Case Report

A Case Study on Right Plantar Abscess with type-II Diabetes Mellitus

T.V.Harsha Varun*, G.Meghana¹, D.Neelufur¹, Dr.R.E.Ugandar².

1. Santhiram College of Pharmacy, Nandyal, Kurnool DT, Andhra Pradesh.
2. Santhiram Medical College & General Hospital, Nandyal, Kurnool DT, Andhra Pradesh.

*Corresponding Author: T.V.Harsha Varun*, Santhiram College of Pharmacy, Nandyal, Kurnool DT, Andhra Pradesh.

Received Date: August 08, 2020
Publication Date: September 01, 2020

Abstract
Plantar foot abscess is a medical condition in which the skin of the foot contains pus deposits due to the presence of bacterial infection. It is both poorly understood by patients and clinicians and severe in consequence without prompt and aggressive treatment. A case is known diabetic patient on medication presented with ulcer right toe for 4 days which is insidious in onset % gradually progressive, Fever for 4 days. Usually caused by the infected punctured wounds or by the extension of infection from wounds of the toe. {1,2,3} It may perforate the plantar fascia and penetrate the flexor brevis which arises from it’s under surface. A plantar abscess may arise from a variety of causes. Infections of the fibro-fatty tissue of the toe or the long flexor tendon sheaths and lumbrical tendons secondary to webspace infections, pool nail care, and trauma had implicated.

Keywords: Leg Abscess, Infection, Diabetes Mellitus, Amputation, Tendon Rupture.
Case Report

A 60-year-old man a known diabetic patient on medication presented with a chief complaints ulcer over right 1st toe for 4days, fever for 4days, and reddish in appearance, warm on touching, inability to bear weight. The infection can occur in between the toes or can be present at the joint. An abscess is abrupt as the condition is found to be permanent in individuals with compromised immunity or metabolism.

History of Present Illness

Ulcer over right 1st toe since 4days which is insidious in onset & gradually progressive.

History of Past Illness

Diabetes mellitus since 1year on treatment Right hemiparesis since 8years back.

Introduction

A plantar abscess is a diabetic foot it is relatively uncommon. The abscesses are the anatomic type of foot infection. Three plantar spaces have been identified the medial, central and lateral. Foot abscess can occur when sweat glands or oil glands get obstructed, hair follicles are inflamed, bruising or lesions in the skin occur. The germs underneath their skin resulting in the pus formation due to the inflammatory response on the body. In the case of abscess in the foot, it becomes tedious to treat it owing to the possibility of severe complications. Patients with compromised immunity or prior health conditions like diabetes. The abscess constitutes dead cells, bacteria which strain in the skin causing inflammation in the surrounding tissues. A medial incision is recommended for drainage of both the medial and central plantar spaces. It can be avoiding a painful plantar scar and allows for extensive incision and drainage of this abscess. The central plantar space is tendons of the flexor digitorum longus, flexor digitorum
brevis, and quadrates Plantae, lumbricales pedes, the medial and lateral plantar nerves and the plantar arterial arch. Plantar space infection may arise from a variety of causes. Infections of the fibro-fatty tissue of the toe pad or the long flexor tendons sheaths and lumbrical tendons secondary to webspace infections, pool nail care, trauma, and mal perforans ulcers have implicated. (4, 5).

**Classification of Plantar Diabetic Foot Infection:**

**IDSA (Infectious Diseases Society of America) Diabetic Foot Infection Classification**

- **Uninfected:** lacking purulence or signs of inflammation.
- **Mild:** infection limited to superficial tissue, cellulitis < 2 cm around the ulcer, no systemic signs.
- **Confusion, vomiting.**
- **Tachycardia, hypotension.**
- **Leukocytosis.**
- **Severe hyperglycemia, DKA or azotemia.**
- **Moderate:** Systemically well & metabolically stable, more than one of -Cellulitis > 2 cm from the ulcer, deep tissue involvement, abscess, gangrene, the involvement of muscle, tendon, joint or bone.
- **Severe:** foot infection and systemic toxicity and/or metabolic instability.
- **Fever or chills** (6).

**Causes**

Abscess in the foot is commonly caused due to frequent injury. The result in foot abscess is bacterial infection wound, chronic steroid therapy, insect bites, infection in hair follicles and boils. The bacterium can cause abscess specifically in the foot is fusobacterium necrophorum and arcanobacterium pyogenes. (4, 5).
Personal History
Married
Bowel – Regular
Appetite – Decreased
Micturition – Normal
Alcohol - Occasional

Physical Examination
Pallor - Yes.
Icterus – No.
Temp - 101.4°F,
GRBS - 397mg%,
BP - 130/80mm Hg
Pulse rate - 84bpm

Systemic examination
Thrills – No
Cardiac murmurs – No
Cardiac sounds - S1S2+, Abdomen – scaphoid
Hernia orifices - normal

Lab Investigations
CBP

<table>
<thead>
<tr>
<th>TEST VALUE</th>
<th>NORMAL VALUE</th>
</tr>
</thead>
<tbody>
<tr>
<td>Hb- 10.8gms/dl</td>
<td>13-18gms/dl</td>
</tr>
<tr>
<td>TWBC-21,000/cmm</td>
<td>4000-11000/cmm</td>
</tr>
</tbody>
</table>

