Obstructive and communicating hydrocephalus

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Lateral ventricle Foramen of Monro Thir d ventricle Cerebral aqueduct Fourth ventricle Figure 48.4 ‘CSF pathways’. Cerebrospinal /f_l uid (CSF) is produced by the choroid plexus of the lateral ventricles and /f_l ows through the ventricular system to exit into the subarachnoid space through the foramina of Magendie and Luschka in the fourth ventricle. TABLE 48.1 Aetiology of hydrocephalus. Obstructive Lesions within the ventricle hydrocephalus Lesions in the ventricular wall Lesions distant from the ventricle but with a mass effect Communicating Post haemorrhagic hydrocephalus CSF infection Raised CSF protein Excessive CSF Choroid plexus papilloma/carcinoma production (rare) CSF , cerebrospinal /f_l uid.

ture in this context carries a risk of herniation of the brainstem and cerebellar tonsils owing to the resulting di ff erential pres sure changes (sometimes termed ‘coning’). For communicating an opening pressure and assessment of the CSF contents. It is - also therapeutic: drainage of typically between 10 and 30 /uni00A0 mL of CSF can relieve hydrocephalus temporarily . Treatment of hydrocephalus in the emergency setting usually involves CSF diversion, for example using an external ventricular drain. Disorders of CSF flow with poorly under - stood mechanisms manifest in two syndromes: normal pressure hydrocephalus and idiopathic intracranial hypertension (IIH). Normal pressure hydrocephalus Normal pressure hydrocephalus is an important cause of dementia since it is readily reversible. It may be idiopathic or develop in the context of previous brain insults, including subarachnoid haemorrhage (SAH), head injury , meningitis and tumour. The CSF pressure at lumbar puncture is typically normal, but it is believed that reduced brain compliance in this condition results in transient spikes of ICP that contribute to clinical deterioration. Patients typically present with the triad of gait disturbance, incontinence and cognitive decline. V entriculomegaly is evident on imaging, but this can also be the result of cortical atrophy due to other dementia pathologies. Diagnosis typically depends on lumbar infusion and/or drainage studies to demonstrate altered compliance and/or clinical improvement associated with CSF drainage. Treatment is typically by insertion of a ventriculoperitoneal shunt.

Figure 48.5 Pathological specimen of a hydrocephalic brain. Figure 48.6 Pineal region tumour (arrow) causing obstructive hydro- cephalus. Figure 48.7 Gross hydrocephalus in a neonate with very prominent temporal horns (arrows) and fourth ventricle.

Patients with IIH develop raised ICP without an underlying mass lesion. Patients are classically young overweight women with high-pressure headaches and visual deterioration. Examination may reveal papilloedema, and occasionally cranial nerve palsies. Imaging is unremarkable, but lumbar puncture demonstrates a raised opening pressure >25 /uni00A0 mmHg. The diagnosis is one of exclusion, and the aetiology is not well understood. Impaired CSF resorption may reflect raised venous pressure, either as a result of sinus thrombosis or secondary to raised intra-abdominal pressure in obese patients. Weight loss and cessation of certain medications, including the oral contraceptive pill, is often e ff ective. This is combined with medical therapy using acetazolamide to reduce CSF production. For patients with visual field loss or visual failure despite medication, lumboperitoneal or ventriculoperitoneal shunting is o ff ered. There may be a role for optic nerve sheath fenestration or venous sinus stenting in select cases. Summary box 48.2 Hydrocephalus and disorders of CSF flow /uni25CF /uni25CF /uni25CF /uni25CF

Obstructive or communicating hydrocephalus may occur as a result of neurosurgical pathology or its treatment CT is the /f_i rst line of investigation. Lumbar puncture can con /f_i rm raised CSF pressure in communicating hydrocephalus and relieve it temporarily, but is dangerous in obstructive hydrocephalus Normal pressure hydrocephalus is a potentially reversible cause of dementia, presenting with gait disturbance, incontinence and cognitive decline IIH causes headaches and even visual loss in young people; it can be managed with weight loss, acetazolamide, serial lumbar puncture and CSF diversion as a last resort

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