

다발성 뇌동맥류의 수술적 치료 결과에 대한 연구

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= Abstract =

A Study of Surgical Outcome for Multiple Intracranial Aneurysms

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Objectives : To assess the surgical results for patients with multiple intracranial aneurysms and factors related to prognosis of patients.

Materials and Methods : We retrospectively analyzed the clinical characteristics of 47 patients with multiple intracranial aneurysms and assessed the types of surgical treatment and prognosis of 44 patients who received surgical treatment from January 1986 to March 1999.

Results : The 47 patients presented altogether 108 aneurysms with male to female ratio of 1 : 3.7, and average age 54.9 years (range 33 - 81 years). Common locations for multiple aneurysms were P - com(31%), MCA(30%) and A - com(15%). The postoperative good and poor outcomes were 30 cases(68%) and 11 cases(25%), respectively and there were 3 deaths(7%). The analyzed results for 44 surgically treated patients were as follows ;

1) The size of aneurysm was relevant to frequency of rupture ; the lowest for lesions less than 1cm(21%), rising to 85% for lesions greater than 3cm ($p < 0.05$).

2) The surgical outcome was significantly correlated with preoperative clinical status of the patients ($p < 0.05$).

3) The good outcome was associated with surgery within 7 days (especially 24 hours) after clinical onset of symptoms but not with type of operation and laterality of aneurysms.

Conclusion : With regard to the surgical treatment for multiple aneurysm cases, surgeons should consider the salient factors in a good prognosis such as patient's preoperative status, size of aneurysm, timing of surgery, and type of operation.

KEY WORDS : Multiple intracranial aneurysms · Good outcome.

서	론	대상 및 방법
1)6)7)13)	1986 1	1999 3
		574
	가	가 47 (8%)
15		44
47		

6 가 , 가 (good), (poor) (died) chi square test Fisher's exact test McNemar test

2 가 1 가 1 가 2 가 7 가 108 가 33 (31%) 가 32 (30%), 가 16 (15%) 가 12 (27%) 가 11 (24%) (Table 2).

결 과

574 54.6 (18 91) 10 20mm가 38 , 20 30mm가 25 30mm 가 7 30mm 85%, 20 30mm가 64%, 10 20mm가 50% 10 mm 21% 가 가 (p<0.05)(Table 3). 47 44 가 가 28 , 16 가 28 27 (96%) , 1 (4%) 2 1 : 1.5 1 : 3.7 가 (62%) 40 50 (64%) 50 60 80% 59% 50 60 가 (Table 1). 47 2 가 가 36 가 3 가 8 , 4 가 가 3 108 가 49 (45%)가 , 59 . 3 가 8 2 가 2 1

10mm 가 108 38 , 20mm가 38 , 20 30mm가 25 30mm 가 7 30mm 85%, 20 30mm가 64%, 10 20mm가 50% 10 mm 21% 가 가 (p<0.05)(Table 3).

47 44 가 가 28 , 16 가 28 27 (96%) , 1 (4%) 2

Table 2. Location of 108 aneurysms in 47 patients with multiple aneurysms

Artery	Ruptured	Unruptured	Total
Internal carotid	18(40%)	30(48%)	48(44%)
Post. communicating	(12)	(21)	(33)
Bifurcation	(4)	(4)	(8)
Ant. choroidal	(1)	(3)	(4)
Ophthalmic	(1)	(2)	(3)
Middle cerebral	11(24%)	21(33%)	32(30%)
Ant. communicating	12(27%)	4(6%)	16(15%)
Ant. cerebral	4	3	7(6%)
distal	(2)	(2)	(4)
A1	(2)	(1)	(3)
Basilar	4	1	5
Total	49	59	108(100%)

Table 1. Age and sex distribution of 574 patients with intracranial aneurysm

Age	Single aneurysm		Multiple aneurysm		Total
	Male	Female	Male	Female	
11 - 20	2	1	-	-	3
21 - 30	9	6	-	-	15
31 - 40	41	22	1	6	70
41 - 50	63	64	2	4	133
51 - 60	73	100	6	13	192
61 - 70	28	97	-	9	134
71 - 80	2	18	1	4	25
81 -		1		1	2
Total	218	309	10	37	574

Table 3. Relationship between the size and rupture of the aneurysms

Size of aneurysm (mm)	Number of aneurysms		Total
	Ruptured	Unruptured	
<10	8	30	38
10 - 20	19	19	38
20 - 30	16	9	25
>30	6	1	7
Total	49	59	108

