



## **Global Veterinary Summit**

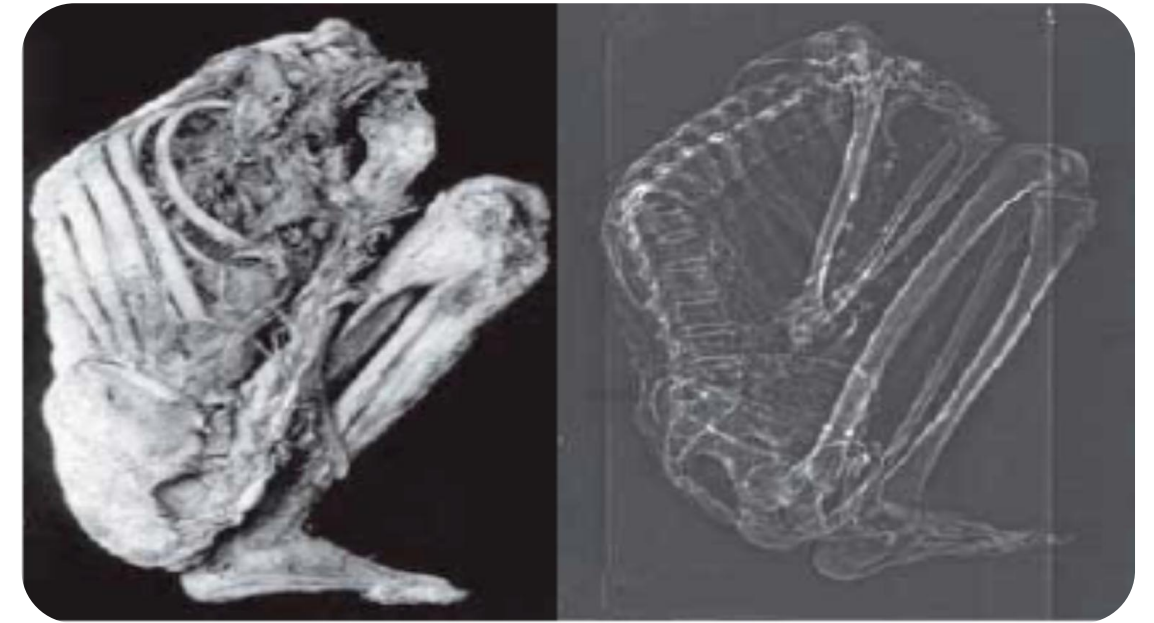
**Radical Approaches on Prevention, Diagnosis and Treatment of  
Wild and Domestic Animals**

**Avian tuberculosis in naturally infected lofts of domestic pigeons, different  
diagnostic approaches and its zoonotic significance**

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# History

Tuberculosis one of the most ancient common diseases between human and animals...



- Based on statistics this disease is one of the most significant infectious diseases ...
- It kills nearly 1.5 million people per year...
- Almost 1/3 of people of the world are infected by these bacteria...
- World Tuberculosis Day-24 March



**World Health Organization**



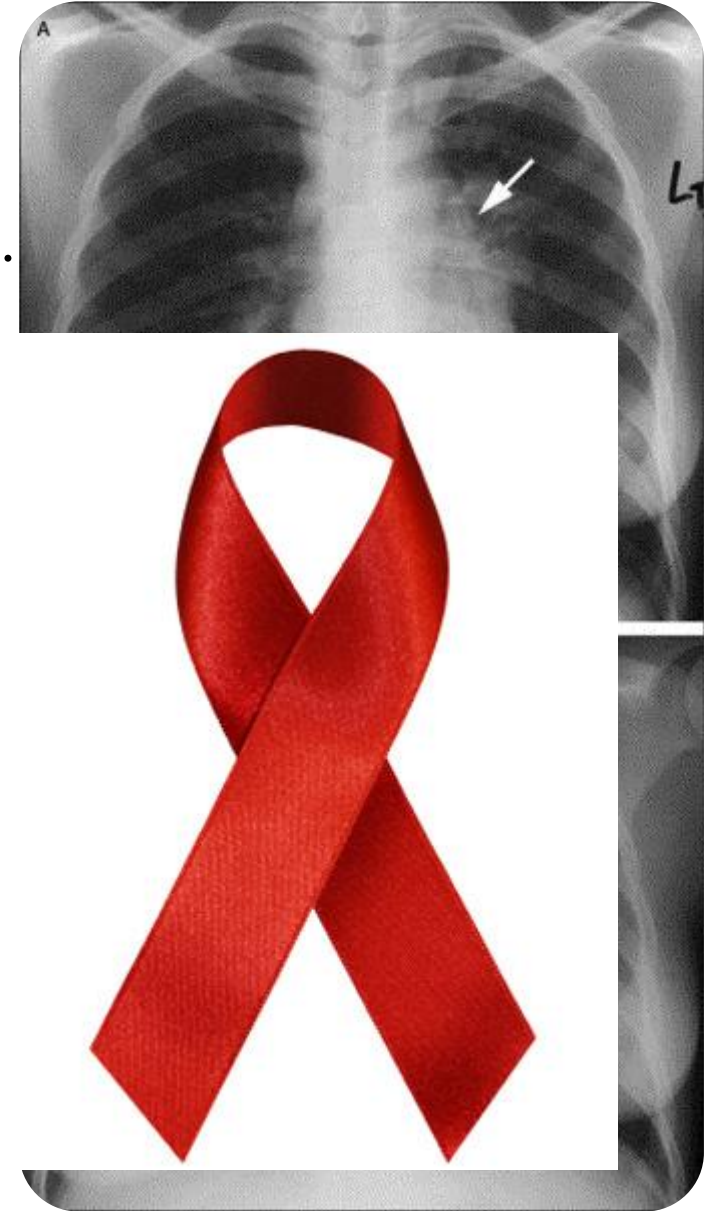
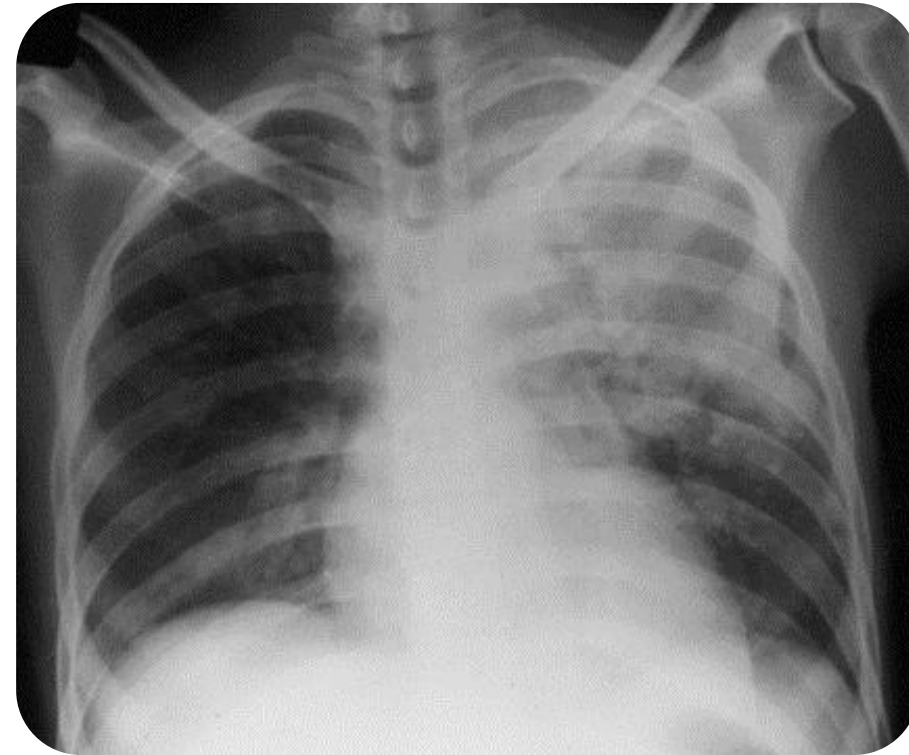
# Avian tuberculosis

