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THE NASAL CARTILAGES OF THE DONKEY (EQUUS ASINUS L.).

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Merkebin (Equus asinus L.) burun kıkırdakları

Özet: *Burun kıkırdakları, makro anatomik olarak on adet (5 erkek, 5 dişi) ergin merkep başı üzerinde incelendi. Burun deliklerinin iskeletini cartilago alaris'lerin şekillendirdiği görüldü. Cartilago alaris'in, cartilago septi nasi ve cartilago nasi lateralis dorsalis'in uzantısı olduğu saptandı. Yapılan diseksiyonlarda cartilago nasi lateralis ventralis'in yassı ince bir kıkırdak olduğu ve fissura palatina'yı doldurduğu gözlendi. Cartilago nasalis accessoria medialis'in oral kısmının plica alaris'in içine yerleştiği ve cartilago nasi lateralis ventralis ile concha nasalis ventralis'ten orjin aldığı tesbit edildi. Gözlenen bulguların atın burun kıkırdaklarıyla olan farklılıkları tartışıldı.*

Summary: *The nasal cartilages were described in the adult donkey (5 male, 5 female). Anatomical findings observed were discussed with those of the horse.*

Introduction

All the veterinary anatomy textbooks considered both the horse and donkey has the same anatomical structures (1, 4, 5, 6). But during the last years it was noticed that some anatomical variations were found between the horse and donkey (2, 3, 8).

The nasal cartilages of the domestic animals studied by some authors (1, 4, 5, 6, 9). The aim of this study was to elucidate the nasal cartilages of donkey and to discuss differentiation with the horse's nasal cartilages.

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Materials and Methods

This study was performed on 10 heads of the adult donkey (5 male, 5 female) preserved in 10 % formalin. The nasal cartilages were carefully dissected and terminated according to the N.A.V. 1983 (7).

Results and Discussion

It was observed that the skeleton of the nostrils in the donkey included by two comma-shaped alar cartilages placed transversally back to back. The alar cartilages supported the nostrils dorsally, medially and ventrally, and the dorsal part of each alar cartilages was prolonged and flattened to form a plate-like lamina, the ventral part called cornu was narrow. These anatomical variations were similar those of reported in the horse (1, 4, 5, 6). In addition to these, it was found that the average distance between the top of the lamina and the bottom of the cornu of alar cartilages was 5,1 cm (Fig. 1, a-b) The average angles between alar cartilages' lamina (A), and cornu (B), and each alar cartilage's lamina and cornu (C) were 60, 70, 80 degrees, respectively (Fig. 1)

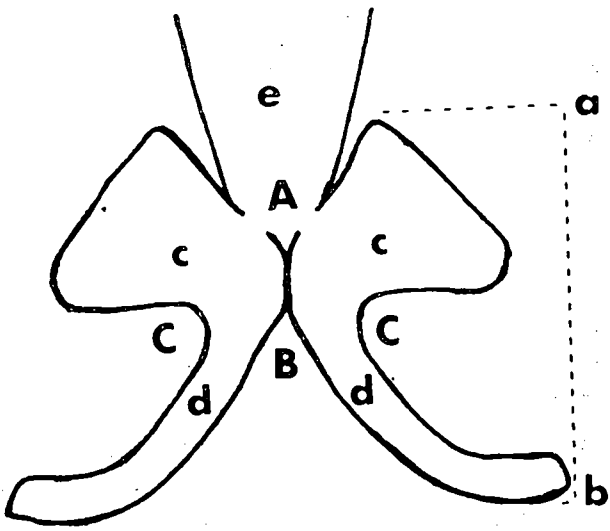

Fig. 1. Alar cartilages of donkey (schematic); c- Lamina of alar cartilage, d- Cornu of alar cartilage, e- Dorsal lateral nasal cartilage (Merkebin cartilago alaris'i; c- Cartilago alaris' in lamina'sı, d- Cartilago alaris'in cornu'su, e- Cartilago nasi lateralis dorsalis)

Getty (4) has reported that alar cartilages attached to the rostral end of the cartilaginous nasal septum by connective tissue. In this study, it was found that alar cartilages were cranial extension of cartilaginous nasal septum and dorsal lateral nasal cartilages.

From the dorsal border of cartilaginous nasal septum, a thin, narrow plate, the dorsal lateral nasal cartilage curved outward for a short distance on either side was defined. The dorsal lateral nasal cartilage was very narrow and not supported of the nostrils in any part. These findings are also recorded in the literature related with the horse (1, 4, 5, 6). The average width of dorsal lateral cartilage at the rostral edge of nasal bone (Fig. 2, a-b) and the apex of this cartilage (Fig. 2, c-d) was 2,8 cm and 0,8 cm, respectively. Getty (4) has stated that the width of the dorsal lateral nasal cartilage is 3 to 4 cm in the horse.

