of bone and joint disorganization secondary to underlying neuropathy, trauma, and perturbations of bone metabolism. The Charcot foot in diabetes poses many clinical challenges in its diagnosis and management. Despite the time that has passed since the first publication on pedal osteoarthropathy in 1883, there is much to learn about the pathophysiology, and little evidence exists on treatments of this disorder. Charcot neuropathic osteoarthropathy (CN), commonly referred to as the Charcot foot, is a condition affecting the bones, joints, and soft tissues of the foot and ankle, characterized by inflammation in the earliest phase. The hallmark deformity associated with this condition

is midfoot collapse, described as a "rocker-bottom" foot although the Charcot syndrome may occur in a variety of conditions; diabetes is clearly the most common worldwide. Diabetes may predispose to its occurrence through a number of mechanisms. Apart from the presence of neuropathy and possible osteopenia, these include the effects of advanced glycation end products, reactive oxygen species, and oxidized lipids, which may all enhance the expression of RANKL<sup>1</sup> (Receptor activator of nuclear factor kappa-B ligand) in diabetes. Treatment<sup>2</sup> in its early stage is towards reducing swelling and heat in the area, stabilizing the foot by keeping it immobile. Non-surgical (wearing a protective splint, walking brace, off-loading etc.) and surgical treatments (reconstructive osteotomy, ankle fusion, exostectomy and amputation and prosthetic fitting).

## CASE REPORT

A 62 year old male patient visited to out-patient department (OPD) at Taranath Government

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Ayurvedic Medical College, Ballari, Karnataka on 11/08/2021 presented with complaints of wound, pain in right foot 3<sup>rd</sup> toe tip since 6 months.

**History of Present Illness:** Patient was said to be apparently alright 10 years back. Then he had nail injury to right foot. Which caused pain and swelling in anterior 1/3<sup>rd</sup> of foot with swelling extending upto ankle. He operated for the same from VIMS, Ballari. Then he underwent 5<sup>th</sup> toe right foot amputation. Recently he developed ulcer in 3<sup>rd</sup> toe tip region along with pain and swelling. Visited Taranath Government Ayurvedic Medical College, Ballari for the same.

**History of Past History:** K/C/O type 2 DM (14years)/HTN (6years)

**Drug History:**

1. Tab. Glycomet GP1 morning A/F
2. Tab. Glycomet 500 night A/F
3. Tab. Atenolol 50 BID A/F

**4. Systemic examination:**

CVS: S1S2 heard, no any added sounds  
RS: normal vesicular breath sounds  
P/A: soft, normal bowel sounds, no organomegaly

**Local Examination:**

**Inspection**

Site: 3<sup>rd</sup> right foot toe tip  
Size: 2cm \* 1.5cm  
Shape: oval  
Edge: sloping  
Floor: pale granulation with unhealthy tissue seen  
Discharge: mild serous  
Surrounding area: blackish pigmentation with callosity  
Margin: regular

**Diagnosis:** T2DM/HTN/DIABETIC ULCER with Charcot's Deformity

**Treatment Adopted:**

Days 1 to 21

Karanja Arka Prakshalana followed by dressing.

Internally

1. Kaishora Guggulu 1 TDS
2. Kokilaksha Kashayam 10ml TDS Before Food

Strict Pathya Apathya as advised.

**Personal History:**

- Appetite: poor
- Diet: mixed
- Bowel: Regular
- Sleep: Disturbed due to pain
- Micturition: 4-5 times/ day  
2-3 times/ night

Habits: occasional alcohol intake, Smoking present

**Occupational History:** X-Servicemen, Farmer

**Examination:**

1. Built: moderate
2. Vitals were normal

**3. General examination:**

Pallor- Absent	Cyanosis- Absent
Icterus- Absent	Lymphadenopathy- Absent
Clubbing- Absent	Edema- pitting edema + (Right Leg and Foot)

Smell: absent

**Palpation**

Tenderness: absent  
Swelling: present in right leg and foot, pitting  
Induration: Absent  
Temperature: Absent  
Pulsation:  
Dorsalis pedis- good  
Posterior tibial- feeble  
Anterior tibial- good

**Fig: 01**



**Fig: 02**



**Before Treatment**

**during and After Treatment**

**Fig: 03**

**Fig: 04**

Parameters	Results	Reference Range
<b>BIO-CHEMISTRY</b>		
RBS	221.2 mg/dl	70 - 140
HBA1C	9.7 %	< 6 (from diabetes) 6 - 7 (Near normal glycaemia) 7 - 9 (Good Control) > 9 (Action suggested)
Estimated average glucose HPLC-BIORAD D-10	231.7 mg/dl	
UREA	10.5 mg/dl	< 4.0
S-CREATININE	0.8 mg/dl	M: 0.8 - 1.4 F: 0.5 - 1.4
<b>SEROLOGY</b>		
CMP (Nephelometry Method)	1.2 mg/L	< 0.60

