GROSS ANATOMICAL STUDIES ON THE LUNGS OF WILD SOW (*Sus scrofa cristatus*)

A. R. Sreeranjini[1], C.V. Rajani[2], V. R. Indu[3] and N. Ashok[4]
Department of Veterinary Anatomy and Histology,
College of Veterinary and Animal Sciences,
Pookode - 673 576, Wayanad, Kerala.

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Abstract

A study was conducted on the lungs of an adult wild sow collected soon after its death. The lungs were bluish pink in colour with distinct lobulations. Each lung was covered by pulmonary pleura and presented an apex, base, two surfaces and three borders. The right lung was larger than the left lung. It contained four lobes namely- cranial, middle, caudal and accessory lobes. The left lung presented a divided cranial lobe and a caudal lobe. A small tracheal bronchus originated from the trachea and entered the undivided cranial lobe of the right lung. Apart from the apical bronchus, the right lung presented middle, accessory and caudal lobar bronchi, ventilating corresponding lobes. The cranial and caudal lobar bronchi entered the cranial and caudal lobes of the left lung respectively. It was concluded that the gross anatomical features of the lungs of wild sow were similar to those of domestic pig.

Key words:- *Gross anatomy, lungs, wild sow*

Wild pigs are considered as the ancestors of domestic pigs. The number of the wild pigs is fast diminishing as a result of poaching and the loss of habitat. The lungs are principal structures of the respiratory system and contain special phagocytic cells that scavenge the foreign materials entering the organ. The comparable volumes of porcine and human lungs are thought to be advantageous for the study of respiratory function (Jones *et al.*, 1975). According to Rendas *et al*. (1978), the vascular circulation of both humans and pigs has a common pattern of organization and development. Riquet *et al*. (2000) reported that the lymphatic drainage of lungs in domestic pigs is similar to that of human beings.

Reports pertaining to the gross anatomical features of lungs in wild pigs are scanty and hence the present study was undertaken with an attempt to bridge the gap.

Materials and Methods

The study was conducted on the lungs collected from an adult wild sow brought for post mortem examination to the Department of Pathology, College of Veterinary and Animal Sciences, Pookode, Wayanad. Both lungs were collected, cleaned and preserved in 10% neutral buffered formalin for studying the morphological features.

Results and Discussion

The lungs of the wild sow were bluish pink in colour with distinct lobulations (Fig.1). Mc Laughlin *et al*. (1961) observed that porcine and human lungs were characterized by well developed lobularity with each lobule demarcated by relatively thick, collagenous interlobular septa. Each lung was covered by the pulmonary pleura and presented an apex, base, two surfaces and three borders. Apex was directed cranially and in right lung it was larger than that of the left as in domestic pig (Getty, 1975). The caudally placed base was concave with the concavity directed towards diaphragm. The lateral or costal surface was convex and was more extensive than the

1&3. Assistant Professors, CVAS, Mannuthy, Thrissur
2. Assistant Professor
4. Professor, CVAS, Mannuthy, Thrissur

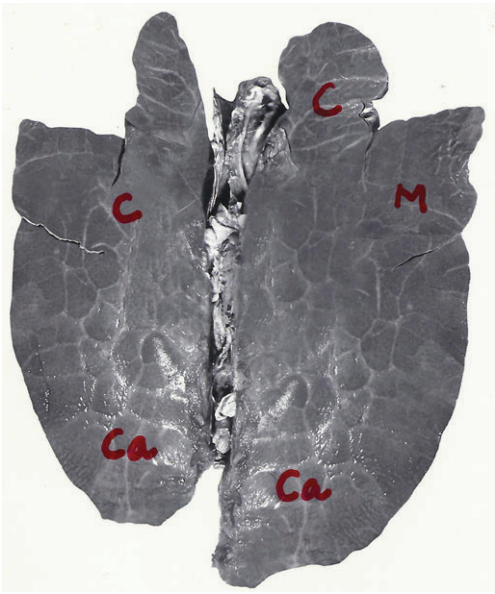

Fig.1. Lungs of wild sow- Parietal surface
C-Cranial lobe, M-Middle lobe,
Ca-Caudal lobe

