RESEARCH ON HISTOSTRUCTURE ANTIGENICALLY STIMULATED LUNG IN BIRDS

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ABSTRACT

Birds lung is composed of a network of interconnected intrapulmonary bronchi, gas exchange (hematosis) were achieved at the finest bronchioles.
Left and right primary bronchi resulting from the bifurcation of the trachea to the syrinx cross the lung in caudo-cranial sense, their mucous continue with their lining air sacs. Their skeleton is made of cartilage plates from ring fragmentation.
A tertiary bronchus together with adjacent lung parenchyma forms a structural unit called lobes. At the origin of air capillaries (atria) is observed atrial muscle circumscribing holes communication between para-bronchi and air capillaries. Elastic fibers are well developed surrounding smooth muscle fibers.

Key words: *intrapulmonary bronchi, bronchioles, pulmonary alveoli.*

INTRODUCTION

Respiratory mucosa are continuously exposed to antigenic aggression and play a major role in the immune response that is developed avian body. Respiratory mucosa associated lymphoid formations studys formations belonging to the respiratory mucosal immune system of BALT lymphoma was performed by presenting some details of the normal issues that may serve as a guide in identifying and inventorying respiratory lesions.
Mucous glands disappear and are replaced by goblet cells. In the mucosa, lamina propria contains many blood vessels, which can be infiltrated with lymphoid cells that can organize in lymh nodes. Are present elastic fibers and smooth muscle fibers.

MATERIALS AND METHODS

Research has been lungs from poultry, control or stimulated antigen, normally developed, clinically healthy.For this purpose an experiment was initiated which included 3 groups of birds from breeding industrial

environments.Fragments collected were processed as usual histological techniques and stained with Goldner methods - Szekelly, Mucicarmin Mayer, trichrome Gomorrah, PAS ,Orceina, Alcian Blue.

RESULTS AND DISCUSSION

Gas exchange in birds is carried out at the level of the fine branches of intrapulmonary bronchi that are tertiary bronchi, atria, air clogs and air capillaries both during inspiration and during expiration.
Respiratory mucosal lymphoid tissue occurred during evolution immune defense as a way to inhibit colonization and invasion of the respiratory mucosa by specific and nonspecific immune mechanisms. They act as a local protective immune relatively independent of the systemic.
It is demonstrated that nasal administration of antigens or bronchial aerosol regional causes an immune response in the airways. Application level of antigen influences the type of immune response. In the literature stated that nasal administration limited to be answered purely local, while aerosol administration of antigens stimulating reach the pulmonary alveoli and a systemic response.
Structure of the lungs of birds is completely different from the structure of mammalian lungs. Birds lung is composed of a network of interconnected intrapulmonary bronchi, gas exchange (hematosis) were achieved at the finest bronchioles.

