

(idiopathic ven -
tricular fibrillation) 66 : 130 / 80 mmHg, 64
(ICD) 1 / , 20 / , 36.7 .

증 례

: , , 66 .
:
:
2 12.9 g/dL, 207,000/mm³
BUN 14 mg/dL, creatinine 1.1 mg/dL, so -
dium 134 mEq/L, potassium 4.1 mEq/L
20 30
1 9 30
20 가 , V₁ -
V₃ ST 60 / ,
PR 0.16 , QRS 0.12 , QTc 0.42
(Fig. 1). 24 90
60 (Fig. 2).
(ejection fraction) 67%
가 1 (Holter
24 monitoring)
1 10
가 600
가 : 20 ms driving cycle length 3 (300/

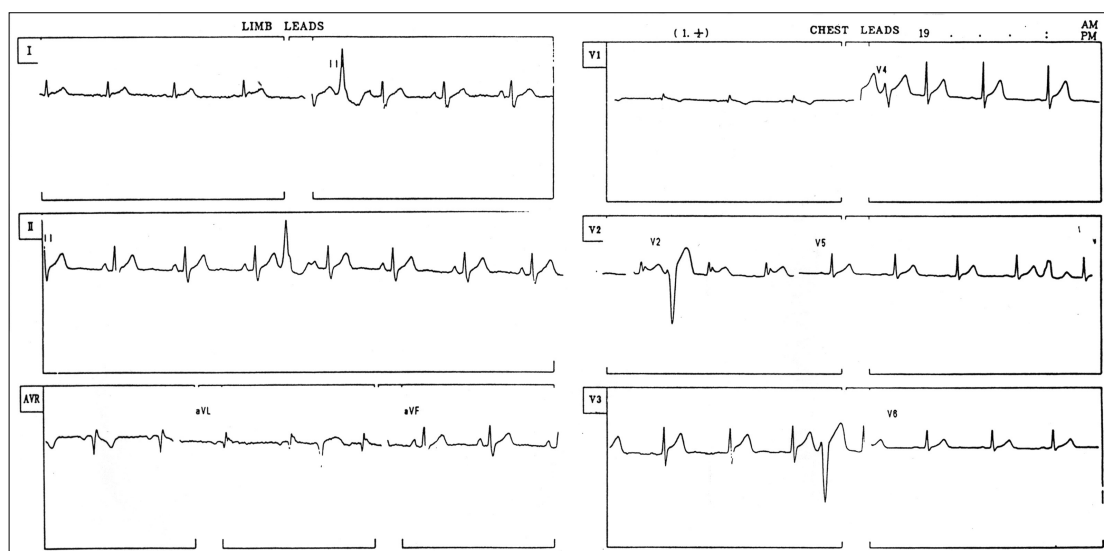


Fig. 1. Resting electrocardiogram in the patient.



Fig. 2. Ventricular fibrillation recorded during Holter monitoring.

240/220 ms) eter) R wave 14.6 mV, threshold 0.6 V(0.05 msec), (impedance) 754 . T wave shock

: 3 amiodarone loading(200 mg tid) DFT 15 J

가 12 15 J 20 J

(left subclavian vein puncture) . 20 J

ICD 20 J 20 J

(pace and sensing param - (Fig. 3).

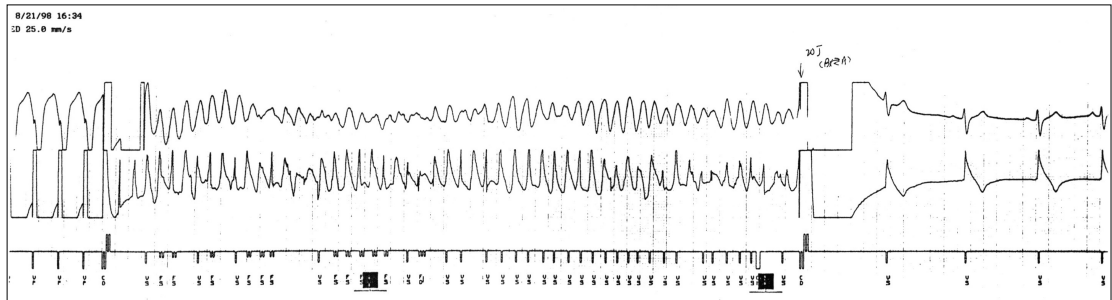


Fig. 3. Successful defibrillation with 20 J of reverse polarity.

