내가 선택한 치료, 과연 옳았나?

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ACC/AHA/HRS 2008 Guidelines for Device-Based Therapy of Cardiac Rhythm Abnormalities

CLASS I

1. ICD therapy is indicated in patients who are survivors of cardiac arrest due to VF or hemodynamically unstable sustained VT after evaluation to define the cause of the event and to exclude any completely reversible causes. *(Level of Evidence: A) (16,319–324)*

2. ICD therapy is indicated in patients with structural heart disease and spontaneous sustained VT, whether hemodynamically stable or unstable. *(Level of Evidence: B) (16,319–324)*

3. ICD therapy is indicated in patients with syncope of undetermined origin with clinically relevant, hemodynamically significant sustained VT or VF induced at electrophysiological study. *(Level of Evidence: B) (16,322)*

4. ICD therapy is indicated in patients with LVEF less than or equal to 35% due to prior MI who are at least 40 days post-MI and are in NYHA functional Class II or III. *(Level of Evidence: A) (16,333)*

5. ICD therapy is indicated in patients with nonischemic DCM who have an LVEF less than or equal to 35% and who are in NYHA functional Class II or III. *(Level of Evidence: B) (16,333,369,379)*

6. ICD therapy is indicated in patients with LV dysfunction due to prior MI who are at least 40 days post-MI, have an LVEF less than or equal to 30%, and are in NYHA functional Class I. *(Level of Evidence: A) (16,332)*

7. ICD therapy is indicated in patients with nonsustained VT due to prior MI, LVEF less than or equal to 40%, and inducible VF or sustained VT at electrophysiological study. *(Level of Evidence: B) (16,327,329*
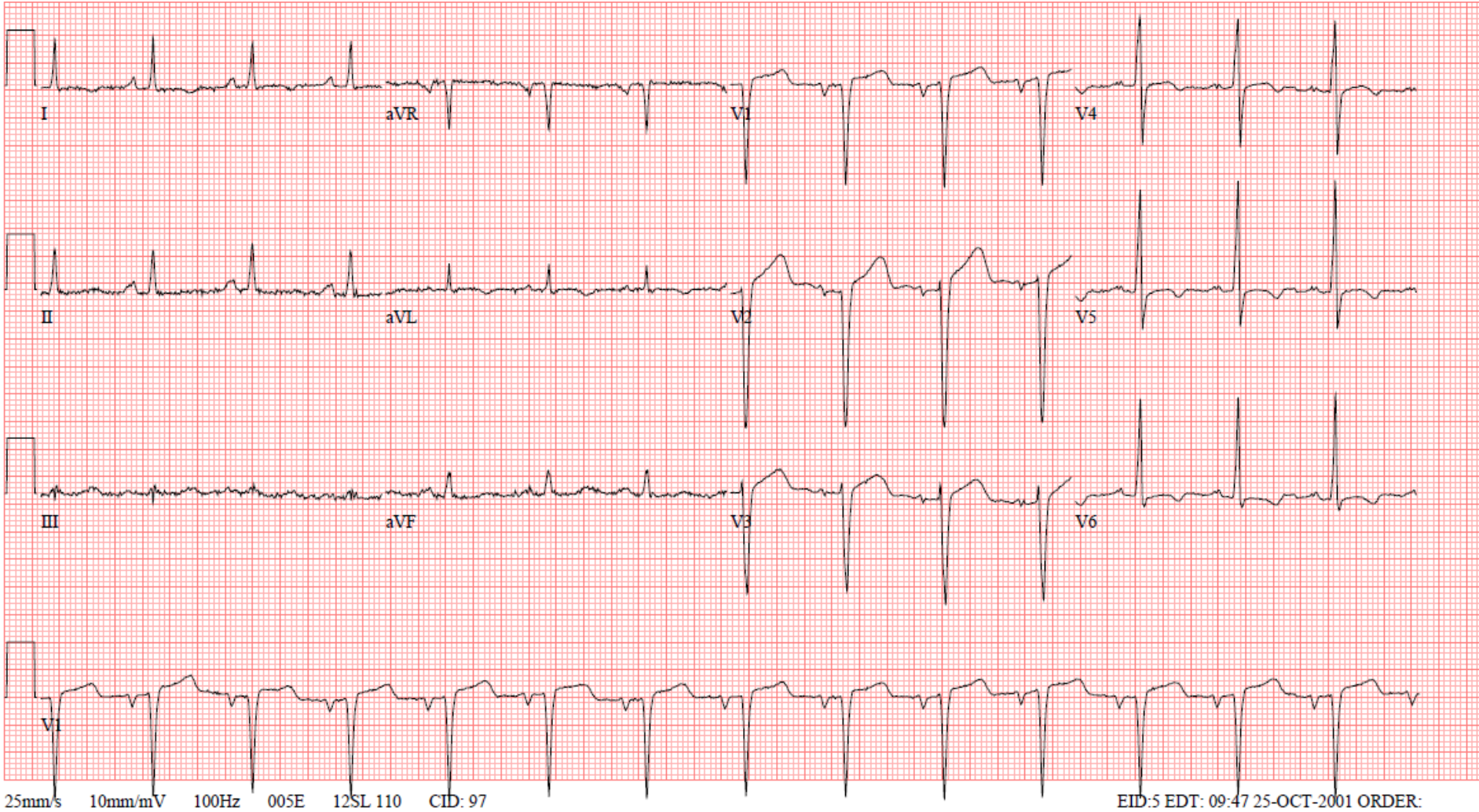
Case 1

