



King Saud University
College of Medicine
Department of Medical Education

“ Absent from school ”

Tutorial One

Year Two, Nervous System Block

Curriculum Development Unit

Student's Case

Case 5; 2013

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The Template of the PBL Cases is designed by Professor Samy A. Azer.

The Student Case and Tutor Guide are created by

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Faiz Mansoor, a 10- year-old primary school student, is not feeling well. He has severe headache. His teacher takes him to the school nurse. The nurse measures his temperature and finds a reading of 40°C. While the nurse is trying to contact his parents on the phone, Faiz vomits once. His father rushes to the school and takes him to accident and emergency (A&E) department at King Khalid hospital.

Discussion Questions:

- Are there any difficult words you do not understand?
- List the key information about Mr Faiz.
- Identify Faiz's presenting problems.
- For each problem, generate a list of possible causes (hypotheses).
- What further information would you like to know from history to refine your hypotheses?

At the A & E department Faiz is seen by Dr. Ghazi, the emergency registrar. Faiz's father says Faiz was well until last night when he had some headache and was a little unwell and irritable. He did not eat his dinner and went to bed early. In the morning he insisted to go to school because of the school sports day. But later in the day the school nurse called us because of his fever. On further questions, Faiz did not hit his head anywhere. His bowel habits are normal and he goes to the toilet each morning. He has no trouble with his vision or teeth. There is no history of prolonged exposure to sun.

The father adds, "Faiz vomited twice while we were on our way to the A & E department".

Past Medical History

No history of hospital admission or surgery.

Family History

He has a younger brother five years old.

Medication and Allergy

Nil

Paediatric and Vaccination History

Faiz was born via normal vaginal delivery after a full-term gestation. He weighed 3.5 kg on birth and has a normal growth and development. He was breastfed and has had no medical problems.

Vaccination history:

Faiz received BCG and Hepatitis- B vaccines at birth. He has also received Polio, DPT, and H. Influenzae vaccines at the age of 2, 4 and 6 months. Then Faiz received the MMR vaccine at the age of 1 year. Lastly Faiz was given Hepatitis-A vaccine at 2 years of age.

Social History

Faiz has just entered grade-5. The new school session started in the beginning of September. Faiz lives with his family in Riyadh. There is no history of travel abroad. He has no pets at home.

Discussion Questions:

- Are there words that you do not understand?
- Summarize key information that you have obtained from this progress.
- Identify Faiz's new problems. Provide hypotheses for each problem.
- Use the new information obtained to refine your hypothesis.
- What further information would you like to know through clinical examination?

Faiz is drowsy and a little irritable. He has no skin rash and there is no pharyngitis or tonsillitis. Both his ears are normal. Urine dipstick test is normal.

Vitals Signs	Faiz results	Normal range
Temperature	40°C	36.6-37.2 °C
Pulse rate	120/min, regular	70-110/ min
Respiratory rate	25/min	15-25/ min
Blood pressure	100/60	90/50 – 110/70 mmHg

Neurological Examination

- Cranial nerves are normal.
- No focal neurological signs (no sensory or motor loss).
- Fundus examination shows no papilloedema
- There is stiffness in the neck *Typical Sign for Meningitis.*
- Kernig's sign is positive: When Faiz is lying in supine position in bed and his hip and knee are flexed, extension of his knee joint causes him to feel pain and resist the doctor (normally no pain or resistance should be perceived on extension of the knee).
- Brudzinki's sign is positive: When Faiz is lying in supine position and the doctor flexes his neck, Faiz suddenly flexes his hip joints. (Normally no flexion of hip joint occurs).

Cardiovascular and Respiratory Examinations:

Normal

Abdominal Examination:

Normal

Discussion Questions:

- Are there any terms that you do not understand?
- Summarize the key information that you have obtained from this progress.
- Identify if there are any new problems with Faiz. Provide a hypotheses for each problem.
- On the basis of the new information, how would you explain Faiz's presenting problem?
- What do you think the doctor should do at this stage? (Choose one option only and justify your action)
 - Option 1: Send Faiz for a CT scan of the brain and neck.
 - Option 2: Admit Faiz for observation for 24 hours
 - Option 3: Do a lumbar puncture and IV antibiotics.
 - Option 4: Prescribe oral antibiotics and allow him to go home

Because Faiz has a high fever, headache, vomiting, and has become drowsy, Dr. Ghazi conducted a nervous system examination. The examination reveals that Faiz has meningeal irritation (positive Kernig's sign and Brudzink's sign). Such finding requires further assessment of the cerebrospinal fluid via a lumbar puncture. However, the doctor has to check if there is any evidence of increased intracranial pressure before doing a lumbar puncture. Increased intracranial pressure is usually associated with papilloedema and a focal neurological deficit (sensory or motor). Examination of Faiz's fundi by the ophthalmoscope reveals that there is no papilloedema. He also has no focal neurological deficit. These findings support that he is less likely to have raised intracranial pressure. The doctor progresses to arrange for a lumbar puncture.

Discussion Questions:

- Are there any terms that you do not understand?
- Summarize the key information that you have obtained from this progress.
- Explain why there is a need for a lumbar puncture?
- Why do we need to assess for an increased intracranial pressure before doing a lumbar puncture?
- Work out with your group your "learning issues"?

Resources

A note to students: You are not required to read all these textbooks and resources to prepare for your learning issues. You could use one textbook or one resource for each discipline. For example, for this case you will need to use a resource covering issues related to the case from four disciplines: Physiology, Anatomy, Histology and Medicine. Once you have identified your learning resources, research them for your learning issues and the questions raised in the group discussion. You might choose to use alternative resources other than those listed below:

Textbooks:

- Goering RV, Dockrell HM, Zuckerman M, Wakelin D, Roitt IM, Mims C, Chiodini PL. Mims' medical microbiology. 4th edition. Philadelphia: Mosby, Elsevier, 2004.
- Moore KL, Dalley AF. Clinically Oriented Anatomy. 4th ed. Philadelphia: Lippincott, Williams & Wilkins; 1999.
- Rhoades R, and Pflanzer R. Human Physiology, 4th ed. London: Brooks/Cole, 2003.
- Drake RL, Vogl W, Mitchell AWM. Gray's anatomy for students. Philadelphia: Elsevier Churchill Livingstone, 2005.
- Guyton AC and Hall JE. Textbook of Medical Physiology. 10th ed. Philadelphia: WB Saunders & Co, 2000.
- Gartner LP and Hiatt JL. Color Textbook of Histology. 2nd ed. Philadelphia: WB Saunders & Co, 2001.
- Kumar P and Clark M. Clinical Medicine. 5th ed. Edinburgh: WB Saunders, 2002.
- Fox SI. Human Physiology, 9th Ed. McGraw Hill, 2005

Educational websites:

http://www.youtube.com/watch?v=_AsvnNrGvOc&feature=related

This video is useful for discussing important issues about meningitis in a simple language.

2. <http://emedicine.medscape.com/article/784389-overview>

This is a good chapter from e-medicine about meningitis. It introduces you to the pathophysiology of meningitis, causes, and clinical picture of patients with meningitis. At this stage you do not need to know the whole details. Try to select areas related to your learning in basic sciences in relation to meningitis such as pathology, microbiology, and pharmacology. You might examine some clinical aspects.

3. <http://www.mayoclinic.com/health/meningitis/DS00118>

Meningitis: This website from MayoClinic. Com. It introduces you in a simple language to meningitis including definition, symptoms, causes, risk factors, and drug treatment.