

# PASTEURELLOSIS

## FOWELCHOLERA (FC)



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It is a contagious disease affect domestic and wild birds as :acute septicemic or respiratory disease with high morbidity and mortality or chronic localized form occurred following the acute or independently when infection occurred with the low virulent organism.

The affection named:

1. fowl cholera in domestic birds.
2. Avian cholera when occurred in wild birds.

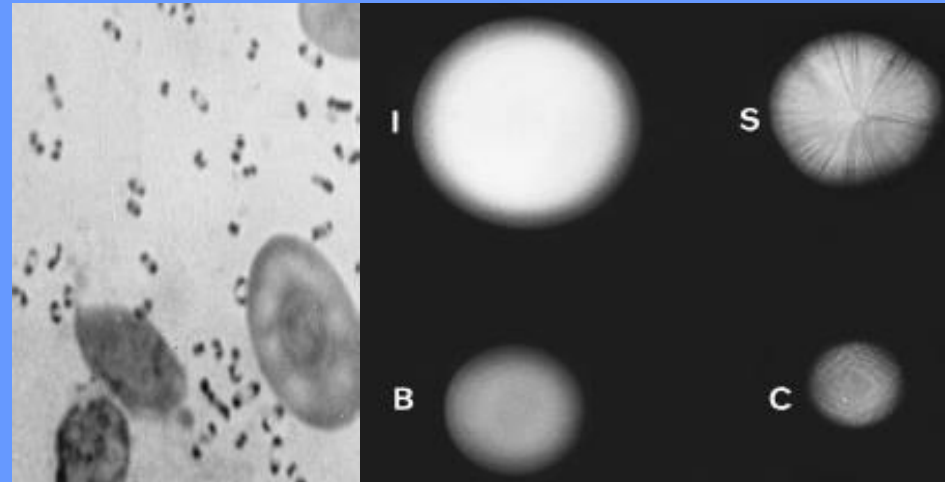
# ***ECONOMIC IMPORTANCE***

1. High losses due to high mortality rate.
- 2.. Loss from loss of weight and decrease of egg production.
3. Increase no. of low graded carcasses.
4. High cost of medication and vaccination.
5. Difficult to be prevented as it affect many wild and domestic birds and having many serotypes.

# CAUSE

PM a Gram negative, non motile, non spore forming, capsulated, bipolar, short rods or polymorphic after repeated subculture. The capsule and Bipolarity can be seen by Gimsa staining of organism in blood, tissue and recent isolation. It grows aerobic or anaerobic on blood agar , dextrose starch agar tryptose Soya agar enriched with 5% peptone or chicken serum at 37 C.

PM colonies appear as:  
smooth, circular , translucent,  
glistening iridescent if isolated  
from acute cases or sectored  
,blue or rough from chronic .



PM has capsule, lipopolysaccharide in cell wall, endotoxin, heat shock protein and enzymes as pathogenicity or virulence factors

# ANTIGENICALLY

PM having two type of antigen accordingly it can be serotyped according to:

1. Capsular antigen (heat labile mucopolysaccharide) by passive HI- test into 5 groups A, B, C, D, and E. serogroup A are more prevalent in poultry.
2. Somatic antigen (Heat stable lipopolysaccharide-protein) by AGP or agglutination test against chicken serum) there are 16 type the serotypes 1, 3, and 4 are world wide, 5, 8 and 9 are prevalent in EGYPT

# ***EPIDEMIOLOGY***

1. All birds are affected but turkey and quails are more susceptible than chickens.
2. Outbreaks occur at any age especially in semi-mature and mature birds up to 8 weeks old.
3. FC appears as a primary disease in birds.
4. Stress factors and other infections increase the severity of the condition.
5. FC affect and induce sever loss in both domestic and wild birds.
6. FC is more prevalent in late summer, full and winter.
7. FC is a world wide in distribution.
8. Chronic carriers and free living birds are source of spread.