- Sex/age: M/74

- Chief complaint: chilling sense (2009-11)

- Past History
  - DM: insulin injection since 1998
  - Stenting at RCA (2001-10)
  - Dilated cadiomyopathy (EF: 30%, 2001-10)
  - Hospitarizations for Congestive Heart Failure with acute exacerbation
  - Low EF (23%) and sustained ventricular tachycardia: ICD implantation (2007-10)
  - T11 compression fracture (2008-10-16): kyphoplasty (at pain clinic)
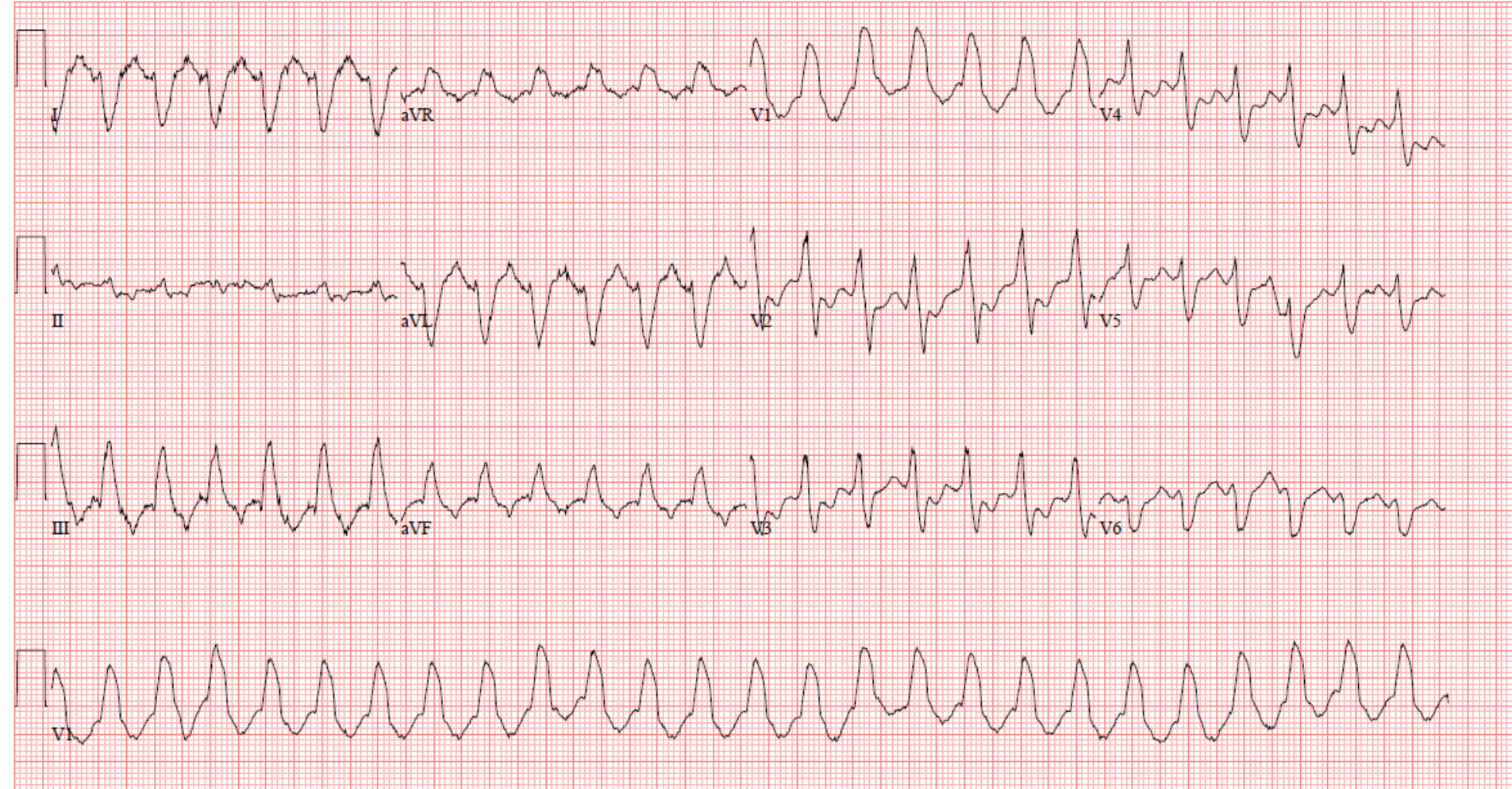
Laboratory Findings