Ref. No. : 331

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**Blood Investigation**

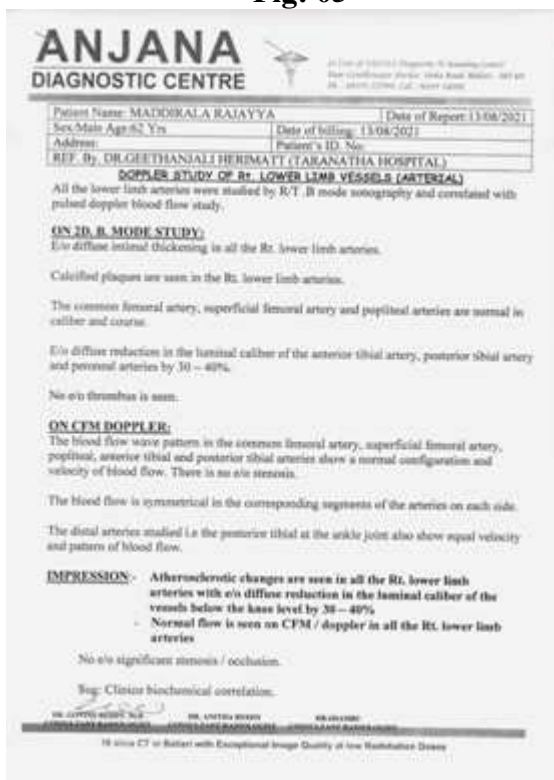
TESTS	RESULTS	NORMAL VALUES
<b>BIO-CHEMISTRY</b>		
FASTING BLOOD SUGAR (FBS)	180 mg/dl	70 - 110 mg/dl
POST PRANDIAL BLOOD SUGAR (PPBS)	270 mg/dl	80 - 140 mg/dl
<b>HAEMATOLOGY</b>		
Hb%	12.5 (%)	14.0 - 18.0 (%)
R.F.S	27 mm <sup>3</sup> /hour	30 - 50 mm <sup>3</sup> /hour
BLEEDING TIME	2 MIN:50 SEC	1 - 4 MIN:00 SEC
CLOTTING TIME	3 MIN:00 SEC	1.5 - 7 MIN:00 SEC
<b>SEROLOGY</b>		
HIV 1 & 2	NEGATIVE	
HbsAg	NEGATIVE	

Signature of Pathologist

**Blood Investigation**



**Fig: 05**



**Arterial Doppler**

**Fig: 06**



**X- Ray foot**

**Table No. 01: Findings of Ulcer Before and After Treatment**

Symptom	BT	7 <sup>th</sup> Day	14 <sup>th</sup> Day	21 <sup>st</sup> Day
1.Pain	Present	Present	Reduced	No pain
2.Itching	Absent	Absent	Absent	Absent
3.Foul smell	Absent	Absent	Absent	Absent
4.Size	2cm*1.5cm	1.5cm*1cm	1cm*0.5cm	Healed
5.Edge	Sloping	Sloping	Sloping	Sloping
6.Margin	Regular	Regular	Regular	Regular
7.Floor	Slough with beafy granulation tissue	Beafy granulation tissue	Pinkish granulation tissue	Healed
8.Discharge	Mild sero-purulent	Mild serous	Serous	Absent

**DISCUSSION**

The prevalence of Charcot’s arthropathy ranges from 0.1% to as high as 13% in specialized foot clinics. In patients with diabetes the incidence of acute charcot arthropathy of the foot and ankle ranges from 0.15-2.5%. Epidemiological studies do not distinguish between acute and post acute disease. The 62 year old male patient approached our hospital with complaints of wound in right foot 3<sup>rd</sup> toe tip with charcot deformity. Got successfully treated for the wound.

**PROBABLE MODE OF ACTION:**

- He was treated with karanja arka<sup>3</sup> for vrana prakshalana which has vrana shodhana and ropana action.
- Kaishora guggulu has rakta gata dosha pachana, rakta prasadana and medo hara action, which helped in managing the diabetic ulcer

microcirculation and atherosclerotic changes in arteries.

Kokilaksha kashayam is a know formulation in the management of Vatarakta. Which is used to treat Gout and many types of arthritis.

The charcot’s deformity is a result of arthritis of joint occurring in diabetic patient. So, the combination of kaishora guggulu and kokilaksha kahshayam been used to manage the condition.

**CONCLUSION:**

Diabetic ulcer with charcot deformity is rare presentation and often the diagnosis is missed. This patient was having atherosclerotic changes in lower limb arteries, T2DM, HTN which was interfering with wound healing. He was diagnosed with diabetic ulcer with charcots deformity and was treated the wound successfully with Ayurvedic medicine like

internally Kaishora Guggulu and Kokilaksha Kashayam. Externally, Karnja Arka Prakshalana followed by dressing to manage wound. As it was single case study it needs further evaluation and efficacy of the drug and procedure.

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