

Nutritional Deficiency Diseases

Nutritional diseases

Factors leading to nutritional diseases

Human error

Improper formulation

Ingredient variation & antagonism

Malabsorption

Overproduction -- under consumption

Feed separation - especially with calcium in chain
feeders

Oxidation of ingredients

Vitamins Deficiency

What is a vitamin???

- A group of organic substances present in minute amount in natural feedstuffs.
- Essential for normal metabolism
- Insufficient amounts in the diet may cause deficiency diseases.

Vitamin A

Importance

- Maintenance
- Growth
- Reproduction

So if no vit.A animal will stop growing and may die.

Signs

- Poor growth.
- Poor feathering.
- Nasal and ocular discharge.
- Drowsiness.
- Pale comb and wattles.
- Eyelids stuck shut with thick exudate.

Post-mortem lesions

- Eyelids inflamed and adhered.
- Excessive urates in kidneys and ureters.
- Pustules in mouth and pharynx.

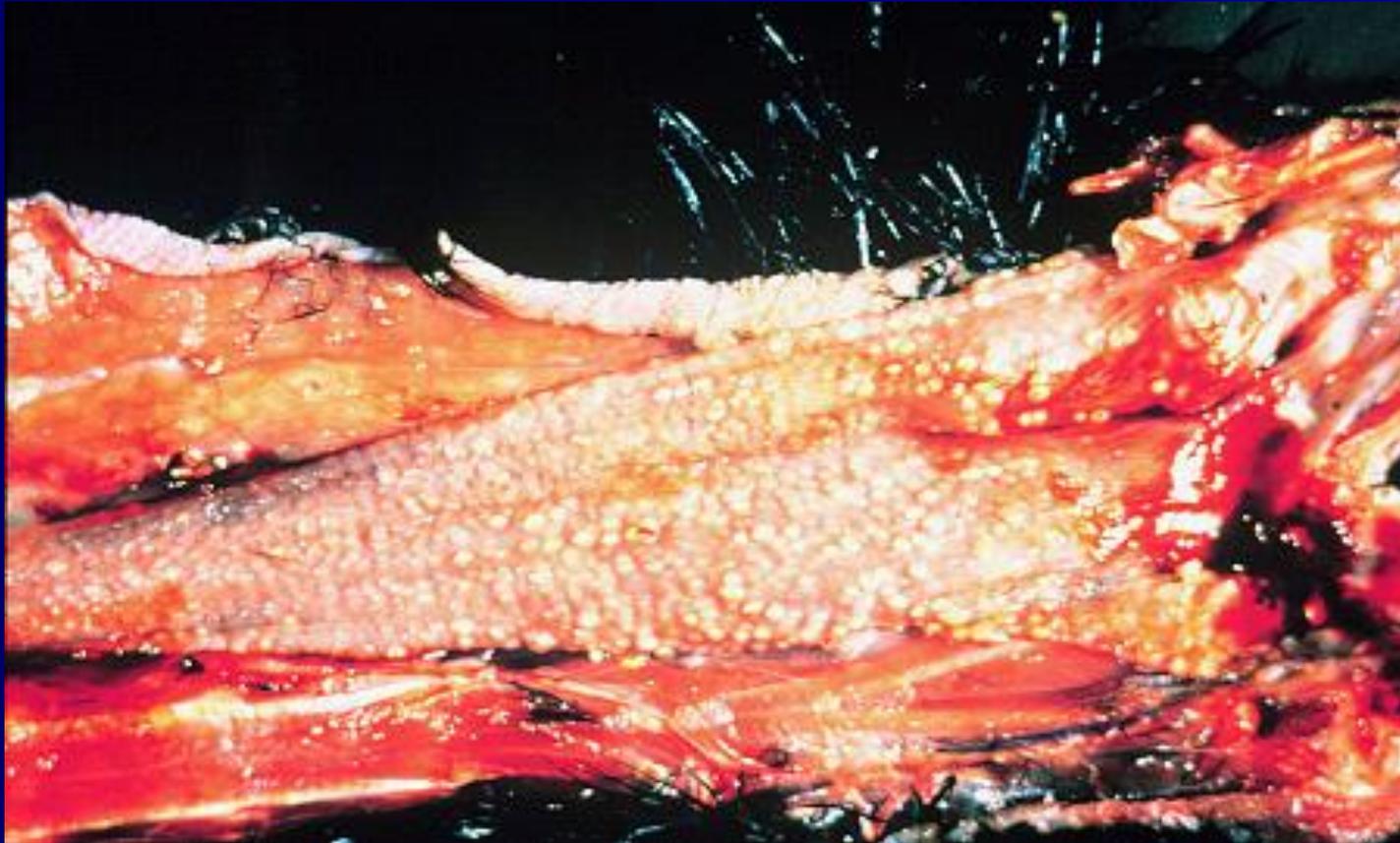
Vitamin A deficiency

- _ Lumen of esophagus
- _ small white pustules



Vitamin A deficiency

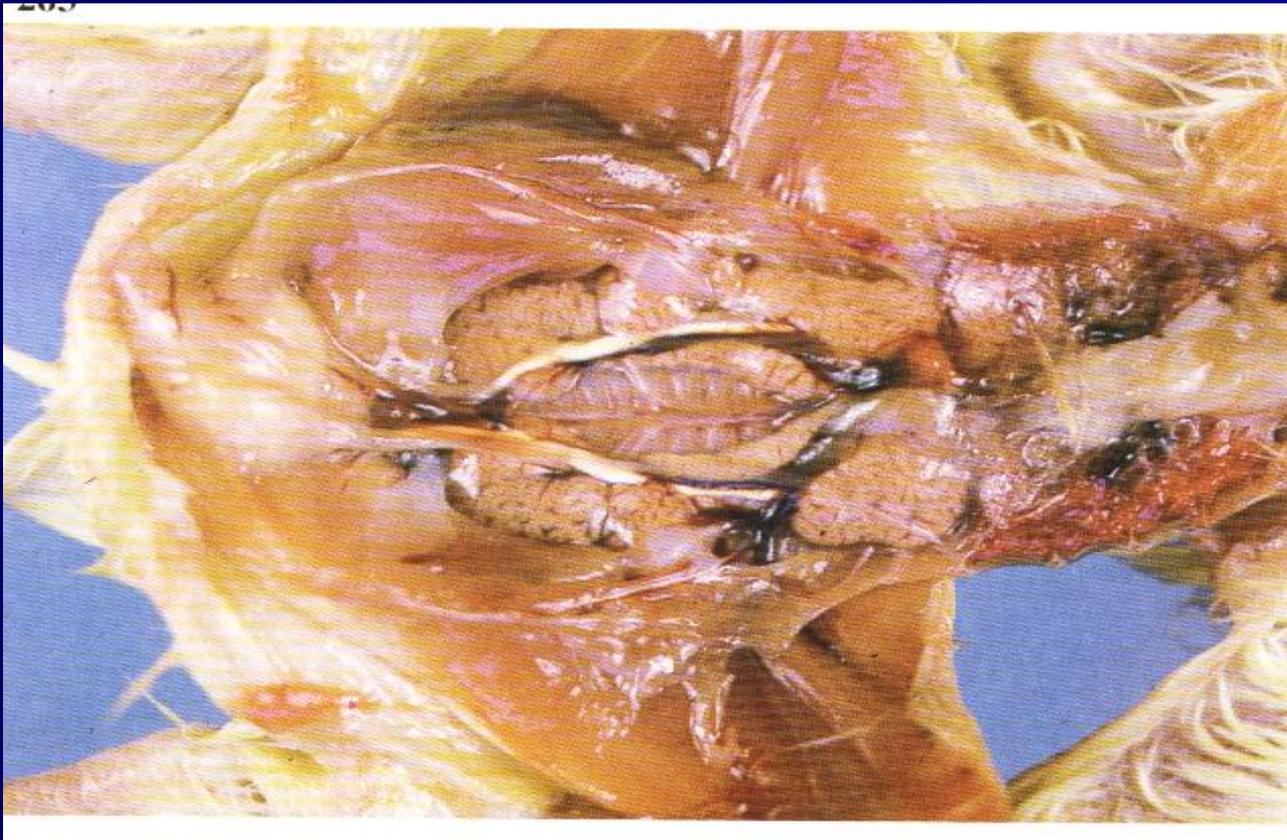
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Visceral gout