WBC	**23.2**	**×10³/µℓ**
RBC	3.61	X10*6/ul
Hb	12.4	g/dl
Hct	36.0	%
MCV	99.8	fL
MCH	34.4	pg
MCHC	34.5	g/dl
RDW	15.3	%
PLT	**97**	**X10³/ul**
MPV	8.6	fL
ESR	**43**	**mm/hr**
Neutrophil	89.8	%
Lympho	3.7	%
Monocyte	6.0	%
Eosinophil	0.3	%
Basophil	0.2	%

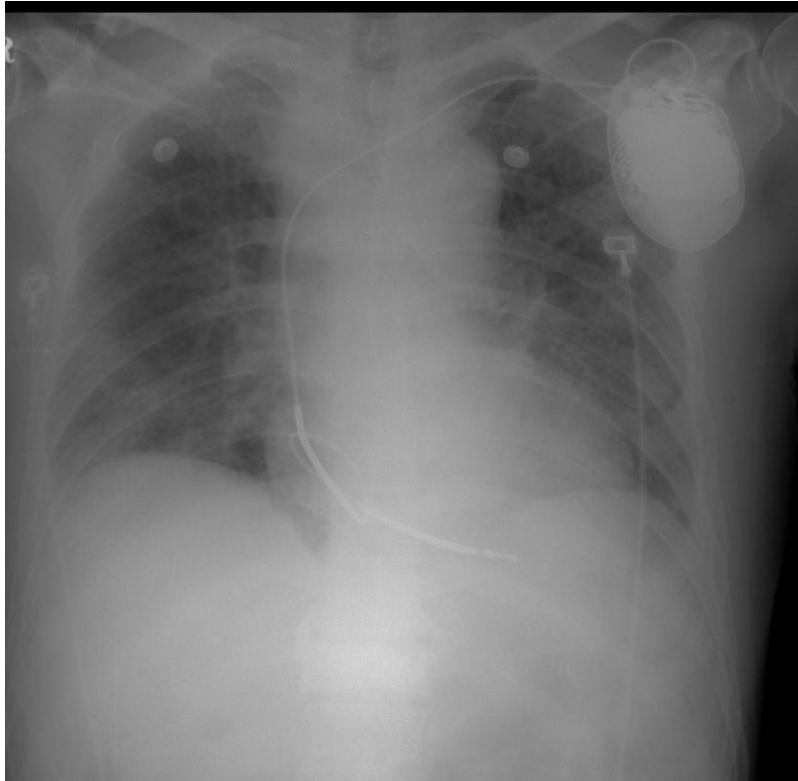|		
Glucose	**488**	**mg/dl**
BUN	41.9	mg/dl
Creatinine	**2.4**	**mg/dl**
Na	132	mMol/L
K	3.9	mMol/L
Cl	98	mMol/L
CO2	23	mMol/L
Ca	8.3	mg/dl
T.Bil	0.9	mg/dl
Alk.Phos	87	U/L
ALT(GPT)	22	U/L
AST(GOT)	26	U/L
CK	56	U/L
CK-MB	1.7	ug/L
Troponin T	0.05	ng/ml
T.Cholesterol	81	mg/dl
CRP	**3.27**	**mg/dl**

Electrocardiogram (2001. 10.)

