Neurology

Chapter title : coma

Learning object 2 : Diagnostic approach for a case of coma

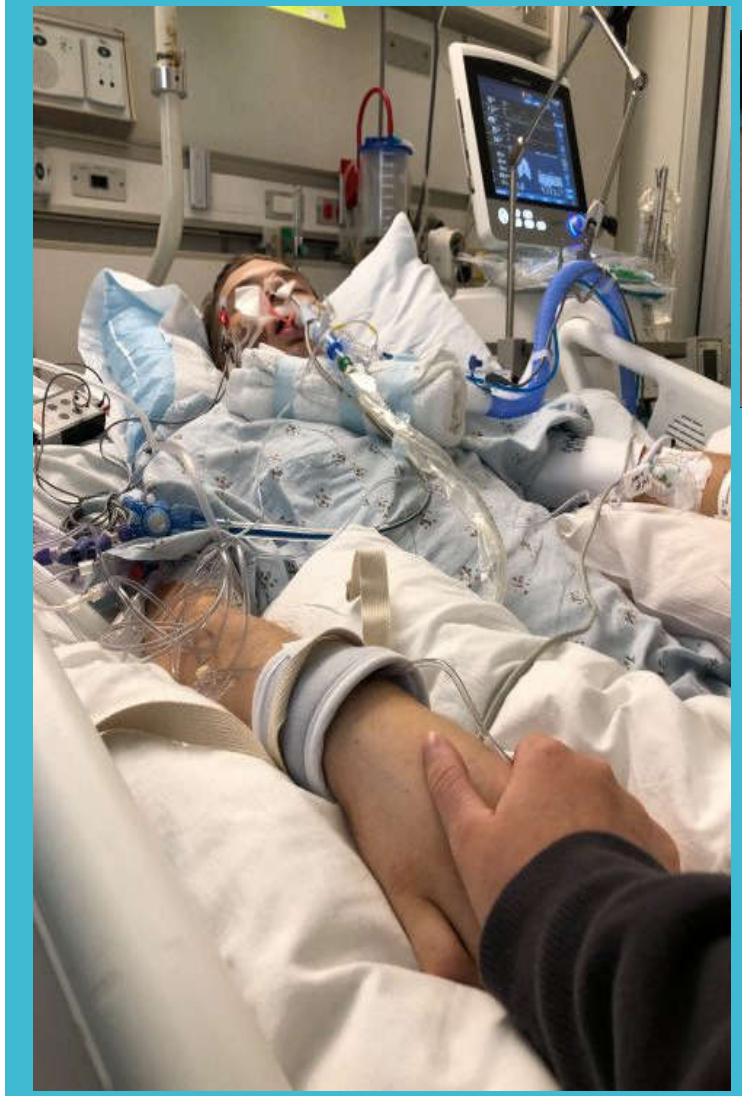
objectives

At the end of this learning object student will be able to:

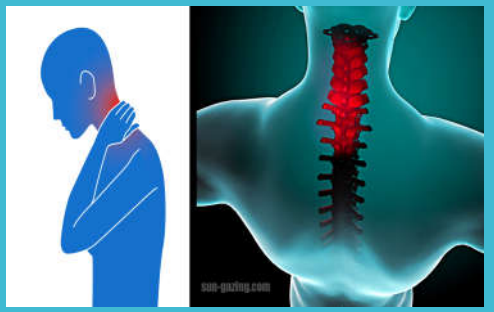
- Explain general physical examination of coma's case.
- Explain neurological examination of coma's case.
- Mention ways of investigation of coma's case.
- Compare between hysterical coma and uremic coma.
- Differentiate between hepatic coma and drug induced coma.
- Compare between hypoglycemic coma and diabetic coma.

