

# Shunt obstruction diagnosis

Pumping with the [valve reservoir](#) to diagnose [shunt obstruction](#) is still a matter of controversy. Schlosser et al. described an improved flushing device and its characteristic features in vitro and in vivo. The flushing reservoir is constructed with a sapphire ball in a cage as a nonresistance valve to also enable the detection of distal occlusions. The most important reservoir parameters were investigated in vitro, simulating total and partial proximal and distal shunt occlusions. Then the expected advantages were assessed in vivo by evaluating the pump test data of 360 implanted reservoirs. The results were compared with those found in the literature. RESULTS The optimization of the technical parameters of the device, such as the high stroke volume in combination with moderate suction force, are obvious advantages compared with other flushing devices. Total occlusion of the ventricular catheter and the valve could be assessed with high certainty. The detection of a total obstruction of the peritoneal catheter or any partial obstruction is also possible, depending on its exact grade and location. [Shunt obstructions](#) can be assessed using the pumping test. The reservoir construction presented here provides a clear enhancement of that diagnostic test <sup>1)</sup>

<sup>1)</sup>

Schlosser HG, Crawack HJ, Miethke C, Knitter T, Zeiner A, Sprung C. An improved reservoir for the flushing test to diagnose shunt insufficiency. Neurosurg Focus. 2016 Sep;41(3):E14. doi: 10.3171/2016.6.FOCUS15540. PMID: 27581310.

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