"there are more things in heaven and earth than are dreamt of in our philosophy"—a thought ever present in the mind of the research worker—and that, fairly complete and rounded off as is the story I have here told, there is much that we have yet to learn of the laws governing the normal function of the thyroid gland and of the causes which determine its departure from normal. It is by the application of the knowledge we already possess that the gaps in it will be made manifest and the means found to bridge them.

ANEURYSM OF THE BASILAR ARTERY SIMULATING OPIUM POISONING.

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THE following case has a certain medico-legal and clinical interest.

A Berberine cook, aged 30 years, apparently in good health, took suddenly ill whilst at work, with headache, vomiting, and rigors. Within two hours he became insensible; the pupils were strongly contracted, the breathing was 54 a minute, the blood pressure 134 systolic and 80 diastolic, and the deep reflexes were lost. The case was diagnosed as opium poisoning, and he was treated for this without effect. The coma gradually deepened, the temperature rose to 39.4° C. (=103° F.), and death took place on the fourth day after the first symptom.

On dissection the organs were found in a healthy normal state except the base of the brain, where there was a fusiform aneurysm of the basilar artery (Fig. 1). It formed a sac firm to the touch and was filled with non-organized clot. It was roughly pear-shaped, 3.1 cm. long, 1.5 cm. in diameter at the anterior extremity, and 1 cm. in diameter at the posterior. It was situated along the middle line of the medulla and pons with a slight convexity to the right of the middle line, and with tail and head slightly to the left.

The expanded head was lying in a depression which it had made in the anterior extremity of the pons 5 to 7.5 mm. deep; the rest of the sac slightly indented the pons and

FIG. 1.

medulla. The basilar artery was traced to and from the aneurysm and appeared normal. A transverse section of the tumour shows it to be the wall of an artery considerably thickened and distorted and filled with non-organized blood clot. In the tunica adventitia the vasa vasorum are increased in number and their walls are thickened. Around these vessels there is an infiltration of large mononuclear plasma cells which extends to the outer layer of the tunica media. The external elastic lamina has split in some places, showing the curved retracted ends, and has completely disappeared in others. The tunica media is considerably thickened in places, and encloses areas of red blood cells in certain spots and large plasma

cells in others. In the latter there are masses of structureless material in which remnants of obliterated vessels can be seen. There are no giant cells. The tunica intima and the subendothelial tissue do not seem to be affected to any extent. Sections stained by Levaditi's method failed to show treponemata, but there is every reason to assume that the condition was one of gummatous arteritis.

A sagittal section of the mid-brain and medulla (Fig. 2)

shows that there is a depression similar in shape to the tumour in the upper part of the medulla and pons. The depression in the pons causes pressure on and closure of the fourth ventricle, the floor of which is bent to such an extent that it almost touches the roof, and consequently all structures situated in the position are compressed and distorted. Such structures are the upper part of the pyramids, the arcuate ganglia, the pyramidal tracts in the pons, medial lemniscus, tecto-spinal tracts, medial longitudinal fasciculus, oblique fibres, and superficial and deep transverse fibres of the pons. In addition the nucleus of the third nerve, the fourth nerve in its lower part, and the nuclei of the sixth, seventh, and eighth nerves have undergone a certain degree of pressure, as also have the vital centres in the floor of the fourth ventricle.

FIG. 2.—Sagittal section of mid-brain and medulla. A, Cut ends of basilar artery; B, depression caused by aneurysm; C, aneurysm of basilar artery; D, depression of pyramid; E, basilar artery; F, nucleus n. trochlearis; G, cerebral aqueduct; H, fasciculus longitudinalis medialis; I, fourth ventricle.

A transverse section of the pons below the aneurysm shows great condensation of fibres under the tumour, which is very apparent when contrasted with the areas not exposed to pressure. Microscopically there is to be seen greatly increased vascularity of the compressed area, the arterial coats are thickened, there is round-celled infiltration around certain of the vessels, and in places small extravasations of blood. A peculiar feature of the section is that there is much greater vascularity in the compressed area than in the areas not subjected to pressure.

No history of any previous illness or disease could be obtained beyond complaint of a slight headache from time to time, and the patient was regularly at work until the moment of attack. This is curious in view of the fact that there was such pressure on the pons and medulla, and would indicate that the subjacent centres were able to carry out their functions under considerable pressure, and did so without serious inconvenience until a point was reached when a little extra pressure was sufficient to completely disorganize them. Possibly thrombosis in the sac may have precipitated this failure.

From a medico-legal point of view the similarity of the symptoms to those of acute opium poisoning is of interest, for in this instance the diagnosis of such poisoning was made, first by the medical attendant, and secondly by the hospital authorities, and as a matter of fact the case was already being investigated by the police when the necropsy completely cleared up the diagnosis.

The case illustrates the necessity of a complete dissection and examination of the brain in all such cases of sudden death. The clinical features were typical of pontine pressure, and the long period of coma and high temperature should have excluded opium poisoning.

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