Slide 1 : **Diagnostic approach for a case of coma**

Diagnostic approach for a case of coma:
History: for trauma, medications, previous illness.
General physical examination:
- Vital signs
- Skin: signs of trauma, needle marks in addicts, jaundice, cyanosis, signs of liver disease, severe pallor, myxodema, cherry red color in CO poisoning.
- Head: signs of trauma, enlarged head with tense anterior fontanel in children means increased ICP.
- Battle sign: hematoma and odema overlying mastoid bone indicating fracture of the petrous part of temporal bone.
- Raccon's eyes: bilateral orbital hematoma and tenderness indicating bilateral orbital fracture.
- Hemorrhage from nose or ear means fracture base of skull.
- Neck stiffness: meningitis, SAH, tonsillar herniation
- Tongue bitting: epileptic, Todd's paralysis.






Slide 2 : **Diagnostic approach for a case of coma**

C-- Chest and abdomen:

Odour of breath: fetour hepaticus in colemia, acetone odour in diabetics, uriniferous odour in uremia.

Chyne-stock breathing

Ascites, hepatomegaly, shrnnken liver, splenomegaly

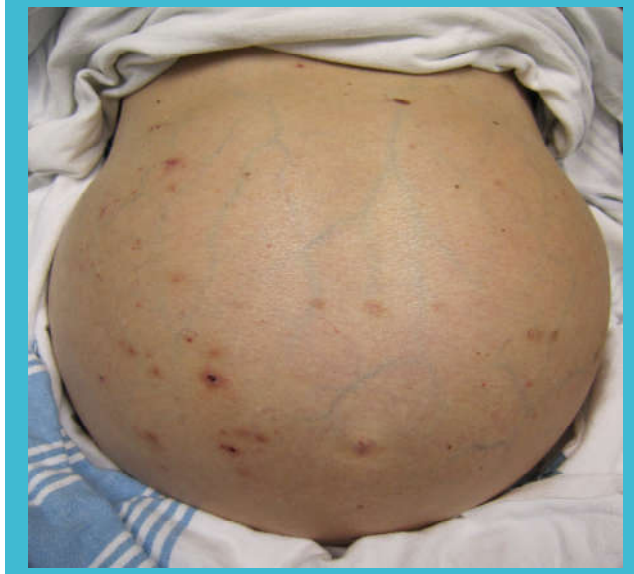
D-- Heart:

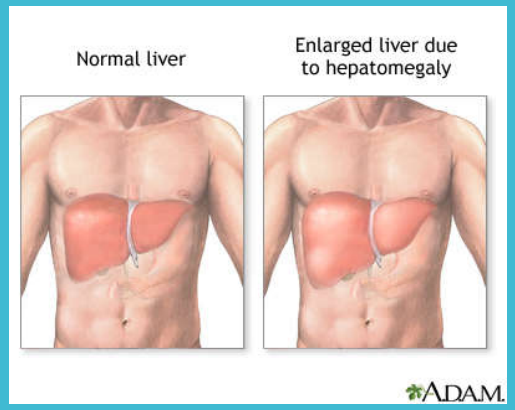
Myocardial infarction

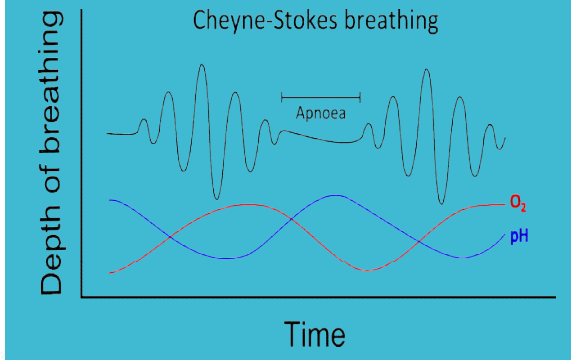
Subacute bacterial endocarditis.

