# Duck Virus Enteritis (Duck Plague)

# Definition

Duck virus enteritis (DVE) is an acute, contagious herpes virus infection of ducks, geese, and swans, **characterized** by
-vascular damage,
-tissue hemorrhages,
-digestive mucosal eruptions,
-lesions of lymphoid organs, and degenerative changes in parenchymatous organs.

hemorrhagic disease of domestic ducks so called **duck plague,**

# Economic Significance

has been reported, DVE has produced significant economic losses in domestic and wild waterfowl due to:

1- high mortality rate 90-95%.

2- high condemnations.

3-severe decreased egg production.

4-wild waterfowl were carriers of the disease, as they were found within outbreak
areas.

# **Cause** :

**Herpes virus (alpha herpes virus)**

-DNA enveloped virus and  sensitive to ether and chloroform

-antigenically different from herpes virus of chickens

-affect all ages especially young age (7 days)

-can be propagated on E.C.E or E.G.E via allantoic sac causing death of embryos and produce I.N .I.B

-can propagated on tissue culture **chicken embryo fibroblast** or **chicken embryo kidney cell** or **chicken embryo liver cell**

# Transmission and source of infection

Direct and indirect routs mainly fecal oral rout

I.P 3-7 days

Affect all breed of ducks Wild water birds act as a carrier

# Signs

**1-svere acute form:**

**High mortalities 95% at age 7 days**

**2-Subacute form:**

**-general sings ( weakness, off food ,ruffled feathers ….)**

**a-conjunctivitis ,pasty eye lids and nasal discharge**

**b-watery diarrhea with severe exhaustions**

**c-outstretched wings with stretched downward**

**d-before death tremors in head ,neck and body**

**-IN Duckling**

**pasty vent mixed with bloody fecal matter**

**-IN Breeders**

**severe drop in egg production 80-40%**

# Post-mortem lesions

1-Patches of hemorrhage on serosa membranes (paint brush)

2-heamorrhage on pericardial sac

3-svere congestion in liver and spleen

4-diphthertic lesion in buccal cavity

5-heamorraghic ring in mucosa of sphincter between esophagus and proventriculus

6-heamorraghic bands on intestinal serosa and later become necrosed and sloughing of mucosa (necrotic enteritis)

7-erupted whitish spots on muscle mucosa at early infection and become greenish in late stage with lymphoid tissue affection

8-brusa red with yellowish necrotic foci and atrophied thymus (contain yellowish exudates in c.s)

**9-IN Male breeders**

-Prolapse of phallus (penis)

