

CT

:

1

CT

23%

가

2

(generalized tonic type seizure)

30

130/90 mmHg

108/80 mmHg

70

(1).

100 가

가

CT가 가

PaO2 100 mmHg

76 mmHg

CT

150 mL

(Figs. 1A, 1B)

CT 11.3 - 23%

3

CT

2

가

(1, 2).

(3 - 5)

가

2

20

CT

(Fig. 2A, 2B).

CT

CT

(bezoar)

2

8

CT

CT

150 mL

90 mL/

가

CT

20

1

46

가

가

CT

150 mL

90 mL/

CT

: CT

(4, 5).

(air hunger), (right to left shunt)

(1-5). 가 (2).

100 mL 가
200 mL 가 70-100 mL
(1, 3).

CT Woodring
(1) CT 100

23 (23%) , Groell (2)
677 79 (11.3%)

(1)
(2) 가

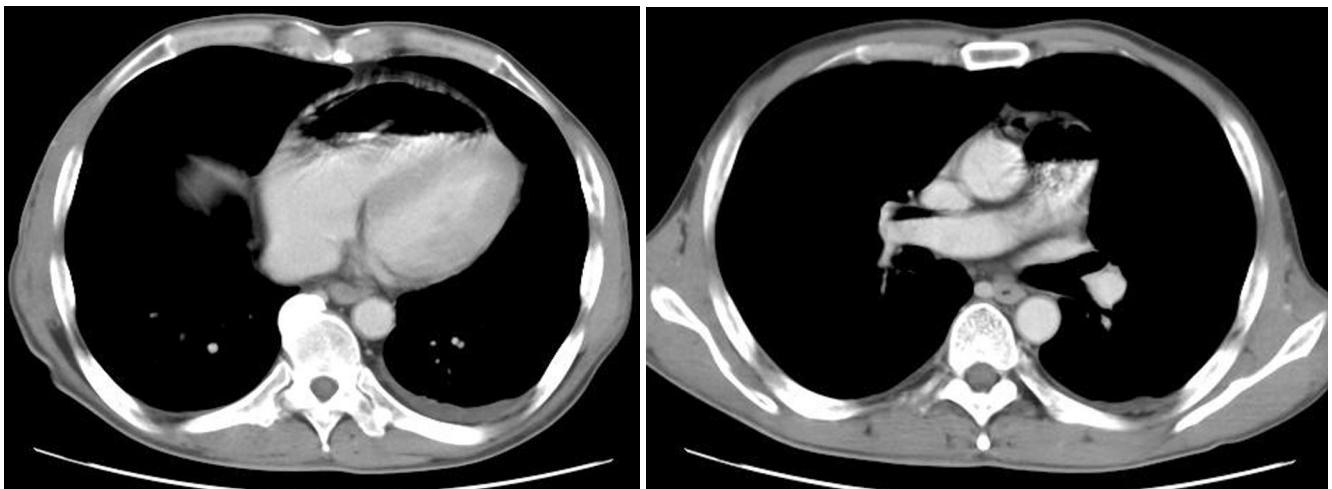


Fig. 1. A. CT scan obtained after intravenous contrast injection shows large quantity of air and a air-fluid level within right ventricle.
B. CT scan of pulmonary artery level demonstrates an air-blood level in the main and Rt pulmonary artery.

