

Introduction

The true etiology and pathophysiology of Normal Pressure Hydrocephalus is not known so far. The traditional theory that tried to elaborate its etiology was Hakim theory, which based on the relationship between the ventricular size expanding and the intracranial pressure, but unfortunately, it couldn't explain all the phenomena associated with NPH.

Methods

A brain cerebral biopsy specimen was obtained during shunt surgery and subsequently analyzed for pathological changes in two patients at KFUH diagnosed with NPH and shunted according to clinical, radiological criteria. Those cases were carefully examined and followed up for years. All the other hypothesis were carefully reviewed too.

Results

Patients with high-inflow NPH show the presence of venous ischemic (infarction) necrosis involving parenchyma and blood vessel walls. Alterations in the superficial venous compliance and a reduction in the blood flow returning via the sagittal sinus were noticed too. These changes together suggest that an elevation in superficial venous pressure and its consequences may occur and explain NPH and its related issues.

Conclusions

Ischemia in the deep venous territory is not a prerequisite for NPH. Patients with high-inflow NPH show alterations in superficial venous compliance and a reduction in the blood flow returning via the sagittal sinus. These changes together suggest that an elevation in superficial venous pressure may occur in NPH.

Learning Objectives

To try to explain the pathophysiology behind this disease which will lead to proper investigation and management.

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