Sample Clinical Case 2: Mrs M. Davis

Part 1:
DOB: 18/06/1964  Gender: Female  NHS Number: 456 123 789
Occupation: Retired teacher  Height: 164cm  Weight: 87.0 kg

Presentation:
Mrs Davis has come to see her GP complaining she feels tired all the time; even her eyes get tired when reading. She finds her sleep is disturbed by needing to get a glass of water and go to the loo during the night. She thought this only happened to men.

This has been going on for several months, and her husband has started complaining that he has to do the housework because she is too tired to help. Worse still, she keeps disturbing his sleep by getting up during the night. She wonders if she has a waterworks infection, but it doesn’t hurt when she pees.

Sample Discussion points for Part 1:
1. Based upon the patient information so far what are the differential diagnoses and why?
2. What is the most likely diagnosis and why?
3. What examinations should be performed on this patient and why?
4. What findings would you expect and why?

Suggestions for facilitator - Focus on communication skills:
Ask students to role play the initial part of the consultation. Focus on asking the right questions to elicit as much information as possible from the patient without taking their history.

Part 2:

Past medical History:

Smoking: Non-smoker  Drugs: No recreational drug use  Allergies: No known drug allergies

Alcohol: 5-10 units per week – Has a single glass of sweet white wine with dinner most evenings.

Existing Medical Condition: No other medical conditions (ex. Asthma, COPD, DVT/PE, TB, etc.)

Family History: Lives with husband, also a retired teacher. Her two adult sons live away from home. Has a dog, walked by her husband. Father died of a heart attack in his early sixties, but her mother is still alive at 90.

Travel: None.

Exercise: Very little, because she feels so tired.

Diet: She think’s its fine but admits she rarely gets her 5 a day.
**Systematic inquiry: Urinary** - She constantly needs to go the toilet; her urine is very clear and she doesn’t notice any abnormal smell or blood.

**Examination:**

**Appearance:** Mrs Davis is obese. She has bags under her eyes and looks tired. She is carrying a half-filled bottle of water with her.

**Observations:**

HR: 78  
RR: 20  
SPO2: 98%  
BP: 130/85  
Temp: 36.8° C

**Examination results:**

No peripheral or central cyanosis, no pursed lip breathing.

Hands warm and well-perfused, with no clubbing, nail changes, or tar-staining. No Dupuytren's contracture. No CO2 retention flap.

Peripheral pulses normal, no ↑JVP.

Face grossly normal, no lymphadenopathy, no ptosis, pupils equal and reactive.

Cardiac apex not displaced, normal heart sounds, no murmurs, no carotid bruits. No peripheral oedema.

Trachea central, chest expansion symmetrical, lungs sound clear, normal percussion.

Abdomen soft and non-tender. No masses felt.

**Neuro Examination:** Arms and legs show normal tone, power, reflexes, and sensation.

**Sample Discussion points for Part 2:**

1. Based upon the patient information so far what are the differential diagnoses and why?
2. What is the most likely diagnosis and why?
3. What investigations should be performed on this patient and why?
   a. What findings would you expect for each and why?

**Suggestions for facilitator - Focus on clinical skills, history taking and general examination:**

Ask students to role play taking the history from Mrs. Davis. Ask students to practice examination, supplying any findings. They may think of examining her thyroid, visual acuity, or performing fundoscopy (all normal). If so, these results are all normal.
Part 3:

Mrs Davis provides you with a sample of her urine. Urinalysis with a dipstick is performed with the following results:

Adapted from the original. Fig. 17.2 Multistix testing of a urine sample, Murphy, Clinical Biochemistry: An Illustrated Colour Text, Chapter 17, pp. 34-35. Available at: https://www.clinicalkey.com/student/content/book/3-s2.0-B97807020729870017X#hl0000030

Her GP decides to investigate further with blood tests: full blood count, renal function, and blood glucose.

---------- Haematology ----------

<table>
<thead>
<tr>
<th>Test</th>
<th>Results</th>
<th>Normal Values Reference Ranges¹</th>
</tr>
</thead>
<tbody>
<tr>
<td>Red cell count</td>
<td>4.9 x10^12 /L</td>
<td>4.4–5.8 x 10^12 /L</td>
</tr>
<tr>
<td>Haemoglobin concentration</td>
<td>130 g/L</td>
<td>115-165 g/L</td>
</tr>
<tr>
<td>Haematocrit (packed cell volume)</td>
<td>39.0%</td>
<td>37%-47%</td>
</tr>
<tr>
<td>Mean cell volume (MCV)</td>
<td>86 fl</td>
<td>78-98 fl</td>
</tr>
<tr>
<td>Mean corpuscular haemoglobin (MCH)</td>
<td>29 pg</td>
<td>27–32 pg</td>
</tr>
<tr>
<td>Platelets</td>
<td>220 x 10^9 /L</td>
<td>150–350 x 10^9 /L</td>
</tr>
</tbody>
</table>

¹ Laboratory Reference Ranges - Davidson’s Principles and Practices of Medicine, Chapter 35, pp. 1357-1364. Available at: https://www.clinicalkey.com/student/content/book/3-s2.0-B9780702070280000354
Total White Count | $5.93 \times 10^9 /L$
---|---
Differential White Count