- It was first described in 1884...
- It is one of the most important diseases that affect most species of birds
- The primary target of the disease is domesticated...
- Several mycobacterial species can be involved...,
- The disease is most often caused by *mycobacterium avium* and *mycobacterium genavense*



## In Human

- The first case of avian tuberculosis in humans in 1930.
- In immune competent humans, mostly cause chronic pulmonary infections and lymphadenitis...
- In HIV infected and AIDS patients, or in other immuno-compromised persons...



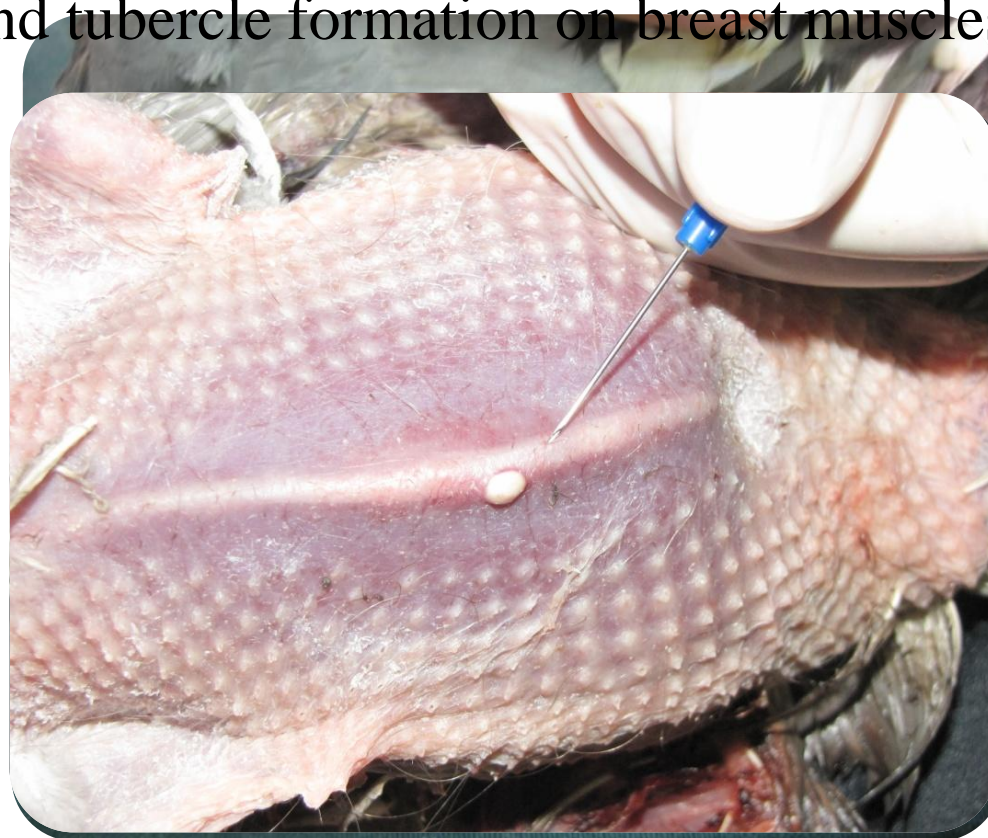
## **Samples**

Eighty pigeons, from 10 pigeon lofts with 600 pigeons

## Clinical signs

The most important clinical signs

- Swollen joints in legs and wings
- Atrophy of breast muscles
- granuloma on conjunctiva and tubercle formation on breast muscles and subcutaneous tissues