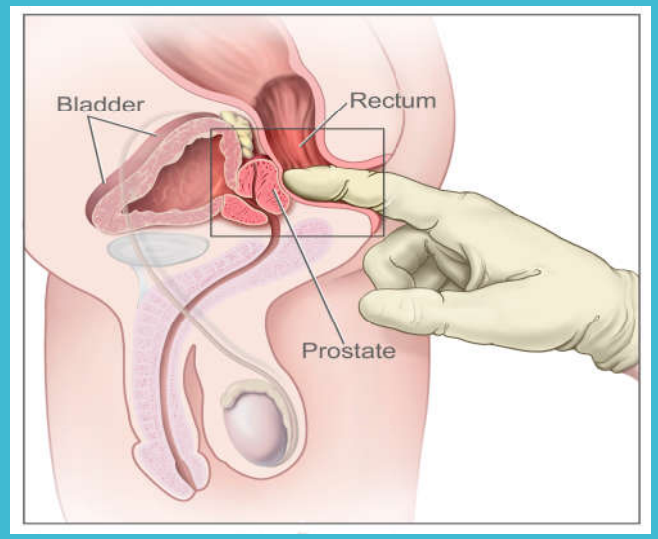
Valvular heart diseases

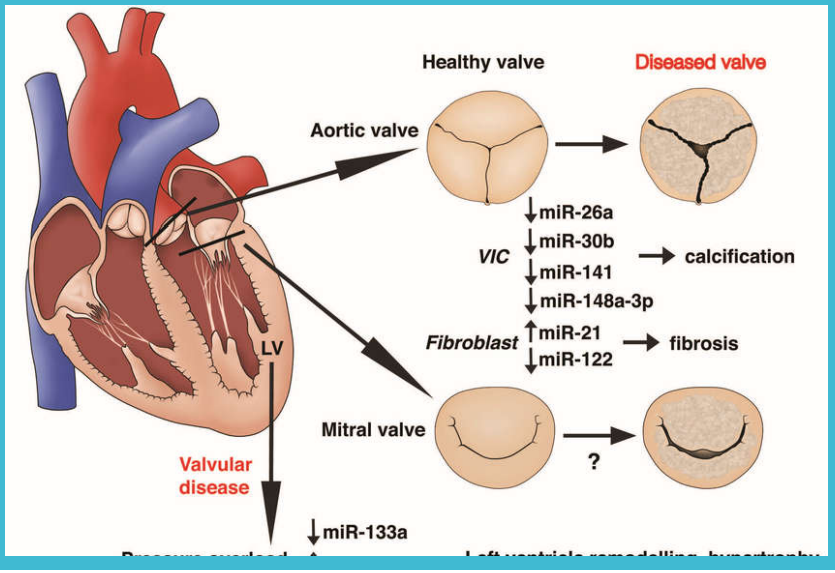
E-- Extremities, pelvic and rectal examination:











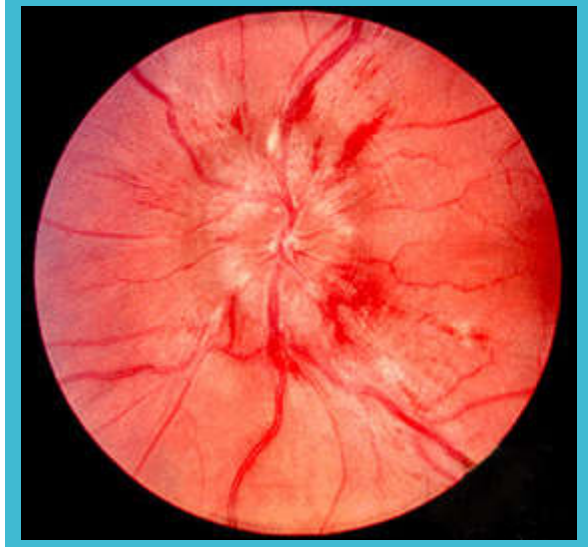
Slide 3 : **Diagnostic approach for a case of coma**

