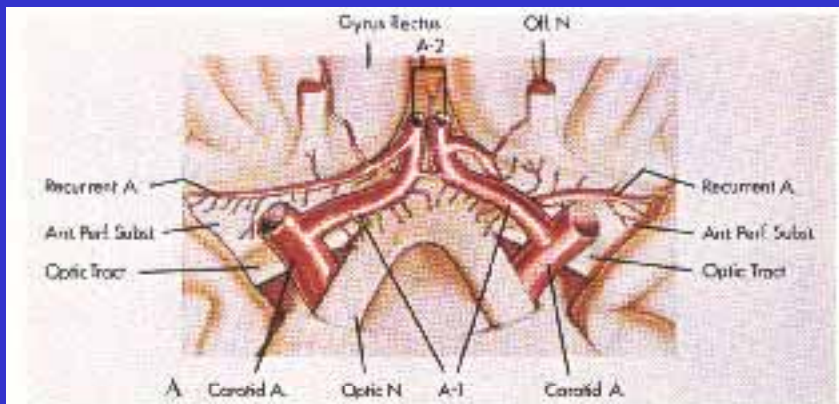


Endovascular coiling of anterior communicating
artery aneurysms: a review of preliminary clinical
and angiographic outcomes

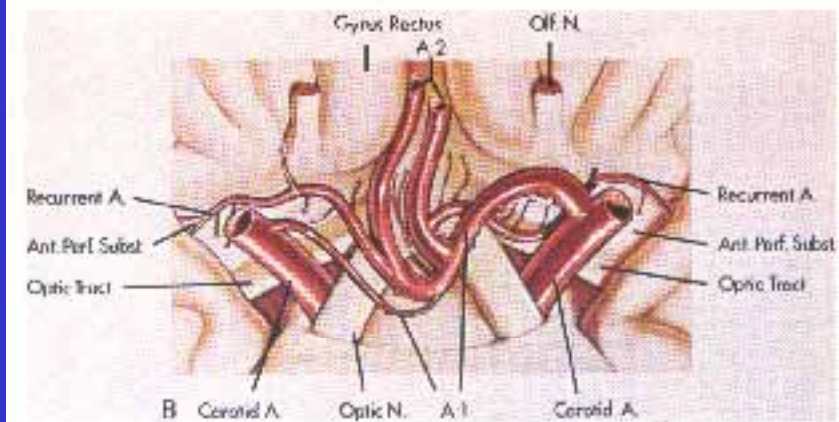
Michael B. Horowitz, MD

INTRODUCTION

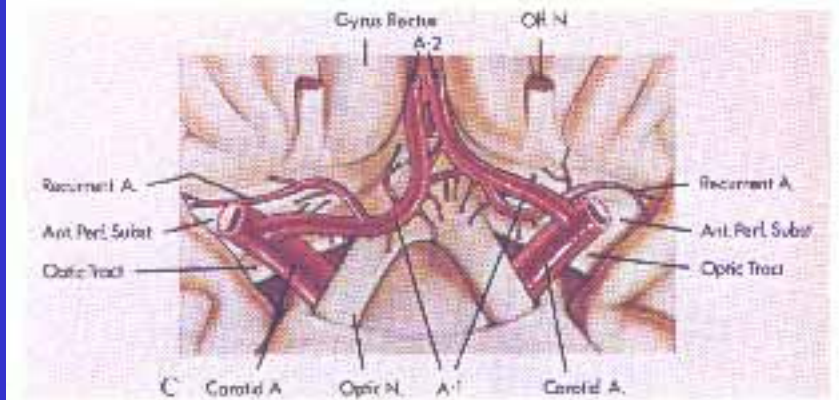
- One of the most common aneurysm locations
- Complex anatomic variants within Acomm complex
- Mortality rates with surgery 6-30% depending on presentation Hunt-Hess grade