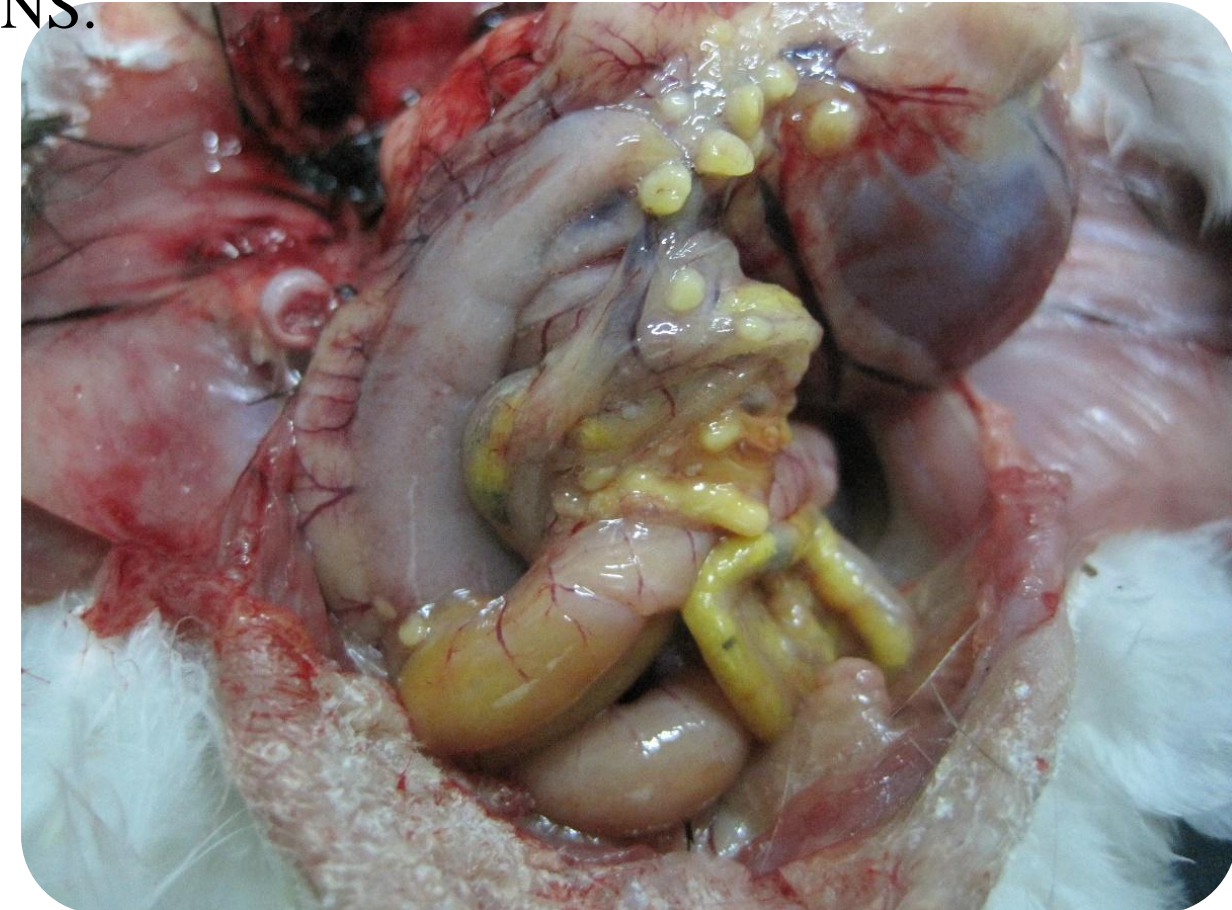
## Necropsy Findings

Liver and intestines were the most affected organs...

The lungs were the least affected...

No macroscopic lesions were observed in the kidneys and CNS.