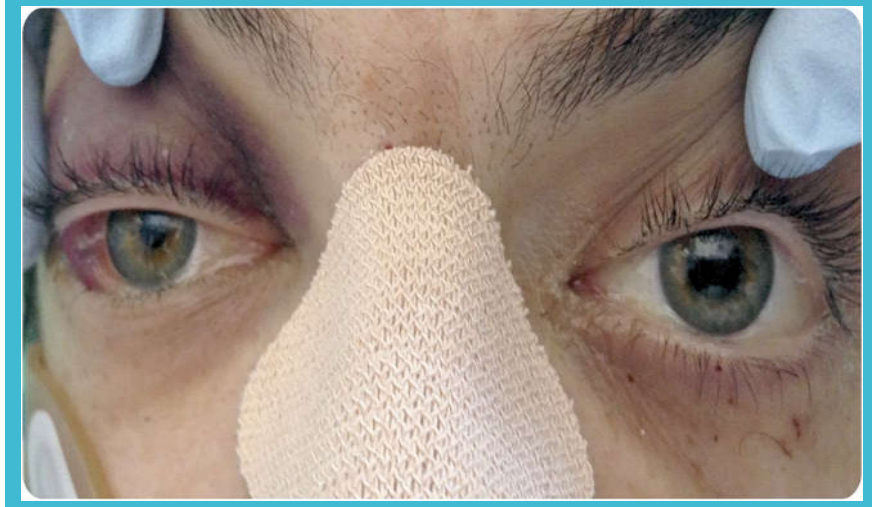
F-- Neurological examination:

Signs of increased ICP as papillodema and tense anterior fontanelle.

Visual field and pupils:

- We can examine visual field in unresponsive patients by threatening movements which should evoke a blink, asymmetry of the blink response indicate hemianopia.
- Mid position and unreactive pupils mostly evidence of midbrain affection.
- Unilateral dilated fixed pupil means third nerve compression.
- Pin point pupil means opiate, organophosphorous poisoning, pontine heamorrhage, or parasympathomimitics toxicity.



