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تفرعات الجزع العضدى الدماغي في البغل

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يخرج الجزع العضدى الدماغي من القوس الأبهرى مقابل الحيز بين الضلعي الرابع. وقد وجد أن هذا الجزع يعطي الشريان تحت الترقوى الايسر وكذلك الشريان الضلعي العنقي الايمن ، ثم ينقسم الى الشريان تحت الترقوى الايمن والجزع السباتي الثنائي .

يعطي الشريان الضلعي العنقي وعاء مشترك لكل من الشريان بين الضلعي العلوى والشريان اللوحي الظهرى وكذلك يعطي الشريان العنقي الغائر. كما يعطي الشريان تحت الترقوى كل من الشريان الفقارى والشريان الصدرى الداخلي مقابل منتصف الحيز بين الضلعي الأول .

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BRACHIOCEPHALIC TRUNK AND ITS BRANCHES IN MULE (EQUUS HINNUS)

(With One Fig.)

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SUMMARY

The course and branches of the brachiocephalic trunk in Equs hinnus were completely examined and described. The points of similarity and differences between Equus hinnus and other domesticated animals specially Eauus cabaluus were discussed.

INTRODUCTION

The anatomical knowledge about the vascular system of mule is meagre. It is only known that; the general anatomy of Equus hinnus resembles that of Equus caballus. However, the present study was done to describe the characterestic features of Truncus brachiocephalicus in Equuus hinnus.

MATERIAL AND METHODS

This study was carried out on 10 adult healthy mules, 7 males and 3 females. The animals were bled, injected through the common carotid artery with 10% formalin solution, then with gum milk (Latex) after about one week. The nomenclature used is that adopted by NOMINA ANATOMICA VETERINARIA (1973).

RESULTS

The brachiocephalic trunk (1/2) is a large vessel of about 1-1.5 cm in diameter and 10-13 cm in length. It arises from the convexity of the aortic arch at the level of the 4th intercostal space. It courses cranialward and somewhat dorsally in the cranial mediastinum where it is crossed on either sides by the vagus nerve' On reaching a level with the cranial part of the 2nd intercostal space, it detaches A. subclavia sinistra from its dorsal aspect. The brachiocephalic trunk then continues in a cranioventral course ventral to the trachea and on reaching a level with the 2nd rib, it detaches Truncus costocervicalis dextra.

The brachiocephalic trunk terminates by dividing into A. subclavia dextra and Truncus bicaroticus at the level of the 1st intercostal space.

A. SA. subclavia sinistra:

The left subclavian artery originates at a level with the 2nd intercostal space. It is about 3-5 cm long and passes in a cranioventral direction. Lateral to the esophagus it formsa gentle curve with its convexity directed craniodorsally. At the level of the caudal border of the 2nd rib, the left subclavian artery crosses the left vagus nerve laterally and vena costocervicalis medially. It leaves the thoracic cavity through its inlet where it curves around the cranial border of the 1st rib to continue its course as A. axillaris sinistra.

About 1/2-1 cm from its origin, the left subclavian artery detaches Truncus costocervicalis sinistra, A. vertebralis and A. thoracica interna.

Truncus Costocervicalis:

The right costocervical trunk (1/4) arises from the brachiocephalic trunk at the level of the caudal border of the 2nd rib, while the left one arises from the left subclavian artery about 0.5 cm from its point of origin.

It ascends dorsally and somewhat cranially crossing the trachea on the right side and the esophagus on the left side to gain the ventral aspect of M. longus colli where it divides into A. cervicalis profunda and a stem vessel for the smaller A. intercostalis suprema and the larger A. scapularis dorsalis. Moreover, the righty costocervical trunk detaches a tracheal branch about 0.5 cm from its origin which given off an esophageal branch.

A. intercostalis suprema:

The supreme intercostal artery (1/6) passes in a caudodorsal direction crossing the lateral aspect of M. longus colli and contintues its course parallal to the dorsal border of the thoracic part of the same muscle. At the level of the 5th intercostal space it continues as the 5th dorsal branch after detaching the 5th dorsal intercostal artery.

From its dorsal aspect, the supreme intercostal artery gives off Rami dorsales II-V, and from its lateral aspect, it gives off Aa. intercostales dorsales III-V.

A. capularis dorsalis:

The dorsal scapular artery (1/7) is considered the direct continuation of the common stem from the costocervical trunk after detaching A. intercostalis suprema at the level of the 2nd intercostal space.

It passes craniodorsally crossing the lateral aspect of the thoracic part of M. longus colli, and leaves the thoracic cavity emerging through the vertebral end of the 2nd intercostal space and terminates by dividing into a cranial and a caudal branch.