-hemorrhages on liver ,spleen ,pancrease

**10-In Female breeders**

-degenerative and hemorrhagic changes with ruptured ovarian follicles

-bloody content in the abdomen

# Diagnosis

1-history

2-signs

3-P/ M

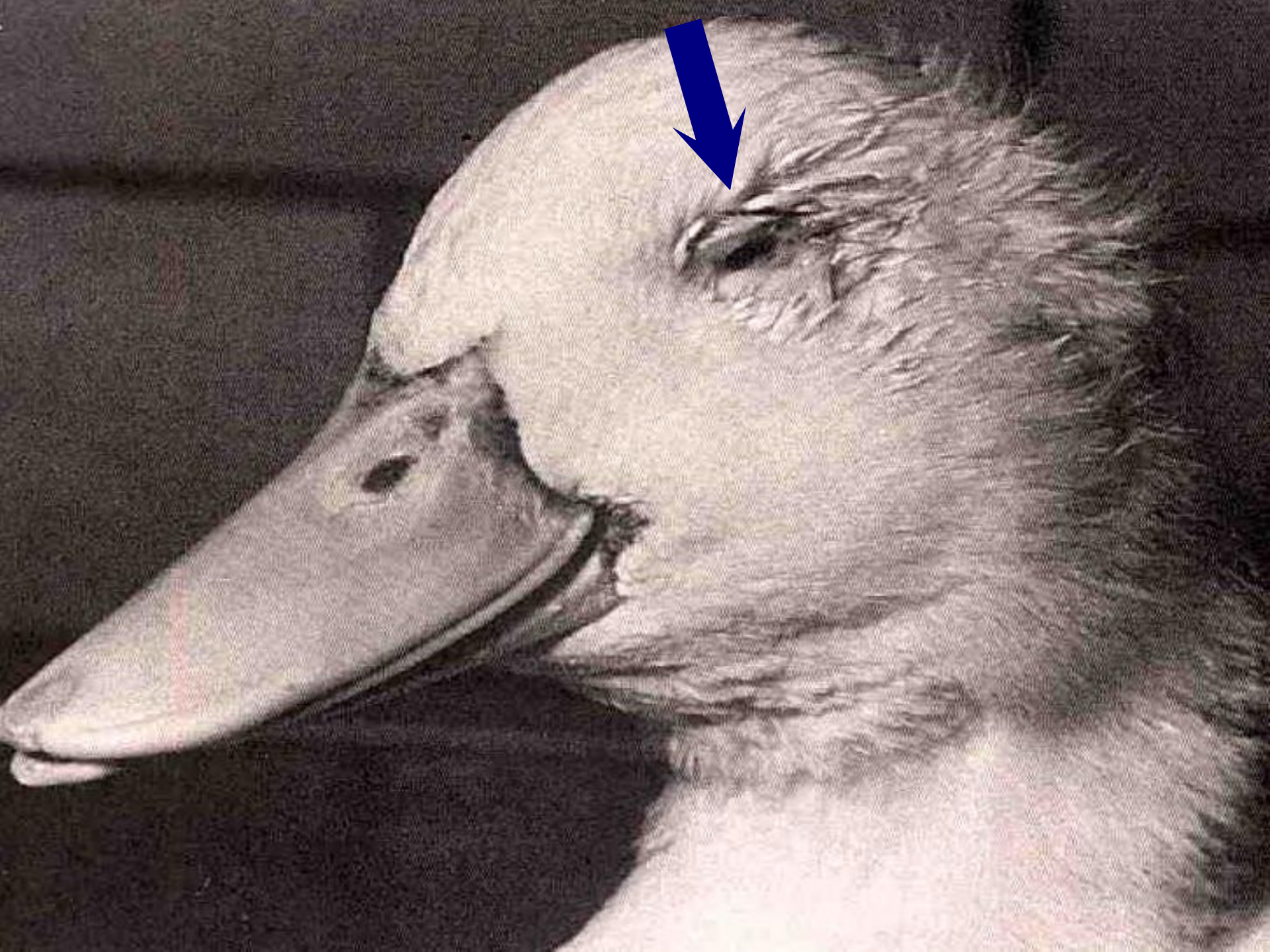
**4-Lab.diagnosis**

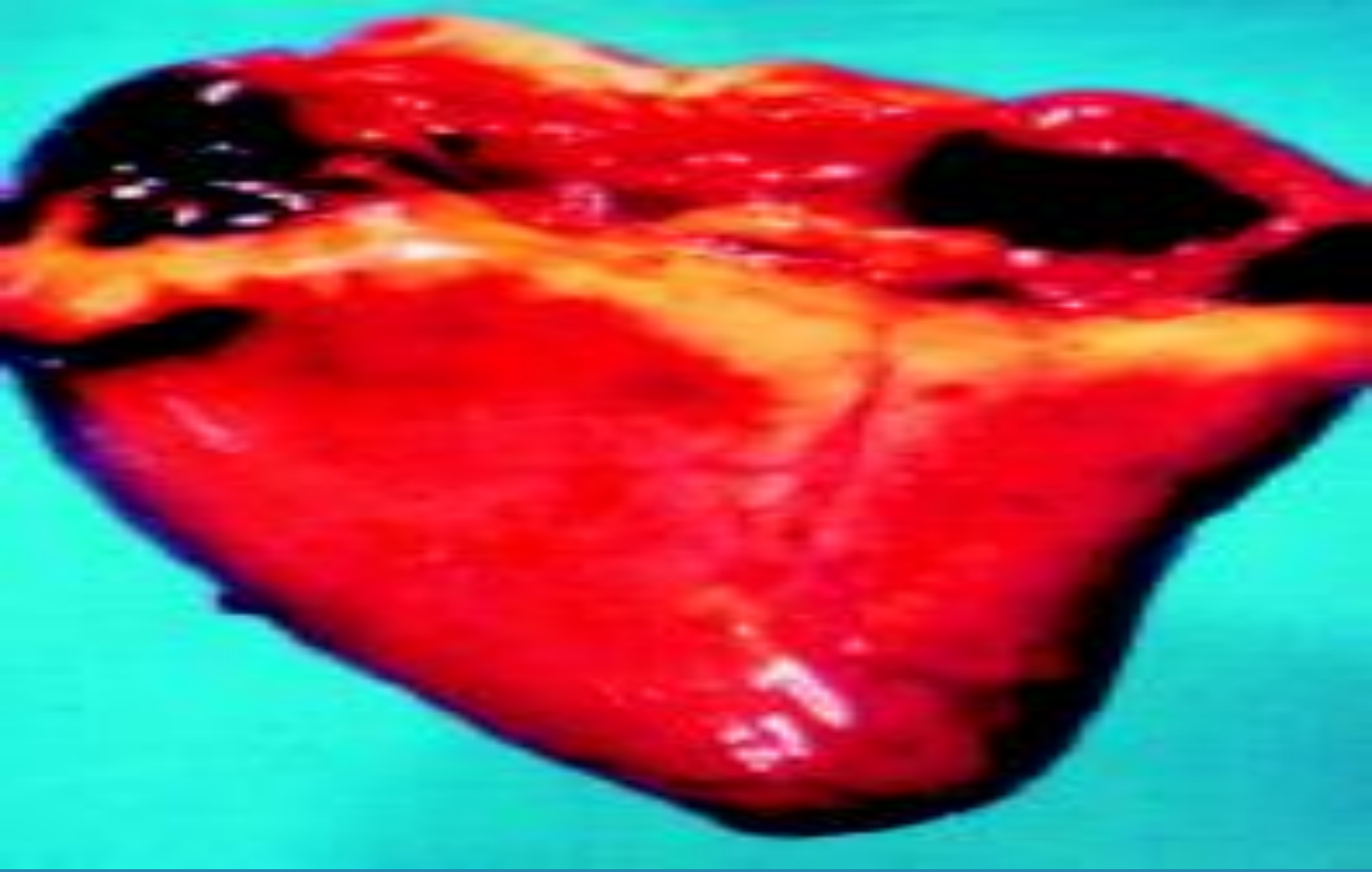
A-Sampling from intestine ,parenchymatous organs

