



Clinical Outcome After Microsurgical Clipping of 552 Small (less than 7mm) Cerebral Aneurysms

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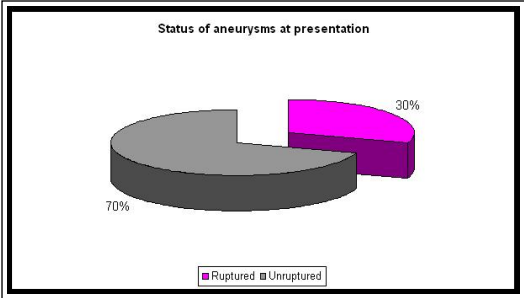


Introduction

The endovascular treatment of small aneurysms results in mortality and morbidity and regrowth rates that are related to the biology of the coil-blood interaction and irrespective of the success or the failure of the technical aspect. The results of the microsurgical treatment are more dependent on the technical aspect of the treatment. We present the outcome of microsurgical clipping of small aneurysms in a center with high-volume, highly-experienced team set-up.

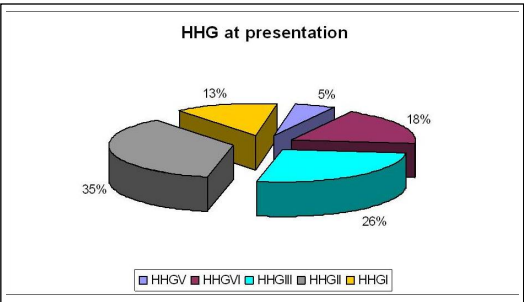
Methods

We presented retrospectively analyzed clinical outcome of microsurgical treatment of 552 small (less than 7mm) aneurysms in 472 patients. All patients were treated with different approaches according to localization of aneurysms by senior author (A.F.K.). 472 surgeries were done for clipping of 552 aneurysms.

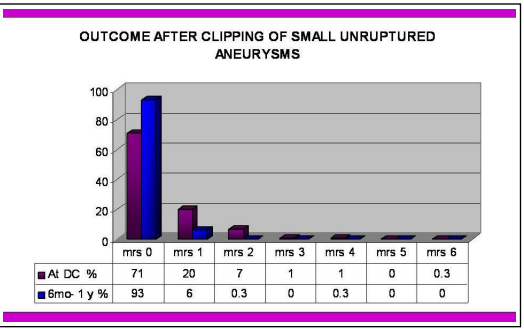
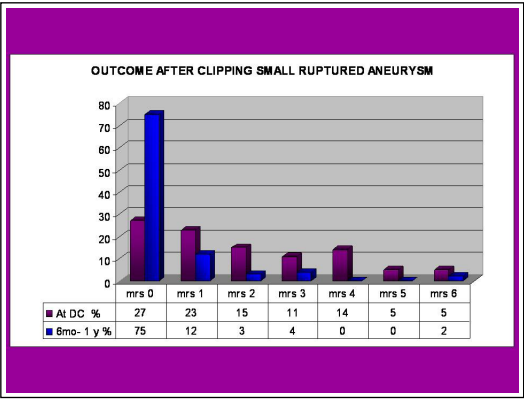


Results

There were 95 M / 377 F with M: F ratio of 1/3.95. Average age of patients was 54.10 years. 166 (30%) aneurysms were ruptured. 491 aneurysms (143 ruptured-29%) were located in anterior circulation



(including Pcom artery) and 61 aneurysms (23 ruptured-38%) in posterior circulation. 6% were blister aneurysms. 23% of ruptured and 31% of unruptured aneurysms were 3 or less than 3 mm in size. 23% of pts with ruptured aneurysm had HHG IV-V at admission and 45% had FG4. Median day in hospital for ruptured aneurysm was 12 days, mortality rate 5% (9 pts) ; MRS 0-2 at DC -62% and 75 % on f/u. For unruptured aneurysms mortality rate was 0.3% (one pt). Median days in hospital stay -3 days. MRS 0-1 at DC 91%. and at 6 mo-1 y- 98%. Recurrence rate was 0 in both groups. There was 0% surgery -related complications.



VIDEO 1.
WF57. Left 3 mm paraclinoid superior type ophthalmic aneurysm. Left modified COZ approach, clipping. Discharged on day 2, MRS 0



Conclusions
The outcomes of Microsurgical treatment of Small Aneurysms at a high-volume and high-experience center is more durable and has lower morbidity and mortality than endovascular therapy and should continue to be the first treatment option in experienced hands.

VIDEO 2.
WM59. Acom aneurysm, 3 mm, extending inferiorly. Rt modified COZ approach. Clipping. Discharged on day 2, MRS 0.



Learning Objectives
1.The microsurgical outcome of treatment of small unruptured aneurysms in a high volume center
2.The microsurgical outcome of treatment of small ruptured aneurysms in a high volume center
3.Durability and safety of the microsurgical treatment of small aneurysms in a high-volume center.

References
1.Chalouhi N, Zanaty M, Whiting A, et al: Safety and efficacy of the Pipeline Embolization Device in 100 small intracranial aneurysms. J Neurosurg1-5, 2015 **2.** Pierot L, Spelle L, Vitry F, et al: Immediate Anatomic Results after the Endovascular Treatment of Unruptured Intracranial Aneurysms: Analysis of the ATENA Series. AJNR Am J Neuroradiol 31:140-144, 2010 **3.** Russell SM, Lin K, Hahn SA, et al: Smaller cerebral aneurysms producing more extensive subarachnoid hemorrhage following rupture: a radiological investigation and discussion of theoretical determinants. Journal of Neurosurgery 99:248-253, 2003