

뇌간 해면상 혈관기형의 치료방법에 따른 경과

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The Course of Brainstem Cavernous Malformations according to Management Strategies

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ABSTRACT

The outcome and the rate of rebleeding of brainstem cavernous malformations were analyzed following conservative treatment, microsurgical excision and Gamma Knife radiosurgery (GKS). We especially concentrated on the role of radiosurgery. We treated 39 patients with brainstem cavernous malformations using conservative treatment, microsurgical removal or GKS from April 1993 to November 2003. Follow up duration was 7 to 132 months (mean 45.8, median 30.6). The lesion location included pons, midbrain, medulla oblongata and cerebellar-peduncle. Conservative management was performed in 14 patients, GKS in 18 patients and microsurgical removal in 7 patients. The annual rate of rebleeding was 22.2% in conservative group and 22.7% in GKS group. Good and moderate outcome were obtained in 70% of conservative group, 75% of GKS group and 85.6% of surgical group. Overall mortality rate was 5.1%. Microsurgical excision tended to be resulted in good outcome. GKS and conservative managements were accompanied by a risk of recurrent bleeding, even death. There was no statistical difference in outcome and the rate of rebleeding between conservatively managed group and GKS treated group. (Kor J Cerebrovascular Surgery 6:144-7, 2004)

KEY WORDS : Cavernous malformation · Brainstem · Radiosurgery · Developmental venous anomaly.

서 론

(cavernous malformation)

5~13%

4)11)

10~30%가

가

가

2)7)9)15)

0.7%

4.2%

가

가

: 2004 10 30

: 2004 11 20

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대상 및 방법

1. 환자 및 치료방법

1993 4 2003 11 6
가 39

가 23 , 가 16 ,
 2 66 34.9 7
 132 45.8
 (cerebellar peduncle) . 7
 , 14
 . 18 (201 - sou-
 rce cobalt - 60 gamma unit, Elekta Instruments)

2. 재출혈과 예후

가 , 가 ,
 가 ,
 가 ,
 가 ,
 가 ,
 가 ,
 가 ,
 가 ,
 good, 가
 moderate,
 poor
 Cox regression ,
 Fisher 's exact test 가 (p>0.05), 2
 (Spss 9.0). (p>0.05).

결 과

1. 임상 증상과 병변의 위치

가 가 (43.6%),
 (11.2%), (10.3%),
 (10.3%), 가 (5.1%)
 가 1 (Table 1).
 가 가 (41%),
 1 (Table 2). 4
 , , 가
 , 7 (2~13) 가

Table 1. Clinical presentation*

Clinical presentation	No. of cases (%)
Multiple cranial nerve deficits	17 (43.6)
Motor weakness	11 (28.2)
Sensory change	4 (10.3)
Gait disturbance, ataxia	4 (10.3)
Headache, vomiting	2 (5.1)
Seizure	1 (2.6)
Total	39

* : Predominant symptom was counted

Table 2. Location of lesions

Location	No. of cases (%)
Pons	16 (41.0)
Midbrain	7 (17.9)
Peduncle	5 (12.8)
Medulla	4 (10.3)
Pontomedullary	4 (10.3)
Pontomesencephalic	2 (5.1)
Medullopontomesencephalic	1 (2.6)
Total	39

2. 재출혈

39 29
 , , ,
 가 (p>0.05), 2
 (p>0.05).

3. 미세수술

7 4 , 3 ,
 5 51 34.5 .
 37.4 3 , 2 ,
 1 , 1 . 2
 occipital transtentorial approach
 , 4 suboccipital approach .
 2
 1 , 10 , 18
 , 34 , 2
 good, 4 moderate, 1 poor

4. 보존적 치료

14
 8 , 6 , 2 61 36 . 6

Table 3. Comparison of conservative management group and Gamma Knife radiosurgery (GKS) group

Variables	Conservative	GKS
No. of cases	14	18
M : F	8 : 6	12 : 6
Age (year)	2 - 61 (mean 36)	10 - 66 (mean 35.9)
Follow-up (month)	7.4 - 121.2 (mean 46.2)	8.9 - 132.3 (mean 49.9)
Associated venous Anomaly	6	5
Repeated hemorrhage	12/53.94 person year=22.2%	17/74.83 person year=22.7%
Repeated hemorrhage after 2 years	5.6%/person/ year	4 %/person/ year
Outcome		
Good	4 (28.6%)	7 (38.9%)
Moderate	6 (42.9%)	7 (38.9%)
Poor	4 (28.6%)	2 (11.1%)
Death	0	2 (11.1%)

가
46.2 (7.4~121.2)
22.2%(12 episodes/53.94 person year)
5.6% , 2 1
6 moderate, 4 poor good,
(Table 3).

5. 감마나이프 방사선수술

18
12 , 6 , 10 66
35.9 . 5
가 49.9 (8.9~132.3
) 22.7%(17 episodes/74.83 per-
son year) 2
1 4%
7 good, 7 moderate, 2 poor
(Table 3).
(margin dose) 14.0 Gy
(11.6~18.0 Gy) (maximum dose)
28 Gy(25~36 Gy)

고 찰

1. 재출혈과 관련된 요소

Kupersmith ¹⁰⁾
가 35

Kondziolka ⁹⁾ Aiba
2) 가
, de novo
,
1)13)16)17)

2. 치료방법에 따른 예후

39 가
30 (good 13, moderate 17) 79.5% , 2 가
5.1% . Fritschi ³⁾

가 73.3% , 20% ,
98.9% 가

. Porter ¹⁵⁾ 84
87%

, 10% , 3
4% 가 12% . Aiba ²⁾
excellent good

rate 가 85% good mode-

3. 해면상 혈관기형에 대한 방사선수술의 효과

Kondziolka ⁸⁾ 47
2
8.8% , 2 6
1.1%

. Mayo Clinic

18 Gy
4

2 40.1%, 2 8.8%,
 2.9% .¹⁴⁾ Hasegawa
⁵⁾ 2
 Karlsson ⁶⁾ 18 Gy
 4 가
 , Zhang ¹⁸⁾ 16 Gy
 , Mathiesen ¹²⁾
 2 가
 (selection bias) ,
 (14 Gy)
 편 편
 가
 중심 단어 :

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