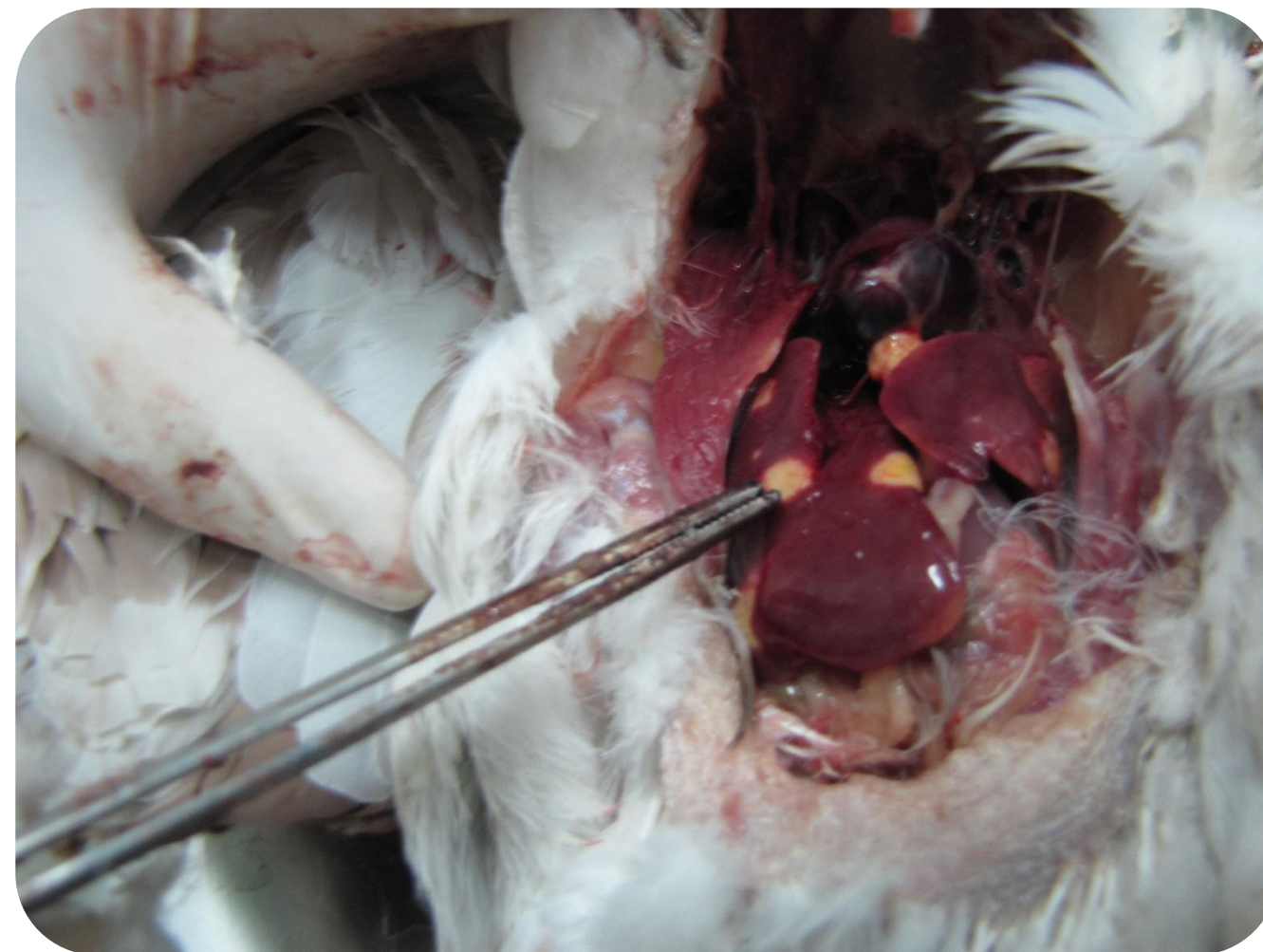
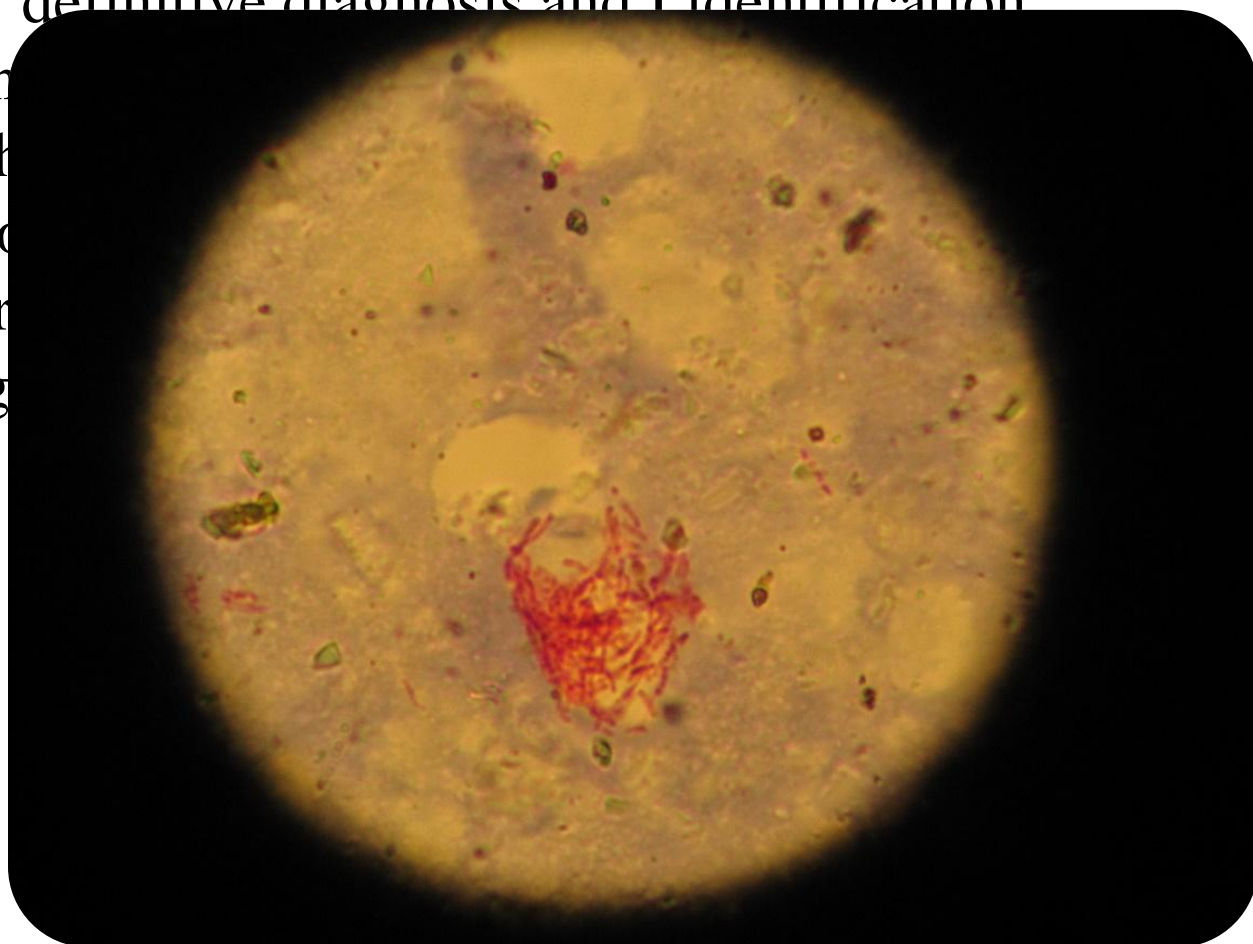
No macroscopic