Table 4. Surgical treatment and laterality of aneurysm in 44 patients with multiple aneurysms

Laterality	Complete treatment		Partial treatment	Total
	One-stage	Two-stage		
Unilateral	27	1	0	28
Bilateral	9(2)	3	4	16
Total	36	4	4	44

() Number of cases was operated on via one craniotomy

Table 5. Surgical outcome in relation to the laterality of aneurysms at 6 months after clinical onset

Laterality	Surgical outcome			Total
	Good	Poor	Died	
Unilateral	20	6	2	28
Bilateral	10	5	1	16
Total	30	11	3	44

가 16 (56%), 3 (19%), 2 (56%)
 4 (25%)
 가 2
 가 (Table 4).
 28
 (good) 가 20 (72%),
 (poor) 가 6 (21%), 가 2
 (7%) . 16 good 10
 (63%), poor가 5 (31%), 1 (6%)
 가
 (Table 5).
 44 24
 23 가
 good 가 18 (78%), poor가 4 (17%),
 가 1 (4%), , 24 7
 12 good 8 (67%), poor 3 (25%),
 1 (8%) . 7
 9 , good 4 (44%), poor 4 (44%),
 1 (11%) 24
 (Table 6).
 44
 36 (82%)
 , 2 4 (9%) ,
 2 가 4
 (9%) . 36 good

Table 6. Surgical outcome in relation to the time of operation at 6 months after clinical onset

Time of operation	Surgical outcome			Total
	Good	Poor	Died	
<24 hours	18	4	1	23
<7 days	8	3	1	12
>7 days	4	4	1	9
Total	30	11	3	44

Table 7. Surgical outcome in relation to the type of operation at 6 months after clinical onset

Type of operation	Surgical outcome			Total
	Good	Poor	Died	
One stage	26	8	2	36
Two stage	3	1	-	4
Partial	1	2	1	4
Total	30	11	3	44

Table 8. Surgical outcome in relation to preoperative clinical grade at 6 months year after clinical onset

Clinical grade	Surgical outcome			Total
	Good	Poor	Died	
I	17	3	-	20
II	10	5	1	16
III	3	2	1	6
IV	-	1	1	2
Total	30	11	3	44

26 (72%), poor가 8 (22%), 2 (5%) . 2
 4 good 3 (75%), poor
 가 1 (25%)
 4 good 1 (25%), poor
 가 2 (50%), 1 (25%) (Table 7).
 .
 Hunt -
 Hess ¹⁰⁾ grade II가 20 , Grade III가
 16 , Grade IV 6 Grade V 2 .
 Hunt - Hess Grade II 20
 17 (85%) (good) , grade
 III 16 10 (63%), grade IV 6
 3 (50%) Grade V
 가 (Table 8).
 (Grade II, III)
 (Grade IV, V) (p<
 0.05).

고찰

11)17) 7

Inagawa¹¹⁾, Rinne²²⁾,

Fogelholm⁵⁾

10 30%

가

1)6)8)12) 8%

82%

2

1

9%

1

Digital Subtraction Angiography(DSA)

가 72%

2

가 Mizoi¹⁷⁾

DSA 23 (11.4%) DSA 1

1

가 17)25) 1

1

가

50 60

(3.7)

11)20)

gaard²⁰⁾

Oster -

47 108 가 44 가

(24%) (22%) (24%) 16 7 1

가 2

가 (Table 4).

가

72%

63%

(p=0.541), Rinne²²⁾

가 가

Oliveira³⁾

carotidophthalmic region, anterior choroidal segment

7 가 Wright²⁹⁾ 가

44 가

35 (80%) 7 23 1

(52%) 24

9 (20%) 2

가

24

7 , 7

가 78%, 67%, 44%

Hunt - Hess
 Grade II Grade III 85% 63% ,
 Grade IV, V 50% 가
 (p<0.05).
 가
 11)17)
 가 1
 1964 McKiossock 16) 1973 Paterson 21)
 9)18)19)23)24)28)

Wie -
 ber 25)27) 10mm 가
 Torner 14) 5mm 가
 가 3% 4)8)15)
 가
 결론
 47 44
 54.9
 (33 81) 1 : 3.7 가
 47 108 가
 가 31% 가
 44 6 가
 30 (68%) , 11
 (25%) 3 (7%)
 1) 가
 (p<0.05).

2)
 (p<0.05).
 3)
 가
 4) 24
 5)
 2 가
 가
 • : 2000 4 7
 • : 2000 5 31
 • :
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