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## Lateralizing and Prognostic Value of Some Ictal Manifestations in Surgical Treatment of Mesial Temporal Lobe Epilepsy

Ji Eun Kim, M.D., Sang Do Yi, M.D.

*Department of Neurology, School of Medicine, Keimyung University*

**Background :** Various ictal manifestations of temporal lobe epilepsy have possibly the value of both lateralizing and localizing the epileptogenic zone. Some ictal manifestations such as hand automatism, dystonic limb posture, head turning, and speech phenomenon might distinguish patients with good surgical outcomes from patients with poor outcomes. **Methods :** To determine ictal behavioral differences in patients from these groups, we analyzed 207 seizures from 75 patients (group A) who were seizure free after surgery and 172 seizures from 60 patients (group B) who experienced seizures after surgery. All patients had received an anterior temporal lobectomy with amigdalohippocampectomy, and were followed up for at least 1 year. **Results :** The lateralizing value of ictal semiology was evaluated in group A. Head turning (HT) was shown in 42% of seizures and had a lateralizing significance. Forced HT indicated a contralateral epileptogenic region. Non-forced HT suggested an ipsilateral epileptogenic region. Unilateral dystonic limb posture with or without automatism of the other side occurred in 53% of seizures and had a lateralizing significance, localizing the seizure onset to the contralateral hemisphere. Abnormal speech and vocalization did not have any lateralizing significance. Contralateral dystonic limb posture without ipsilateral automatism was significantly more frequent in group B ( $p=0.003$ ) as abnormal speech was more frequent in group A ( $p=0.001$ ). Non-verse head turning had a higher tendency to occur in group A ( $p=0.0051$ ). There were no statistically significant differences between the two groups in incidences of verse head turning, unilateral hand automatism without dystonic limb posture, vocalization, and normal speech. **Conclusions :** Some ictal manifestations might be helpful in predicting the surgical outcome of temporal lobe epilepsy(TLE) patients. The presence of unidentifiable ictal speech could reflect good surgical outcome in TLE patients. When presurgical video analysis reveal an ictal semiology of contralateral dystonic arm posture without ipsilateral hand automatism, careful presurgical evaluation of the epileptogenic region should be contemplated.

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**Key Words :** Temporal Lobe Epilepsy, Semiology, Lateralization, Predictive Value, Surgical Outcome

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1-3

(epileptogenic zone)

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4,5

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(local-

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\* Address for correspondence

Ji Eun Kim, M.D.

Department of Neurology, School of Medicine

Keimyung University, Dongsan-dong 194

Chung-ku, Taegu, 700-310, Korea

Tel : +82-53-250-7835 Fax : +82-53-250-7840

E-mail : jekim@dsmc.or.kr

ization)가 .<sup>6</sup> (tailored resection)  
 4.0-4.5cm ,  
 (lateralization) 4.5-5.5cm . 148 23  
<sup>3,7,32,33</sup> (lesionectomy)  
 가 가 <sup>27-31</sup>  
 11 -  
 2 .  
 가 . A (Engel's outcome classification, class I)  
 B (Engel's outcome clas-  
 sification, class - )  
 Walsh Delgado-Escueta가 135 A  
 75 (56%) , B 60 (44%)  
 가 (extra-  
 temporal lobe epilepsy) 가  
 ,  
 가  
 ,  
 3 가 가  
 . 135 730 379  
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 가 2 1  
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 가 가  
<sup>8,9</sup> ,<sup>10</sup>  
<sup>11-13</sup> ,<sup>14,15</sup> 가  
 1992 11 1997 6  
 1 148  
 135 -  
 730 .  
 5  
<sup>8</sup> ,  
 ,  
 5  
 Wada , 42  
 가  
 6  
 (col-  
 lateral sulcus) 가  
 가  
<sup>14</sup>  
 ,  
 가  
 (partial or maxiaml  
 amygdalohippocampectomy) ,  
 가  
 (electrocorticogram) , 가 ,

|                             | Group A         | Group B        |
|-----------------------------|-----------------|----------------|
| Number of patients          | 75              | 60             |
| Total number of seizures    | 207             | 172            |
| site of surgery (Rt. : Lt.) | 36 : 39         | 22 : 38        |
| Age                         | 29 ± 8 (9-48)   | 27 ± 7 (11-51) |
| Age of Sz onset*            | 12 ± 7 (0.5-37) | 16 ± 7 ( 3-41) |
| Duration of Epilepsy*       | 17 ± 8 (2-38)   | 11 ± 6 ( 2-25) |
| Hx. of febrile convulsion   | 37              | 24             |

Sz : seizure

| Type of HT                           | N (n)   | %   |
|--------------------------------------|---------|-----|
| Unidirectional                       |         |     |
| ipsi. non-forced head turning only   | 29 (14) | 85  |
| contra. non-forced head turning only | 5 (2)   | 15  |
| ipsi. forced head turning only       | 3 (1)   | 7   |
| contra. forced head turning only     | 39 (19) | 93  |
| Bidirectional                        |         |     |
| non-forced ipsi. → forced contra.    | 8 (4)   | 100 |
| non-forced contra. → forced ipsi.    | 0       | 0   |
| forced ipsi. → nonforced contra.     | 0       | 0   |
| forced contra. → nonforced ipsi.     | 3 (1)   | 100 |

$$\% = (\text{N of ipsi. HT or contra. HT} / \text{total N of one type of HT}) \times 100$$

가 78 가  
가 14  
5 , 9  
19

가 가

가 가 .  
207 48 (23%) ,

100 23 107 25 (Table 4).