Table 1. Result of defibrillation threshold (DFT) test

Test	Therapy	Pre-therapy rhythm	Polarity	Wave	Energy	Ohms	Comments
1	0	sinus	Ax	B	Monophasic	0.2 J	77 HV lead impedance test
2	1	VF	Ax	B	Biphasic	14 J	61 Successful
3	1	VF	Ax	B	Biphasic	15 J	Charge time : 3.48 sec
	1	VF	Ax	B	Biphasic	29.4 J	56 Unsuccessful
							Successful
							Charge time : 8.43 sec
4	1	VF	Ax	B	Biphasic	20 J	Unsuccessful
	1	VF	Ax	B	Biphasic	30 J	Successful
5	1	VF	B	Ax	Biphasic	19.5 J	57 Successful
							Charge time : 5.07 sec
6	1	VF	B	Ax	Biphasic	19.5J	57 Successful
							Charge time : 5.14 sec
7	1	VF	B	Ax	Biphasic	20 J	62 Successful
							Charge time : 3.84sec

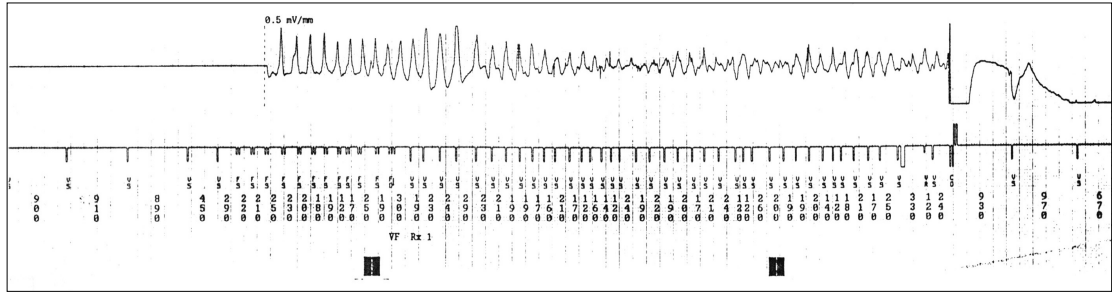


Fig. 4. Successful defibrillation of spontaneous ventricular fibrillation 17 days after the implantation of an ICD.

(Table 1). 가
8 5 (cardi - ac arrest) (sudden cardiac death)

(Fig. 4).

고 안 가 ()
가 가 가

ICD 가⁴⁾⁵⁾ T - wave shock(0.2 to 2 J shock in the vulnerable period of the T wave)

ICD 1960 DFT

1980 Mirowski shock energy 20 J

ICD high energy shocks step - down protocol(20 J, 15 J, 10 J, 5 J, 3 J) 가

ICD 가 (DFT)

(pulse generator) (lead electrode) 5 J DFT가

ICD (20 J) shock polarity 20 J

patch lead (epi - second lead(SVC

cardium) (pericardium)) subcutaneous patch electrode

DFT 2

5% 20 J(2S method)

1990 non - thoracotomy transven - DFT

ous approach가 ICD가

1%^{1 - 3)6)7)} 가

ICD biphasic waveform shocks 가

monophasic waveform shocks 1980 가

monophasic waveform shocks 5

1990 biphasic waveform shocks

DFT가^{8 - 10)} X - ray 가

devices (AID : automatic implantable defibril -
lator, AID - B, AID - BR) 가¹¹⁾

antitachycardial ICD 1)

pacing back - up bradycardia pacing , 2) (rate of re -

QRS synchronized DC cardiove - cument VT) , 3)