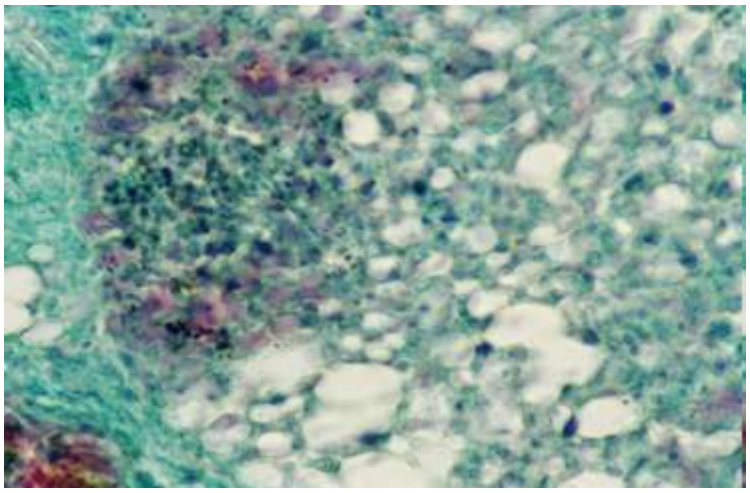

Fig.1 Lung ob. 40 x 4 trichrome stain Gomorrah

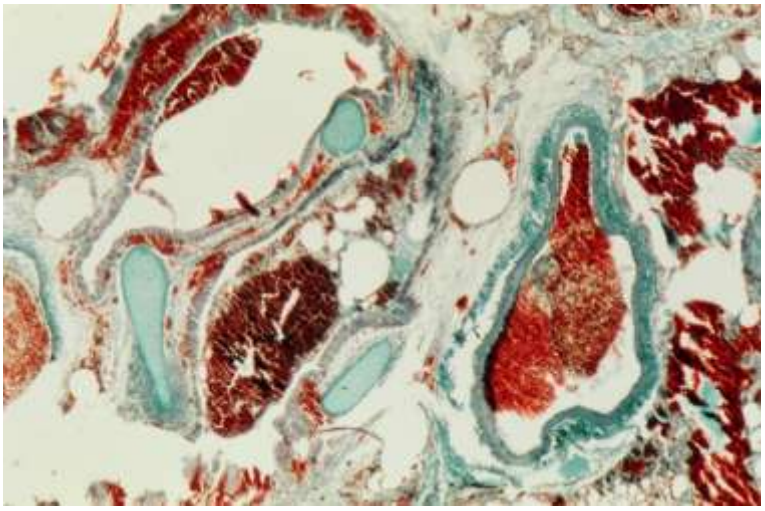

Fig.2 Lung magnifier trchrome stain Goldner – Szekelly witness
primary bronchus cartilage islands located above the vestibule;
lung parenchyma blood drawn during slaughter

Left and right primary bronchi resulting from the bifurcation of the trachea to the syrinx cross the lung in caudo-cranial sense, their mucous continue with their lining air sacs. Their skeleton is made of cartilage plates from ring fragmentation.

Mucous glands disappear and are replaced by goblet cells. In the mucosa, lamina propria contains many blood vessels, which can be infiltrated with lymphoid cells that can organize in lymh nodes. Are present elastic fibers and smooth muscle fibers. From primary bronchi secondary bronchi open arranged into four groups (middorsal, midventral, laterodorsal, lateroventral).

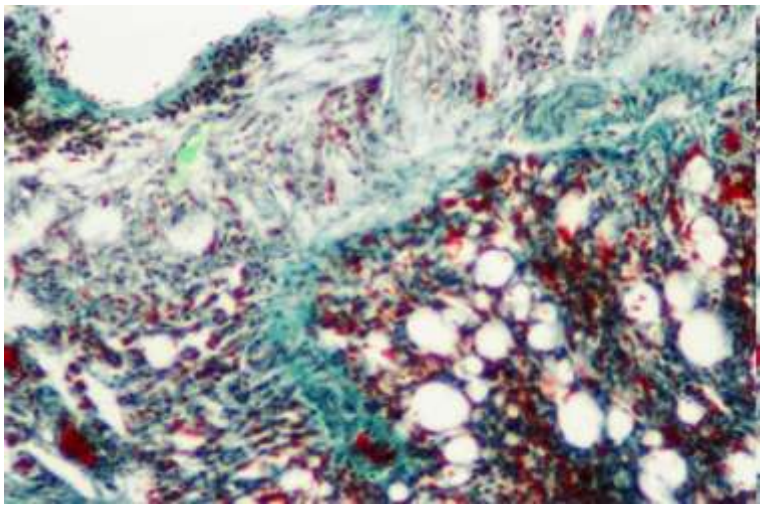

Fig.3 Lung ob. 20 x 4 Goldner- Szekelly stain vaccinated with Avipestisota vaccine lympho-plasma cell concentration near the bronchus

Secondary bronchi ciliated columnar epithelium has a goblet cell. Lamina propria have the same structure as the primary bronchus. Tertiary bronchi called parabronchi drawn from secondary bronchi and form a network of tubes through all lung paranchim. A tertiary bronchus together with adjacent lung parenchyma forms a structural unit called lobes. On the cross section has a hexagonal shape with centrally located parabronhia from which numerous air capillaries radiate to the periphery.