“Normal” anatomy



Dominant left A-1

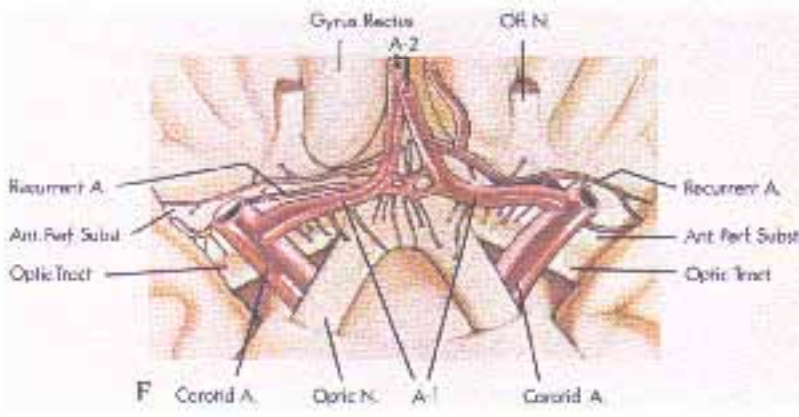
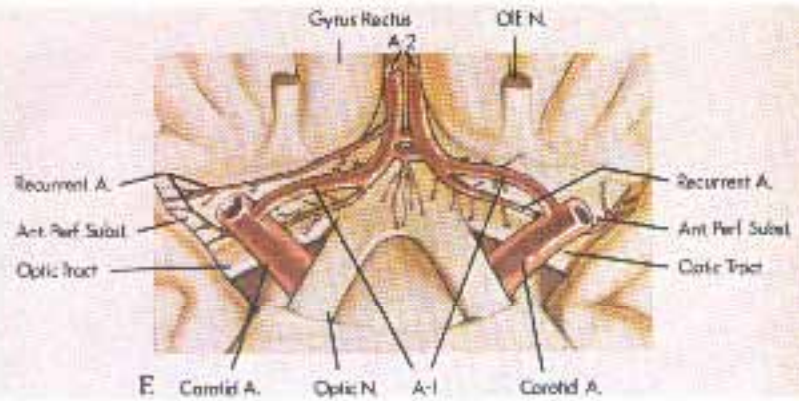
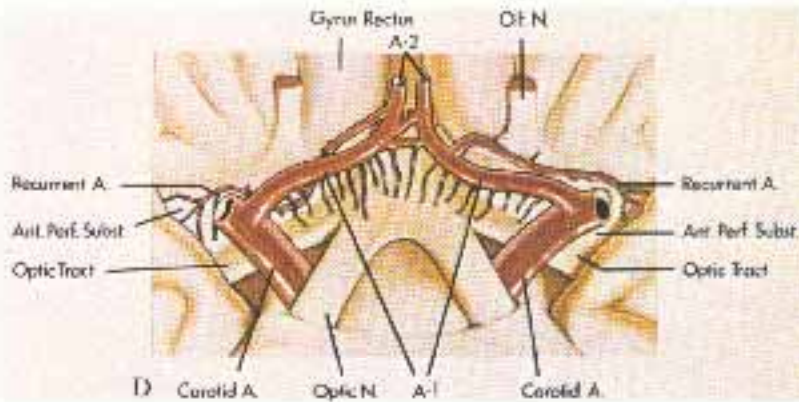


Three small Acomms

Three anterior views of A-1 and proximal A-2 segments of the ACA, ACcA, an

Perlmutter and Rhoton, *J Neurosurg*, Sept 1976

Double Acomms



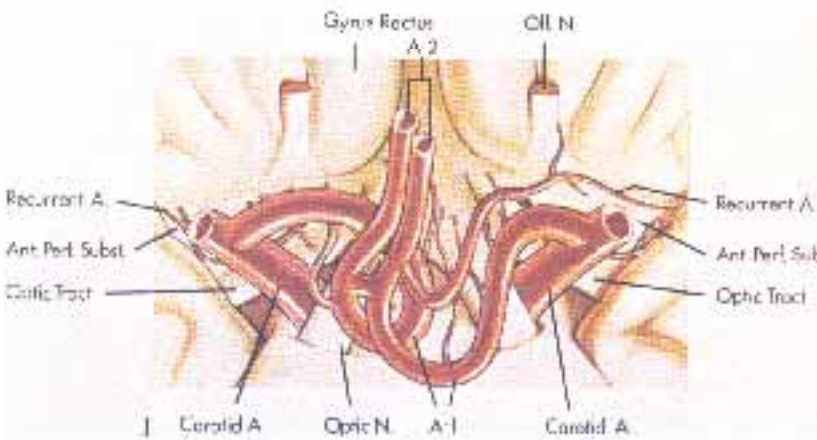
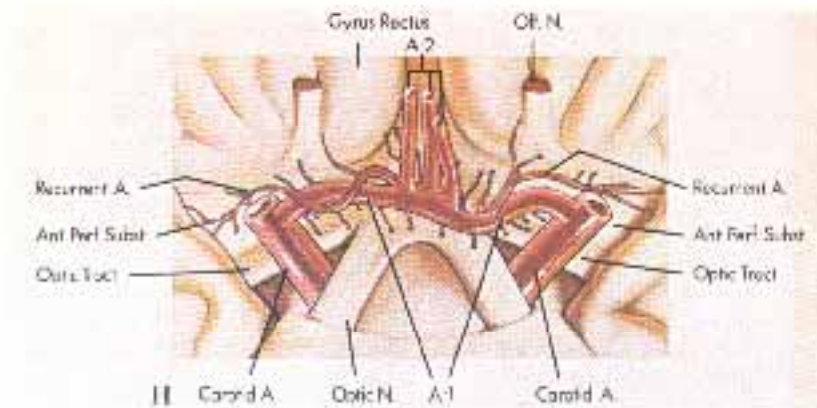
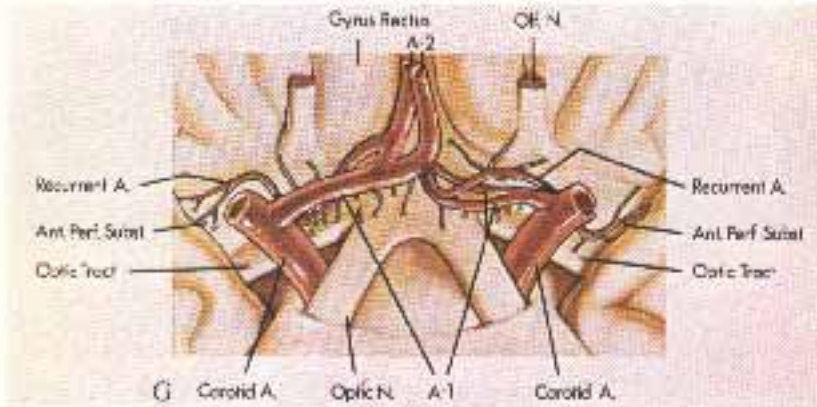
Double Acomms and
double recurrents on right