The cranial branch (1/7') terminates in Mm. rhomboideus cervices and trapezius cervices and the skin of the region.

The caudal branch (1/7") terminates in Mm. rhomboideus thoracis and trapezius thoracis and the skin of the region.

Within the thoracic cavity, the dorsal scapular artery gives off A. intercostalis dorsalis II.

A Cervicalis profunda:

The deep cervical artery (1/8) has a variable origin. The right vessel arises from the brachiocephalic trunk, while the left one from the left costocervical trunk.

It courses craniodorsally crossing the thoracic part of M. longus colli and the trachea on the right side and the esophagus on the left side to emerge from the thoracic cavity through the proximal end of the 1st intercostal space.

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Along its course within the thoracic cavity, the deep cervical artery gives off A. Intercostalis dorsalis I and a muscular branch for the intercostal muscles of the 1st intercostal space and M. scalenus medius. In addition, the deep cervical artery detaches the 1st thoracic spinal branch which passes dorsally to gain the 1st thoracic intervertebral foramen where it enters the vertebral canal to join A. spinalis ventralis.

DISCUSSION

The length of the brachiocephalic trunk in Equus hinnus is nearly similar to that described in cattle by GHOSHAL (1975) and in camel by ATTIA (1980), while in horse the length reaches about 5 cm and may be 1.5 cm only as stated by GHOSHAL (1975).

The origin of the left subclavian artery in mule is similar to that of the horse as mentioned by GHOSHAL (1975), WILKENS and MUNSTER (1976) and SIMOENS, ED VOS & LAUWERS (1979) an in camel by ATTIA (1980).

In carnivores and swines the left subclavian artery and the brachiocephalic trunk originate separately from the aortic arch as stated by OPTIZ (1961) in cat; MARTHEN (1939), MILLER et al. 91964) in dog; KAHLER (1960) and SMOLLICH and BERG (1960) in pig and WILKENS and MUNSTER (1976) in cat, dog and pig.

The origin of the right costocervical trunk from the brachiocephalic trunk in mule is similar to that reported in horse by N.A.V. (1973), GHOSHAL (1975), WILKENS and MUNSTER (1976) and SIMOENS et al. (1979), while the origin of the left one from the left subclavian artery is similar to that in horse as stated by GHOSHAL (1975), WILKENS and MUNSTER (1976) and SIMOENS et al. (1979).

The costocervical trunk on both sides arises from A. subclavia as described by OPTIZ (1961) in cat and MARTHERN (1939) in dog; and SIMOENS et al. (1979) in pig; OTTO (1961) in goat; MUNSTER (1962) in sheep and SEIDLER (1966) and WILKENS and MUNSTER in cattle and ATTIA (1980) in camel.

The origin of the supreme intercostal artery in common with the dorsal scapular artery from the costocervical trunk is similar to that in horse as mentioned by SIMOENS et al. (1979).

The separate origin of Rr. dorsales of Aa. intercostales dorsales from A. intercostalis suprema in Equus hinnus is not reported in any domestic animal (N.A.V., 1973; GHOSHAL, 1975; WILKENS and MUNSTER, 1976 and SIMOENS et al., 1979).

A similar origin of the A. scapularis dorsalis from the Truncus costocervicalis in mule was reported in the horse by GHOSHAL (1975), WILKENS and MUNSTER (1976) and SIMOENS et al. (1979), in cat by OPTZ (1961) in the dog by MARTHEN (1939) and MILLER et al. (1964), in the goat by OTTO (1961), in sheep by MUNTER (1962), in cattle by SEIDLER (1966) and in camel by ATTIA (1980). Moreover, GHOSHAL (1975), WILKENS and MUNSTER(1976) and SIMOENS et al. (1979) found the same origin of the dorsal scapular artery in domesticated animals other than the pig in which the dorsal scapular artery arises from A. subclavia.

The origin of the deep cervical artery from the costocervical trunk resembles that found in cat as stated by OPTIZ (1966), in goat by OTTO (1961), in sheep by MUNTER (1962), in cattle by SEIDLER (1966) and in camel by ATTIA (1980).

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LEGENDS

Fig. 910: Diagram showing the branches of the brachiocephalic trunk in mule. Right side. A sixth cervical Vertebra, B last cervical Vertebra, C first thoracic Vertebra, D first rib.
a Heart, b Trachea, c M. longus colli.

