

Abstract

Pneumonitis by Methylene Chloride

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Objectives: The authors report a case of pneumonitis caused by methylene chloride (MC).

Methods: The patient was examined and diagnosed by clinical, radiologic, laboratorial and medical evaluation. The concentration of MC in the factory was measured to determine the exposure level.

Results: The patient had an infiltration in chest X-ray, which underwent rapid relief of radiological finding, respiratory acidosis and hypoxemia in arterial blood gas analysis, and a ground-glass opacity in high resolution computerized tomography. MC was the only exposed chemical compound in this case. The concentration of MC was 39.9 ppm in the factory.

Conclusions: We diagnosed this to be a case of pneumonitis by MC based on clinical laboratory findings, exposure history to MC and MC concentration in the factory.

Key Words: Pneumonitis, Methylene Chloride, HRCT

2 ~ 4
13
(methylene chloride)
500 ppm
(dichloromethane) 1 ~ 2 COHb (carboxyhemoglobin)
(ATSDR, 2000;
가 가 Baxter et al, 2000),
CH₂Cl₂, CAS 75-09-2,
39.75℃ 24℃
400 mmHg
(ATSDR, 2000; Baxter et al, 2000). (MSDS, 2004).
가 (Winek et al, 1981; Manno et al, 1992).
가 70 ~ 75%가

(Winek et al, 1981). 가 (Bakinson & Jones, 1985), 가 (Anundi et al, 1993). 1996 Kim (1996a)

가 가 , , , 가 23 가 2003 11 6 5 , 1

11 . 140/100 mmHg, 84 / , 24 / 3 mm ,

가 2~3 3 5 3~4 3 . 1. 2 5 가 . 가 .

(Fig. 1). 2 가 가 5 (Fig. 2) 8 (3) (High Resolution Computerized Tomography, HRCT)



Fig. 1. Chest radiography shows infiltration in right upper and left lung. (1st day)



Fig. 2. Chest radiography shows normal finding. (5th day)

가(ground-glass opacity)
(Fig. 3), 2
(Fig. 4).

pH 7.22, pCO₂
56.0 mmHg, pO₂ 43.0 mmHg, HCO₃ 22.5 mmol/l,
SaO₂ 68.9%

2 pH 7.47, pCO₂ 34.8
mmHg, pO₂ 130.0 mmHg, HCO₃ 24.9 mmol/l,
SaO₂ 98.8%

3 2 5

(Table 1).

(Pulmonary Function

Test, PFT)

1
1.76 mg/dL, 가 13,300 /mm³
가

II, III, aVF Q
V2~5 ST

CK-MB 0.1 ng/ml, Troponin I 0.01 ng/ml,
COHb 1.0%

가 1 1~2
2~3

7



Fig. 3. High resolution computerized tomography shows ground-glass opacity pattern. (8th day)



Fig. 4. High resolution computerized tomography shows normal lung field. (after 2 months)

Table 1. Serial results of arterial blood gas analysis

	pH	pCO ₂ (mmHg)	pO ₂ (mmHg)	HCO ₃ (mmol/l)	SaO ₂ (%)
1st day	7.22	56	43	22.5	68.9
2nd day	7.47	34.8	130	24.9	98.8
3rd day	7.48	34.6	148	25.2	99.1
5th day	7.41	40.1	137.8	25.0	98.8

2 (The Minnesota Multiphasic Personality Inventory, MMPI, 1943)

2. 가

150 가

1 1~2 , 1 30 2 6 (Kim et al, 1995).

200 kg 7 7 (Girard et al, 2004).

2 90% 50% 가 3 가 (Kim et al, 2002).

m 12 m² 가 (Girard et al, 2004).

1~2 m 5 가 가 가 (Hartman, 2003; Mohr, 2004). Snyder (1992a, 1992b)

2 1 1~2 1 3 25 22 39.9 ppm, 10.5 ppm

11 12.5 ppm 39.9 ppm (American Conference of Governmental Industrial Hygienist, ACGIH) 50 ppm (Occupational Safety and Health Administration, OSHA) 가 (TLV-TWA) PEL (permissible exposure levels) 25 ppm (pneumonitis) (Sullivan & Krieger, 1992) (Reynolds, 1982),

가

.

가

COHb

가

:

:

가,

가

:

,

가

(pneumonitis)

가

가

39.9 ppm

:

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