A. Ü. Vet. Fak. Derg.
36 (2) : 477-481, 1989

BIFURCATIO TRACHEAE IN DOMESTIC ANIMALS

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Evcil Hayvanlarda bifurcatio tracheae.

Özet: *Evcil memeli hayvanların bifurcatio tracheae'sı makro-anatomik olarak incelendi. Buna göre, at, merkep ve sığırda son trachea halkası ile bronchus principalis sinister'in ilk halkasının birbirine yapışmış olduğu gözlendi. Extracartilaginous levhaların at ve merkepte trachea üzerinde, sığırda ise bronchus principalis sinister'in üzerinde bulunduğu görüldü. Carina tracheae'nın at, merkep ve sığırda her zaman yarımay şeklindeki kıkırdak tarafından desteklendiği saptandı.*

Summary: *Gross anatomical study was made on the bifurcatio tracheae in domestic animals. It was observed that the last tracheal ring and the first bronchial cartilage of the left principal bronchus were fused in horse, donkey and ox. The extracartilaginous plates were seen on the trachea in horse and donkey and also on the left principal bronchus in ox. The carina tracheae is always supported by a crescent-shaped cartilage in horse, donkey and ox.*

Introduction

The gross structure of the trachea is based mainly on materials from the classic literature as in horse and ox by Sisson and Grossman (6), dog by Miller et al. (3). In addition to these, the biometrical studies of the trachea were reported in horses and cattle by Lodge (2) and in buffalo by Peshin and Prekash (5).

Although Getty (1) and Nickel et al. (4) described the extracartilaginous plates in horse, there seems to be no enough evidence the car tilaginous structure of the bifurcatio tracheae. The purpose of this study is to present some additional anatomical observations on the bifurcatio tracheae in domestic animals.

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Materials and Methods

Six horses, six donkeys, six oxen, six dogs and six cats were used as animal materials in this study. All the animal were adult but the breed and sex differences were not marked. The animals were lethally anesthetized and immediately after death the bifurcatio tracheae between the last fourth tracheal ring and at the level of the hilus pulmonis were removed and immersed in 10 % formalin. The shape of the cartilages was examined with the aid of a dissection microscope, then the photographs were taken and simplified drawings were made of the photographs.

Observations and Discussion

The last tracheal ring and the first bronchial ring of the left principal bronchus are always fused in horse, donkey and ox. Also the last two tracheal rings showed a partial fusion in horse and ox. Getty (1) and Nickel et al. (4) recorded that the extracartilaginous plates are taken place just cranial to the bifurcatio tracheae in horse. The present study confirms their findings. Furthermore it was observed that the extracartilaginous plates were 4–6 in horse (Fig. 1e) and 3–5 in donkey

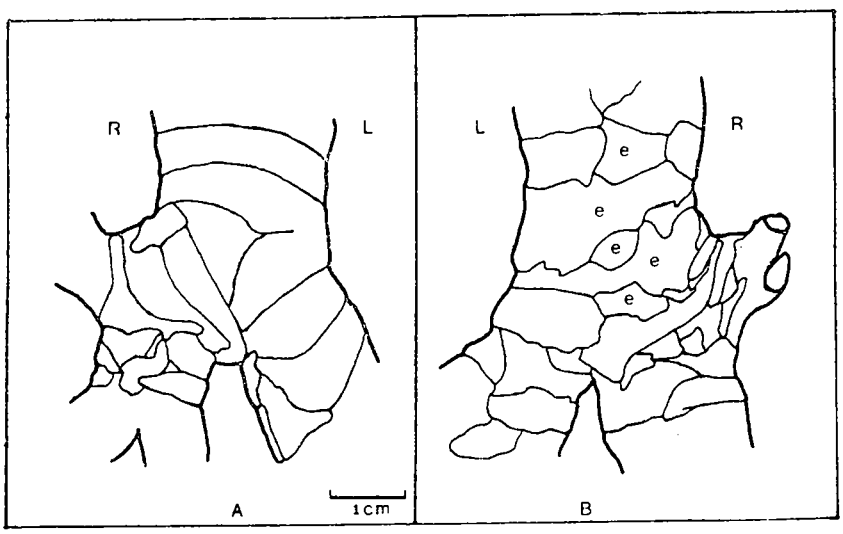

Figure 1. Schematic drawing of the bifurcatio tracheae of horse. Ventral view (A), dorsal view (B), left (L), right (R), extracartilaginous plates (e).

(Fig. 2e). The number of the cartilages varied according to the their size. The smaller they were in size, the more they were in number. Mostly one or two small, oval and thin extracartilaginous plates were seen on the left principal bronchus in ox (Fig. 3e).