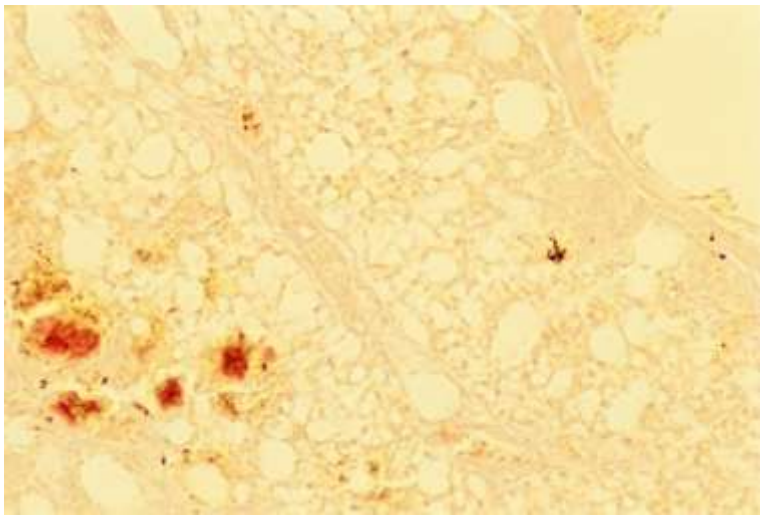

Fig.4 Lung ob. 20 x 4 Mucicarmin Mayer stain vaccinated with Avipestisota Vaccine. It highlights the positive areas. Intense reaction in the densely populated with lymphoid cells.

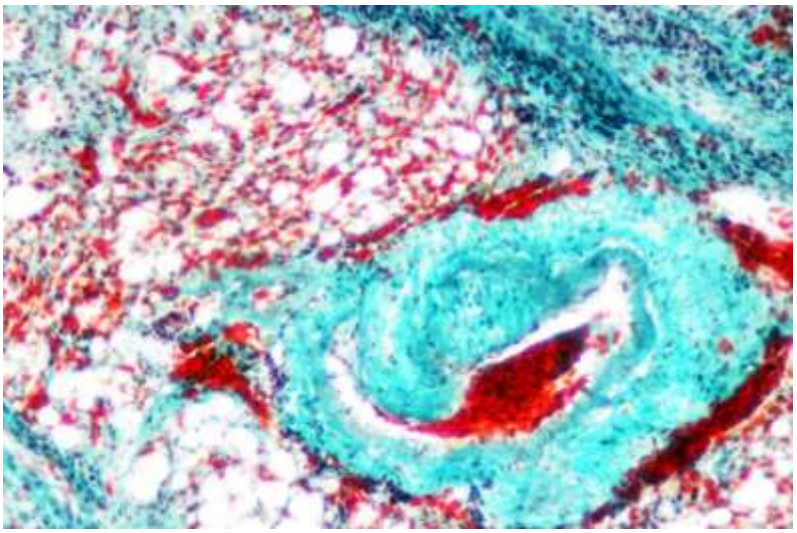

Fig.5 Lung ob. 40 x 4 Alcian Blue staining vaccinated with Avipestisota vaccine .The lymphoid population highlights the interlobular septum.

Parabronchi epithelium is a simple epithelium (flat) squamos separated by connective tissue by a basement membrane.
The origin of air capillaries (atria) is observed atrial muscle circumscribing communication between parabronchi holes and air capillaries.Elastic fibers are well developed surrounding smooth muscle fibers.
Occasionally, elongated dense bundles, characteristic of smooth muscles are placed among miofilaments and also united to the cell membrane. Many pyknotic vesicles follow the contour of cell membrane.