Figure-1: CBP
Differential Count

<table>
<thead>
<tr>
<th>TEST VALUE</th>
<th>NORMAL VALUE</th>
</tr>
</thead>
<tbody>
<tr>
<td>Polymorphs- 78%</td>
<td>50-70%</td>
</tr>
<tr>
<td>Lymphocytes-15%</td>
<td>25-40%</td>
</tr>
<tr>
<td>Esinophils-5%</td>
<td>1-4%</td>
</tr>
<tr>
<td>Monocytes-2%</td>
<td>3-8%</td>
</tr>
<tr>
<td>Easophils-0%</td>
<td>0-1%</td>
</tr>
<tr>
<td>ESR- 35mm/hr</td>
<td>0-7%</td>
</tr>
</tbody>
</table>

*Figure-2: Differential Count*

Urine Examination

- Colour- pale yellow
- Sp.G-1.015(1.010-1.015)
- Reaction-Acidic
- Albumin- 1+
- Sugar- 3+++ 

Microscopic Examination

- Pus cells-3-4hpf
- Epithelial cells- 4-6hpf
- Casts-Nil
- RBC-Nil

Platelet Count 362000/cmm (150000-400000)
### Lipid Profile

<table>
<thead>
<tr>
<th>TEST VALUE</th>
<th>NORMAL VALUE</th>
</tr>
</thead>
<tbody>
<tr>
<td>Total cholesterol-211mg/dl</td>
<td>150-200 mg/dl</td>
</tr>
<tr>
<td>Triglycerides-136mg/dl</td>
<td>150 mg/dl</td>
</tr>
<tr>
<td>HDL-39mg/dl</td>
<td>30-60 mg/dl</td>
</tr>
<tr>
<td>LDL-145mg/dl</td>
<td>40-160 mg/dl</td>
</tr>
<tr>
<td>VLDL- 27mg/dl</td>
<td>20-40 mg/dl</td>
</tr>
<tr>
<td>Serum creatinine-0.94mg/dl</td>
<td>0.6-1.5 mg/dl</td>
</tr>
<tr>
<td>Urine for microprotein-85mcg/min</td>
<td>20-200 mcg/min or 30-300 mcg/mg creatinine</td>
</tr>
</tbody>
</table>

**Figure-4: Lipid profile**
**Diagnosis** Right plantar abscess with Type-II Diabetes mellitus.

**Discussion**

Patients with DM are susceptible to infection because of the decreased migratory ability of neutrophils, decreased phagocytic activity, impaired humoral immunity, increased adherence of microorganisms to diabetic cells, neuropathy, and microangiopathy. Moreover, the frequency of medical intervention in DM patients is a risk factor for bacteremia; therefore, these patients are particularly vulnerable to infections. (7,8)

This case report describes the surgical intervention and wound care techniques that eventually led to the resolution of infection. It also draws attention to the fact that uncontrolled diabetes has the propensity to allow for large-scale infections in patients that have no open wounds or obvious sources of infection. The first case report of deep anterior leg compartment infection in an undiagnosed diabetic patient. On the initial presentation to the emergency department and initial follow-up, the patient’s large infection was masked due to the fact she was diabetic.

The two days follow up period as ordered by the foot and ankle specialist facilitated a prompt diagnosis and admission to the hospital immediately after review of the newly ordered labs and imaging. The timely diagnosis, admission, and incision and drainage ensured that the infection did not spread to other compartments.

Following initial management, additional steps were also taken to ensure the full future functionality of the limb. The repeat incision and drainage allowed appropriate assessment of the infected structures before definite closure to ensure limb viability. The decision to maintain daily infusions of IV antibiotics for two weeks postoperatively prevented recurrence and non-weight bearing status allowed for appropriate granulation tissue to form over the tissue void and exposed tendon. Alternative wound care products that may have resulted in faster wound closure were unavailable due to the patient’s insurance. Despite this limitation, wound VAC therapy was successful at gaining full wound closure. (9,10,11)

The final step which ensured limb viability and functionality was the referral to physical therapy to address the acquired equinus contracture. This referral was purposefully delayed until full wound closure was achieved as early mobilization may have resulted in wound opening, and compromised healing, ultimately prolonging the course of treatment.
Treatment Chart

<table>
<thead>
<tr>
<th>Inj.omni bact forte IV –BD 1.5gms</th>
<th>Cap.Dalacin-300mg-BD</th>
</tr>
</thead>
<tbody>
<tr>
<td>T. Gemer-2mg-BD</td>
<td>Inj.Acetrapid-6U-TID</td>
</tr>
<tr>
<td>T. Chymoral forte-DS</td>
<td>T. Dolonox-DT-BD</td>
</tr>
<tr>
<td>Inj.Febrinyl-2CC-5CC dilution slow (SOS)</td>
<td>Inj.Pantop-40mg-IV-BD</td>
</tr>
<tr>
<td>Inj.Xylocane-2CC-BD</td>
<td>Inj.Human mixtard-12U-BD</td>
</tr>
<tr>
<td>T. Ultramac-BD</td>
<td>T.Gabaneuron-300mg</td>
</tr>
</tbody>
</table>

Figure-5: Treatment chart

References