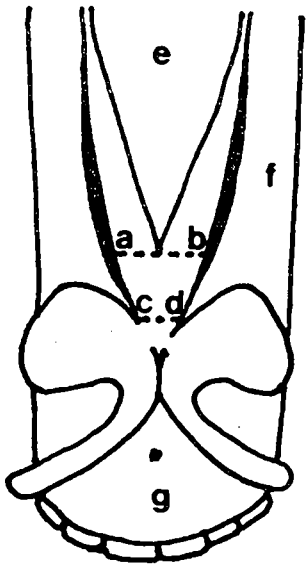

Fig. 2. Nasal cartilages of donkey, dorsal view (schematic); e- Nasal bone, f- Nasal process of incisive bone, g- Body of incisive bone (Merkebin burun kıkırdaklarının dorsal'den görünüşü; e- Os nasale, f- Os incisivum'un proc. nasalis'i, g- Corpus ossis incisivi)

Getty (4) has announced that the ventral lateral nasal cartilage fill the palatine fissure in the horse. According to Nickel et al (6) the narrow ventral lateral nasal cartilage covers only palatine suture or may be

absent, whereas Koch (5) noted that there is no ventral lateral nasal cartilage or it can be seen rudimentary. Nonetheless, Ackerknecht (1) recorded that this cartilage is absent in the horse. The ventral lateral nasal cartilage extended from the anterior part of ventral border of cartilaginous nasal septum into the palatine fissure in the donkey (Fig. 3, a). It was always found as flattened and thin. These were similar to reported findings of Popovic (9) in domestic equidae.

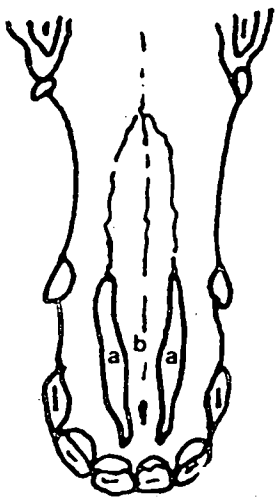

Fig. 3. Ventral lateral nasal cartilage of donkey, ventral view (schematic); a) Ventral lateral nasal cartilage, b- Palatine process of the incisive bone (Merkebin cartilago nasi lateralis ventralis'i, ventral'den görünüş; a- Cartilago nasi lateralis ventralis, b- Os incisivum'un proc. palatinus'u)

The ventral lateral nasal cartilage's average length was 6 cm. The width in the narrowest and the largest parts of cartilage were 0,1 cm and 0,5 cm respectively. Although Popovic (9) has recorded that its length is 8–10 cm and, width is 2–4 mm in domestic equidae.

In the donkey, the ventral lateral nasal cartilage was initially located in the nasal surface of the maxilla. After filling to the palatine fissure, it continued to the palatine surface of the body of incisive bone and, ended at 1 cm aboral of the first incisor teeth.

The oral portion of medial accessory nasal cartilage was found inside the alar fold. This cartilage was originated from the ventral na-

sal concha and the ventral lateral nasal cartilage, and it was large and "S" shaped. These are same with Popovic's (9) findings in domestic equidae. However, Koch (5) has stated that it is free and "S" shaped in the horse.

The average width at the oral (Fig. 4, a-b) and aboral (Fig. 4, c-d) parts of medial accessory nasal cartilage were 0,5 cm and 1,5 cm. According to Fig. 4 the average distance between e and f, and f and d were 2,5 cm and 7 cm, respectively.

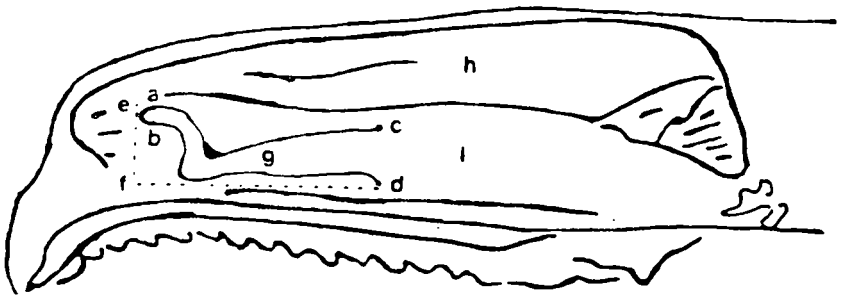

Fig. 4. Nasal cavity of donkey; sagittal section with septum removed (schematic); g- Medial accessory nasal cartilage h- Dorsal concha i- Ventral concha (Merkepte cavum nasi; septum nasi uzaklaştırılmış sagittal kesit, g- Cartilago nasalis accessoria medialis, h- Concha nasalis dorsalis, i- Concha nasalis ventralis)

The nasal cartilages in the donkey and its additional anatomical findings were described in this study, and were found some differences from registered findings associated with horse in classical veterinary anatomy textbooks.

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