

Very small intracranial aneurysm

Very [small intracranial aneurysm](#) (VSIA) (< 3 mm).

Ruptured VSIA group has higher percentage of [females](#) and lower [aspect ratio](#) than ruptured non-VSIA group. Further studies regarding the characteristics of ruptured and unruptured VSIA patients is required for assistance in clinical decision related to treatment of VSIA group before the [aneurysm sac](#) rupture ¹⁾.

The most common site of rupture of very small aneurysm was the [anterior communicating artery](#) (ACoA). Rupture of small and very small aneurysms is unpredictable, and [treatment](#) may be considered in selected high-risk patients according to factors such as young [age](#), ACoA location, and hypertension ²⁾.

Treatment of very small [unruptured intracranial aneurysms](#) (VSUIAs, defined as ≤ 3 mm) can be indicated in selected circumstances. The feasibility and [outcomes](#) of [endovascular therapy](#) for VSUIAs have been recently published; however, the efficacy and complication rate of surgical clipping has not been reported in any large series to date.

In a study, 183 patients (128 women, mean age 51.3 years) were treated with 190 procedures for a total of 228 aneurysms. Most were [anterior circulation aneurysms](#) (n = 215). The majority were directly [clipped](#) (n = 222, 97.4%), with [coagulation](#) or [wrapping](#) in the remainder. After 1 [reoperation](#) for incomplete clipping, postoperative imaging of 225 aneurysms confirmed complete occlusion in 221 (98.2%), 1 neck remnant (0.44%), and 3 partial occlusions (1.3%). Mortality was 0%. Early postoperative neurological deficit developed in 12 patients (6.6%); posterior circulation location was a significant risk factor for early neurological deficit (P < .001). Middle cerebral artery aneurysms had the lowest rate of postoperative deficits at 1.5% (P = .023). After the initial 30-day perioperative period, all deficits related to treatment of posterior circulation aneurysms recovered; overall neurological morbidity decreased to 2.7% with no mortality.

VSUIA clipping is highly effective and is associated with a low morbidity rate. For VSUIAs selected for treatment, our data support surgical clipping as the modality of choice ³⁾.

Aneurysms treated with a [Pipeline Embolization Device](#) in vessels less than 2.5 mm between June 2012 and August 2014 were included. They evaluated risk factors, family history of aneurysms, aneurysm characteristics, National Institute of Health Stroke Scale (NIHSS), and modified Rankin scale (mRS) on admission and angiography and clinical outcome at discharge, 6 months, and 1 year.

They included seven patients with a mean age of 65 years. The parent vessel size ranged from 1.5 to 2.3 mm; mean 1.9 mm. Location of the aneurysms was as follows: two aneurysms centered along the pericallosal artery (one left, one right), one on the right angular artery, one aneurysm at the anterior communicating artery (ACom), one at the ACom-right A2 anterior cerebral artery (ACA), one at the lenticulostriate artery, and one at the A1-A2 ACA artery. Aneurysms ranged from 1 to 12 mm in diameter. All aneurysms were treated with a single Pipeline™ Embolization Device (PED). No peri- or post-procedural complications or mortality occurred. The patients were discharged with no change in NIHSS or mRS score. Angiographic follow-up was available in six patients. Angiography showed complete aneurysm occlusion in all. NIHSS and mRS remained unchanged at follow-up.

The preliminary results show that flow diversion technology is an effective and safe therapy for aneurysms located on small cerebral arteries. Larger studies with long-term follow-up are needed to validate our promising results ⁴⁾.

References

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