Unilateral hydrocephalus

see Hydrocephalus classification

Isolated unilateral hydrocephalus (IUH) is a condition caused by unilateral obstruction of the foramen of Monro.

Etiopathogenesis

Etiopathogenic causes include tumors, congenital lesions, infective ventriculitis, intraventricular haemorrhage and iatrogenic causes such as the presence of contralateral shunts. 2,3 Neuroendoscopic management is considered the “gold-standard” treatment in IUH.4 Even if endoscopic septostomy and foraminoplasty in IUH are well-known procedures 5,6, IUH after an interhemispheric transcallosal transchoroidal approach for removal of a III ventricle colloid cyst is a complication barely described in literature. The video describes this rare complication and the neuroendoscopic treatment adopted, including the operative room set up, patient's positioning, instrumentation needed, and a series of intraoperative tips for the performance of septostomy and Monroplasty via a single pre-coronal burr hole. The scalp entry point and endoscope trajectory, homolateral to the dilated ventricle, were planned on the neuronavigation system. The avascular septal zone away from the septal veins and the body of the fornix was reached and the ostomy was performed. At the end of the procedure, Monroplasty was performed too. The procedure was effective in solving the hydrocephalus and the patient's clinical picture. No surgical complications occurred. Imaging demonstrated an evident and progressive reduction of enlarged lateral ventricle. In authors' opinion, the single burr-hole approach, ipsilateral to the enlarged ventricle, provides an optimal identification the intraventricular anatomy and allows Monroplasty to be performed, if deemed feasible during surgery. The patient consented to the procedure. The participants and any identifiable individuals consented to publication of his/her image [1)]

The septum pellucidum is a bilateral thin membranous structure representing the border between the frontal horns of the lateral ventricles. Its most examined components are the septal veins due to their surgical importance during endoscopic septum pellucidotomy (ESP), which is a well-accepted method for surgical treatment of unilateral hydrocephalus.

Although pituitary macroadenomas often cause mass effects on surrounding structures, it is extremely rare for pituitary lesions to disturb cerebrospinal fluid circulation. Sellar gangliocytoma-pituitary neuroendocrine tumors (SGPAs) (pituitary neuroendocrine tumor with gangliocytoma) are also extremely rare.

Ryder et al., reported the unique case of a man with the unusual combination of acromegaly from an SGPA, who presented with unilateral hydrocephalus. A 60-year-old man presented with rapid neurological deterioration, bitemporal hemianopia, and acromegalic features. Neuroimaging revealed

a large sellar lesion extending superiorly into the left foramen of Monro, causing acute obstructive unilateral hydrocephalus. External ventricular drain placement improved consciousness immediately. The biochemical assessment confirmed acromegaly. Following trans-sphenoidal debulking, histology revealed a mixed gangliocytoma/sparsely-granulated somatotrophinoma. Despite the residual disease, his vision recovered remarkably, low-dose cabergoline controlled residual excess growth hormone (GH) secretion, and the residual tumour has remained extremely stable over 2 years. Hydrocephalus is an extremely rare complication of pituitary lesions, and unilateral hydrocephalus has never been reported previously. GH secretion in SGPAs is more common than for pituitary neuroendocrine tumors in general, raising questions regarding the aetiology and therapeutic approach to this rare combination tumour [2].

1)
Tengattini F, Messina A, Fontanella MM, Borghesi I, Calbucci F, Draghi R. SEPTOSTOMY AND MONROPLASTY IN ISOLATED LATERAL VENTRICLE AFTER REMOVAL OF A III VENTRICLE COLLOID CYST: 2-Dimensional Operative Video. World Neurosurg. 2024 Jan 12:S1878-8750(24)00059-7. doi: 10.1016/j.wneu.2024.01.046. Epub ahead of print. PMID: 38219802.
2)
Ryder S, Robusto J, Robertson T, Alexander H, Duncan EL. Unilateral hydrocephalus from a gangliocytoma-somatotrophinoma: first reported case. Endocrinol Diabetes Metab Case Rep. 2021 Jul 1;2021:EDM210037. doi: 10.1530/EDM-21-0037. Epub ahead of print. PMID: 34236040.