An Introduction to Case Studies

A medical case study is an in-depth examination of a condition or disease in a single patient. Typically, the patient’s complaints, background and test results are presented to illustrate the symptoms and treatment for a particular disease. Case studies are a great learning tool in human physiology because they let you apply physiological concepts to real-life medical situations.

Some important terms:

- **Symptom**: A condition, sensation or change in bodily function that indicates a disease state. For example, runny nose, sneezing, cough, sore throat, and mild fatigue are symptoms of the common cold.
- **Syndrome**: A set of symptoms that occur together and indicate a particular disease state.
- **Risk factor**: An activity or condition that increases the likelihood of contracting a particular disease. For example, risk factors for heart disease include age, obesity, high blood cholesterol, tobacco use, family history of heart disease, high blood pressure, lack of physical activity and diabetes.
- **Diagnosis**: Identification of a disease from its symptoms, lab tests, etc.
- **Prognosis**: A forecast of the course and probable result of a disease once it has been identified.
- **Treatment**: A course of behaviors recommended to relieve a disease state or symptoms. Treatments may include chemical administrations, lifestyle changes, physical and/or psychological therapy, etc.
- **Etiology**: The underlying cause of a disease state. For example, infection by human immunodeficiency virus (HIV) can cause acquired immune deficiency syndrome (AIDS).
- **History**: A brief description of a patient's medical, lifestyle, or familial background as it might relate to his or her medical complaint.
- **Indication**: A reason to prescribe a medication or course of action. For example, a bacterial infection indicates an antibiotic prescription.
- **Complaint**: A persistent symptom or the reason a patient seeks medical attention.
- **Secondary pathology**: Describes a symptom or condition that occurs as a result of a primary pathology, or as a result of treatment for a primary pathology. For example, burn victims may contract secondary bacterial infections as a result of skin loss from their burns.
Sample Case Study #1

John L. is a 38-year-old male computer programmer and avid hiker in the Northern California backcountry. After a weekend hiking excursion, he presents with a patchy red rash that covers most of his right posterior antebrachial region (the back of right forearm). Several small, weeping blisters are apparent in the distal portion of the rash (near the wrist). During his initial examination, John complains of severe itching in the affected area and tells the attending physician that during his most recent hike he was wearing a short-sleeve shirt during the hike. He first noticed the rash a few hours after hiking through heavy foliage.

The attending physician determines that John suffers from urushiol dermatitis (poison oak) as a result of contact with Toxicodendron (poison oak leaves) during his recent hike. He prescribes an antihistamine cream to help relieve the itching and tells John that the rash should go away by itself in about two weeks. He advises John to keep the affected area loosely covered and to avoid scratching to prevent a secondary infection.

1. What symptoms did John exhibit?  
2. What was the diagnosis for John’s rash?  
3. What risk factors does John have for poison oak infection?  
4. What was the etiology for John’s rash?  
5. What is the prognosis for John’s condition?  
6. What treatment was indicated for John’s infection?  
7. What is a secondary infection?  

Sample Case Study #2

Maryann M. is a 77-year-old woman who was admitted to the emergency room after collapsing in her kitchen while making dinner. On admission to the hospital, she was unconscious but she slowly regained consciousness over the next two days. When she woke, she suffered from paralysis of the right face and arm, a loss of touch sensation on her right face and arm and an inability to speak. Speech comprehension and writing ability with her left hand tested normal.

Maryann’s physician ordered an MRI and discovered a blockage of her left middle cerebral artery (a blood vessel that supplies part of the brain). Based on this information, the physician determined that Maryann had suffered a stroke in the left side
of her brain. Because of the blockage, blood was unable to reach some parts of her right brain that control movement, sensation and speech. The physician prescribed blood-thinners to prevent future arterial blockages and recommended that Maryann’s family admit her to a nursing home because it is unlikely that Mary will recover most of her abilities.

1. What symptoms did Maryann exhibit?

2. What was the diagnosis for these symptoms?

3. What is Maryann’s prognosis?

Sample Case Study #3

Cindy P. is an 8-year-old girl, previously in good health, brought to a pediatrician by her parents. Over the past month, Cindy has become increasingly thirsty, sometimes downing water by the glassful several times per day. She urinates very frequently, sometimes needing to get out of bed several times during the night. At the dinner table, she seems to be eating twice as much as she used to but has lost almost 5 pounds over the past month (unusual for a growing young girl). Cindy’s chief complaint is an onset of nausea that has lasted about three days. During that time, Cindy has vomited three times. Both of Cindy’s grandparents on her mother’s side suffer from diabetes.

At the doctor’s office, blood and urine samples were taken. Blood sugar levels were very high and sugar was detected in her urine. The doctor also noticed a fruity odor to Cindy’s breath. Based on the test results and her observations, the doctor determines that Cindy has insulin-dependent diabetes mellitus. Cindy undergoes a diabetic training program where she learns how to self-inject insulin and test her blood glucose level with chemstrip. Cindy will have to self-inject insulin and closely monitor her blood glucose level for the rest of her life and she will always be at risk for kidney failure. Aside from this, however, Cindy should be able to lead a normal, healthy life.

1. What symptoms did Cindy exhibit?

2. What was Cindy’s diagnosis?

3. Diabetes mellitus has a genetic component and can “run in families.” What risk factors does Cindy have for diabetes?

4. What treatment is indicated for Cindy’s condition?

5. What is Cindy’s prognosis?