B-isolation on E.C.E or tissue culture

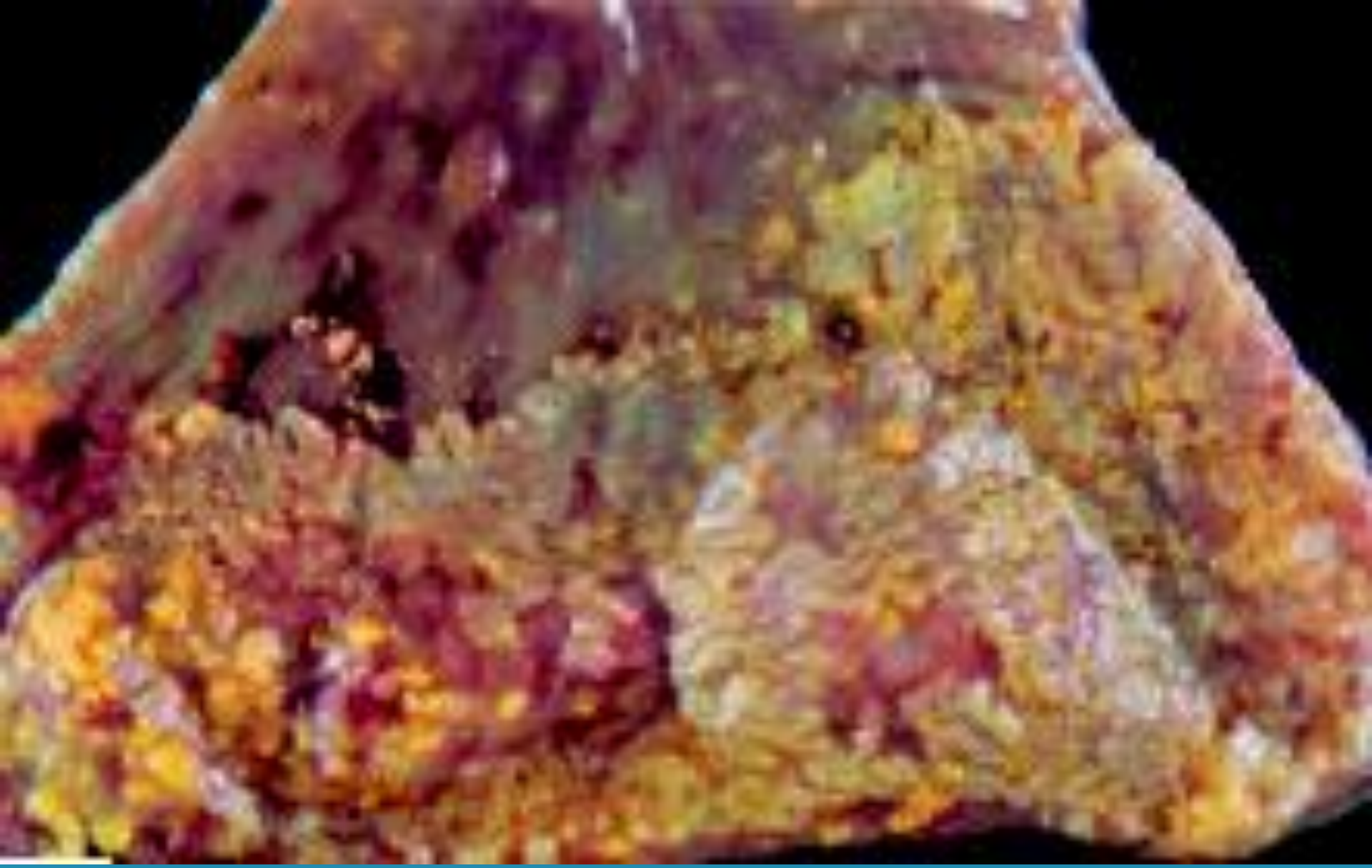
C-histopathological examinations (I. N .I .B)