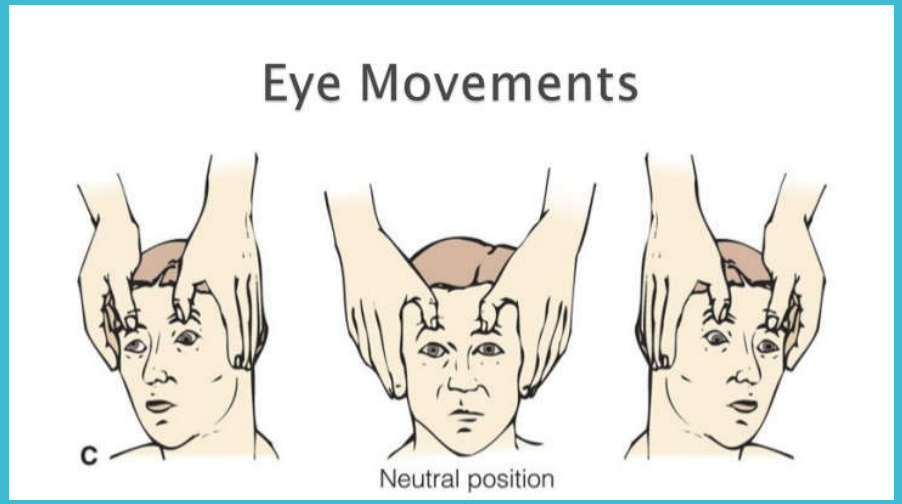


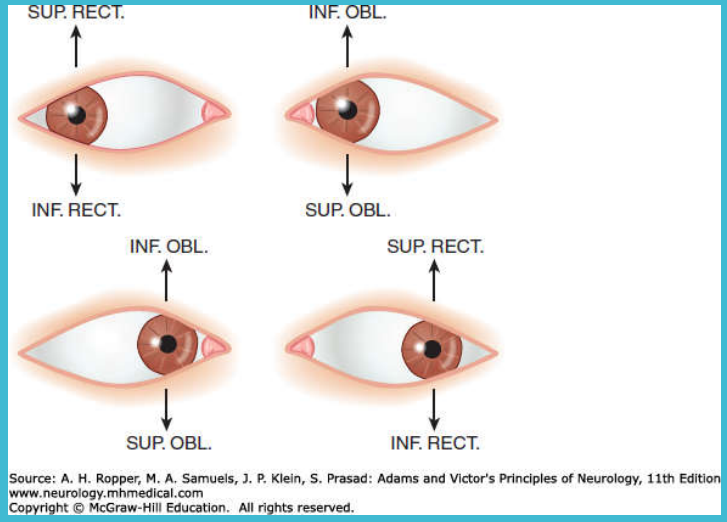
Slide 4 : **Diagnostic approach for a case of coma**

3)Occular movements:

- Doll's head maneuver, means lesion of the brainstem or barbiturate poisoning.
- Oculovestibular reflex
- Conjugate deviation of the eyes opposite to the paralyzed side indicate cerebral damage.
- Conjugate deviation towards the paralysis means brainstem damage.
- Unequal pupil with divergent squint and irregular jerky movemnts suggests heamorrhage into corpus striatum or internal capsule.

Paralysis of vertical movement with downward displacement means thalamic or subthalamic heamorrhage.

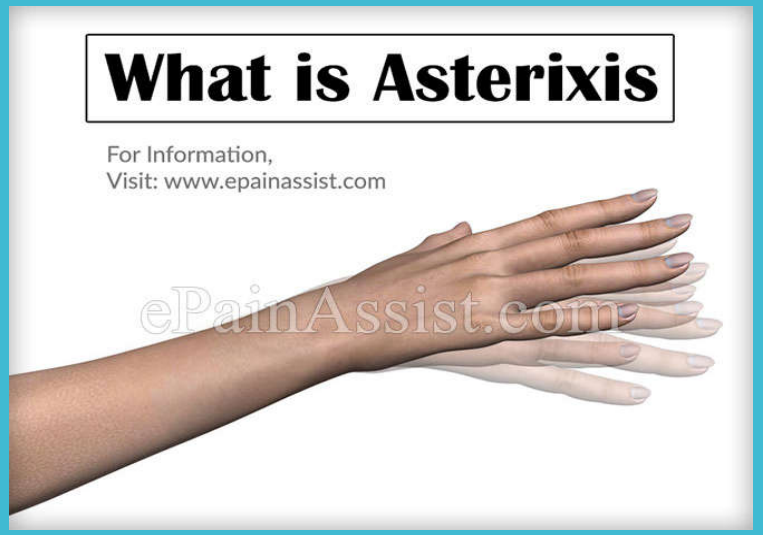




Slide 5 : **Diagnostic approach for a case of coma**

4) Motor system:

- Seizures ---- focal or generalized.
- Myoclonic jerks, asterexis mostly metabolic causes.
- Asymetry of movements, asymmetry of tone and asymmetry of babineski means lateralizing signs with cerebral lesions.
- Reflex movements, decerebrate, decorticate, abduction of a limb, usually indicate good prognostic value if the cause of coma is released.



Slide 6 : Investigations

Investigations:

* **Trauma →signs of ↑ ICT → plain X ray ,CT,MRI**
* **Focal neurological signs→ CT,MRI**
* **Meningitis , encephalitis→ Lumbar puncture**
- **No signs of ↑ICT→ metabolic screen**
- **No signs of meningitis→ metabolic screen**
- **No focal neurological signs→ metabolic screen**
- **Urea & creatinine**
- **Electrolytes**
- **Blood gases ,ph**
- **Blood sugar**
- **Liver function tests**
- **Blood culture**
- **Drug screen**

→→ →→ if not diagnostic

- **Serum ca & phosphate & Mg**
- **Folic acid &VIT B12**
- **Serum amylase & cortisol**
- **Porphyrins & thyroid function tests**

Slide 7 : Key points with some types of coma

Key points with some types of coma:

1)-Hysterical coma:

-Hysterical personality

-Rare to get deep coma

-Resistance to passive movements

-Preceeded by psychic trauma

-Absence of signs of lateralization

-Any attempt to elicit corneal reflex →vigorous contraction of orbicularis occuli.

