

양성 돌발성 체위변환성 어지러움

단국대학교 의과대학 이비인후-두경부외과교실
이 정 구

Benign Paroxysmal Positional Vertigo

Chung Ku Rhee, MD

Department of Otolaryngology-Head and Neck Surgery, College of Medicine, Dankook University, Cheonan, Korea

1855년 Schuknecht (calcium carbonate crystals) (plunger effect) (utriclefugal) (utriclepetal)⁴⁾ (canalithiasis) (geotropic), Dix - Hallpike

1921년 Robert Barany (cupulolithiasis) (otoconia)가 가 (geotropic) (utriclefugal)

1952년 Dix Hallpike가 100 Benign Paroxysmal Positional vertigo (geotropic), Dix - Hallpike

1969년 Schuknecht (cupulolithiasis) (otoconia)가 가 (geotropic) (utriclefugal)

1979년 Hall (utriclefugal) (geotropic), Dix - Hallpike

. Dix - Hallpike

가

5)

가

10

10.7 17.3

6)

1

160,000 ,

7)

가

1.6 : 1 2 : 1

가

50 , virus

30 가

10 50

6

(canalolithiasis),

37가

9)

24가

(cupulolithiasis), (canalith jam)

18가

24가

(oto-

10)

24가

11)

28%, 21%,

13%

(basophilic de-

posit)

11)

34.9%

12)

10

13)

45 °

가

9

9

5)

Table 1-1. Incidence of BPPV by age

Age (yrs)	No of patients (%)			
	Katsarkas (n=171)	Nunez (n=168)	Korea (n=1455)	DKU (n=400)
< 19	0	1.1	0.7(10)	2.7
20 - 29	5.3	4.7	3.7(54)	4.0
30 - 39	13.5	8.3	9.4(137)	10.2
40 - 49	31.0	9.5	21.6(314)	17.0
50 - 59	33.3	15.4	28.1(409)	26.2
60 - 69	11.7	27.9	27.3(397)	30
70 - 79	5.3	22.1	8.1(118)	8.5
>80	0	10.0	1.1(16)	1.2

Katsarkas : 1978 n= 171
 Nunez : 1993 - 1996 n=168
 DKU (Dankook university) : 1998 - 2003 n=400
 Korea : 2002 - 2003 n=1455

Table 1-2. Incidence of BPPV by canal (%)