I aVR V1 V4
II aVL V2 V5
III aVF V3 V6
V1

25mm/s   10mm/mV   100Hz   005E   12SL 110   CID: 97   EID:5 EDT: 09:47 25-OCT-2001 ORDER:
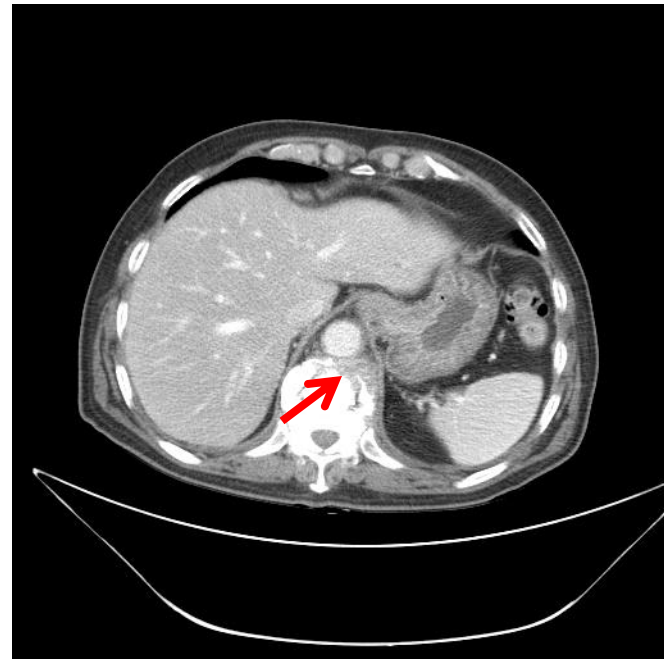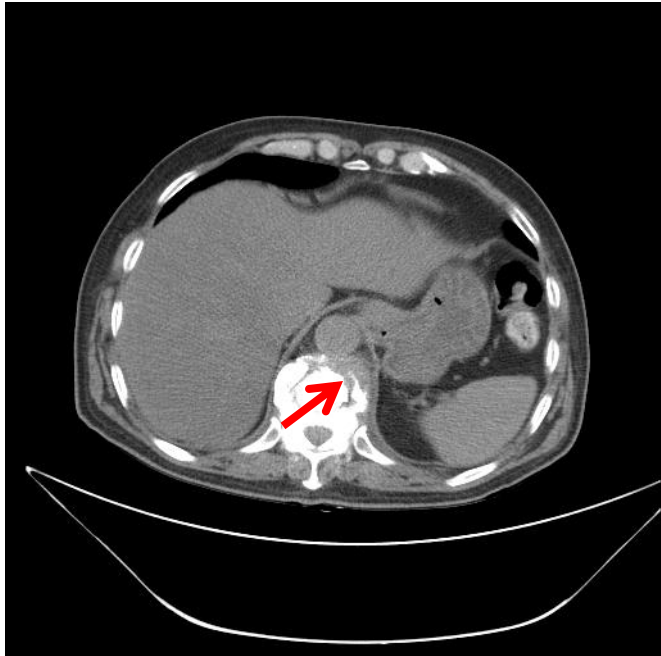
Electrocardiogram (2007. 10.)

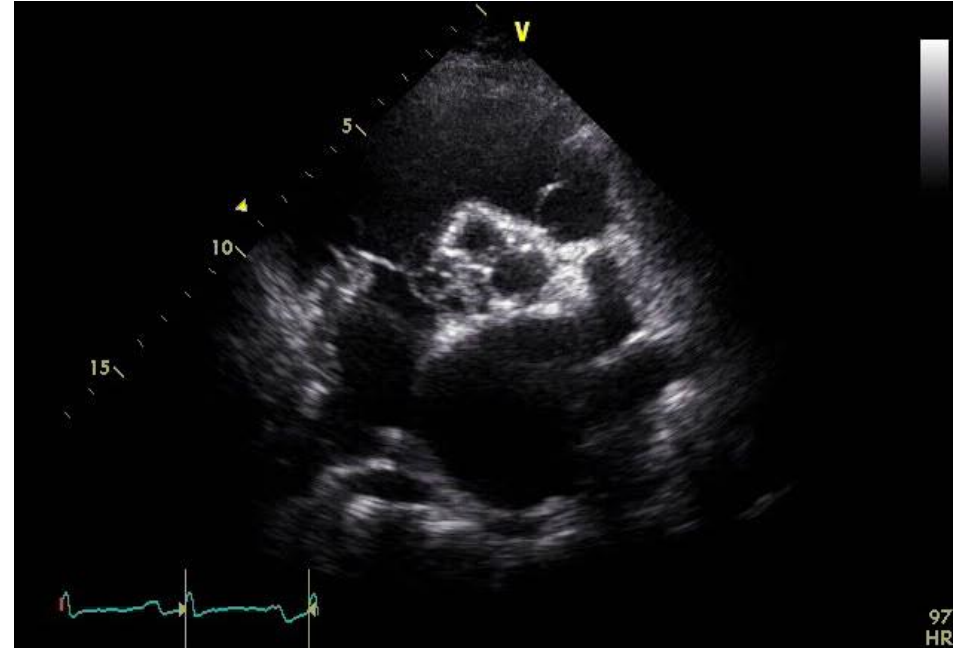# Chest AP & Lt. LAT (2009. 12)