“Multichanneled”
Acomm

Dominant right A1

Triple A2 segments

Tortuous A1 segments



METHODS

- Retrospective review of 69 attempt to treat patients with 65 undergoing 67 endovascular GDC coiling procedures
 - Demographics
 - Size
 - Rupture status
 - Hunt-Hess/Fisher grades
 - Glasgow outcome scores
 - Angiographic outcomes

DEMOGRAPHICS

- Dallas 18 (1993-2001); Pittsburgh 51 (1999-2002)
- Average age: 60 years old (range 26-85)
- Average size: 6.3 mm (range 2-12 mm)
- Male:Female ratio 27:38
- Ruptured:Unruptured ratio 57:8
- 4 technical failures
 - 3 unable to catheterize, 1 neck too wide

Follow-up

- 65 patients that underwent coiling were followed
 - 32 had repeat angiography with average f/u 10 mos. (82% of eligible patients)
 - Reasons for ineligibility or no follow-up were:
 - 7 patients lost to f/u
 - 19 patients died before f/u
 - 7 patients had procedure within last 6 months and are awaiting scheduled f/u

RESULTS

- Overall
 - 63% improved or remained stable
 - 6% worsened
 - 31% died
- Crossover to surgery in 3%
 - 1 coil compaction, 1 coil occluding parent vessel
- Outcomes dependent upon clinical grade at admission
 - Poor grade patients (HH 4-5) had a 60% mortality rate
- Causes of death (n=20):
 - Sepsis 4
 - Rebleed 1
 - MI 2
 - Brain death 13 (Vasospasm 5, WOS 6, Infarct 2)

Clinical Outcomes

30 day GOS

Follow-up GOS

		Initial	1	2	3	4	5	1	2	3	4	5
Hunt	0	8	7		1			6		1		1
	1	4	4					4				
Hess	2	17	11		3	1	2	11	2	1	1	2
	3	13	1	4	6		2	4	2	4		3
	4	16	1	2	5	2	6	2	2	4	1	7
	5	7			1		6					7

Complications (n=13)

- Coil herniation with infarct: 1(1.5%)
- Intraoperative rupture: 5 (7.5%)
 - 1 patient had infarct due to coil herniation
- Embolus: 3 (4.5%)
 - All 3 had deficits, 1 with infarct leading to brain death and withdrawal of care
- Vessel dissection: 2 (3%)
 - 1 with hemiparesis
- Rebleed: 2 (3%)
 - One patient was HH 5 and had IVH following placement of ICP bolt monitor, while the other patient with known residual neck presented as HH 5 and family withdrew care
- Neurological morbidity (7.5%) and mortality (4.5%)

Angiographic outcomes

	Immediate post-coiling (n=65)	Follow-up (mean 10m) (n=32)
Complete occlusion	47 (72%)	25 (78%) *
Partial occlusion	15 (23%)	5 (16%)
Incomplete occlusion	3 (5%)	2 (6%)