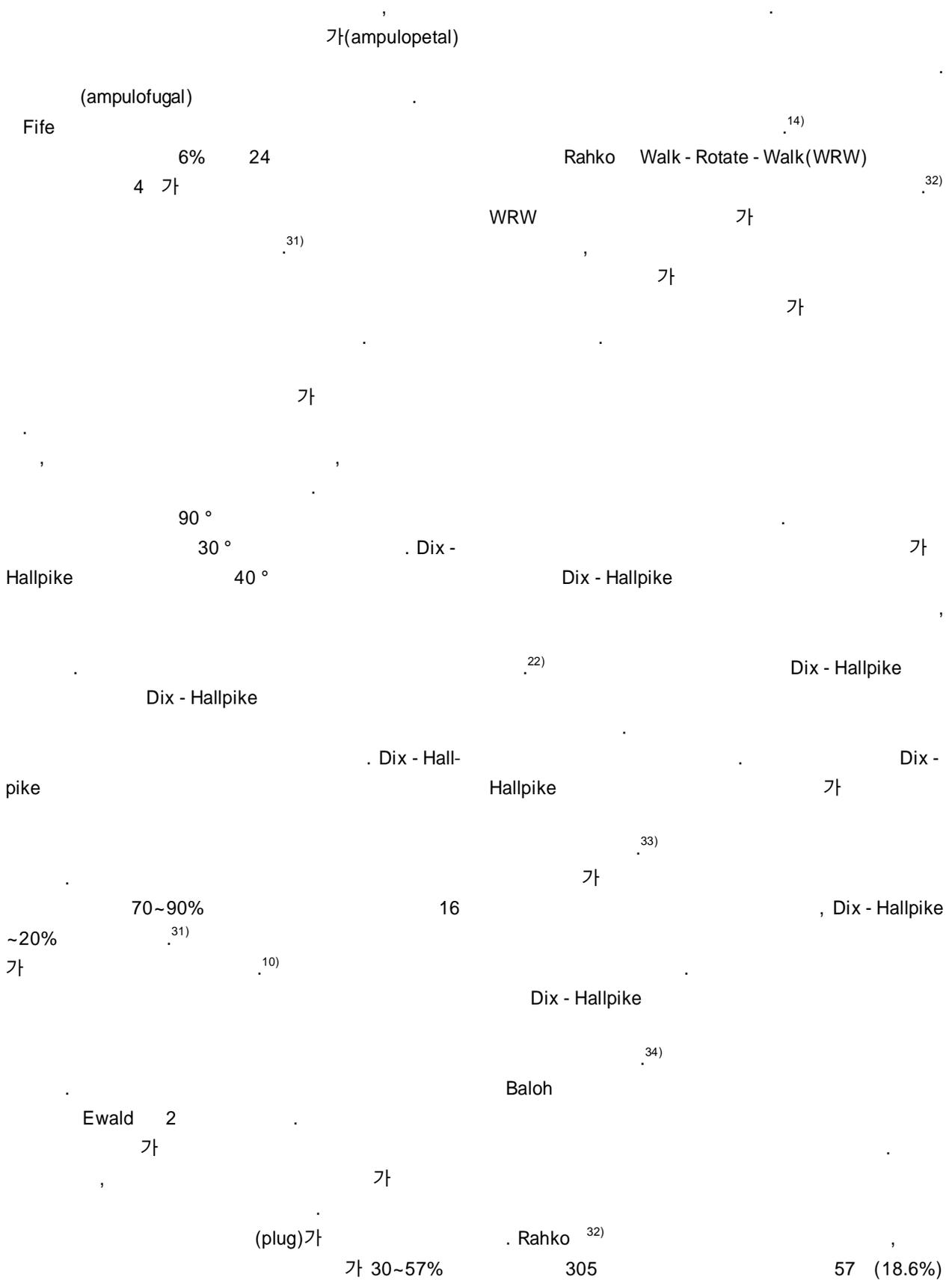
	DKU	Marciano	Korres
Sex F : M	1.6 : 1	2.6 : 1	1.4 : 1
P SCC	70.3	59.5	83
canalolithiasis	69.4	58.5	
cupulolithiasis	0.9	1	
L SCC	24.6	28.0	11
canalolithiasis	15.5	23.5	
cupulithiasis	9.1	4.5	
S SCC	2.1	4.5	0.5
canalolithiasis	1.9	4.25	
cupuloithiasis	0.2	0.25	
Mixed type	8	5	
Pcanal+Lcanal	2.1	22	
Pcanal+Lcupul	0.3	3	
Pcanal+Scanal	0.1	3	
Lcanal+Scanal	0.2	3	
Lcupul+Scupul	0.2	1	
Bilateral		0.5	

Korea : 2002 - 2003 n=1455
 Korres : 2000 - 2002 n=122
 Marciano : 1998 - 1999 n=810
 DKU (Dankook university) : 1998 - 2003=400
 P : posterior, L : lateral, S : superior, SCC : semicircular canal,
 canal : canalolithiasis, cupul : cupulolithiasis

Table 1 - 1, 2

가 . Dix - Hallpike
가 45 가 가
가 가 가
가 가 가
Dix - Hallpike
가 2~20 , 가
(12) 가 30
(geotropic).
(transient)
(plane)
(fatigability)
가 , 가
8) 가 90%
, video
sient) 30 (tran-
가 가
Dix - Hall-
pike
가
Dix - Hallpike
21) , ,
22) 가
23) (head late-
ral or body lateral)
가
Dix - Hallpike
1 가
Dix - Hallpike

Side - Lying test
 ,
 45 °
 storage system)가
 가 가 가 가
 (velo-city
 (vis-cous)
 (gel) 가
 가
 1985 McClure²⁵⁾가
 Baloh²⁶⁾ 1993
 가
²⁵⁾²⁷⁾
 17~ 28%
 22)
 (posterior fossa)
 가 가
 10~20 °
 (null point)
 (null point)
 30 ° Frenzel 30 가
²⁸⁾ 가 가
 Dix -
 Hallpike 20% ²⁴⁾ 가
 (geotropic)
 (ageotropic)
²⁹⁾
³⁰⁾
 30 1 가



60 ° 가

75% 25% 34)

39% 19%

22) Ka-

tsarkas³⁵⁾ 17%

Korres¹⁴⁾ 27% 8%

26) (gain)

2 36)

14) Pollak¹⁵⁾ 26% (saccade, OKN, smooth pursuit fixation suppression) 26%(103/400)

238 47 112 33 (20%) 18 3 (16%) 1994

가 가 lida³⁷⁾

Table 3.