T-L Spine AP & LAT (2009. 12)
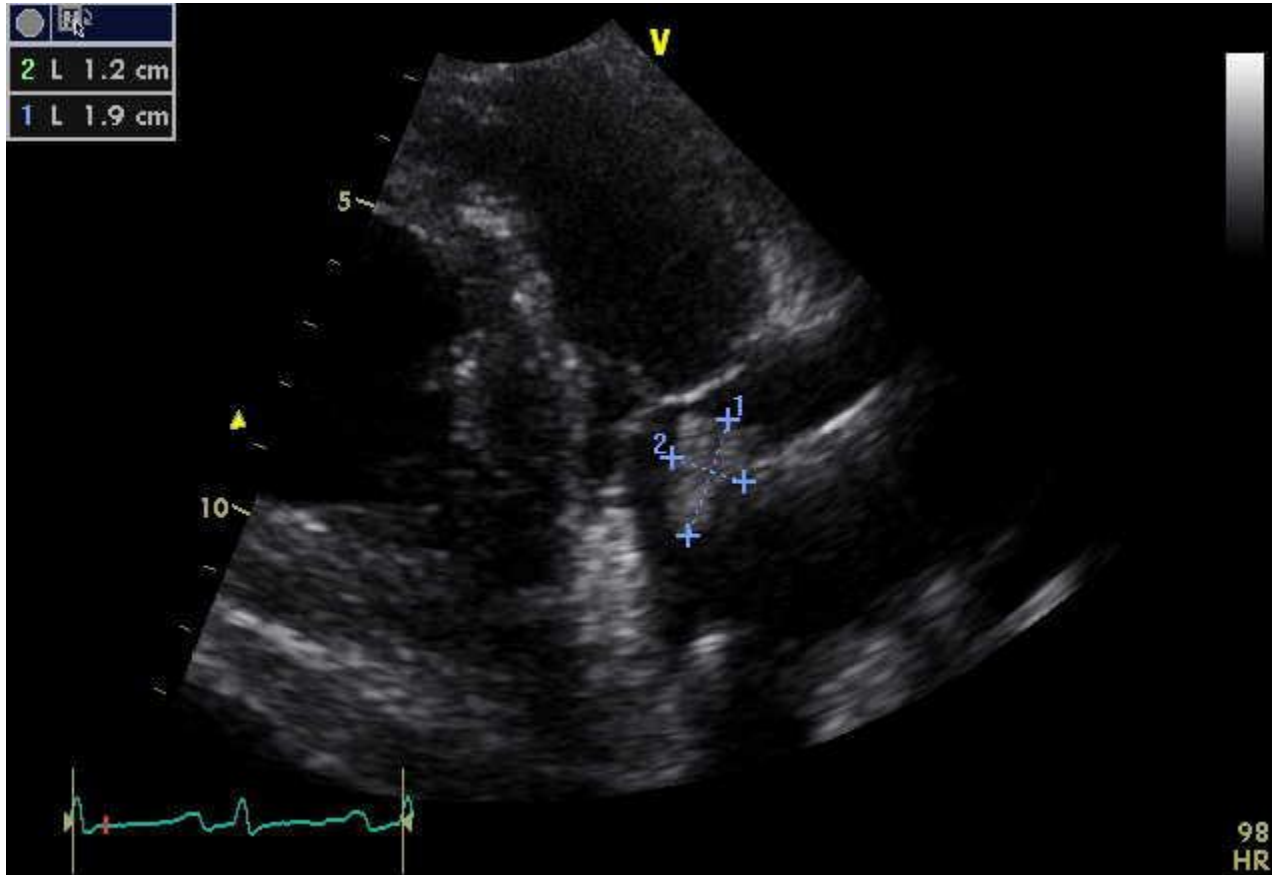
Paravertebral Abscess (2009. 12)

Transthorasic Echocardiogram

Infective Endocarditis (IE)

Progression

2007.10   2008.10   2009.12   2010.1.15   2010.2.17

 # HF
DCMP
EF 23%
VT
→ ICD
implantation

 # T11 fx
Kyphoplasty

 # spinal abscess
Paravertebral
abscess,
Septicemia→
2009.1.5 I&D (NS)

EF 55%

**# infective
endocarditis**
EF 30%

 # expire

Case 2

- Sex/age: F/50

- Chief complaint: mental change (2009-11)

- Past History

  - DM, CRF, HTN

  - DCMP (EF 30%, normal coronary artery, 2007)

  - 2008-01: sudden cardiac death with CPR - syncope (2 times)

  - 2008-02: ICD implantation

  - Encephalocele (2009-6, brain CT): steroid pulse tx

Laboratory data (09/7/4)