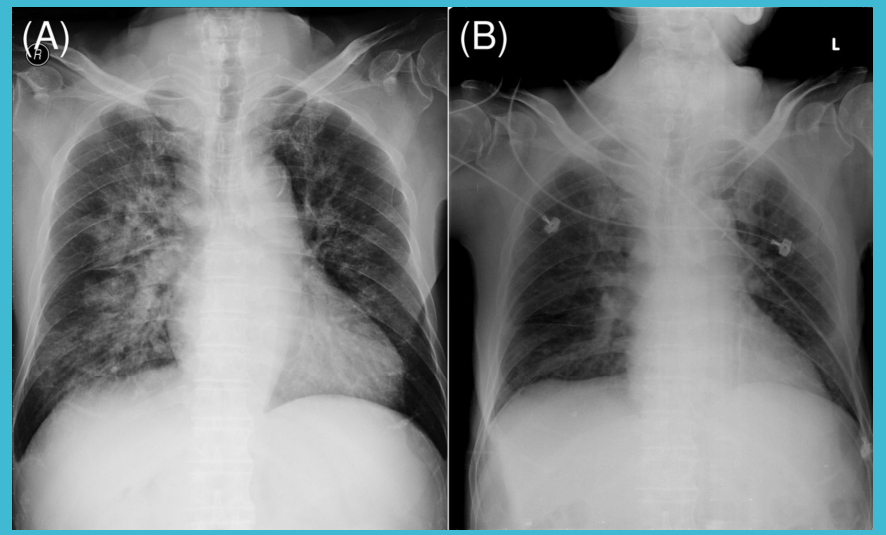
While in organic coma →corneal reflex is lost.

-Vigorous ocular movements on raising the eye lid.

Slide 8 : **Uremic coma**

2)- Uremic coma .

-Early headache ,vomiting, insomnia, dypsnea, restlessness, confusion.
-Patient with history of renal troubles
-Earthy look face
-Oedema with puffy eyelids
-Uremic frost, uriniferous odour
-flapping tremors
-Uremic lungs, uremic pericarditis
-Coma preceeded by muscle twitches, convulsions
-Absence of focal neurological deficits,or cranial nerve affection ,(**rare to get focal deficit)**
-lab. investigation→↑blood urea & creatinine



Slide 9 : **Cerebral coma**

3)-Cerebral coma:

► **In hypertensive patients;**

-With → negligence of ttt, mental stressors, physical stress

- Acute onset of severe headache ,vomting, blurring of vision ,convulsion

→Coma with focal neurological deficits ,cranial nerve affection,±neck stiffness

→Diagnostic CT ,MRI

► **Also in cardiac patient**s ;

→sudden onset of impairement of consciousness ,with focal neurological deficit,cranial nerve palsies

► **In atherosclerotic or diabetic old patient;**

→gradual development of focal neurological deficit over hours , in a stepwise manner (stuttering stroke)with sometimes past history of TIA

→diagnostic CT,MRI

Cranial nerve lesion in coma –how?

Slide 10 : **Hepatic coma**

4)- Hepatic coma;

→ Hepatic pts , either acute or chronic.