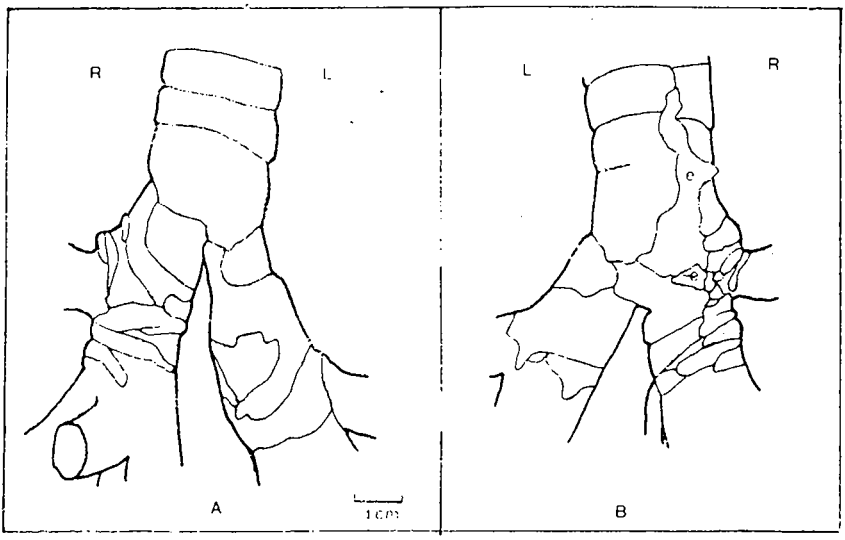

Figure 2. Schematic drawing of the bifurcatio tracheae of donkey. Ventral view (A), dorsal view (B), left (L), right (R), extracartilaginous plates (e).

The cranial cartilages of the left principal bronchus were almost the same shape of the tracheal rings in horse and ox. This has been supported by the description of Getty (1).In donkey, they were broad and irregular in form like the right principal bronchial cartilages of ox. The cranial lobar bronchus leaves the right principal bronchus just caudal to the bifurcatio tracheae and therefore the number of the cartilagines bronchales of the right principal bronchus was more than the left in horse and donkey. In dog (Fig. 4) and cat, the tracheal and the cranial bronchial cartilages which were almost cylindrical and the free ends did not meet dorsally had a same shape.

Getty (1) reported that the carina tracheae is usually supported by a piece of cartilage which may be derived from the most distal tracheal cartilage, from the proximal right or left bronchial cartilages or from a combination of both. But in the present study, it was found that the carina tracheae was supported by a crescent-shaped special cartila-

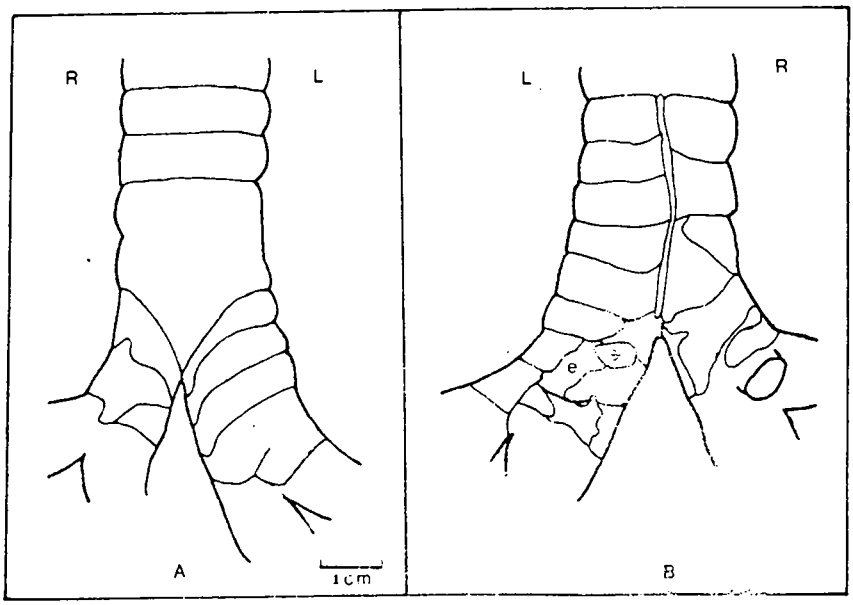

Figure 3. Schematic drawing of the bifurcatio tracheae of ox. Ventral view (A), dorsal view (B), left (L), right (R), extracartilaginous plates (e).

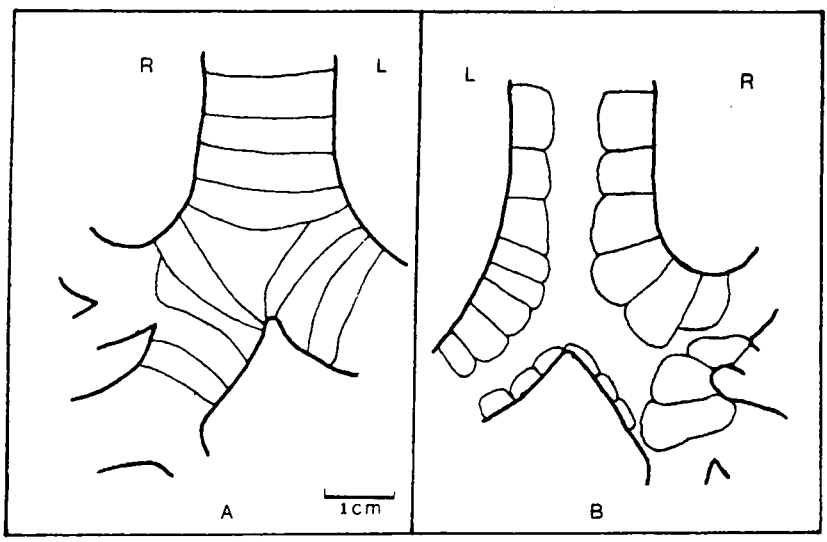

Figure 4. Schematic drawing of the bifurcatio tracheae of dog. Ventral view (A), dorsal view (B). left (L), right (R).

ge in all the specimens of horse, donkey and ox. The dorsal end of the cartilage was thin and flat, the ventral end was pointed. It is here proposed that the cartilago carina tracheae should be added to the Nomina Anatomica Veterinaria.

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