D-FAT,ELISA as serological test for identifications



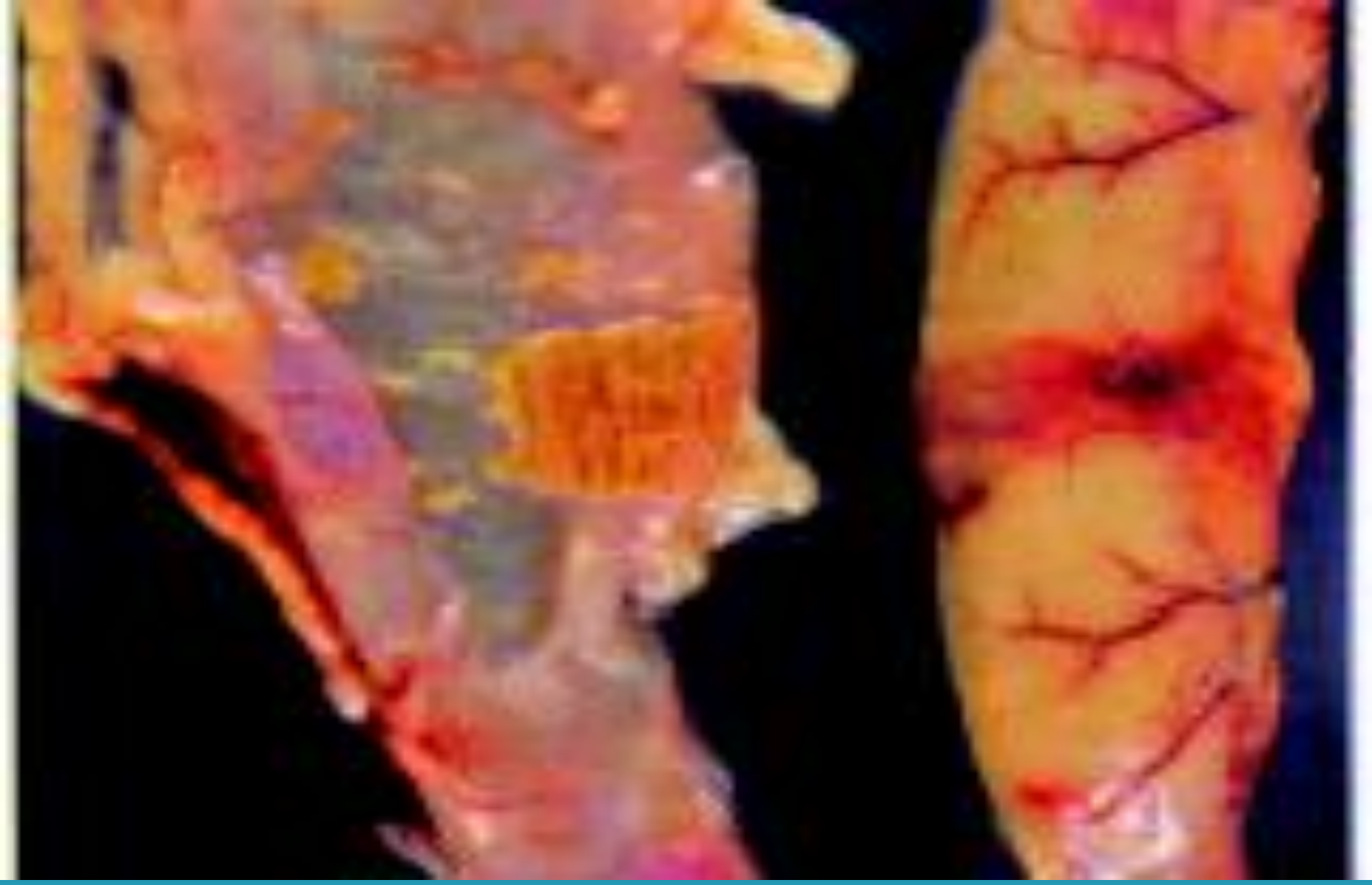


*Petechial hemorrhages in the epicardium.*



*Extensive ulceration of esophageal mucosa.*

***Bursal lesions; hemorrhages (center) and cheesy exudate (right and left).***



*Multifocal necrosis of gut-associated lymphoid tissue resulting in ulceration covered by fibrinous pseudomembranes. Note also the reddened ring visible on the external surface of the intestine.*

*Multiple pale foci in liver and slightly smaller dark-colored spleen.*

*Normal thymus (middle) and thymus (DVE) showing hemorrhages and atrophy (top and bottom),*

# Differential Diagnosis

**Differential diagnosis requires consideration of other diseases producing hemorrhagic and necrotic lesions in In domestic ducks,**
**such changes are**

**-duck virus hepatitis, fowl cholera,**

**-necrotic enteritis, coccidiosis, and specific intoxications.-**

**-Newcastle disease, fowl pox, and fowl plague**

# Prevention and control

-Preventions depend on hygienic measures ,biosecurity and avoiding direct and indirect contact with possibly contaminated material

-sanitation, disinfection, and vaccination of all susceptible ducklings.

## Vaccination:

-**Active immunity** has been demonstrated following the use of a modified live-virus vaccine and inactivated tissue culture vaccine

-**Passive. Maternal immunity** has been reported in ducklings ,but it declines rapidly. Progeny of breeder ducks vaccinated with a live-virus vaccine are fully susceptible.

-inactivated vaccine can be used at 4-6 week before production of egg