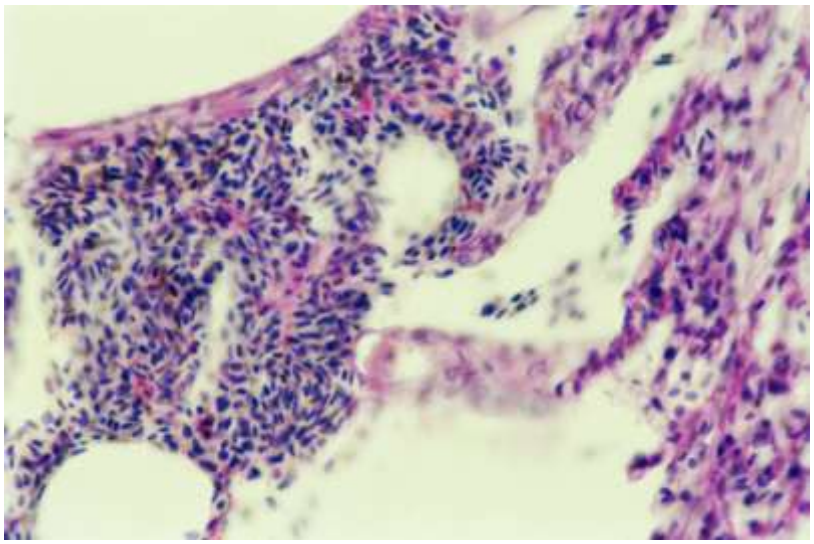

Fig.6 Lung ob. 40 x 4 PAS stain vaccinated with Avipestisota vaccine; diffusely infiltrated area, parechimul lung surface.

Many contemporary authors tend to combine original name of parabronchi with air capillaries or respiratory capillaries term.Air atria are lined by a simple squamous epithelium or cubic.

Atria are separated from each other by narrow connective tissue septa containing elastic and collagen fibers.In connective interstices between air capillaries and blood vessels lymphoid cells are found and alveolar macrophages with vacuolar cytoplasm or not.Pulmonary lobules appear delimited by connective septa rich in elastic fibers, blood vessels, connective and lymphoid cells. At antigenically stimulated birds with Newcastle virus we could see the structure of lymphoid nodules near parabronchi

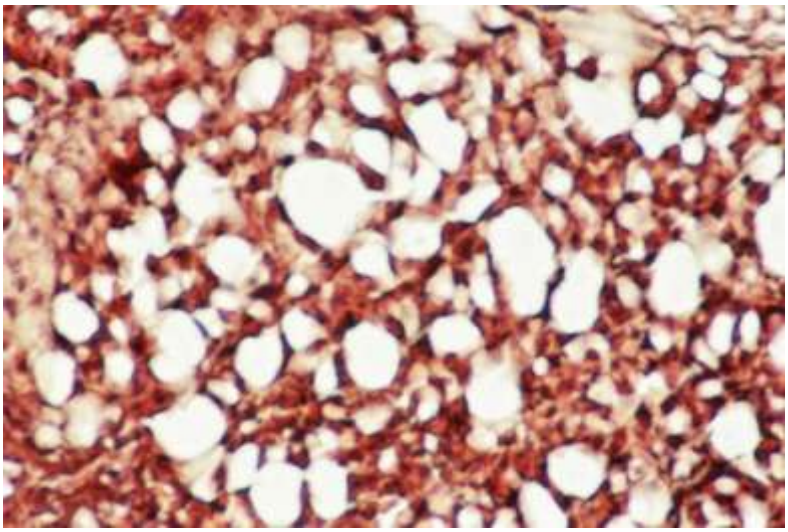

Fig.7 Lung ob. 40 x 4 orceina coloration - witnes.Skin laced given by bronchial capillarie (very weak response to orceine in the lung).

CONCLUSIONS

In primary bronchi, cartilage ring fragment plate cartilage and mucous glands disappear, their role being taken over by goblet cells. Are present in the lamina propria numerous blood vessels and lymphoid cells.

Left and right primary bronchi resulting from the bifurcation of the trachea to the syrinx cross the lung in caudo-cranial sense, their mucous continue with their lining air sacs.

The secondary bronchi simple columnar ciliated epithelium with goblet cells.

Tertiary bronchi or parabronchi occupies the center of lung lobes, in them opening up numerous air capillaries. Parabronchial epithelium seem simple squamous epithelium appears, separated by connective tissue by a basement membrane evident.

Parabronhii air capillary openings are circumscribed by atrial muscles, with characteristics of smooth muscle.Pulmonary lobules appear undelimited by connective septa rich in elastic fibers, blood vessels, connective and lymphoid cells.

Birds antigenically stimulated lymphoid nodules was observed holding in parabronchi adjacent parenchyma.

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