

# Minimally Invasive Subcortical Parafascicular Surgery for Clot Evacuation for Evacuation of Spontaneous Intracerebral Hemorrhage Compared to Medical Management: A Case Control Study of Safety and Effectiveness

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## Introduction

Immediate surgical evacuation as a frontline treatment for spontaneous intracerebral hemorrhage (ICH) is under investigation. Minimally invasive parafascicular surgery (MIPS) for clot evacuation is safe and achieves high percentage clot evacuation, but has yet to be compared to medical management. We used historical controls to examine the safety and effectiveness of MIPS for spontaneous ICH compared to medical management.

## Methods

Patients who suffered a spontaneous ICH and met the inclusion criteria: stroke volume (20 ml - 80 ml; having an anterior basal ganglia, lobar or thalamic ICH and a Glasgow Coma Scale (GCS) score of 3-14 were identified from records at a single hospital. Surgical patients (n=17) treated from January 2014 to December 2016 were drawn from a prospectively acquired registry, while historical controls (n=26) were drawn from stroke admissions with an International Classification of Disease (ICD) diagnosis of 431 from June 2012 to December 2013. Using logistic regression, we compared rates of inpatient mortality, infection, discharge destinations and GCS scores from admission to discharge.

## Results

MIPS did not increase the odds ratios of inpatient infection or death relative to medically managed patients. Surgery relative to medical management significantly increased the likelihood of favorable discharge status (OR, 10.2; 95% CI, 1.1- 96.7) and improvement on GCS from admission to discharge (OR, 8.2; 90% CI, 1.02-65.0).

## Conclusions

Our data suggests that MIPS is a safe and effective treatment relative to medical management for ICH. Further long term studies and randomized controlled trials are a must to determine if these effects remain.

## Learning Objectives

- 1) Describe the minimally invasive parafascicular clot evacuation technique
- 2) Discuss the current status of randomized clinical trials in the evacuation of ICH

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