



Benha University
Fac Vet Medicine
Animal Med Dept
Vet. Internal Medicine
Vet. pharmaceuticals and Biological
preparation program



Time allowed: 2 hrs.
Date: 17-1-2017
Total marks: 50 marks

جامعة بنها
كلية الطب البيطري
قسم طب الحيوان
الامراض الباطنة
برنامج الأدوية البيطرية والمستحضرات البيولوجية

1- Describe the clinical signs of the following:

- a. Vitamin A deficiency in calves (6 marks)
- (A) Night blindness:
Inability to see in dim- light.
- (B) Xerophthalmia:
Thickening and clouding of cornea.
- (C) Changes in skin:
1- Heavy deposits of bran-like scales on skin of cattle.
2- Dry, scaly hooves with multiple, vertical cracks in horses.
- (D) Body weight:
Emaciation and stunted growth occur only under experimental condition of severe vit. A deficiency but not occur under natural condition.
- (E) Reproductive efficiency:
1- In male "retained libido" and degeneration of germinative epith. Of seminiferous tubules causing reduction in number of motile, normal spermatozoa.
2- In female abortion due to placental degeneration and birth of dead or weak young plus retention of placenta.
- (F) Nervous signs:
3- Total blindness of both eyes due to constriction of the optic nerve canal (manifested by absence of menace reflex).
4- Encephalopathy, manifested by convulsive seizures due to increased C.S.F. pressure in beef calves at: 6-8 months of age. Affected calves may collapse (syncope) and may die during episode.
- b. Traumatic pericarditis in ruminant (6 marks)
- 1- Fever, anorexia, increase pulse and resp. rate.
 - 2- Sharp decrease in milk production
 - 3- Abduction of the fore limbs with arched back and tense abdomen
 - 4- Animal move and lie down carefully.
 - 5- Animal prefers to stand, except at late stage of disease.
 - 6- Jugular vein pulsation and cord like appearance.
 - 7- Increase venous pressure indicated by resistance to inject drugs.
 - 8- Congested conjunctival blood capillaries due to fever and venous retention.
 - 9- Recumbency
 - 10- Mucopurulent nasal discharge

2- Outline the causes and pathogenesis of the following:

- a. Ketosis in cattle (6 marks)
- 1- The basic biochemical findings in ketosis is hypoglycemia.
 - 2- Hypoglycemia may occur due to feeding of lactating cows and pregnant ewes diets of low caloric content.
 - 3- Feeding diets of low caloric content, lead to impairment of normal carbohydrate metabolism follow:
a) Feeding diets "sufficient is carbohydrate content requirement for ruminants lead to the following biochemical pathway:
Ingestion sufficient carbohydrate

b) Feeding diets insufficient in carbohydrate content requirement for ruminants lead to the impairment in this normal for carbohydrate metabolism resulting in hypoglycemia and ketonaemia as following biochemical abnormal pathway.

* How hypoglycemia developed?

- Insufficient carbohydrate ingested insufficient propionic VFA in rumen
insufficient oxaloacetic F.A insufficient blood glucose hypoglycemia.

* How Ketonemia and Ketonuria developed?

- Insufficient carbohydrate ingested--> Active acetate converted into:

Ketone bodies = (1) + (2) + (3)

1-Acetoacetic acid

2- Acetone

3- Beta-hydroxybutyric acid.

Endocrine and metabolic mechanisms suggested in the pathogenesis of Ketosis: (Bovine and Ovine)

b. Copper deficiency in ruminant (6 marks)

a-primary copper deficiency:

Occur when the copper intake in the diet is inadequate e.g.: feeding plants grown on copper deficient soil.

b-Secondary copper deficiency:

occur when the copper intake in the diet is sufficient but the utilization of copper by tissues is impeded due to dietary excess of Molybdenum and inorganic sulfate alone or in combination.

b-Unthriftiness, anemia, scurvy and osteoporosis in extreme deficiency.

N.B:

Molybdenum, interfere with copper absorption from gut mucosa, copper storage in liver, and copper utilization by tissues.

Pathogenesis:

Copper play an important role in " tissue oxidation " by formation of copper- containing enzymes.

e.g.:

- Cytochrome oxidase

- Ceruloplasmin (copper- protein complex).

- Superoxide dismutase.

- Tyrosine oxidase and lysyl oxidase.

Therefore the pathogenesis of most of lesions of copper deficiency attributed to faulty tissue oxidation due to failure of these enzyme system.

A-Skin :

1- Copper deficiency inadequate keratinization which result from imperfect oxidation of the free thiol. Groups.

B- Body weight

Copper deficiency lead in later stages into " retardation in growth" which attributed to impairment of tissue oxidation which interference with intermediary metabolism".

C- Diarrhea:

1- Copper deficiency causing diarrhea due to functional disturbances, as there is no histopathological changes in gut mucosa.

2- Diarrhea is usually only a major clinical finding in secondary copper deficiency associated with molybdenosis.

D-Anemia:

Copper deficiency result in anemia because copper is necessary for reutilization of iron liberated from normal breakdown of hemoglobin for resynthesis of hemoglobin by end of life span.

E-Bone:

Copper deficiency result in " osteoporosis " due to depression of osteoblastic activity.

