The endovascular filament-perforation model turned out to become the most popular one for the reproduction of prominent pathophysiological features observed after human subarachnoid haemorrhage (SAH). However, few studies have considered methods that may minimize surgically induced injury. This study described an improved and simplified surgical procedure in which a single clip is placed at the external carotid artery (ECA). METHOD:

Male C57BL/6 mice were given either a classic endovascular filament SAH model, improved endovascular filament SAH model or sham injury. Multiple strategies, including MRI with T2-weighted imaging and 18F-FDG PET/CT scanning, were performed to compare the improved and classic SAH models. RESULTS:

The new method of filament model resulted a typical pathophysiological progress of early brain injury (EBI), including cerebral oedema, blood brain barrier (BBB) disruption, neuronal apoptosis and microglia activation. The improved SAH model is characterized by a shorter operation time (15.65 ± 0.64 min vs. 21.75 ± 0.94 min), reduced surgically induced injury (decreased 18F-FDG standardized uptake values (SUV): 1.7 ± 0.07 vs. 2.02 ± 0.11), and stable cerebral perfusion before SAH. CONCLUSIONS:

The improved surgical technique appears to be a feasible tool for experimental and translational studies of SAH [1].

[1]

Peng J, Wu Y, Pang J, Sun X, Chen L, Chen Y, Tang J, Zhang JH, Jiang Y. Single clip: An improvement of the filament-perforation mouse subarachnoid haemorrhage model. Brain Inj. 2018 Oct 8:1-11. doi: 10.1080/02699052.2018.1531310. [Epub ahead of print] PubMed PMID: 30296175.

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