Introduction

This handout is prepared for the students studying ECPD1 and is concerned with having an introduction to some techniques used in the clinical examination of the nervous system for evidence of diseases.

Objectives

By the end of this practical session, the students should be able to:

a- Examine the face of the patient for Facial nerve function.

b- Demonstrate the pupillary reaction to light.

c- Demonstrate the normal knee reflex.

d- Demonstrate examination of gait.

e- Demonstrate the technique of looking for neck rigidity.

Examination of the Facial nerve

All the movements in this examination are served by face muscles supplied by the facial nerve.

Preparation:

We need to take the consent of the patient, the patient is best examined in the sitting position with good illumination.

Technique:

a- We observe the patient's face at rest and normally the two sides should appear symmetrical, we look for any deviation of the mouth to one side and any asymmetry or flattening of nasolabial fold.
b-We put the left hand on the head of the patient and we ask the patient to look up at an object to observe wrinkling of the skin over the frontalis muscle and if there is any asymmetry.

c-We ask the patient to close both eyes tightly and resist the attempts of the examiner to open the eyes (Orbicularis oculii).

d-We ask the patient to close the mouth tightly and resist the attempts of the examiner to express the air out by pressing on the cheeks (Orbicularis oris).

e-We ask the patient to whistle if he or she can.

f-We ask the patient to smile or show the teeth looking for any mouth deviation to one side.

Abnormalities: We may find inability to close the eye on the affected side (Bells Sign) and deviation of the mouth towards the normal side.

**Pupillary Reaction to light**

This is a reflex served by the optic nerve and occulomotor nerve.

Preparation:

We take the consent of the patient. The room light should be dim and we need a torch.

Technique:

a-We open the torch and we bring the light towards the right pupil approaching from the side of the patient. The normal reaction is constriction of the right pupil (direct reflex) and left pupil (consensual reflex).

b-We repeat the process on the left eye and constriction of both pupils should occur normally.

Abnormalties: We may find absent direct or consensual light reflexes or both.
**Demonstration of Knee Reflex**

This is a reflex served by the femoral nerve, segments L2+L3+L4 in the spinal cord and the Quadriceps femoris muscle is responsible for it.

**Preparation:**

We take the consent of the patient, the patient can be examined lying or sitting and we need exposure of the knee and the thigh, we need a hammer for examination.

**Technique:**

We must examine both sides.

a- We stand on the right side of the patient and start by putting our left hand under the right knee of the patient and ask the patient to relax.

b- Then we elevate the left knee with slight flexion and the patient must continue relaxation.

c- We locate the patellar tendon by the index finger of our right hand which is situated above the patella.

d- We hold the hammer with our right hand and strike the patellar tendon.

The expected reaction is contraction of the Quadriceps muscle and extension at the knee.

e- We repeat the same technique on the other side.

Abnormalities: the reflex may be absent (in Lower motor neuron lesion) or may be exaggerated (in Upper motor neuron lesion).

**Examination of Gait**

Gait is the way of the walking of the person and it needs good muscle power and normal function of the cerebellum, vision and proprioception.
Preparation:

We take the consent of the patient, the patient should expose his lower limbs and wear no shoes and we need good light.

Technique:

a-The patient stands first still, we stand in front of the patient and we ask the patient to walk towards us on a straight line and we watch his way of walking.

b-Then we ask the patient to turn back on the right and repeat the walking away from us.

c-Then we ask the patient to turn towards us on the left side and walk again.

d-Ask the patient to walk in heel-toe gait on strait line

Abnormalities: Inability to keep on the straight line or walking in short steps or moving from one side to the other (Ataxia).

Looking for neck rigidity

Neck rigidity is a sign of meningeal irritation and is seen with meningitis and subarachnoid bleeding.

Technique:

a-Take the consent of the patient.

b-With the patient lying on the back we ask the patient to relax and remove the pillow.

c-We stand on the right side of the patient and put our left hand below the head of the patient and the right hand on the upper part of the sternum.

d- We try to flex the neck of the patient.
e-Normally the chin of the patient can touch his chest without discomfort.

Abnormalities: The patient will feel pain in the neck and back and we cannot complete the flexion because of muscle spasm.