가 30 가 16 ,

3

가 가 .

A B Table 2

A 207

31 (15%), B 172 47  
(27%)  
(p=0.003), A 30 (14%), B  
8 (5%)가  
(p=0.001).  
A  
(P=0.051).  
가 (p>0.05)(Table 5).

17 18,19  
Wyller Vossler (1997)<sup>20</sup>  
가  
가  
가

70-90%  
3,16

**Table 3.** Lateralization values of hand automatism and dys-tonic posture of extremities in group A. (207 seizures, 75 patients)

| Type of Auto. and Dys.                           | N (n)   | %   |
|--------------------------------------------------|---------|-----|
| Auto. of one hand + Dys. of the other side       |         |     |
| ipsi. Auto. + contra. Dys.                       | 78 (31) | 100 |
| contra. Auto. + ipsi Dys.                        | 0       | 0   |
| Auto. of one hand without Dys. of the other side |         |     |
| ipsi. Auto.                                      | 5 (2)   | 36  |
| contra. Auto.                                    | 9 (4)   | 64  |
| Dys. of one hand without Auto. of the other side |         |     |
| ipsi. Dys.                                       | 0       | 0   |
| contra. Dys.                                     | 19 (9)  | 100 |
| Bilateral Auto.                                  | 1 (1)   | -   |
| Bilateral Dys.                                   | 12 (4)  | -   |

Auto. : automatism, Dys.: dystonic posture  
ipsi. : ipsilateral, contra. : contralateral, No. : number  
N : number of seizures, n : number of patients  
% = (N of I. or C. Auto. &/or Dys. / total N of one type of Auto. and Dys) × 100

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**Table 4.** Lateralization values of speech phenomena in group A. (207 Seizures, 75 patients)

| Types of speech phenomenon | Lt (N/n)<br>(107/39) | Rt (N/n)<br>(100/36) | lateralization value |    |
|----------------------------|----------------------|----------------------|----------------------|----|
|                            |                      |                      | Lt.                  | Rt |
| Vocalization               | 9 (4)                | 6 (2)                | 60% / 40%            |    |
| Normal speech              | 0 (0)                | 3 (1)                | 0% / 100%            |    |
| Abnormal speech            | 16 (7)               | 14 (6)               | 53% / 47%            |    |
| speech arrest              | 0 (0)                | 0 (0)                | -                    | -  |
| dysarthria                 | 1 (1)                | 0 (0)                | 100% / 0%            |    |
| paraphasia                 | 4 (2)                | 3 (1)                | 57% / 43%            |    |
| nonidentifiable speech     | 11 (4)               | 11 (5)               | 50% / 48%            |    |
| Total                      | 25 (11)              | 23 (9)               | 52% / 48%            |    |

N : number of seizures, n : number of patients

**Table 5.** Ictal behavior in patients with (group A) and without seizure free (group B) after anterior temporal lobectomy.

| Ictal behavior                                                       | Group A (N:207, n:75) |    |    | Group B (N:172, n:60) |    |    | P-value |
|----------------------------------------------------------------------|-----------------------|----|----|-----------------------|----|----|---------|
|                                                                      | N                     | n  | %  | N                     | n  | %  |         |
| Non-forced head turning                                              | 45                    | 21 | 22 | 24                    | 12 | 14 | 0.051   |
| Forced head turning                                                  | 45                    | 21 | 22 | 30                    | 14 | 17 | 0.295   |
| Unilateral arm automatism without dystonic posture of the other side | 15                    | 7  | 7  | 9                     | 4  | 5  | 0.23    |
| Dystonic arm posture without automatism of the other side            | 31                    | 13 | 15 | 47                    | 18 | 27 | 0.003   |
| Unilateral arm automatism with dystonic posture of the other side    | 78                    | 31 | 38 | 56                    | 21 | 33 | 0.29    |
| Vocalization                                                         | 15                    | 6  | 7  | 11                    | 4  | 6  | 0.744   |
| Normal speech                                                        | 3                     | 1  | 1  | 3                     | 1  | 2  | 0.85    |
| Abnormal speech                                                      | 30                    | 13 | 14 | 8                     | 3  | 5  | 0.001   |

N : number of seizures, n : number of patients,  
% = (N/total seizure of group A or B) × 100

가 가

가

A B 가 가

가 . 가

가

A

가

, B

가 . , Saygi et al<sup>28</sup>

33

가 ,

22

가

A B 가 가

가 B

가

가 가 . O'Brien et al<sup>29</sup> 46

A

31 15

가 , A

가 , (clonus)

가 , Wada ,

가 가

가 가 . Gil-Nagel Risinger<sup>30</sup>

35

가 16

1.5cm 가

가 가

가 가

(maximal hip-

pocampal resection) (motor involvement)

20, 23

가

31 57

가

1

가

(collateral sulcus)

가

(interpeduncular fossa) 가

24-26

가

가



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