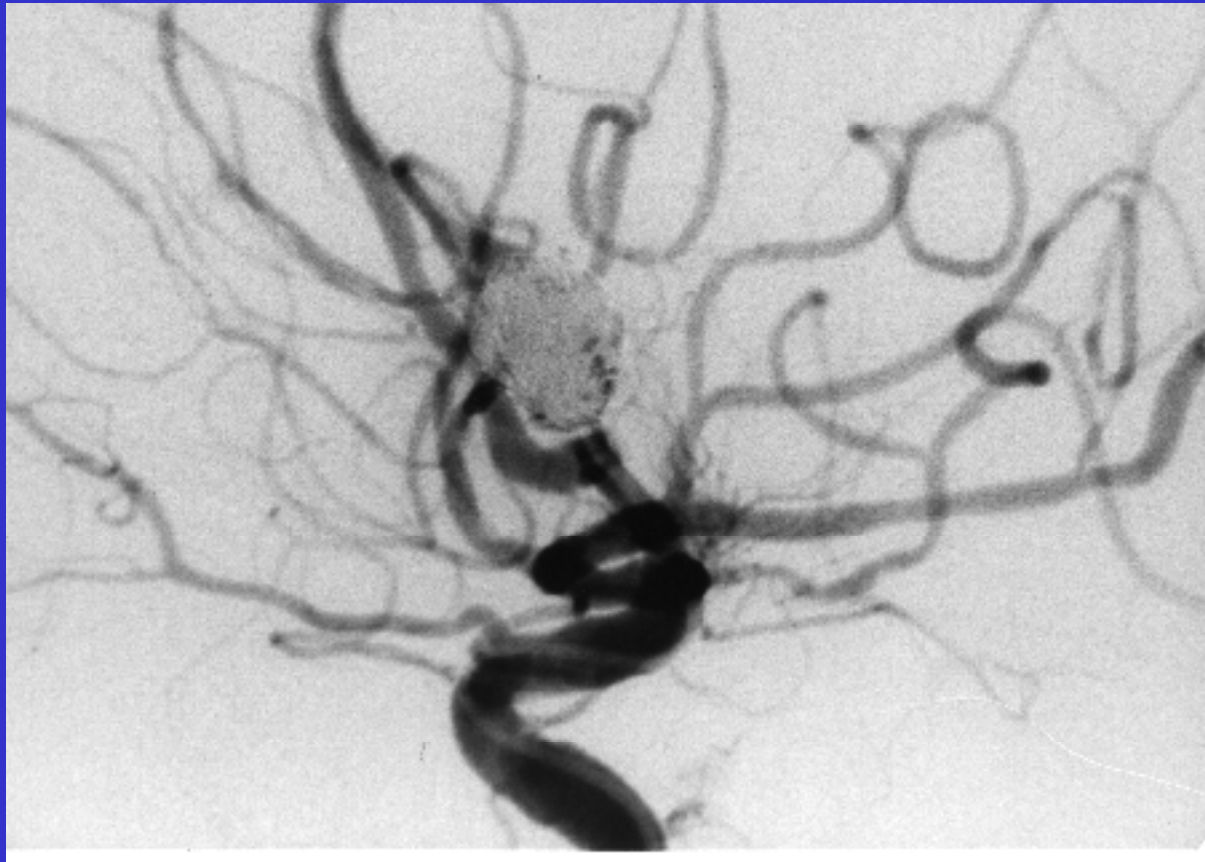
Coil compaction: 6 (19%)—2 recoiled, 1 clipped, 1 rebleed caused fatal SAH, 2 being observed

Thrombosis to complete occlusion: 4 (13%)

