A CASE STUDY ON

DIABETES MELLITUS

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"Diabetes is not a limitation; it is an opportunity to live healthier and stronger."

CASE STUDY ON TYPE 2 DIABETES MELLITUS

PRESENTED BY:

K.JYOTHSNA B.Sc (N),M.Sc(N)

NURSE EDUCATOR, SVICCAR

Objectives of Case Study Presentation

- To share clinical experience and enhance knowledge about Type 2 Diabetes Mellitus.
- To understand assessment and management strategies for diabetic patients.
- To identify complications and recommend preventive measures.

Introduction

Diabetes Mellitus Type 2 is a chronic metabolic disorder characterized by insulin resistance and relative insulin deficiency, leading to elevated blood glucose levels. Persistent hyperglycemia damages blood vessels, nerves, eyes, kidneys, and the heart. It is one of the most common non-communicable diseases globally and a major cause of morbidity and mortality.

Incidence and Prevalence of DM

Global Scenario:

537 million adults (20–79 years) living with diabetes globally (IDF 2024)

- Expected to rise to 643 million by 2030 and 783 million by 2045
- 1 in 10 adults has diabetes; 50% undiagnosed

Indian Context:

- India ranks second globally with over 101 million adults affected (ICMR–INDIAB 2023)
- Prevalence: 11.4% urban, 6.2% rural
- Rising incidence among younger age groups due to sedentary lifestyle and diet habits

Patient Information

Name: Mr. R

Age: 58 years

Gender: Male

Date of Admission: 05/10/2025

Date of Discharge: 12/10/2025

Chief Complaints: Increased thirst, frequent urination, and fatigue for 6 months; blurred vision for 2 months.

Present and Past Health History

- Diagnosed with Type 2 Diabetes Mellitus 10 years ago.
- Initially managed with oral hypoglycemic agents; now on insulin therapy.
- Complains of numbness in feet and occasional burning sensation.
- Known case of hypertension for 8 years (on Telmisartan 40mg OD).
- No known drug or food allergies.
- Family history: Father had diabetes and ischemic heart disease.
- No surgical history.

Personal and Social History

- Diet: Mixed diet, irregular meal pattern.
- Sleep: 6–7 hours per day, disturbed due to nocturia.
- Bowel and bladder: Normal pattern, polyuria present.
- Smoking: Smoker for 15 years, quit 3 years ago.
- Alcohol: Occasional drinker.
- Physical activity: Sedentary lifestyle.

Physical Examination

General Appearance

Patient is **conscious, alert, and cooperative**.

Appears **overweight** (BMI 28.4 kg/m²).

Complains of **fatigue and generalized weakness**.

Vital Signs

Temperature: 98.6°F

Pulse: 86 bpm (regular)

Respiration: 18/min

Blood Pressure: 148/90 mmHg

Random Blood Sugar (RBS): 240 mg/dl

Physical Examination

Inspection: Mild pedal edema present; no cyanosis or pallor.

Skin: Dry and scaly over lower limbs.

Skin and Extremities

Skin dry and scaly, especially over lower limbs.

Mild **pedal edema** present.

No cyanosis or pallor.

Healed scars noted on right foot (old ulcer site).

Systemic Examination

Cardiovascular System (CVS)

Heart sounds S1, S2 heard normally.

No murmurs or extra sounds.

Peripheral pulses palpable but slightly weak.

Respiratory System (RS)

Breath sounds **normal and vesicular**, no added sounds.

No dyspnea or cough.

Abdominal Examination

Abdomen soft, non-tender, no organomegaly.

Bowel sounds normal.

Systemic Examination

Central Nervous System (CNS)

Patient oriented to **time, place, and person**.

Reduced sensation in both feet (indicative of peripheral neuropathy).

No motor deficits observed.

Musculoskeletal System

Normal muscle tone and strength.

No deformities, joint stiffness, or limitation of movement.

Eye and Vision

Complains of **blurred vision**.

Fundoscopic exam: mild diabetic **retinopathy** changes.

Systemic Examination

Ophthalmic System

Patient **complains of blurred vision** for the past 2 months.

Fundoscopic examination reveals **mild diabetic retinopathy** (microaneurysms and small hemorrhages).

Visual acuity slightly reduced bilaterally.

No redness, pain, or discharge noted.

Integumentary System

Skin dry and scaly, especially over the lower limbs.

Mild pedal edema present.

No active ulcers, but evidence of **healed scar on right foot** (previous ulcer site).

Capillary refill delayed in toes, indicating poor peripheral circulation.

No cyanosis or pallor observed.

Systemic Examination

Musculoskeletal System

Normal muscle tone and strength in all limbs.

Gait steady, no deformities or joint stiffness.

