MATERIAL & METHODS
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The present study was conducted on patients of diabetes attended diabetic clinic, or admitted in department of surgery in M. L. B. Medical college Jhansi from June 2005 to July 2006 having foot complications.

In diabetic O.P.D. – Study of blood sugar was done

- Categorised to type of foot involvement depending on predominant involvement
  - cellulitis
  - neuropathy
  - peripheral vascular disease
  - non specific phlegmon

In surgery indoor wards the detailed history of patients taken with examination and investigations done.

History: A thorough medical and foot history should be obtained from the patient. The following provides guidelines of specific diabetic foot issues that should be addressed:

Global History:

- Diabetes disease duration
- Glycemic management/control
- Cardiovascular, renal, and ophthalmic evaluations
- Other comorbidities
- Social habits - alcohol/tobacco
- Current medications
- Allergies
- Previous hospitalizations/surgeries
Foot-Specific History:
- Daily activity
- Footwear
- Chemical exposures
- Callus formation
- Deformities
- Previous foot surgery
- Neuropathy symptoms
- Ischemic symptoms

Wound/Ulcer History:
- Location
- Duration
- Inciting event or trauma
- Recurrences
- Infections
- Hospitalizations
- Wound care/off-loading methods
- Patient's compliance/wound response
- Interference with wound care/family or social problems for patient
- Previous foot trauma or surgery
- Edema-unilateral versus bilateral
- Previous or active Charcot joint treatment

A Physical Examination A general examination of the patient was done including pulse rate, blood pressure, temperature, respiratory rate, pallor, oedema, ecterus, clubbing, cyanosis, hydration status with detailed examination of foot & leg was done.

Recognizing important risk factors and making a logical, treatment-oriented
assessment of the diabetic foot requires a consistent and thorough diagnostic approach using a common language. Without such a method, the practitioner is more likely to overlook vital information and to pay inordinate attention to less critical points in the evaluation. A useful examination will involve identification of key risk factors and assignment into an appropriate foot risk category. Only then can an effective treatment plan be designed and implemented.

B. Clinical Examination

All patients with diabetes presenting to any health care practitioner require a pedal inspection and should receive a thorough foot examination at least once each year. Patients with diabetic foot-related complaints will require detailed evaluations more frequently. The examination should be performed systematically so that important aspects are not overlooked. First, one should grossly evaluate the patient and his or her extremities. Any obvious problem can then receive closer scrutiny with examination. For clarity, the key components of the foot examination are presented below in a bulleted format. Each bulleted item represents an important component of the pedal examination or a significant finding to be noted based on evidence which indicates likely predictors for ulceration. It is assumed that a general medical assessment will be determined including measurements of vital signs.

Vascular Examination

- Palpation of pulses (dorsalis pedis, posterior tibial, popliteal, femoral)
- Venous filling time (normal ≤20 seconds)
- Color changes: cyanosis; dependent rubor; erythema
- Presence of edema
- Temperature gradient
- Integumentary changes consistent with ischemia: skin atrophy; nail atrophy; abnormal wrinkling; diminished pedal hair
Neurologic Examination

- Light touch: cotton wool
- Two-point discrimination
- Pain: pinprick
- Temperature perception: hot and cold
- Deep tendon reflexes: ankle, knee
- Clonus testing
- Babinski test
- Rhomberg's test

Musculoskeletal Examination

- Biomechanical abnormalities: orthopedic deformities (hammer toes, bunion(s) or Tailor's bunion(s), flat or high-arched feet, Charcot deformities, iatrogenic deformities (e.g., amputation); limited joint mobility; tendo-Achilles contractures/equinus
- Gait evaluation
- Muscle group strength testing: passive and active, nonweightbearing and weightbearing; foot drop; atrophy - intrinsic muscle atrophy

Dermatologic Examination

- Skin appearance: color, texture, turgor, quality; dry skin
- Calluses: discoloration/subcallus hemorrhage
- Fissures (especially posterior heels)
- Nail appearance: onychomycosis, dystrophic; atrophy, hypertrophy; paronychia
- Presence of hair
- Ulceration, gangrene, infection (Note location, size, depth, infection status, etc.)
- Interdigital lesions
- Tinea pedis
Markers of diabetes: shin spots - diabetic dermopathy; necrobiosis lipoidica diabeticorum; bullosum diabeticorum; granuloma annulare

**Footwear Examination**
- Type of shoe
- Fitting of shoe
- Lining wear
- Foreign bodies
- Insoles, orthoses

**C. Diagnostic procedures:**

**Laboratory testing:** as indicated:

- Hb
- TLC, DLC,
- Blood urea, creatinine
- Random, fasting & post parandial blood sugar,
- Urine sugar and ketones
- E. C. G.
- Pus culture & sensitivity

**Imaging studies:**

- *x-ray of affected limb
- *Vascular procedures (e.g. noninvasive arterial studies color doppler study of peripheral arteries)

**Management/Treatment of Diabetic Foot Ulcers**

1. Debridement of necrotic tissue (surgical, mechanical autolytic, enzymatic)
2. Pressure reduction (crutches, healing sandal, contact cast, walking brace, foot cast etc.)

3. Wound care (topical saline gauze dressings, antiseptics, special dressings, hyperbaric oxygen therapy (HBO-OXUM), etc.)

4. Management of infection (incision and drainage, empiric and culture directed antibiotics, soft tissue/bone/joint/resection, amputations

5. Medical management (hyperglycemia, hypertension, nutritional status, renal status)

6. Measures to reduce the risk of ulcer recurrence (regular podiatric care and evaluation; patient preventative education; protective footwear; pressure reduction; surgery to reduce bony prominence/chronic pressure points)

7. Surgical management (curative, ablative, elective)

8. Multidisciplinary consultation and management

**Treatment of Diabetic Foot Infections**

1. Antibiotic therapy in non-limb threatening infection
   
   a. Oral agents (amoxicillin/clavulanate, cephalaxin, dicloxacillin, clindamycin, levofloxacin)
   
   b. Parenteral agents (ciprofloxacin, cefotaxime, oxacillin or nafcillin, ampicillin/sulbactam clindamycin)

2. Antibiotic therapy in limb-threatening infection
   
   ampicillin/sulbactam;

   ticarcillin/clavulanate;
piperacillin/tazobactam;
ceftazidime + clindamycin;
cefotaxime + clindamycin;
fluoroquinolone + clindamycin;
vancocmycin + levofloxacin + metronidazole

3. Antibiotic therapy in life-threatening infection

ampicillin/sulbactam + aztreonam;
piperacillin/tazobactam + vancomycin;
vancocmycin + metronidazole + ceftazidime;
imipenem/cilastatin;
fluoroquinolone + vancocmycin + metronidazole

Management/Treatment of Charcot Foot

1. Weightbearing restrictions (crutches, wheelchair)
2. Immobilization of foot (splint, cast, removable cast)
3. Special footwear or prostheses (orthopedic or molded foot wear, bracing, insoles)
4. Patient education for prevention of recurrence
5. Surgery

Prevention of Foot Complications

1. Podiatric care
2. Protective shoes
3. Pressure reduction
4. Prophylactic surgery
5. Preventive education