Various diagnostic maneuver of BPPV	
Posterior canal canalolithiasis & cupulolithiasis	Dix-Hallpike maneuver
Lateral canal canalolithiasis & cupulolithiasis	Lateral head positioning
Superior canal canalolithiasis & cupulolithiasis	Dix-Hallpike or sidelying maneuver
Involvement of more than 2 canals	Dix-Hallpike & lateral head positioning
Diagnostic criteria of cupulolithiasis	
Nystagmus	Short or no latency, lasting longer
Vertigo	Less responsive to treatment
Vibrator or tapping	If cupulolithiasis is converted to canalolithiasis by vibrator or tapping
Lateral cupulolithiasis	Ageotropic nystagmus
Diagnostic criteria of superior canal BPPV	
Dix-Hallpike test	Opposite side canal involvement when down beat nystagmus is seen
Rahko maneuver	Body moves to lesionside

45 ° 60 °
360 ° 0.1 Hz

Table 3 (diagnostic maneuver) (Table 3).

(otoconia)

38)

Gacek (singular neurectomy)

1990

Herdman⁴⁰⁾

(Fig. 2).

Epley (Canalith repositioning procedure)
Epley

100%
가 가 3~6 48⁽⁴⁶⁾⁽⁴⁷⁾
(vibrator)
Herdmann⁽⁴⁵⁾ Epley
가 가
Dix - Hallpike man-
euver
Dix - Hallpike 3

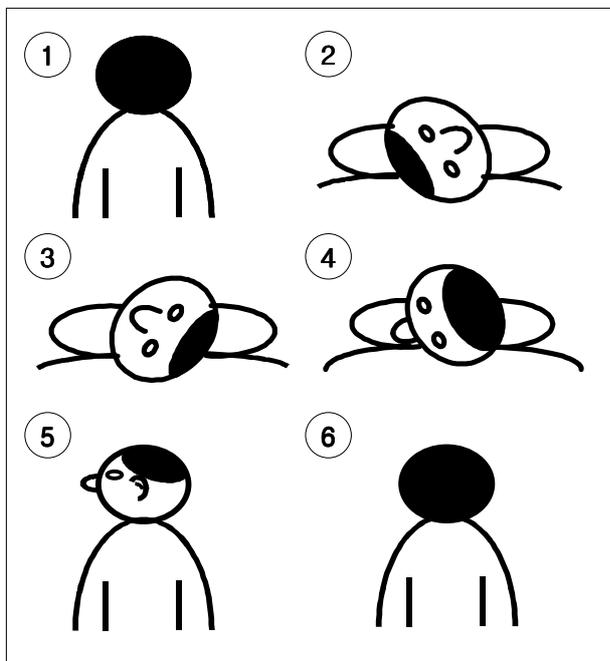


Fig. 3. Modified epley maneuver of right posterior SCC BPPV. The patient is in sitting position. The head is lowered into the right Dix-Hallpike position. The head is moved about 90° into the left Dix-Hallpike position. The head is moved another 90° so that the patient's nose is pointing downward toward the floor. The patient is returned to the upright position. The patient's chin is lowered slightly.

4
(Fig. 3).

Semont 가 48
가
Semont Epley 80~99%
가⁽⁴⁸⁾ Epley 가
가
가⁽⁴⁹⁾
Epley⁽¹⁰⁾⁽⁵⁰⁾ 96.8~100%
가 Epley 가
Epley 89.9% 27.3% 가
가⁽⁵¹⁾ Wolf⁽⁵²⁾ 1 10%
74% 가 1 90% 50%
가⁽⁵²⁾ Froehling⁽⁷⁾
Epley Sham Sham
가 (antivertiginous drug)
가⁽⁷³⁾
가⁽⁵³⁾
Dix - Hallpike 가⁽⁵³⁾

Tirelli⁵⁴⁾ Yimtae⁵⁵⁾가 Epley
 (:) 30 °
 30 °
 30 °
 30 ° 3~4
 3~4
 Epley 90%
 가 95.6%
 가 84%(54% 30%)
 Epley 3 가
 가
 가 75.9%
 (pallor), 6.9% (fainting),
 bic system) (lim- 9
 56)
 56)
 45 ° 가 135 °
 가
 3
 100% 가 91~
 30)58)59) Epley
 가
 가
 가
 3가
 가
 Dix - Hallpike
 가
 29)
 57)
 50)59)60) Va-
 nnucchi 63 - 94 - 100% 61)

