II. A History of Operations on the Mesencephalon and Thalamus

The period of most rapid progress of neurosurgery definitely belongs to the first third of this century thanks to Harvey Cushing (1869—1939) and others who devised those fundamental surgical techniques for a majority of the areas of the brain which are being used to the present day. However, as regards the mesencephalon and thalamus, conditions prevailing at that time could not be expected to provide the necessary basis for perfect and safe surgical interventions. Systematic research and the endeavour to penetrate to these regions were impeded by the lack of technical facilities as well as by gaps in knowledge respecting the anatomy and functional role of both structures. Sporadically performed interventions in man met as a rule with failure by seriously interfering either directly or indirectly with neighbouring or more distant cerebral structures and causing severe neurological deficits, thus discrediting the experiment or therapeutic intervention and directly endangering the patient’s life. What is more, this first period of sporadic operations did not have the object of directly affecting the functions of either mesencephalon or thalamus. The history of direct incisions or punctures in the various areas of the brain stem or medulla with the object of interrupting certain groups of tracts or nuclei, is much more recent (Sjöqvist, 1937) than operations for neoplastic, inflammatory or congenital diseases of these structures or their immediate neighbourhood.

The first to attempt the radical removal of an expansively growing lesion in this region, a tumour of the pineal gland, was probably the Englishman Victor Horsley (1857—1916). Details about this operation performed in the year 1910 are unfortunately not available. Horsley himself stated that he selected an infratentorial approach. However, the operation met with so many complications that he envisaged further advances in this line of surgery only by using the supratentorial route. Despite this, Oppenheim and Krause reported in 1913 the case of a patient in whom they successfully removed a tumour of the pineal gland by the infratentorial route, from an occipitobasal craniotomy and with elevation of the tentorium. However, the second operation

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done by Krause in 1926 for the same condition proved a failure.

Nassetti in 1913 chose a very radical approach consisting of the resection of the sagittal sinus, falx and straight sinus followed by transection of the posterior part of the corpus callosum. However, this route which carried great risks was never used again. Brunner in the same year used an approach by occipital craniotomy, retracting the occipital lobe upward and transecting the corpus callosum. Tandler and Ranzi in 1920 modified this operation of Brunner by transecting the tentorium alongside the straight sinus. Puusepp in 1914 performed an occipital paramedian craniotomy, opened the dura over the right occipital lobe, ligated the right transverse sinus and transected the tentorium alongside the straight sinus on the right. After this he evacuated the liquid contents of the cystic growth leaving the tumour itself of necessity behind. The patient died on the third postoperative day. In 1921 Dandy recommended a transcaldosal approach from a large parietooccipital craniotomy for operations in the region of the posterior portion of the third ventricle and pineal gland, after first testing this surgical technique by performing pinealectomy in dogs. Förster in 1928 tried the approach by occipital craniotomy, with simple retraction of the occipital lobe away from the tentorium and falx cerebri.

Van Wagenen in 1931 exploited the internal hydrocephalus accompanying expansively growing lesions in the region of the third ventricle for facilitating his approach to the pineal region through the dilated lateral ventricle. Horrax in 1937 recommended a two stage procedure: during the first stage he resected the occipital part of the parietal lobe up to the splenium corporis callosi. The growth is removed during the second stage. Baggenstoss and Love in 1939 also recommended a two-stage operation: part of the growth was removed during stage one by the transcaldosal route, extirpation was completed during the second stage using an suboccipital craniotomy.

Results achieved by all the operations so far described were, however, never wholly satisfactory due to the difficult approach to growths in the region of the posterior part of the third ventricle and pineal gland, as well as on account of the very serious functional disorders associated with tumours in this locality. For the reasons mentioned many neurosurgeons up the present day prefer either Torkildsen's drainage operation, or simple subtemporal decompression and X-ray therapy, as recommended in 1942 by Horrax and Danielsen, for the treatment of expansive lesions affecting this region.