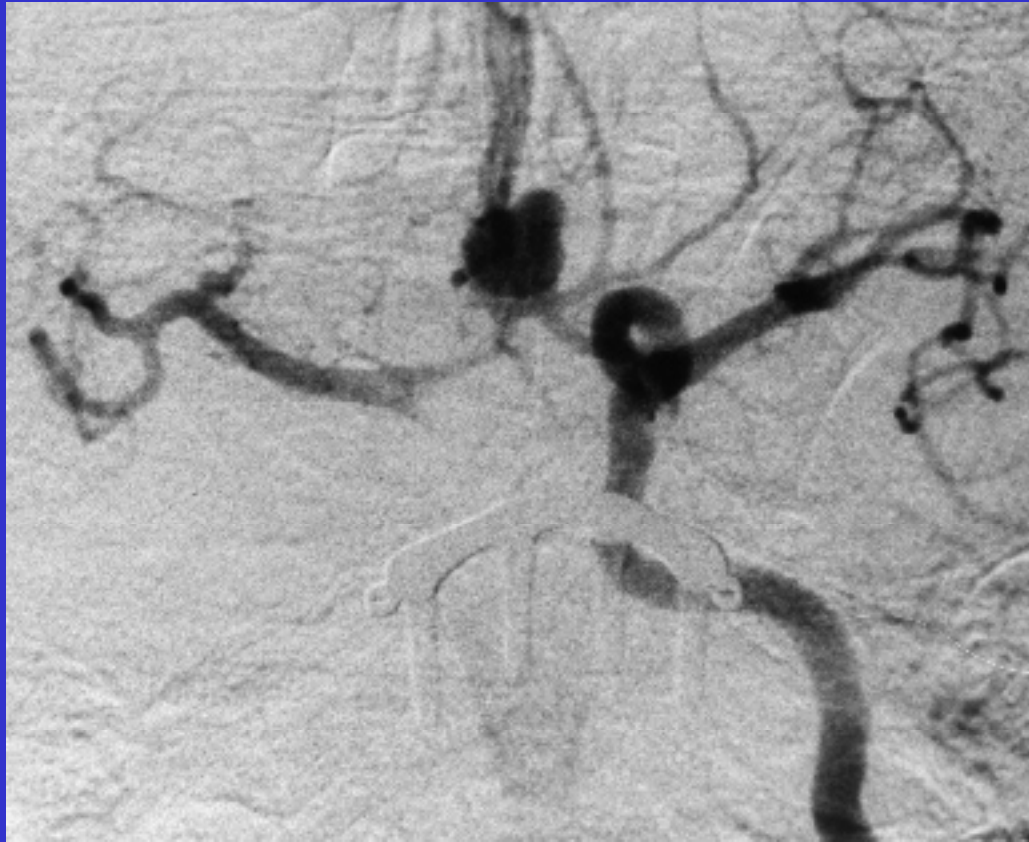


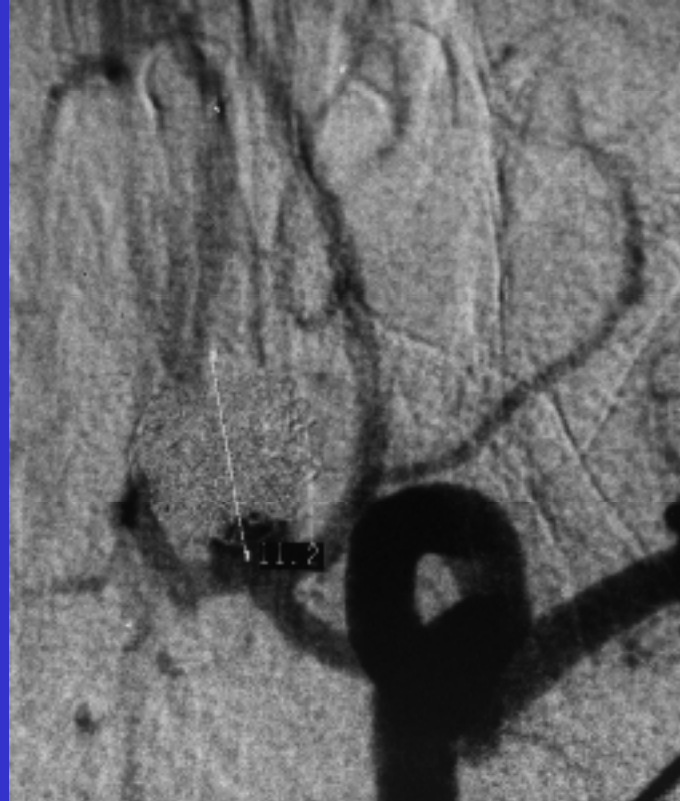












Summary

- N=69 w/ 65 treated with embolization
- Clinical Results
 - 63% improved or had no change
 - 6% worsened
 - 31% died
- Procedure Related Neurologic Morbidity 7.5%
 - 6% permanent
 - 1.5% temporary
- Procedure Related Mortality 4.5%
- Technical Outcomes
 - 78% complete
 - 16% partial
 - 6% incomplete
 - 3% crossover
 - 3% rebleed—one of these is not clearly aneurysmal rebleed
 - 6% unable to coil

Conclusion

- Endovascular therapy for A comm aneurysms is safe and effective
- Long term follow-up will be needed to determine long term effectiveness
- Complicated A comm anatomy and broad based nature of the lesion rarely affects ability to embolize
- Absent A1 segment is a reason for concern but not an absolute contraindication to endovascular therapy