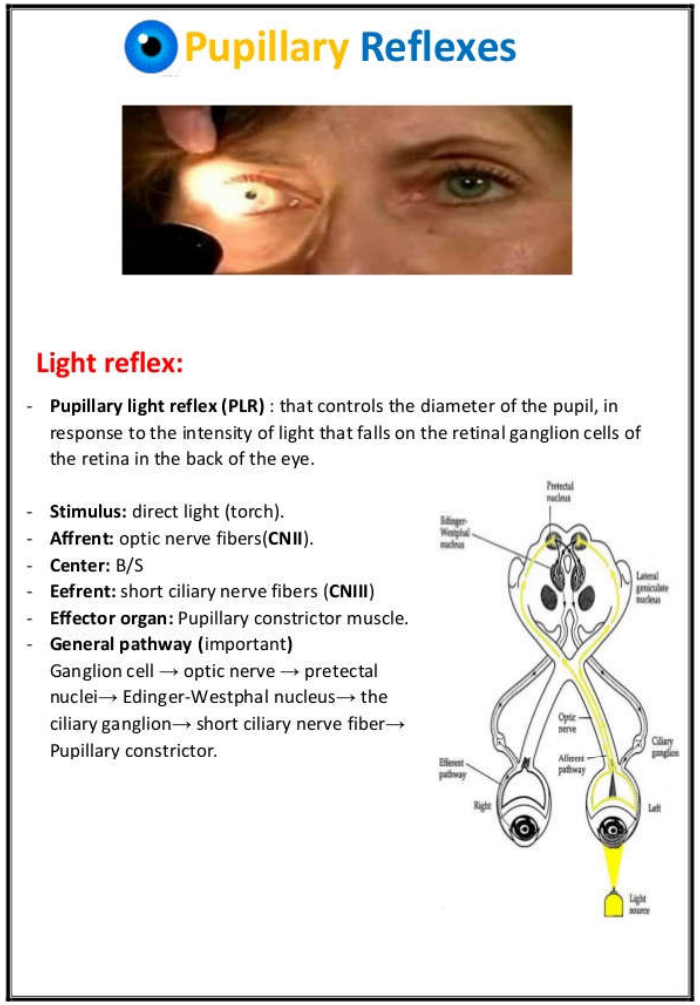
→ In chronic patient →there is ascites, shrunken liver, splenomegally, spider naevi, divercation of recti, oedema of LL, feminine distribution of hair, hematemesis, melena, jaundice.

→ Coma preceeded by personality changes, change in mood & behavior, flapping tremors presence of ppt factor, and absence of focal neurological signs.

Slide 11 : **Drug induced coma**

5)- Drug induced coma;

- History of medications: Anti depressants, Anti convulsants, Drug abuse, sedatives, hypnotics.
- lost eye movements with preservation of pupillary reflex,where most of these drugs act by depressing the vestibuloccular reflex.
- Alcoholic coma →→flushed face ,rapid pulse ,low BP,congested conjuctiva, dilated pupil,odour of alcohol.