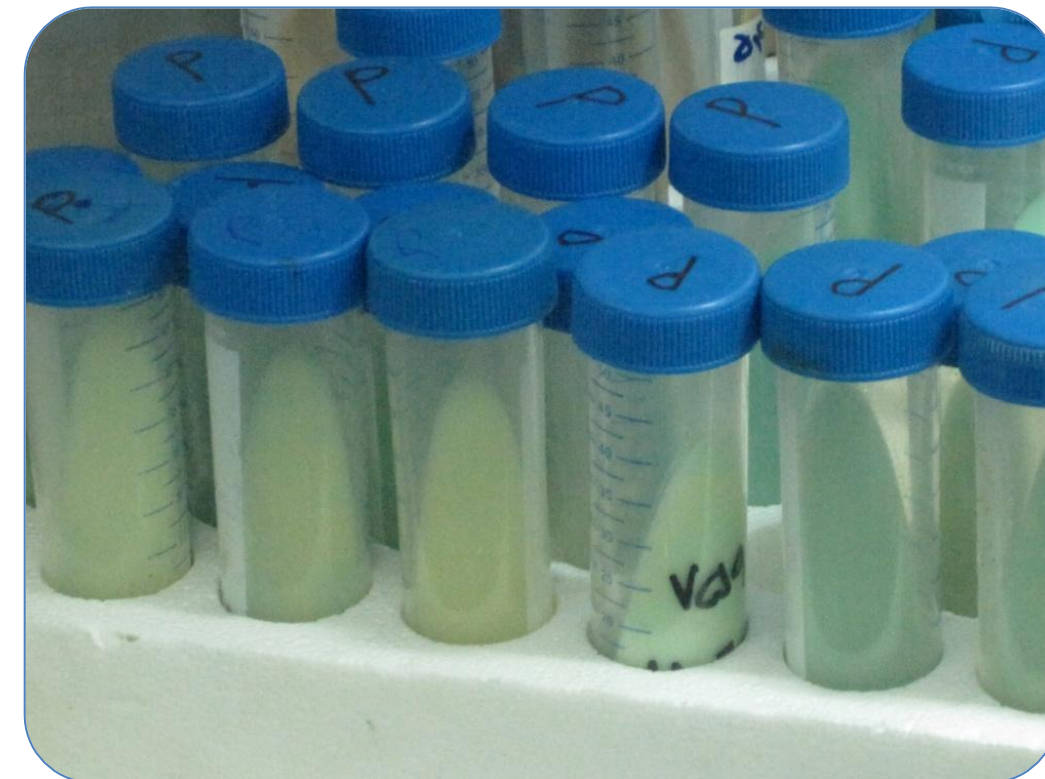
## Diagnosis

- TO make a presumptive diagnosis, we relied on clinical and necropsy findings with demonstration of acid fast bacilli.
- Culturing: For definitive diagnosis and Identification
- Also for finding
  - Histopath
  - Hematolo
  - Serum pr
  - Radiolog



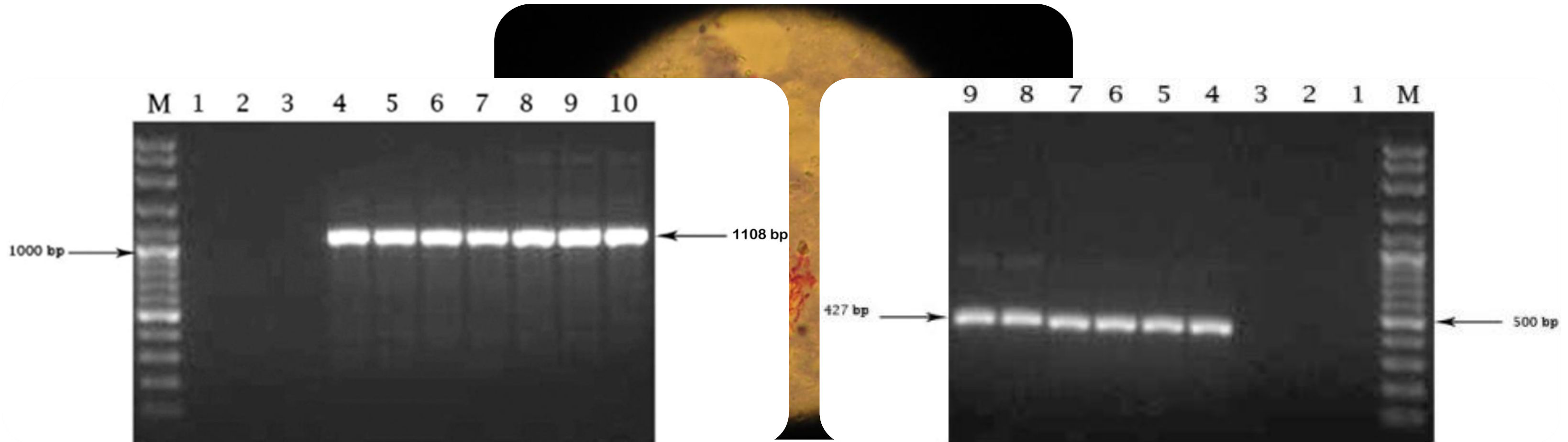
## Culturing

- The samples were cultured on 4 culture media including
  - Glycerinated Lowenstein-Jensen medium...
  - Pyruvate-enriched Lowenstein-Jensen medium
  - Mycobactin J-supplemented Herrold egg yolk medium
  - Plain Herrold-egg yolk medium.
- Incubated at 41 °C for 8 to 12 weeks...



