1963

1962-1964

The endoscope for transsphenoidal approach began when Gerard Guiot introduced the use of endoscopy into transsphenoidal surgery in 1963.

Ayub Ommaya first reported the Ommaya reservoir in 1963. The reservoir is a subcutaneous implant for repeated intrathecal injections, to treat hydrocephalus and malignant tumors [1)]

Intra-articular facet injections of hypertonic saline and subsequent pain reproduction was performed by Hirsch in 1963 [2)] supporting the role of facet joints in lower back pain.

Stereotactic lesion in the Forel's field H (campotomy) was proposed in 1963 to treat Parkinson's disease (PD) symptoms [3) 4)].

Professor Lauri Laitinen, one of the pioneers of modern movement disorder neurosurgery, started operating on Parkinson's disease patients in Helsinki in 1963, using the Cooper Stereotactic Device. Later, he invented his own frame, which was in use for 20 years in many places in the Nordic countries [5)].

Shortly after John Eccles completed his studies of synaptic inhibition in the spinal cord, for which he was awarded the 1963 Nobel Prize in physiology/medicine, he opened another chapter of neuroscience with his work on the cerebellum. From 1963 to 1967, Eccles and his colleagues in Canberra successfully dissected the complex neuronal circuitry in the cerebellar cortex. In the 1967 monograph, “The Cerebellum as a Neuronal Machine”, he, in collaboration with Masao Ito and Janos Szentágothai, presented blue-print-like wiring diagrams of the cerebellar neuronal circuitry. These stimulated worldwide discussions and experimentation on the potential operational mechanisms of the circuitry and spurred theoreticians to develop relevant network models of the machinelike function of the cerebellum. In following decades, the neuronal machine concept of the cerebellum was strengthened by additional knowledge of the modular organization of its structure and memory mechanism, the latter in the form of synaptic plasticity, in particular, long-term depression. Moreover, several types of motor control were established as model systems representing learning mechanisms of the cerebellum. More recently, both the quantitative preciseness of cerebellar analyses and overall knowledge about the cerebellum have advanced considerably at the cellular and molecular levels of analysis. Cerebellar circuitry now includes Lugaro cells and unipolar brush cells as additional unique elements. Other new revelations include the operation of the complex glomerulus structure, intricate

signal transduction for synaptic plasticity, silent synapses, irregularity of spike discharges, temporal fidelity of synaptic activation, rhythm generators, a Golgi cell clock circuit, and sensory or motor representation by mossy fibers and climbing fibers. Furthermore, it has become evident that the cerebellum has cognitive functions, and probably also emotion, as well as better-known motor and autonomic functions. Further cerebellar research is required for full understanding of the cerebellum as a broad learning machine for neural control of these functions [6].

1)
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