Hb 10.3 g/dl
Hct 31.0 %
WBC 18300
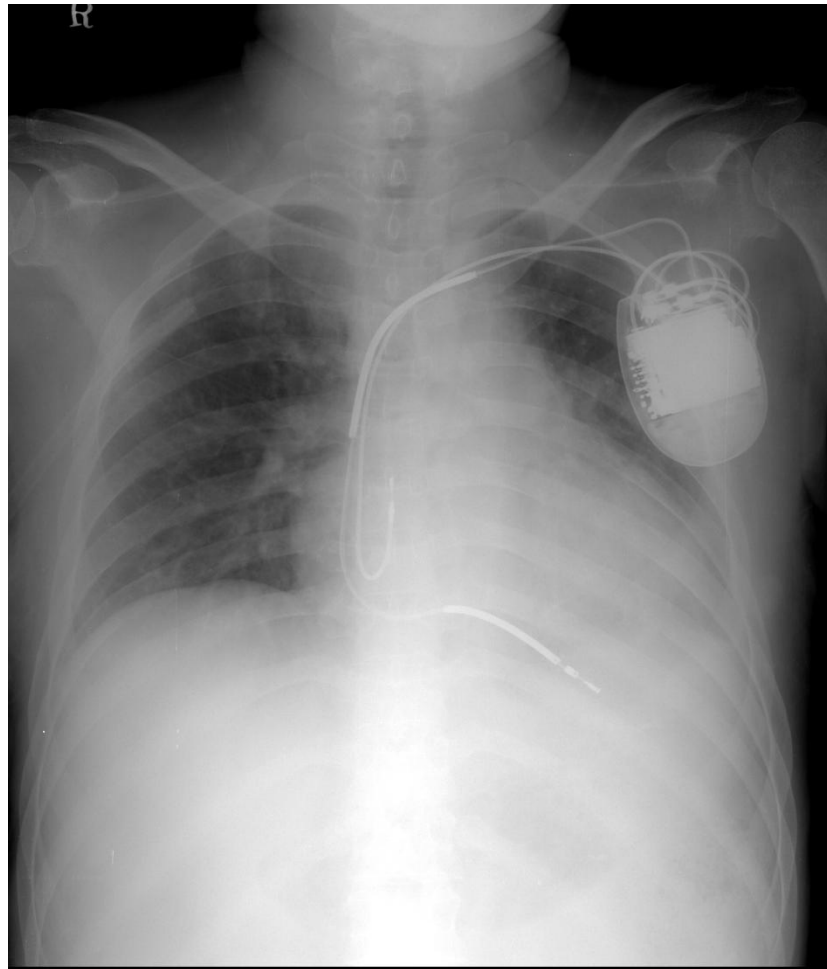PLT 280,000
ESR 21 mm/hr
CRP 0.87
CK 106 U/L
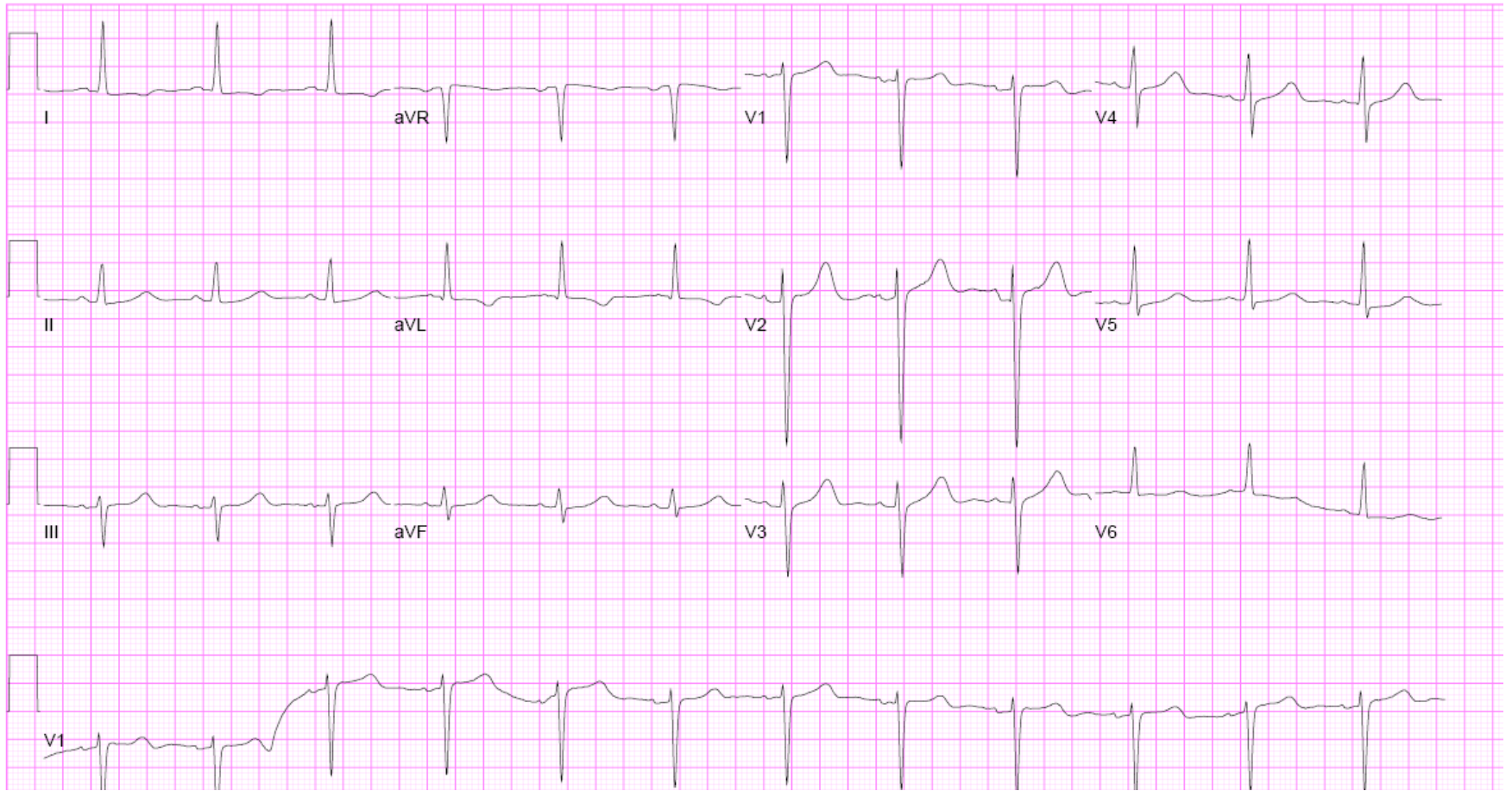CK-MB 9.9 ug/L
Tn T 0.36ng/ml
BUN/Cr 61.1/3.0 mg/dl
Na/K/Cl/CO2 136/3.7/100/20 mMol/L