rsion 가 DFT

. ICD 250 280 gm 75 gm 가 ICD 가

⁵⁾ amiodarone DFT

ICD DFT class I_B lidocaine

DFT mexiletine, class I_C flecainide moricizine,

가 shock energy . joule propafenone propranolol verapamil

DFT class I_A

DFT joule DFT

sotalol DFT

ICD 가 . DFT , , , , , QRS ,

(nitrous oxide, isofluran) ,

(conscious sedation) (fentanyl, mida -
zolam) .¹²⁾ Khalighi¹¹⁾ 119 DFT

external cardioverter defibrillator DFT가 amiodarone ,

, , ,

QRS , cardiothoracic ratio
 가 , , LA
 가 가 . Brooks
 13) two lead system
 가, (gender)
 , QRS ,
 . DFT
 amioda -
 rone DFT가 가
 . (subcutaneous pocket)
 가
 DFT가
 (pocket DFT가 DFT가).
 중심 단어 :

REFERENCES

- 1) Mirowski M, Mower MM, Staewen WS, Tabatznik B, Mendeloff A. Standby automatic defibrillator: An approach to prevention of sudden coronary death. *Arch Intern Med* 1970;126:158-61.
- 2) Mirowski M, Reid PR, Mower MM, Watkins L, Gott VL, Schauble JF, et al. Termination of malignant ventricular arrhythmias with an implanted automatic defibrillator in human being. *N Engl J Med* 1980;303:322-4.
- 3) Trappe HJ. The Modern Implantable Cardioverter-Defibrillator: Comparing It to Those of the Late 1980s. *Am J Cardiol* 1990;78 (5A):3-8.
- 4) Link MS, Costeas XF, Griffith JL, Colburn CD, Mark E NA, Wang PJ. High incidence of appropriate Implantable Cardioverter-Defibrillator therapy in patients with syncope of unknown etiology and inducible ventricular arrhythmias. *Am J Coll Cardiol* 1977;29:370-5.
- 5) Aronow WS. Treatment of ventricular arrhythmias in older adults. *J Am Geriatr Soc* 1995;43:688-95.
- 6) Klein H, Auricchio A, Huvelle E, Nisam S. Initial clinical experience with a new down-sized Implantable Cardioverter-Defibrillator. *Am J Cardiol* 1996;78 (5A):9-14.
- 7) Kennergren C. Impact of implant techniques on Complications with current Implantable Cardioverter-Defibrillator systems. *Am J Cardiol* 1996;78:15-20.
- 8) Wyse DG, Kavanagh KM, Gillis AN, Mitchell LB, Buff HJ, Sheldon RS, et al. Comparison of biphasic and monophasic shocks for defibrillation using a nonthoracotomy system. *Am J Cardiol* 1993;71:197-202.
- 9) Jordaens L, Vertongen P, Provenier F, Trouerbach JW, Poelaert J, Herregods L. A new transvenous internal cardioverter-defibrillator: Implantation technique, complications, and short-term follow-up. *Am Heart J* 1995;129:251-8.
- 10) Porterfield JG, Porterfield LM, Levine JH, Luceri RM, Hsia MM. Compatibility of a nonthoracotomy lead system with a biphasic implantable cardioverter-defibrillator. *Am J Cardiol* 1996;77:586-90.
- 11) Khalighi K, Daly B, Leino EV, Shorofsky SR, Kavesh NG, Peter RW, et al. Clinical predictors of transvenous defibrillation energy requirement. *Am J Cardiol* 1997;79:150-3.
- 12) Anderson JL, Karagounis LA, Roskelly M, Osborn JS, Horndraha D. Effect of prophylactic antiarrhythmic therapy on time to implantable cardioverter-defibrillator discharge in patient with ventricular tachyarrhythmia. *Am J Cardiol* 1997;73:683-7.
- 13) Brooks R, Garan H, Torchiana D, Vahakes GJ, Jackson G, Newell J, et al. Determinants of successful nonthoracotomy cardioverter-defibrillator implantation: Experience in 101 patients using two different lead systems. *J Am Coll Cardiol* 1993;22:1835-42.