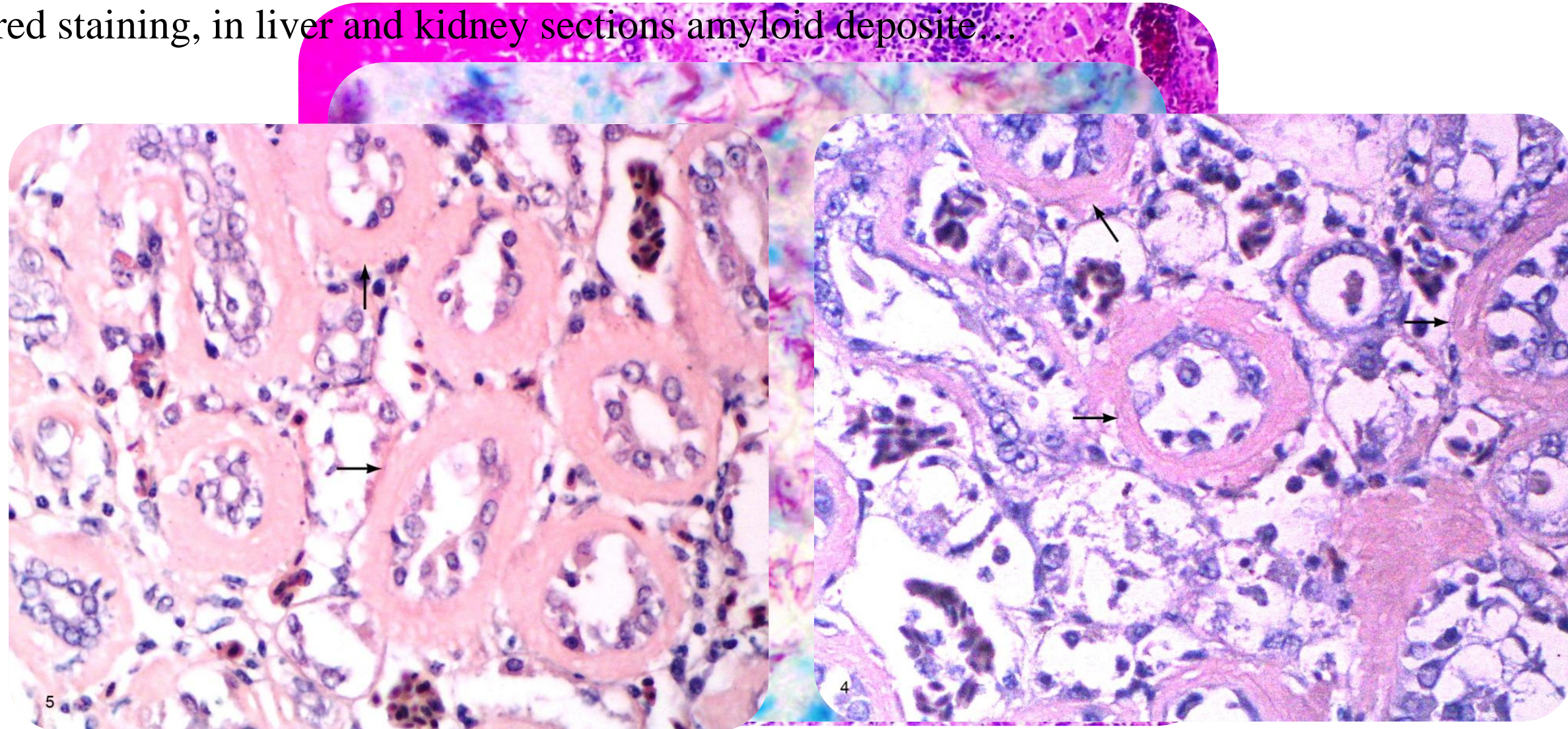
## Isolation and Identification

- Fifty one acid fast bacilli isolated from the pigeons
- These AFB isolated were examined by PCR targeting 16S rRNA, IS1245 and IS901



## Histopathology findings

- In H& E staining, Granulomatous lesions, with uncalcified caseous necrosis with numerous giant cells...
- In Ziehl-Neelsen's staining, a large number of acid-fast bacilli within giant cells ...
- In Congo red staining, in liver and kidney sections amyloid deposite...