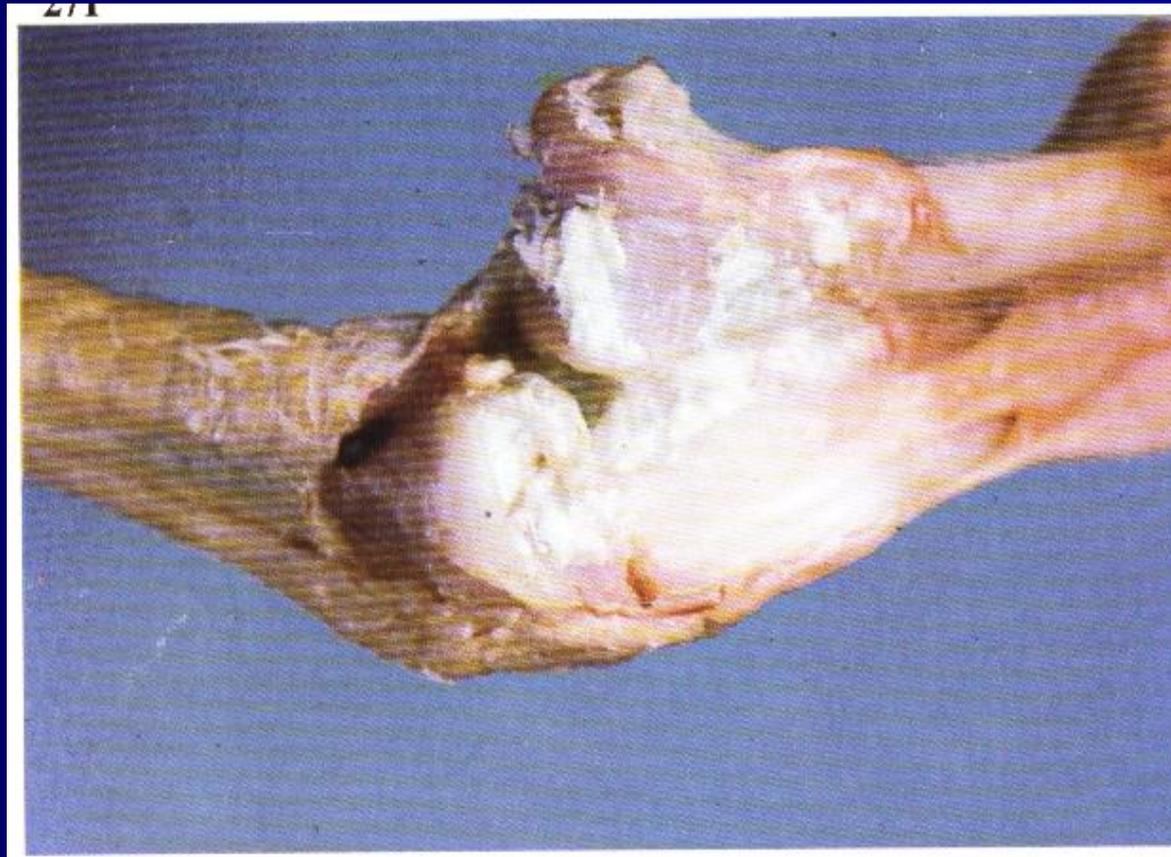
Kidneys are enlarged

The ureters are enlarged and packed with urate (**white chalky material**)



Articular gout

deposition of urates in the joint



Articular gout

deposition of urates in the joint



Vitamin D3 deficiency

Functions of vitamin D:

Vitamin D is required by poultry for :

Proper metabolism of calcium and phosphorus.

Formation of the normal bony skeletal.

Hard beaks and claws .

Strong egg shells.

Types:

1-Rickets : In young .

2-Osteomalacia : In adult.

Symptoms:

1-Marked increase in the numbers of thin- shelled and soft-shelled eggs followed by decrease in egg production. Hatchability is also decrease (In adult).

2- Leg weakness * Penguin type squat *

The beak , claws and keel bone become very soft and pliable

(In young and adult).

3-Inward curve of the ribs (In young and adult).

Post – mortem lesions :

A- In Adult:

- 1-Bones are soft and break easily.
- 2-Well defined knobs are seen on the inner surface of the ribs.
- 3-Swollen hocks.

B- In Chicks(Young):

Beading of the ribs at their juncture with the spinal column and bending of the ribs downward and posteriorly .