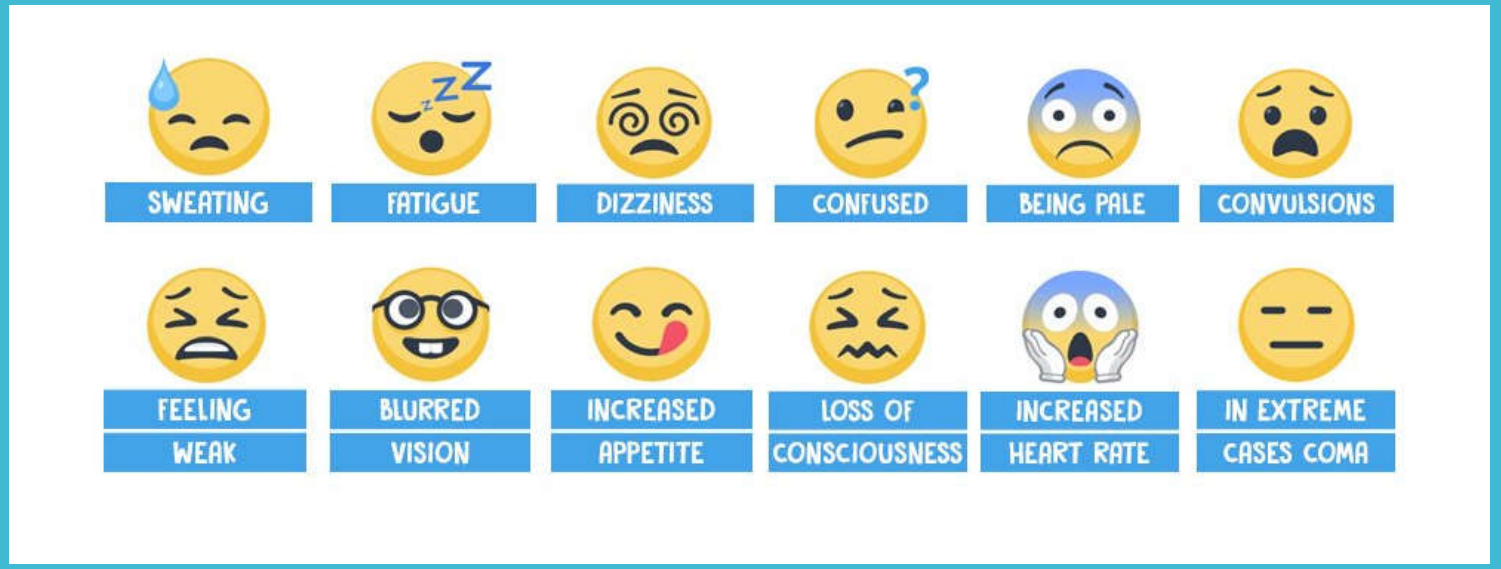


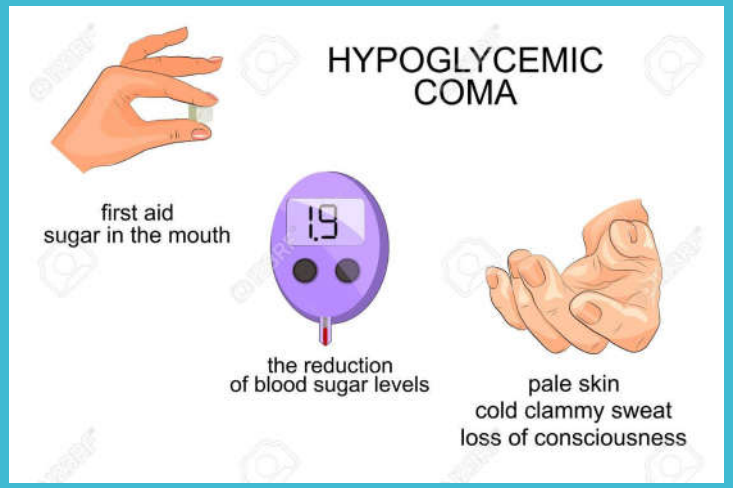
Slide 12 : **Hypoglycemic coma and Diabetic coma**

6)- Hypoglycemic coma; Occur in diabetic pts with over dose of insulin or oral hypoglycemics, or other ppt factors

Clinically →muscle twitches ,sweating,dilated pupil ,? convulsion,hypothermia, confusion,disturbed behaviour→ if prolonged → irreversible brain damage.

7)-Diabetic coma ;→ In diabetic patients → with negligence of ttt, & other factors -Pale skin , dehydrated tongue & axilla, rapid weak pulse, decreased BP, ocular tension is low, odeur of acetone , reflexes may be lost.





summary

In this learning object we presented diagnostic approach for a case of coma that include history of the patient plus general physical and neurological examination, then we presented different ways of investigation of case of coma like test liver function and urea creatinine, and finally we presented some keys points that help us in differentiate between different types of coma like hepatic coma, hypoglycemic coma, and hysterical coma.