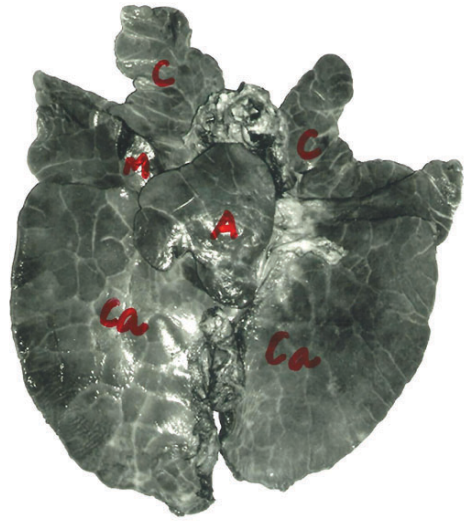

Fig.2. Lungs of wild sow-Visceral surface
C - Cranial lobe, M - Middle lobe,
A - Accessory lobe, Ca - Caudal lobe.

medial surface. The dorsal border was thick and rounded while the ventral border was thin and irregular, with deep fissures. The basal border was thick and rounded dorsally and thin and sharp ventrally.

The right lung was larger than the left lung similar to the findings of Dyce *et al*. (1996) in domestic pig. It was divided into four lobes, *viz*. cranial, middle, caudal and

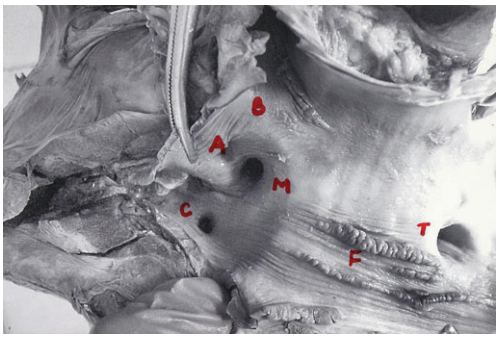

Fig.3. Lungs of wild sow showing division of bronchi
T-Tracheal bronchus, M-Middle lobar bronchus, A- Accessory lobar bronchus, C-Caudal lobar bronchus, F- Frill like mucosal folds, B - Tracheal bifurcation.

accessory lobes as reported by Cabral *et al.* (2001) in wild boar. The cranial lobe was fairly large and undivided (Fig.2). The middle lobe was pyramid shaped and was separated from cranial and caudal lobes by moderately deep fissures. The caudal lobe was the largest and was related cranially to cranial and middle lobes. The accessory lobe was attached to the medial surface of the caudal lobe posterior to the hilus of the lung. This lobe was irregularly triangular with a blunt anterior apex and a deeply concave posterior base unlike the findings of Getty (1975) in domestic pig where the accessory lobe was pyramidal in shape with slightly concave base. Through the hilus, bronchi, blood vessels, lymph vessels and nerves entered the lungs as observed in other domestic animals (Nickel *et al.*,1979).

The left lung presented a divided cranial lobe and a caudal lobe. Its cranial lobe was L- shaped as seen in domestic pig (Getty, 1975). The larger caudal lobe was placed posterior to the cranial lobe. The cranial and caudal bronchi entered the cranial and caudal lobes respectively. Contrary to this, Nakakuki (1994) observed that the left lung of domestic pig was having a bilobed middle lobe and a caudal lobe.

A small tracheal bronchus originated from the trachea and entered the undivided cranial lobe of the right lung (Fig.3). Two inches posterior to the tracheal bronchus, the trachea divided into right and left principal bronchi. Close to the tracheal bifurcation, a middle bronchus originated to enter the middle lobe. Just caudal to middle bronchus, an accessory bronchus also originated to ventilate the accessory lobe. The right caudal bronchus was posterior most and entered the right caudal

lobe. The mucosa of trachea posterior to the origin of apical bronchus and that of principal bronchi showed few longitudinal frills like folds.

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