Occasional leg cramps and feeling of heaviness after walking long distances.

No limitation of movement or tenderness noted

Neurological System

Patient reports **numbness, tingling, and burning sensation** in both feet (especially at night).

Decreased tactile and vibration sensation noted in bilateral lower limbs (tested with monofilament and tuning fork).

Reflexes sluggish in ankle region.

No motor weakness or facial asymmetry observed.

Findings consistent with **peripheral neuropathy**.

Systemic Examination

Cardiovascular System

Blood Pressure: 148/90 mmHg (hypertensive).

Pulse: 86 bpm, regular rhythm.

Peripheral pulses palpable but slightly diminished in dorsalis pedis area.

No murmurs or extra heart sounds on auscultation.

No jugular venous distension.

Mild **ankle edema** present, indicating early circulatory compromise.

ECG: **Normal sinus rhythm**; no ischemic changes.

Renal System

Urine output: adequate (average 1800 ml/day).

Urine examination: sugar +++, albumin trace.

Serum creatinine: 1.2 mg/dl (mildly elevated).

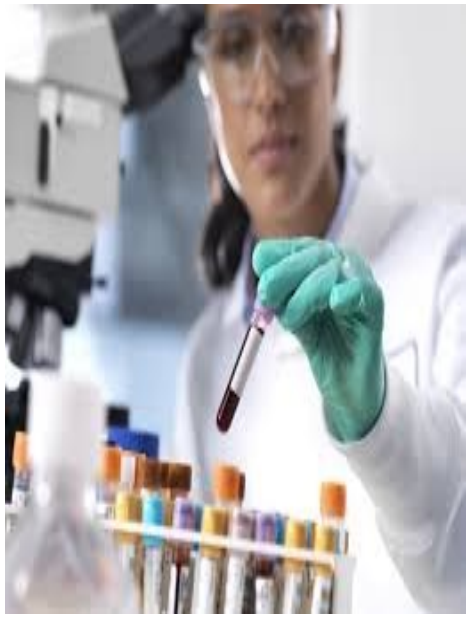
No flank pain or tenderness.

Signs of early diabetic nephropathy noted.

Patient advised to maintain **adequate hydration** and follow low-salt diet

Investigations

- Fasting Blood Sugar (FBS): 176 mg/dl
- Postprandial Blood Sugar (PPBS): 260 mg/dl
- HbA1c: 8.7%
- Urine Sugar: +++
- Urine Albumin: Trace
- Serum Creatinine: 1.2 mg/dl
- Lipid Profile: LDL 165 mg/dl, HDL 38 mg/dl, Triglycerides 210 mg/dl
- ECG: Normal sinus rhythm



Complications

- Diabetic Neuropathy – numbness, burning sensation in feet.
- Diabetic Retinopathy – blurred vision in both eyes.
- Diabetic Nephropathy – mild proteinuria.
- Hypertension – long-term comorbidity.
- Dyslipidemia.

Treatment

Medical Management:

- Metformin 1000 mg BD
- Glimepiride 2 mg OD
- Insulin (Mixtard) 20 IU morning,
  10 IU night
- Telmisartan 40 mg OD
- Atorvastatin 20 mg OD
- Gabapentin 300 mg OD (for neuropathy)

Nursing Care

Nursing Interventions:

- Monitor blood glucose, BP, and weight regularly.
- Educate about foot care and skin care.
- Encourage dietary compliance and exercise.
- Observe for signs of hypoglycemia.
- Provide emotional support and motivation.

Recommendations and Health Teaching

- Follow diabetic diet – high fiber, low carbohydrate, low-fat meals.
- Avoid smoking, alcohol, and junk food.
- Maintain adequate hydration.
- Perform daily foot inspection and use soft footwear.
- Regular eye and renal check-ups every 6 months.
- Manage stress and ensure adequate sleep.

Recommendations

Follow diabetic diet – high fiber, low carbohydrate, low-fat meals.

- Avoid smoking, alcohol, and junk food.

- Maintain adequate hydration.
- Perform daily foot inspection and use soft footwear.

- Manage stress and ensure adequate sleep.

Health Education

Diet

- High fiber, low fat, low sugar
- Avoid refined carbs and processed foods

Exercise

- 30 minutes of brisk walking daily

Foot Care

- Inspect feet daily; wear soft shoes; report wounds early

Medication

- Take insulin and oral drugs as prescribed

Lifestyle

- Manage stress through yoga and adequate sleep

Follow-up

- Regular check-ups for complication prevention

Conclusion

Effective management of Type 2 Diabetes Mellitus requires lifestyle modification, medication adherence, and regular monitoring. Nursing care plays a crucial role in patient education, early detection of complications, and promoting self-care practices.

'Self-care is the best care in Diabetes.'