# ***TRANSMISSION:***

Chronic infected and free birds are source of infection → to domestic birds by:

1. contaminated food and water.
2. Insects may serve as vector.
3. Inhalation of contaminated dust or droplets.
4. Conjunctival route.
5. Wound infection or during injection.

# 1. ACUTE:

**Birds infected showed Only signs of sudden increased mortality, cyanosis of unfeathered parts.**

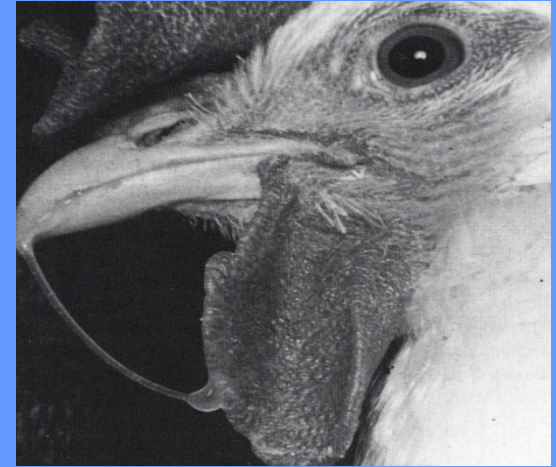




## 2. Subacute:

Signs appear few hours before death as fever, off food, ruffled feathers, mucous discharge from mouth, diarrhea, increase respiration, cyanosis in comb and wattles immediately before death.

Fesses are 1<sup>st</sup>. watery followed by whitish, greenish in the later stage with mucous. Recovered birds may be emaciated and dehydrated and passed as chronically infected.



Mucous excretion from mouth



# LESIONs

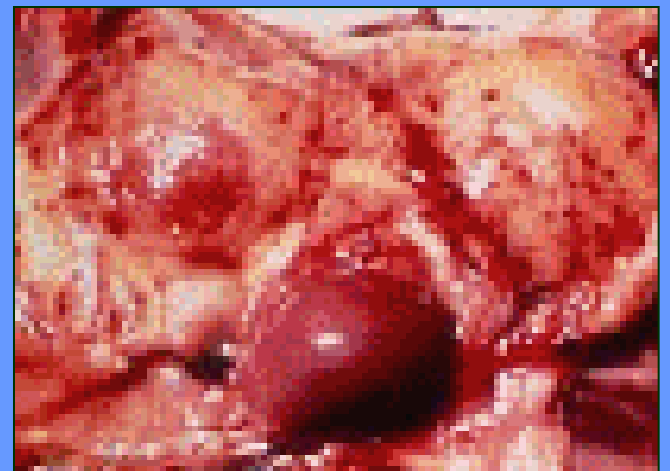
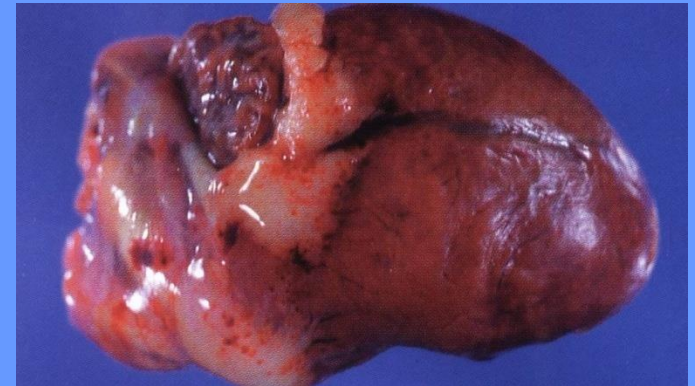
**ACUTE and SUBACUTE:**

