

정상 성인에서 후벽 흉부유도 심전도의 형태

임지현¹ · 김양호¹ · 김용석¹ · 이진구¹ · 최순필¹ · 류제영¹ · 김남호² · 문 용¹

Patterns of Posterior Chest Leads (V7, V8, V9) ECG in Normal Adults

Ji-Hyun Lim, MD¹, Yang-Ho Kim, MD¹, Young-Seok Kim, MD¹, Jin-Gu Lee, MD¹,
Soon-Pil Choi, MD¹, Jae-Young Rhew, MD¹, Nam-Ho Kim, MD² and Young Moon, MD¹

¹Department of Internal Medicine, Presbyterian Medical Center, Chonju, ²Department of Internal Medicine, Wonkwang University School of Medicine, Iksan, Korea

ABSTRACT

Background and Objectives : Recently many studies have confirmed positive identification of patients with posterior infarction through ST segment elevation in the electrocardiogram of posterior chest leads V7 through V9. However, the ECG patterns from posterior chest leads in normal adults have not been investigated, so this study was designed to examine such patterns. **Subjects and Methods :** We studied 100 patients with normal conventional 12-lead ECG, normal physical examination and without any history of cardiovascular disease. Leads V7, V8 and V9 were recorded immediately after routine 12-lead ECG at the same horizontal level as that of V6 on the posterior axillary line (lead V7), the posterior scapular line (lead V8), and the left border of the spine (lead V9) **Results :** The upright P waves in leads V7, V8 and V9 were 99%, 99% and 95% upright, respectively, while the other P waves were isoelectric and none were inverted. The T waves were all upright in leads V7 and V8, while in lead V9, 98% were upright, 2% were isoelectric and none were inverted. None of the subjects had a Q wave duration greater than 0.04 second in any of the 3 leads. At 0.08 second after the J point, only 2 subjects (2%) showed 0.5 to 1.0 mm ST segment elevation, but ST segment elevation was not greater than 1.0 mm in any of the subjects. **Conclusion :** P wave and T wave inversion were absent in all 3 leads. Q wave duration of greater than 0.04 second was also absent in all 3 leads. ST segment elevation was not greater than 1.0 mm in any of the subjects. (Korean Circulation J 2002;32(6):473-478)

KEY WORDS : Electrocardiography.

서 론

가

가 .¹⁾

12 가 ST ,

: 2002 2 22 (reciprocal ch-

: 2002 4 16

: , 560 - 750 300

ange) ST

Q 가

Q 0.04 Q/R 가 25%

: (063) 230 - 8919 · : (063) 230 - 8917

E - mail : cardiomy@korea.com

ST

Q 가 V1 V3 ,
 , aVL, V5 V6 ,
 , , aVF .
 12
 , ST 가 2)3)
 12 가
 ST Q
 가 , 4)5) 12 가
 , 4)
 1)
 가

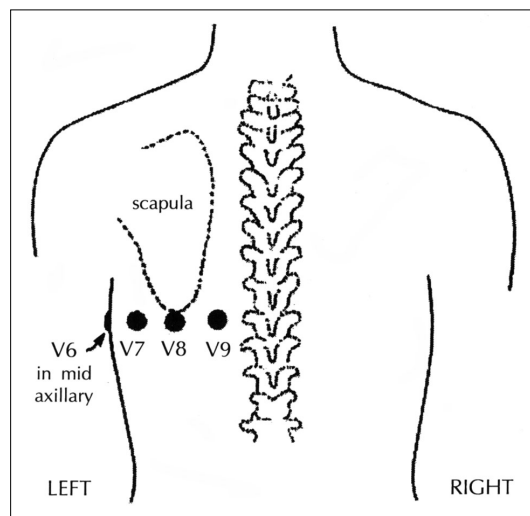


Fig. 1. Posterior lead placement. Lead V7, V8 and V9 were recorded at the same horizontal level of lead V6 on the posterior axillary line (lead V7), the posterior scapular line (lead V8), and the left border of the spine, 3 cm to the left of the spinous process (lead V9).

대상 및 방법

2000 12 1 2001 7 31
 12
 100 56 , 44
 39.9±9.4 (18 72)

pters MACTRODE clip adapter
 noise가

V7, V8, V9 1) P ,
 QRS , T 2) Q, R S 3) Q
 4) ST , ST
 TP J
 J 0.04 , 0.08

결 과

(supine position) Marquette
 Mac VU(Marquette Electronics, Milwaukee,
 Wisconsin, USA) 12
 V4, V5, V6
 V7, V8, V9
 V7 V6
 , V8 V6 , V9
 V6
 (Fig. 1), (V1 V6)
 V7 V9 (dis-
 posable electrode) Leadwire ada-

P V7, V8, V9 가
 99%, 99%, 95%
 . T V7, V8 100%가 V9
 98% , 2%
 (Table 1A).
 QRS 가 V7 qRs , V8
 qR , V9 qr . V7 qRs
 47%, qR 32% 가 79%
 , qr R 6%, qrs 5%, Rs 4%
 . V8 qR 46%, qr 22%, qRs

18% qrs, R 6%, 5% r, rs, 0.04
Rs 1% V9 qr 45%, qR J 0.08 V7 2%
36% 가 81% qrs, qRs . >1.0 mm ST
7% r, Rs 2%, R 1% (Table 3).