Vitamin D3. deficiency

Rickets

Soft bones



Vit. D. deficiency

Rickets

The beak is very soft and pliable



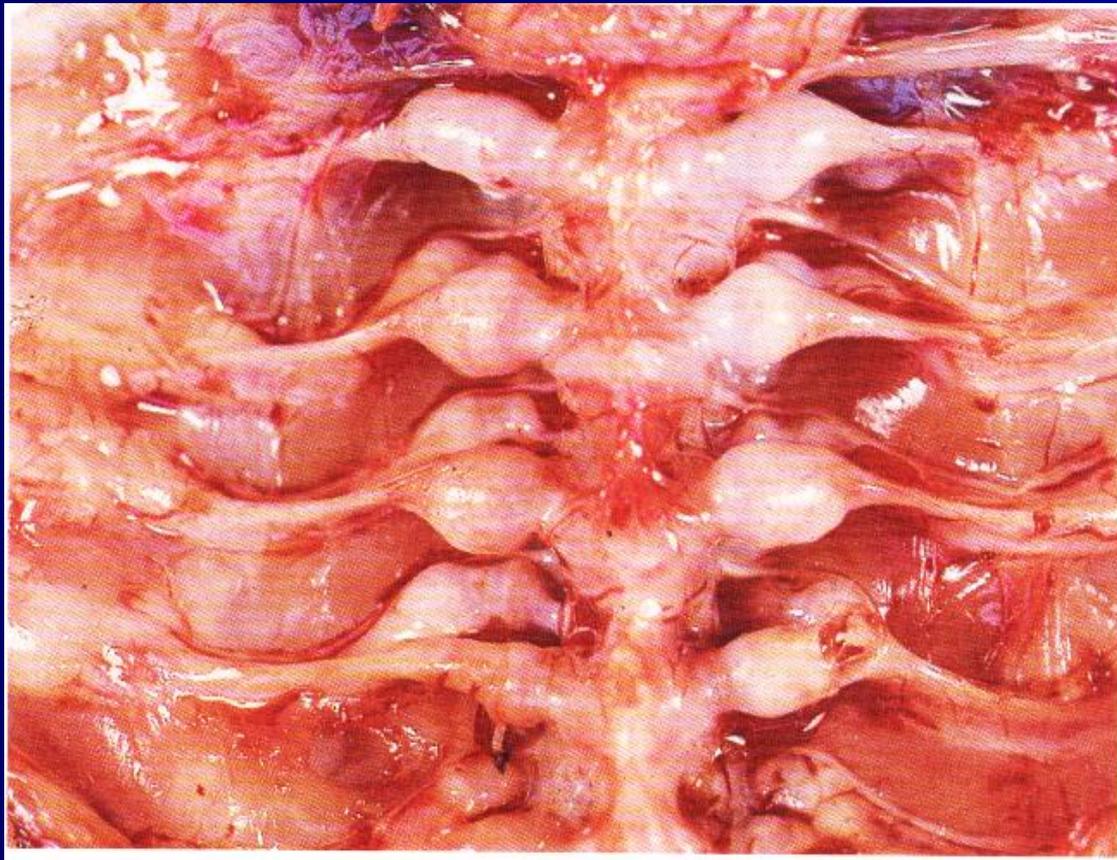
Vitamin D. deficiency

Rickets

Soft _ thick ribs

Vertebra are short and thick

Beading of the ribs at their juncture with spinal column



Nutritional diseases

Vit. E. deficiency

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1. Encephalomalacia (Crazy chick syndrome)
2. exudative diathesis
3. Muscular dystrophy (white muscle disease)

Signs of Vit. E. deficiency

1. Encephalomalacia (Crazy chick syndrome)

Paresis and neurologic signs, Torticollis & Backward retraction of the head



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Vit. E. deficiency

lesion of Encephalomalacia (Crazy chick syndrome) Swollen, edema and hemorrhage are visible on the surface of brain\ cerebellum



Chronic nutritional encephalomalacia
Affected area are pale and shrunken



2- Exudative Diathesis :

1-Edema of the subcutaneous tissue associated with abnormal permeability of the capillary walls, produces greenish blue and viscous fluid under the skin of the abdomen (due to specific gravity).

2-Anemia.

3- In severe cases, chicks stand with their legs far apart as a result of accumulation of fluid under the ventral skin.

Exudative Diathesis: Greenish fluid under the skin



Vit. E. deficiency

3- Muscular dystrophy (white muscle disease)

Light colored streaks in breast muscle



Vit.B1(thiamin deficiency)

Stargazing



FIG. 6. Typical stargazing pose displayed by chick suffering from thiamin deficiency.

Vit.B2 (Riboflavin deficiency)

Curled toe paralysis

Toes curled in ward



Vit.B2(Riboflavin deficiency)

Curled toe paralysis

Toes curled in ward



Vit.B2(Riboflavin deficiency)

Curled toe paralysis

Enlarged sciatic nerve