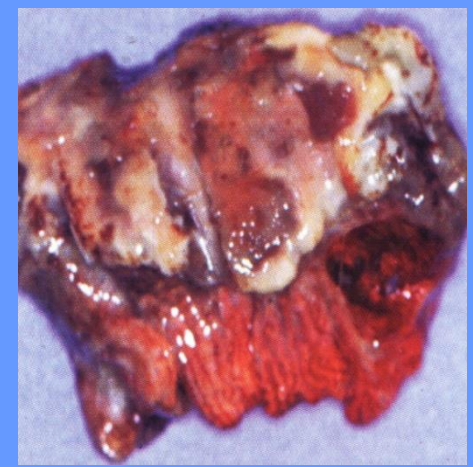
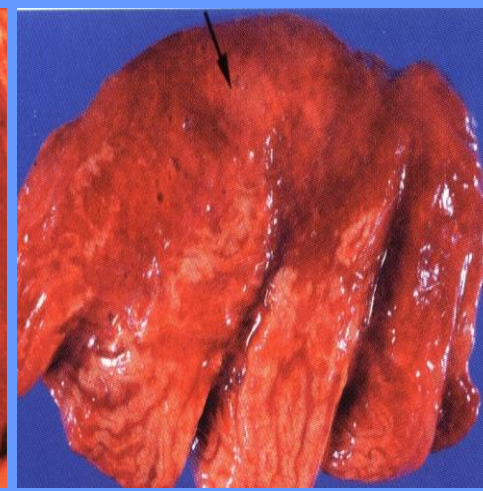
**General hyperemia**

**especially in duodenal  
mucosa. Hemorrhages  
in serosal and mucosal  
surfaces,**

**lungs, abdominal and  
coronary fats.**

**Increased amount  
pericardial and  
peritoneal fluids.**



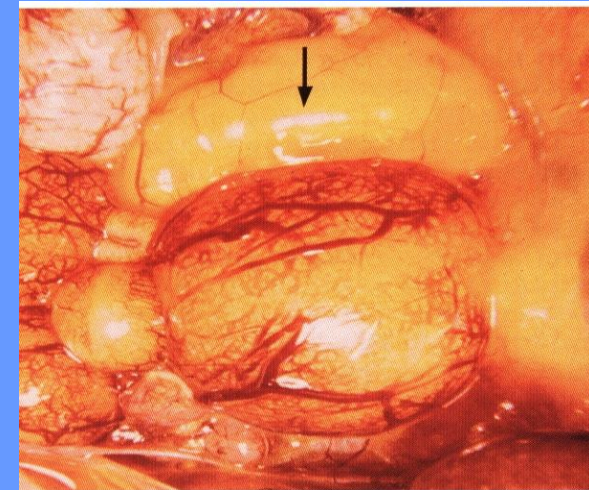


(MASHY LIVER) )

Pneumonia

Purulent pneumonia

**Liver is swollen with small coagulative necrosis (mash liver). Pneumonia is more predominant in turkey than chickens. Large amount of mucous in pharynx, crop, and intestine. Ovary show ruptured follicles or hyperemic stigma in ova.**



Congested and flaccid ova



### 3. CHRONIC FORMS

a. ***Wattle:***

Swollen of one wattle with accumulation of caseous material.



Swelling of wattle

b. ***Sinusitis:***

Distention of nasal sinuses with yellow caseous exudates.

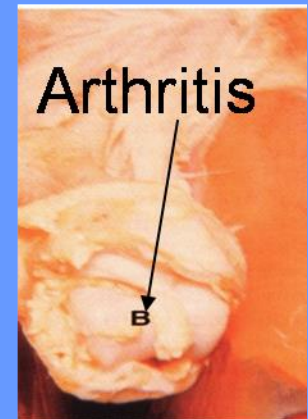


c. ***Foot pad:***

Abases in footpad with locomotors disterspans

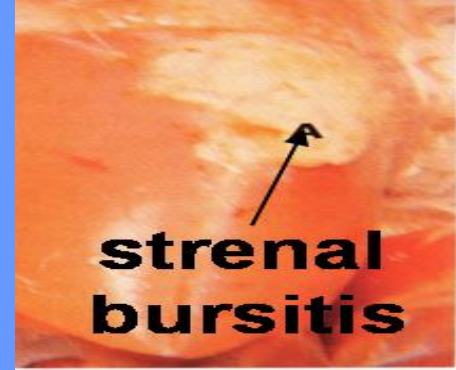
d. ***Arthritic:***

Swollen joint with lameness and caseous exudates in joint.