(Table 1B).
Q 0.7 1.0 mm
R 4.8 7.5 mm S
0.1 0.4 mm (Table 2).
>0.04 Q .
0.5 1.0 mm ST J J

Table 1A. Configuration of leads V7, V8 and V9 (n=100)

	V7	V8	V9
+ve P	99	99	95
OP	1	1	5
-ve P	0	0	0
+ve T	100	100	98
OT	0	0	2
-ve T	0	0	0

+ve : positive, -ve : negative, 0 : isoelectric

Table 1B. Configuration of leads V7, V8 and V9 (n=100)

	V7	V8	V9
qr	6	22	45
qrs	4	6	7
qR	32	46	36
qRs	47	18	7
r	0	1	2
rs	0	1	0
R	6	5	1
Rs	5	1	2
Total	100	100	100

Table 2. Amplitudes of Q, R, and S waves (n=100)

	V7	V8	V9
Q	0.7 ± 0.4	0.8 ± 0.3	1.0 ± 0.4
R	7.5 ± 1.8	6.1 ± 1.6	4.8 ± 1.4
S	0.4 ± 0.4	0.2 ± 0.2	0.1 ± 0.2

Values are expressed as mean ± SD, in millimeters

Table 3. Prevalence of ST-segment elevation in leads V7, V8, and V9 (n=100)

ST elevation (mm)	V7		V8		V9	
	0.5 - 1.0	>1.0	0.5 - 1.0	>1.0	0.5 - 1.0	>1.0
At J point	0	0	0	0	0	0
0.04s after J point	0	0	0	0	0	0
0.08s after J point	2	0	0	0	0	0

고 찰

12
V1 V2 R (R wave
>0.04 sec, R>S)⁶⁾⁷⁾ V1 V3 ST
.⁸⁻¹⁰⁾ V1 V2
R

, Wolff - Parkinson - White

ST
infarction),¹¹⁾ , V1 V3 (inferoseptal
, non - Q
12 - 14)

12 가
.⁹⁾¹⁵⁾¹⁶⁾

가 ,
ST 12 ST

가
.⁵⁾⁷⁾¹⁷⁾
1980

가 . Matetzky
18) 가 V1 V3
V7 V9 ST
ST , V7 V9 ST

(80% vs 72% p=0.34)

(84% vs 57% p=0.02) (82% vs 66% p=0.01)

Boon - Lock Chia ²¹⁾ P

12 V7 V9 96%가

ST V7 T

V9 isolated ST 99% V8, V9 0.4%

33 Q 가 0.04 duration 가

¹⁹⁾ V7 V9 ST 가 3 leads

1 lead 0.03 duration 가

Kulkarni ¹⁾ balloon oc- Q 20% ST

clusion V7, V8, V9 8.9%, 5.8%, 3.1%가 J

가 0.08 0.5 1.0 mm ST

ST

>1.0 mm ST

가 >1.0 mm ST

ST

Kulkarni ¹⁾

J 0.08 >1.0 mm 가

ST , Matetzky ¹⁸⁾ 가

¹⁷⁾ V7 V9 2 ST Q

>0.5 mm ST

J 0.08

>1.0 mm ST

, 0.5 1.0 mm

V7 2 (2%) (V7 V9) QRS 가 10 mm

Q, R S Q

ST J 0.08

>1.0 mm 가 가

0.5 1.0 mm 2%

(false positive)

Q

⁴⁾⁵⁾⁷⁾²⁰⁾ 0.04 가

Q 가 0.04

12

T V9 2

Zalenski ²⁰⁾

T

요 약

P V7 V9

배경 및 목적 :

P 12

가 가

(V7, V8, V9) ST

Q

가

방 법 :

12

100 (: 56 , :

44) 12

(V7, V8, V9)

P , QRS , T

ST , Q

결 과 :

P V7, V8, V9 99%, 99%, 95%

T

V7, V8 , V9 98%

, 2%

QRS V7 qRs(47%), Qr(32%)

, V8 qR(46%), qr(22%), qrs(18%)

, V9 qr(45%), qR(36%)

R 4.8 7.5 mm

, Q S 0.7 1.0 mm, 0.1 0.4

mm . >0.04 Q

. ST J J 0.04

, J 0.08 0.5 1.0 mm

V7 2 (2%)

결 론 :

100

, P T >0.04 Q

J 0.08

0.5 1.0 mm ST V7 2%

>1.0 mm ST

중심 단어 :

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