Chest AP (09/07/04)

Electrocardiogram (09/07/04)
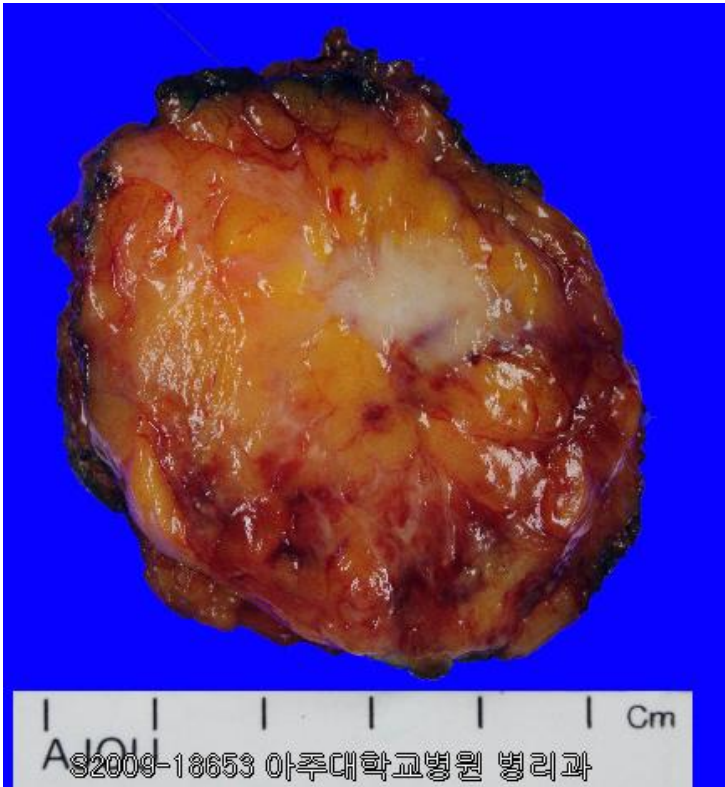
Brain CT

09/07/04 ER

09/07/05 post op

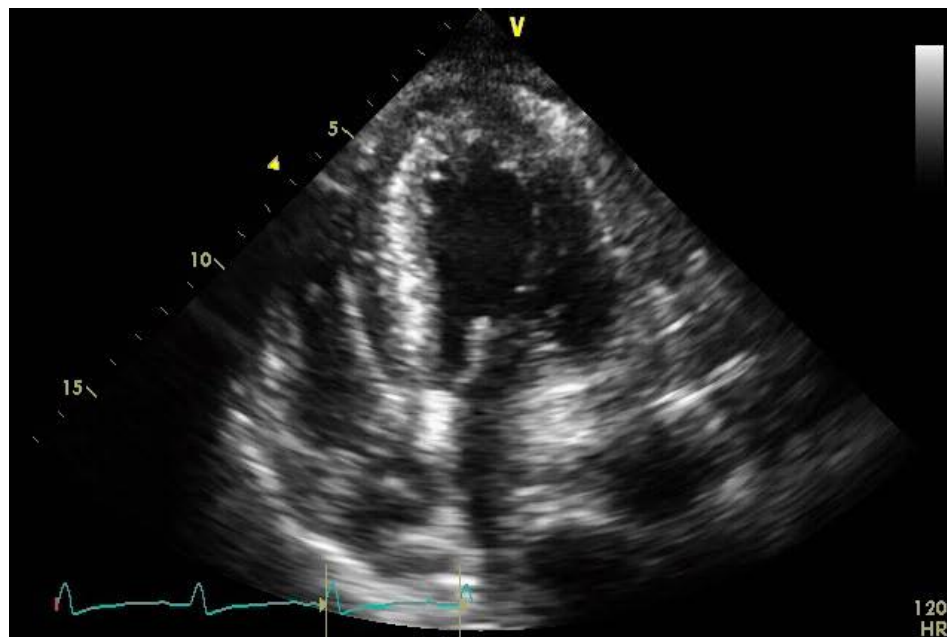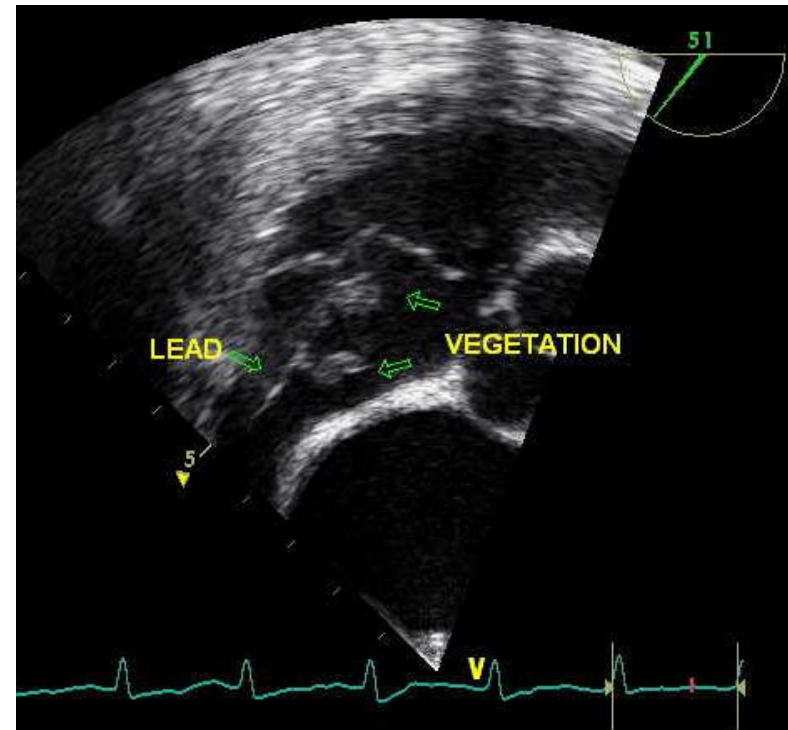# Mycotic Aneurysm

Blood vessel, cerebrum, excision: Thrombosis with inflammatory exudate and fungal hyphae-like structure, suspicious of aspergillosis

Transthorasic Echocardiogram

Transesophageal Echocardiogram

Progress

- DCMP (EF 30%, normal coronary artery, 2007)

- 2008-01: sudden cardiac death with CPR - syncope (2 times)

- 2008-02: ICD implantation

- 2008-04-19 : CHF (aggravation)

- 2009-03-09 : CHF (aggravation)

- 2009-06-09 : ethmoid encephalocele, Steroid pulse tx

- 2009-07-05 Mental change-SAH c mycotic aneurysm

- 2009-07-12 : Expired

Let's think through---

- Patients with type II DM have significantly higher prevalence of infective endocarditis (IE) independent of renal failure or valvular abnormalities consistent with increased vulnerability of DM patients for infections

<div align="right">J Diabetes Complications. 2007 Nov-Dec;21(6):403-6</div>

- The overall proportion of hemodialysis (HD) patients in sample of 329 IE patients was as high as 20%

<div align="right">Arch Intern Med 2002; 162: 90–94</div>

- IE in HD patients has a poor prognosis, as illustrated by in-hospital and 1 year death rates ranging from 25 to 45% and 46 to 75%,

<div align="right">Mayo Clin Proc 2000; 75: 1008–1014
Am J Med Sci 2002; 324: 254–260
Kidney Int 2003; 64: 720–777</div>

Let's think through---

- The patients in device trials have generally had an average age less than 65 years and little comorbidity

- In contrast, the average patient hospitalized with heart failure and low LVEF is 75 years old with 2 comorbidities

- 10% of deaths in heart failure population could be attributed to presumed SCD in patients living Independently

Am Heart J. 2007;154:260–6.

- After 3 hospitalizations for heart failure in a community population, median survival declines to 1 year and would be prolonged by only 0.3 years even if all presumed SCDs were prevented

Ann Intern Med. 2004;141:835– 8.

Let's think through---

"**Decisions to implant device require not only evidence of clinical benefit demonstrated in randomized clinical trials but also estimates of life expectancy, consideration of comorbidities and procedural risk, and patient preferences.**"