F- Connective tissue (CT):

1- Copper is a component of the enzyme lysyl oxidase which secreted by cells involved, in the synthesis of elastin component of C.T.

2- Elastin has important function in maintaining the integrity of tissues such as ligaments; tendon etc.

G- Heart :

Copper deficiency leads to myocardial degeneration (falling disease) which may be attributed to either:

1- Interference with tissue oxidation.

2- Terminal manifestation of anemic anoxia.

H- Nervous tissue:

Copper deficiency causing demyelination of myelin sheaths which may be attributed to anemic anoxia.

I-Immune system:

Copper deficiency causing impaired function of the immune defence system and subsequent increased susceptibility to infection.

3- Plan the line of diagnosis for the following:

- a. White muscle disease (6 marks)

Primary or secondary deficiency of vitamin E and / or selenium example :

1- Feeding diets which are deficient in vitamin E and / or selenium as feeding inferior quality hay or straw and an root crops.

2- Feeding diets which are incorporated with excessive quantities of polyunsaturated fatty acids (myopathic agent).

Clinical findings:

1- NMD occurs in all farm animals species but most important and most common young rapidly growing calves, lambs and foals.

2- There are two major form or syndrome of NMD known in farm animals:

A- acute enzootic muscular dystrophy:

(myocardial dystrophy)

This form occurs most commonly in young suckling calves, and lambs and occasionally in foals.

1- Affected animals may die suddenly without previous signs.

2- In animals under close observation there is :

a- Sudden onset of dullness.

b- severe respiratory distress, accompanied by a frothy or blood- stained nasal discharge.

C- Lateral recumbency.

d- Increased heart rate (tachycardia) up to 150-200/min. and often irregular.

e- Temp. usually within normal range.

f- Affected animals commonly die within 6-12 hours after onset of signs inspite of therapy.

B- Subacute enzootic muscular dystrophy:

(Skeletal muscular dystrophy)

Form occurs most commonly in older calves (rapidly growing calves) and called WHITE MUSCLE DISEASE, and occur in lambs and called " STIFF LAMB DISEASE".

1- Affected animals may be found in sternal recumbency and unable to stand.

2- In animal which are standing the obvious signs are:

a- Stiffness and trembling of limbs.

b- In calves the gait accompanied by rotating movement of bocks.

c- In lambs the gait is " goose- strepping gait".

d- Palpation of muscles (dorso lumber, gluteal and shoulder) found bilaterally swollen and firm than normal.

e- Knuckling at the fetlock and standing on tip- toe due to relaxation of carpal and metacarpal joint.

f- Dyspnea and abdominal type of respiration may be observed if the diaphragm and intercostal muscles severely affected.

G- Temp. usually within normal range but there may be a transient fever (up 41oC) due to the pyrogenic effect of myoglobinaemia and pain.

- b. Cystitis in cows (6 marks)

(A) Bacterial infection:

- 1- Introduction of bacterial infection into the urinary bladder –after:
 - (a) Trauma to U.B. e.g: Vesical calculus.
 - (b) Stagnation of urine e.g.:Late pregnancy, difficult parturition, paralytic bladder.....etc.
 - 2- Introduction of bacterial infection may be via contaminated catheterization.
 - 3- Bacterial Infection (population) causing cystitis usually mixed but predominantly E.coli.
- (B) Accompaniment of a specific disease:
 C.B pyelonephritis in cattle which caused specifically by corynebacterium renal.

Pathogenesis:

- 1- Bacterial infection, frequently gain entrance to the U.B, but are removed before they invade the mucosa of the physical emptying of the urine.
- 2-Injury to mucosa facilitates bacterial invasion of the U.B wall.
- 3- Stagnation of urine is a predisposing cause for invasion of U.B mucosa by rapid multiplication.

Clinical signs:

- 1- Painful sensation and desire for urination due to the urethritis which usually accompanies cystitis.
- 2- Frequent painful urination and sometimes accompanied by grunting.
- 3- The volume of urine passed on each occasion is usually small.
- 4- Animal remain in the posture adopted for urination for some minutes after the urine flow has ceased.
- 5- Moderate abdominal pain and moderate febrile reaction very acute cases,
- 6- Acute retention of urine may developed if urethra becomes blocked with blood or pus but this is unusual.
- 7- Chronic cases of cystitis show the same syndrome but the followings are presents:
 - a) The abnormalities are less marked.
 - (b) Frequent urination and small volume urine are the characteristic signs.
 - (c) Rectal examination revealed palpable inflammatory thickening of U.B wall.

4-

- a. Prescribe the treatment for goiter in cattle (4 marks)
 - 1- Treatment must be under taken with care as over dose will cause toxicity (iodism).
 - 2- Specific iodine therapy is recommended for treatment e.g. strong iodine solution (Lugol's solution) 10-20 drops in water daily for 2-3 days.
- b. Clinical case: You are called to examine a calf with nasal discharge and dyspnea. Temp was 41 °C. Plan your line of diagnosis, differential diagnosis and treatment? (10 marks)
 suspected is: pneumonia, bronchopneumonia, bronchitis
 most suspected: bronchopneumonia

Good Luck