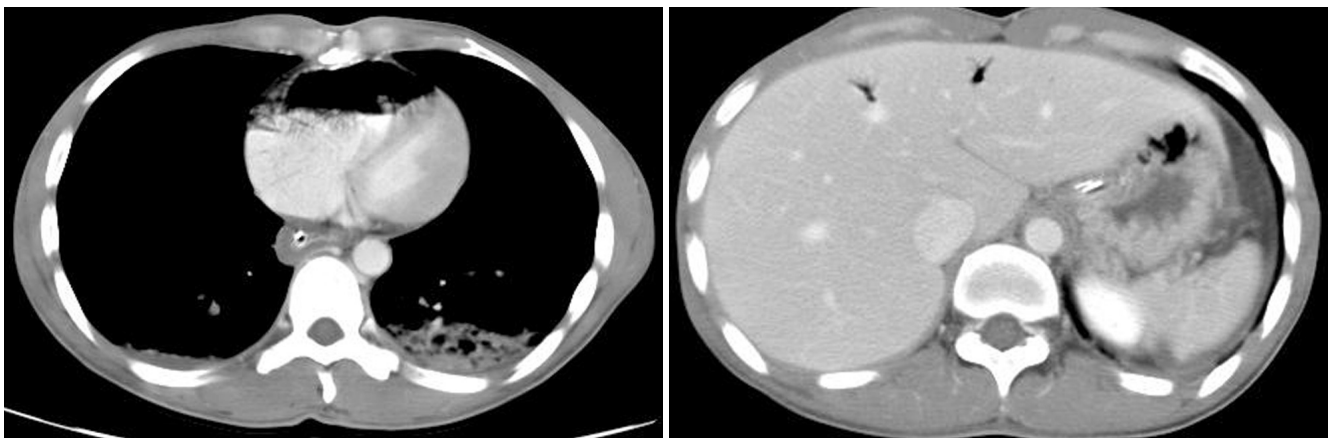


Fig. 2. A. CT scan obtained after intravenous contrast injection shows large quantity of air near completely replacing blood within right ventricle.
B. Small air bubbles are noted within hepatic veins at the most nondependent area of vessels owing to the buoyance of air.

Groell

(injector) , CT (1 - 4).
 가 (2). 가 가 . 가 가
 . Imai (6) , 가
 100 mL 1 가
 Price (3) 가 가 (2).
 (pressurized drip infusion) CT
 . Price 5 가 가
 가 가 2 가
 가 가 CT 가
 가 가 CT
 150 mL 가 1 가 .
 (air lock)

(pulmonary outflow tract
 obstruction)

(closed chest compression)

. 5 가
 가

(4). 가

1. Woodring JH, Fried AM. Nonfetal venous air embolism after contrast-enhanced CT. *Radiology* 1988;167:405-407
2. Groell R, Schaffler GJ, Rienmueller R, Kern R. Vascular air embolism: location, frequency, and cause on electron-beam CT studies of the chest. *Radiology* 1997;202:459-462
3. Price DB, Nardi P, Teitcher J. Venous air embolization as a complication of pressure injection of contrast media: CT findings. *J Comput Assist Tomogr* 1987;11:294-295
4. Ie SR, Rozans MH, Szerlip HM. Air embolism after intravenous injection of contrast material. *South Med J* 1999;92:930-933
5. Orebaugh SL. venous air embolism: clinical and experimental considerations. *Crit Care Med* 1992;20:1169-1177
6. Imai S, Tamada T, Gyoten M, Yamashita T, Kajihara Y. Iatrogenic venous air embolism caused by CT inductor-from a risk management point of view. *Radiat Med* 2004;22:269-271

Massive Intraventricular Air Embolism after Contrast-enhanced CT: Report of Two Cases¹

Heon Lee, M.D.

¹*Department of Diagnostic Radiology, Seoul Medical Center*

Venous air embolism, although considered as a rare condition, it occurs more frequently than it is recognized. Air embolism has been reported to occur after contrast-enhanced CT examination in up to 23% of patients. Because these emboli are usually small to moderate size and they are venous, the patients are usually asymptomatic. However, a large amount of intravenous air can cause disastrous consequences and it can be fatal. The author reports here on 2 cases of symptomatic massive intraventricular air embolism after contrast enhanced CT with a brief review of the pathophysiology and the recommended treatment of air embolization.

Index words : Embolism

Computed tomography (CT), contrast media

Computed tomography (CT), contrast enhancement

Address reprint requests to : Heon Lee, M.D., Department of Diagnostic Radiology, Seoul Medical Center
171-1 Samsung-dong, Gangnam-gu, Seoul, Korea.
Tel. 82-2-3430-0384 Fax. 82-2-564-2960 E-mail: acarad@dreamwiz.com