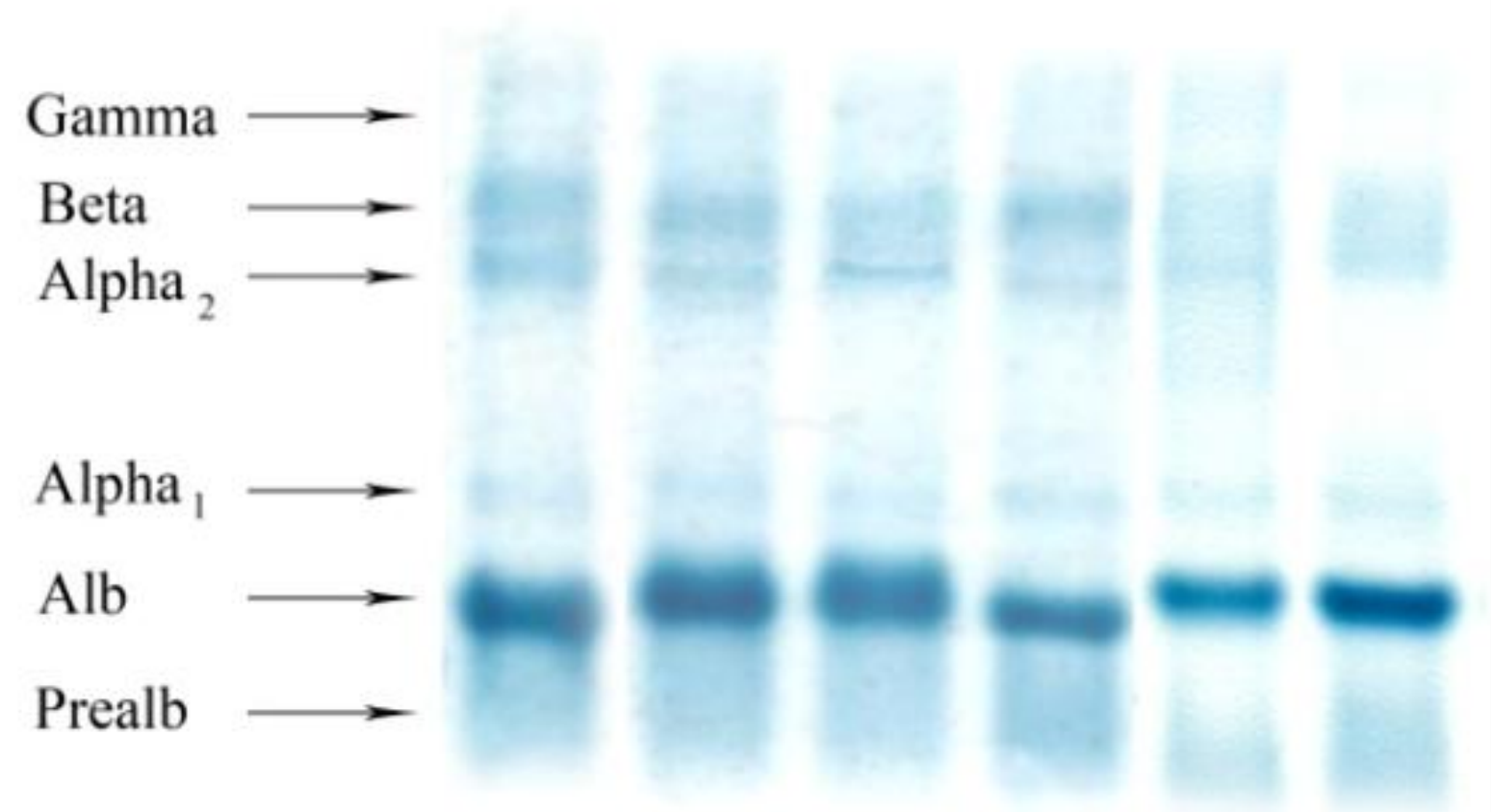
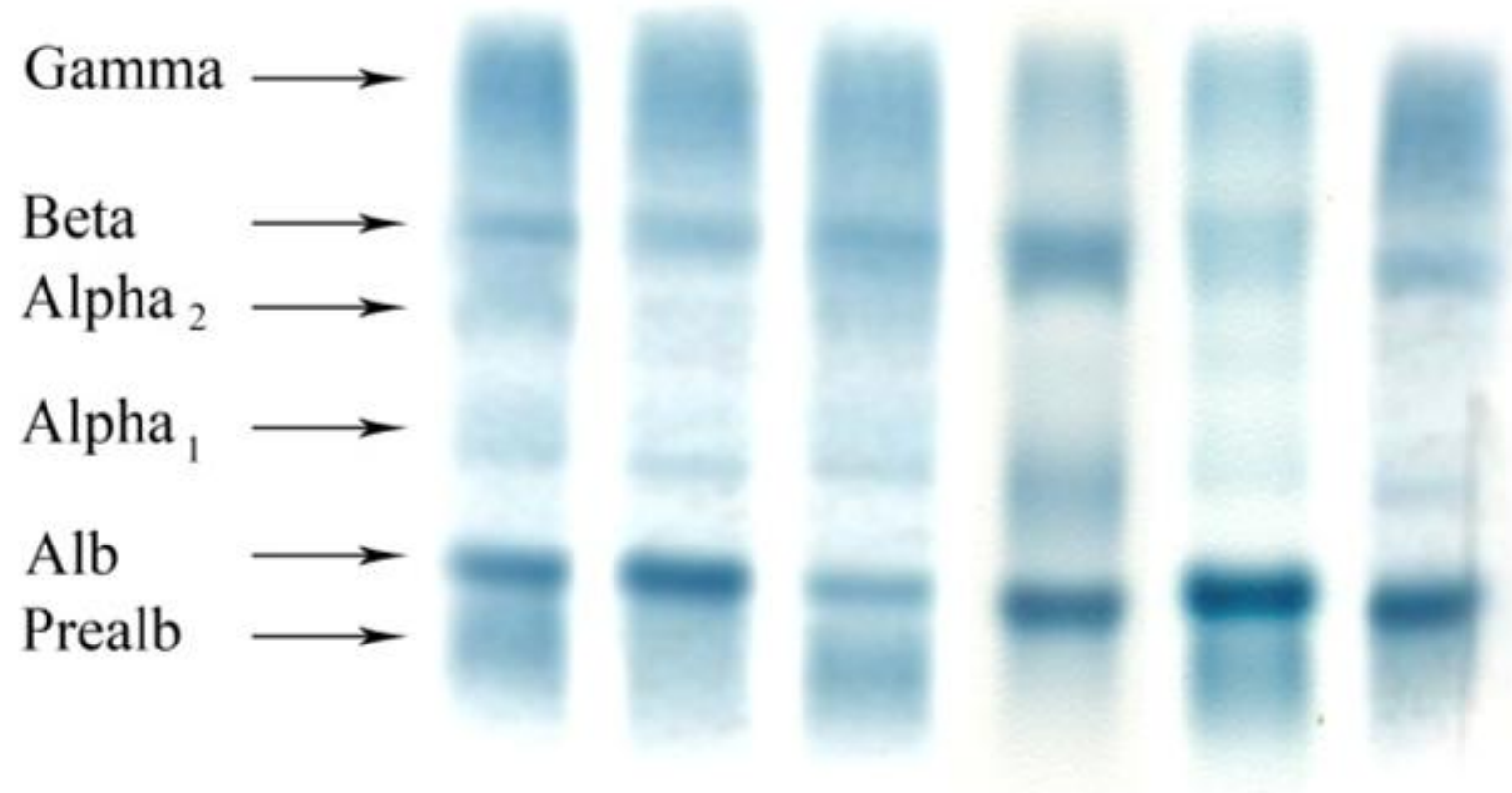
## **Hematological values**

- Total WBC, heterophils, lymphocytes and monocytes were significantly higher
- The PCV, HGB, MCH and MCHC were significantly lower
- A significant leucocytosis and anemia in the infected birds were observed.