Casani
 Semont (Modified Semont maneuver) 가 45° 2~3 77.7% 가 ()

Rahko 1 2
 Rahko 53

Semont 가 4~6 (Fig. 4).
 MRI CT
 Arnold Chiari malformation, nodular floccular (posterior fossa) multiple system atrophy Honrubia 50% Rahko 45° 45° 30 Rahko 가 가 Semont Epley

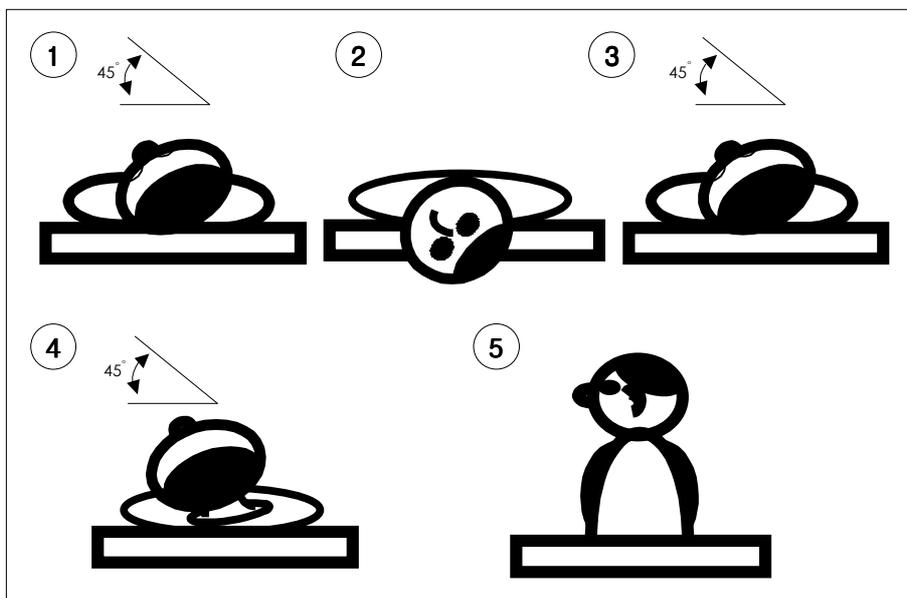


Fig. 4. Modified rahko maneuver (Modified from Rahko 2002). The patient lies on healthy side with head turned 45° to left side. The head is lowered 45° into the left Dix-Hallpike position. The head is raised horizontally upward 45° for 30 seconds. The head is moved another 45° for another 30 seconds. The patient is returned to the upright position and stays up for at least 3 minutes.

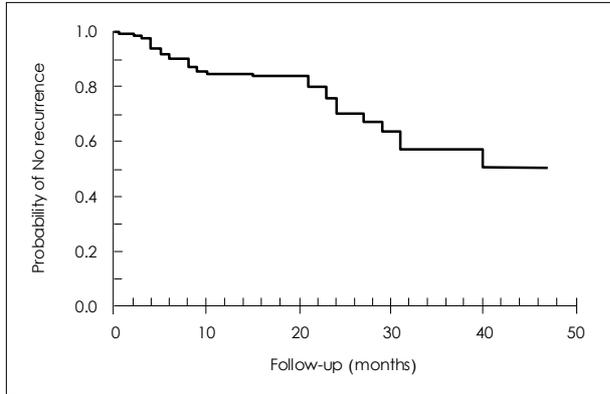


Fig. 5. Kaplan-Meier estimation of recurrence rate (From Nunez 2002). The recurrence rate is approximately 15% per year, with approximately 50% recurrence by 40 months.

25 가

4~8 가 6 , 8
 5
 , 12 (70%)
 5 (30%)
 17 (4.3%)
 가 4 , 2~4 가 2 ,
 6 (36%)
 16 , 1
 4 , 2
 8 (2%)
 138/1455 (9.5%)
 2~9
 4.25%
 3
 56

26 15% , 40
 50%

(Fig. 5.).⁴⁸⁾⁶⁶⁾

1 15% 가 4~5 50%
⁴⁸⁾⁴⁹⁾

Brandt - Daroff

Epley

⁶⁷⁾

가

가

(secondary BPPV

BPPV+)

⁶³⁾

⁶⁸⁾

가

가
 , 가
 ,

²³⁾⁶⁹⁾

가

가

²⁰⁾

가

¹⁵⁾

가 (9.8% vs

12.0%)

12.7%(8/63)

2.7% BPPB) 10%

(secondary (idiopathic BPPV)

(9/337)

29%

3

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