e. ***Sternal bursae:***

Swollen sternal bursa with yellow caseous exudates.



f. ***Otitis media and meningitis:***

Mainly in turkey as bird shows nervous signs (torticollis).



g. ***Respiratory tract (ROUP):***

Tracheal rals and dyspnea with nasal discharge in turkey.

***h. Peritoneal cavity and oviduct:***

Birds show egg peritonitis and salpingitis & egg production problems.



# DIAGNOSIS:

1. History, signs ( sudden high mortalities) and lesions in liver.
2. ***Samples:*** liver, bone marrow, heart blood from life or fresh died birds. Bone marrow is used when samples is not fresh or contaminated. from lesions in chronic forms.
3. Detection of bipolar PM organism in blood or tissue by stained smears.
4. Inoculation of rabbit or mice with blood of infected bird; as PM cause death of these animals within 24 hours; with detection of bipolar organism in their tissues and blood.
5. Inoculation of full susceptible birds. .
6. Detection of antibodies 7-10 days post infection or in recovered birds.

# **DIFFERENTIAL DIAGNOSIS:**

- 1. FC must be differentiated from acute septecimic affections an ND, AI, E-Coli septicemia, and acute spirochetosis as well as other acute affections.**
- 2. The chronic conditions must be differentiated from similar conditions caused by other causes.**

# TREATMENT:

Sensitivity testing is recommended especially during prolonged use of drugs as resistance may be developed. The following drugs can be used:

- **a. Sulfonamides:**

in chicken and turkeys sulfamerazine 0.2 % in water or 0.4% in feed , Sulfaquinoxaline 0.01 – 0.05% in water for 3-5 days to stop deaths in 2 days ;but these drugs are bacteriostatic , not cure local affections , its toxicity especially in presence of kidney affections as well as its effect on egg production.

- **b. Antibiotics:**

Streptomycin 150 mg for i.m injection in turkey, Chloro- or oxytetracycline 40 mg/kg.b.w. by i.m , chloramphenicol 20 mg/kg.b.w. via i.m.

as well as Enrofloxacin ...etc. The use of drugs is effective in stop mortality in addition of all sanitary measures to stop spread of infection.



# PREVENTION

- a. Sanitary measures to prevent methods and sources of infection.
- b. **Vaccination**: PM antigen vaccine homologous to that cause fowl cholera or use of autogenous local prepared vaccine in endemic area or when commercial ones are not protective.

## *Types of vaccines against FC :*

1. **Bactrin** : whole cell Bactrin of polyvalent from serotype 1 , 3 and 4 is imported and local prepared containing 5 , 8 , 9 and D:2 serotypes.
2. **Live attenuated vaccine**:
  - a. CU- vaccine
  - b. Mutants of CU-vaccine to avoid post vaccinal reaction of the CU strain as M-9, MN and PM-1 vaccines.
3. **Cell free culture filtrate vaccine**: This vaccine contains lipopolysaccharide and gives homologous protection.
4. **Recombined vaccine**: P6-like protein vaccine.

# VACCINATION

## 1. Chickens:

- The first dose of vaccine must be given at 8-10 weeks bactrin by S.C. injection. Revaccination at 18 – 20 weeks by CU live vaccine via wing web or bactrin.

## 2. Turkey;

Meat type, 6-8 weeks bactrin injection or CU via drinking water and repeated every 4-6 weeks till marketing.

Breeder flocks must be vaccinated first at 6- 8 weeks and revaccinated 2-5 times till start of egg production according to epidemiology of FC in the area and farm.

**HANK**

**YOU**