## **Serum Protein Profiles**

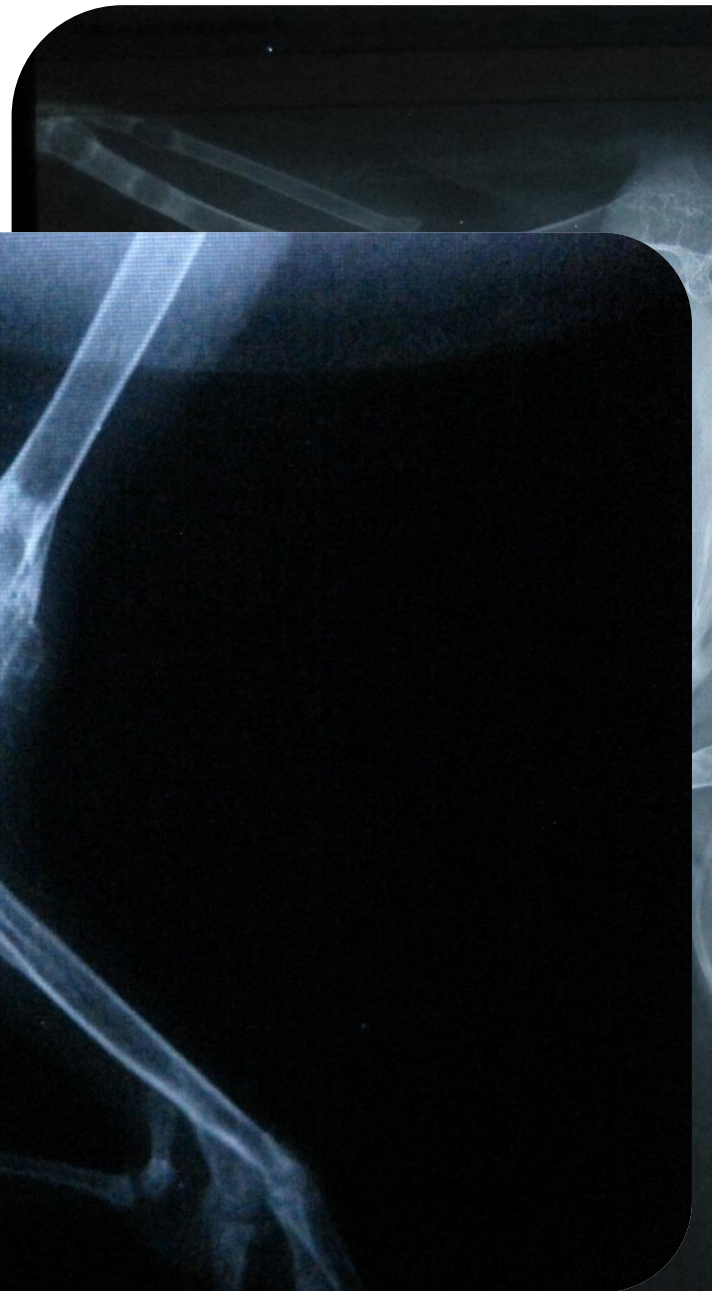
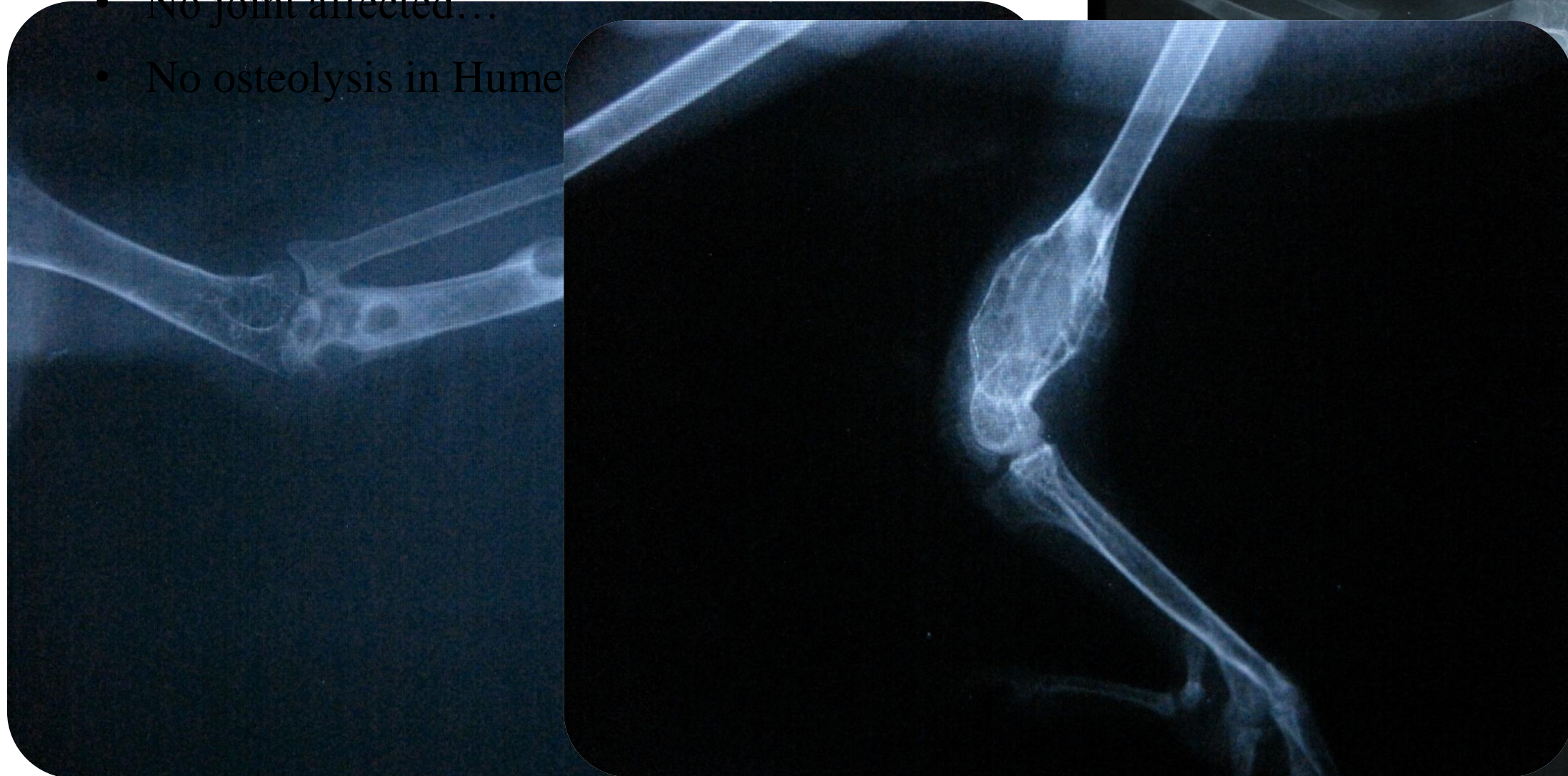
- Six protein fractions were identified...
  - prealbumin
  - albumin
  - alpha-1
  - alpha-2
  - beta globulins
  - gamma globulins

- Concentrations of total protein ,beta globulins and gamma globulins...



## Radiographic findings

- Osteolysis especially in Tibia and Ulna
- No joint affected...
- No osteolysis in Humerus





- Pigeons are extensively kept in urban and rural areas...
- They can fly and infecting many areas and transmit...
- So there is a specific and more attention regarding this disease needed.



**Thank you for your time**

*If we knew what we were doing,  
it wouldn't be called Research.*

"A.Einstein"