<table>
<thead>
<tr>
<th></th>
<th>Results</th>
<th>Normal Values Reference Ranges $^2$</th>
</tr>
</thead>
<tbody>
<tr>
<td>Neutrophils</td>
<td>$3.5 \times 10^9 /L$</td>
<td>$2.0–7.5 \times 10^9 /L$</td>
</tr>
<tr>
<td>Lymphocytes</td>
<td>$1.8 \times 10^9 /L$</td>
<td>$1.5–4.0 \times 10^9 /L$</td>
</tr>
<tr>
<td>Monocytes</td>
<td>$0.5 \times 10^9 /L$</td>
<td>$0.2–0.8 \times 10^9 /L$</td>
</tr>
<tr>
<td>Eosinophils</td>
<td>$0.06 \times 10^9 /L$</td>
<td>$0.04–0.4 \times 10^9 /L$</td>
</tr>
<tr>
<td>Basophils</td>
<td>$0.07 \times 10^9 /L$</td>
<td>$0.01–0.1 \times 10^9 /L$</td>
</tr>
</tbody>
</table>

--------------- Biochemistry ---------------

<table>
<thead>
<tr>
<th>Renal Function</th>
<th>Results</th>
<th>Normal Values Reference Ranges $^2$</th>
</tr>
</thead>
<tbody>
<tr>
<td>Sodium</td>
<td>137 mmol/L</td>
<td>135–145 mmol/L</td>
</tr>
<tr>
<td>Potassium</td>
<td>4.0 mmol/L</td>
<td>3.6–5.0 mmol/L</td>
</tr>
<tr>
<td>Urea</td>
<td>2.7 mmol/L</td>
<td>2.5–6.6 mmol/L</td>
</tr>
<tr>
<td>Creatinine</td>
<td>58 µmol/L</td>
<td>50–98 µmol/L</td>
</tr>
</tbody>
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<table>
<thead>
<tr>
<th>Glucose</th>
</tr>
</thead>
<tbody>
<tr>
<td>Glucose (fasting)</td>
</tr>
<tr>
<td>Glycated haemoglobin (HbA1c)</td>
</tr>
</tbody>
</table>

Clinical Reasoning Pre-Diagnosis:

1. Based upon all the information so far, what is the most likely diagnosis and why?

Diagnosis:

Mrs Davis has type 2 diabetes mellitus. This is uncontrolled, as shown by her elevated HbA1c.

Clinical Reasoning Post-Diagnosis:

1. What are the immediate, medium, and long-term issues/problems that need to be addressed in this patient and why?
2. How would you manage this patient?

Suggestions for facilitator:
Discuss the value of these tests in diagnosis and long-term monitoring & treatment of diabetes mellitus. Other tests the students might mention include Calcium, Liver function, Thyroid function, and Oral Glucose Tolerance test. Students could also role play telling the patient the diagnosis to practice breaking bad news.

Additional Resources to Share Post Case:
- NICE Guidelines: NG28, NG17
- BNF

$^2$ Laboratory Reference Ranges - Davidson’s Principles and Practices of Medicine, Chapter 35, pp. 1357-1364. Available at: https://www.clinicalkey.com/student/content/book/3-s2.0-89780702070280000354
Notes:

Case Learning areas:

- Clinical presentation of diabetes mellitus
  - Investigations: Haematology & Biochemistry
- Non-Pharmacological and Pharmacological treatment
- Clinical Skills:
  - Communication skills – building rapport with the patient, asking the right questions, & history taking
  - Clinical Examination skills
- Monitoring, including importance of regular screening for retinopathy and peripheral neuropathy
- Bio-Psycho-Social aspects of long-term chronic conditions

Additional reading:

Macleod's Clinical Examination - General aspects of examination
https://www.clinicalkey.com/student/content/book/3-s2.0-B9780702069932000032

Macleod's Clinical Examination - The endocrine system
https://www.clinicalkey.com/student/content/book/3-s2.0-B978070206993200010X

Davidson’s Principles and Practices of Medicine – Diabetes Mellitus:
https://www.clinicalkey.com/student/content/book/3-s2.0-B9780702070280000202

Kumar & Clark’s Clinical Medicine – Diabetes Mellitus:
https://www.clinicalkey.com/student/content/book/3-s2.0-B9780702066016000275

Practical General Practice – Diabetes and Endocrinology:
https://www.clinicalkey.com/student/content/book/3-s2.0-B9780702055522000245

Rang and Dale’s Pharmacology - The control of blood glucose and drug treatment of diabetes mellitus
https://www.clinicalkey.com/student/content/book/3-s2.0-B9780702074486000329

Waller and Sampson, Medical Pharmacology and Therapeutics - Diabetes mellitus
https://www.clinicalkey.com/student/content/book/3-s2.0-B9780702071676000403

Morris, et al., Clinical Pharmacology - Diabetes mellitus, insulin, oral antidiabetes agents, obesity
https://www.clinicalkey.com/student/content/book/3-s2.0-B9780702073281000360

Marshall, Clinical Chemistry - Disorders of carbohydrate metabolism
https://www.clinicalkey.com/student/content/book/3-s2.0-B9780723438816000130