1 Arcus aortae, 1′ Aorta thoracica,
2 Truncus brachiocephalicus,
3 A. subclavia dextra;
4 Truncus costocervicalis dextra,
5 Stem vessel for 6 ; 7,
6 A. intercostalis suprema,
6′ Aa. intercostales dorsales II-V,
6″ Rr. dorsales II-V,
7 A. scapularis dorsalis,
7′ R. cranialis,
7″ R. caudalis,
8 A. cervicalis profunda,
8′ A. intercostalis I,
8″ R. spinalis,
9 A. vertebralis,
9′ R. spinalis,
10 A. thoracica interna,
11 A. axillaris dextra,
12 Truncus bicaroticus,
13 A. carotis communis dextra ,
14 A. intercostalis dorsalis VI,
15 R. dorsalis,
16 R. interspinosus.

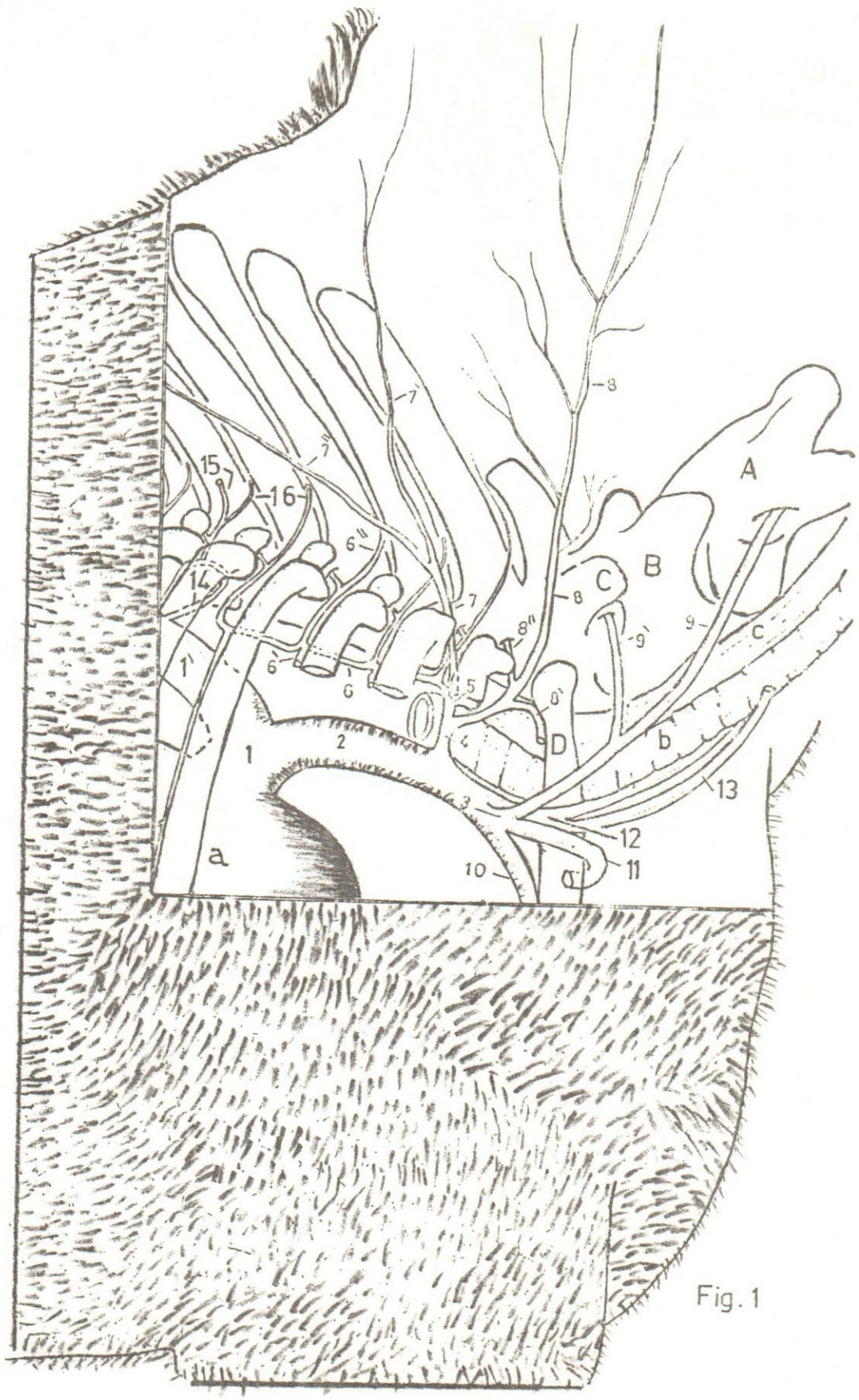

Fig. 1