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Anatomical Studies No. 64.

Anomalous Course of the Left Phrenic Nerve in a Donkey.

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WHEN during dissection of a one-year-old female donkey (D.O.B. No. 21469) the thorax was opened, it was observed that the left phrenic nerve followed an unusual course and had peculiar relationships, crossing the costal surface of the left lung, and that this anomaly was associated with an irregular arrangement of the pleura on the left side.

The origin of the nerve and its entry into the thorax are as usual, but after it has passed beneath the left subclavian artery its course becomes abnormal. Instead of crossing the costocervical vein and continuing more or less horizontally along the lateral face of the brachiocephalic trunk, it inclines ventrally, crossing the dorsal part of the thymus obliquely and arriving at the pericardium 5 cm. below the origin of the brachiocephalic trunk.

It continues across the pericardium in a position much lower than normal and with a pronounced ventral inclination, so that it reaches the level of the fourth rib only 5 cm. above the sternal extremity of the latter. Failing to return from beneath the pericardiac pleura to the (post-cardial) mediastinum, it continues to occupy a lateral position, being related to the thoracic wall and crossing the costal surface of the lung.

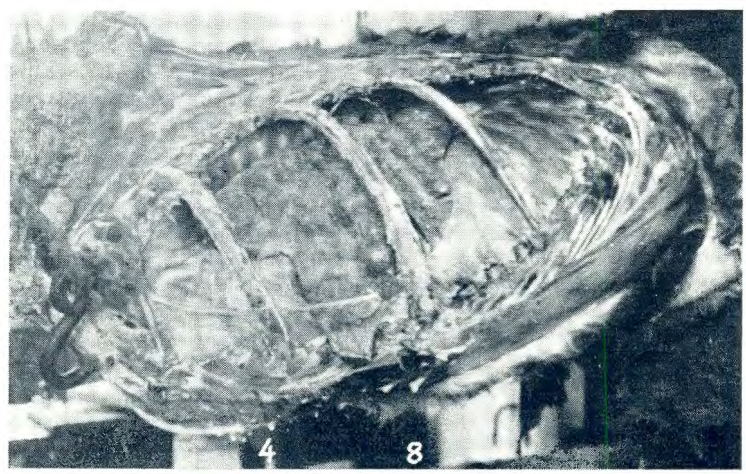
In this part of its course it occupies the dorsal border of a special fold of pleura which is reflected upwards from the diaphragm in the region of the phrenico-costal sinus, is continuous cranially with the pericardiac pleura and is of a lace-like texture. In these respects the arrangement of the pleura is comparable with that normally obtaining on the right side, where the phrenic nerve is enclosed in the caval fold.

The nerve reaches the lung 6 cm. above the junction of the ventral and basal borders (lungs fixed in expiratory phase), crosses the costal surface of the organ, on which it leaves a distinct impression, and at the level of the seventh rib passes through a small fissure (1 cm. in depth) in the basal border of the lung to reach the diaphragm, not at the tendinous centre, but at the costal muscular portion opposite the cranial border and 4 cm. above the sternal extremity of the eighth rib. The post-cardial mediastinum is normal, except for the fact that it does not accommodate the phrenic nerve.

At a distance of 1 cm. respectively in front of and behind the fissure in the border of the lung occur two other similar fissures. Since there is no adhesion between the pulmonary pleura and the special fold in which the nerve is accommodated and in consequence the lung has free mobility relatively to the nerve, it seems likely that at previous times (e.g. during pre-natal life) the nerve may have occupied one or other of these fissures, which presumably developed in order to accommodate it.

The malformation described is apparently unrecorded in the voluminous literature dealing with congenital anomalies of the lungs, pleurae, diaphragm, and nerves.

Mr. Th. Meyer kindly took the photograph which accompanies this note.



Anomalous Course of the Left Phrenic Nerve.—The nerve is seen passing obliquely over the thymus and pericardium and then over the lateral surface of the lung. The special fold of pleura in whose dorsal border it is contained is visible behind the cardiac notch of the lung; its lower part has sagged downwards lateral to the costal cartilages (artefact). The fourth and eighth ribs are denoted by numbers.