

Abstract

**Two Cases of Anosmia Suspected to be Caused by
Chronic Chlorine Exposure in Cleansing Works**

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Objectives: We report two cases of anosmia that were suspected to be caused by chronic chlorine exposure in cleansing works

Methods: We examined the cases in order to assess the work-relatedness of their anosmia. We conducted olfactory threshold test and olfactory perception test repeatedly at one-month intervals. Using ion chromatography, we analyzed the detergent that the workers had been using for several years before their olfactory function decreased.

Results: A 59-year-old male who had worked in a cleansing process for 10 years (1983-1993) and a 58-year-old female who had worked in the same process for 8 years (1987-1995) were diagnosed with anosmia. The cause of the anosmia was presumed to have been the chlorine gas that was generated from the process of heating the detergent-dissolved water, in which chloride was detected.

Conclusions: This is the first report on anosmia due to chronic chlorine exposure. Greater attention needs to be focused on the prevention of anosmia because there are many workers who have been exposed to chlorine gas in chlorine treating and generating processes.

Key Words: Anosmia, Chlorine, Detergents

가 . (Rose et al., 1992), (Guidotti, 1994), (Prudhomme et al., 1998), (Benjamin et al., 1997) .

Corwin (1995)

2

가 .

1. 1

가

: , , 59

2

:

: 1973 8

, 1983 1993

가

:

1993

. 1993 ,

2003 11 ,

, 2004 4 ,

가

가

0

1, 1,

2

3.

가

:

1987

1995

가

3

, 30

가

가

1

:

,

,

가

,

1987

1995

0, 0,

0

가

가

2. 2

: , , 58

가

:

: 1977 9

가 가

8

60

, 1987

가

1990

, 1993

(10 Kg)

2004 4 ,

(1)

가

Sodium Gluconate(>5%), Ethylene Di

Amine Tetra Acetic Acid(>5%), Polyoxyethylene Lauryl Ether(>10%), Cocofatty Acid diethanol amide(>10%), Iso Thiazolone(>1%),

, 2004 12 ,

2000 가 , 가 가 가 가 가 가 가 1993 가 2000 가 2000 2003 가 (NaOH) 0.3856 ppm, 0.0063 ppm 가 2 Dionex 0.5 g 200 ml (Ion Chromatography) 0.687 ppm

가 가 가 가 가 가 (olfactory epithelium) 5~10 cm² 가 (Bowman's gland) 가 10 0.5~1 ml가 (odorants) (odorant binding protein) (, 1997). 가 (olfactory receptor neuron) (apical pole) (basal pole) (olfactory bulb) 가 (olfactory tract) (amygdala) (Ahn et al., 2004).



Process 1 (Soaking)



Process 2 (Washing)

Fig. 1. Washing process of machine parts.

. Benjamin (1997)

Connecticut chemosensory clinical research center(CCCRC)

가 . CCCRC 1988 Cain

4%

0 3
13

, 8 9

, 1997).

1 2

가

가 (vestibulitis)
(metaplasia)가

(eosinophilic proteinaceous deposits) . Jiang
(1983) 가 가

가 (oxygen free radicals)
(Braxter et al., 2000).

가 0.2 ppm
, 3~15 ppm

가 , 15~150 ppm 5~10 가

. 400~500 ppm 30

(Braxter et al., 2000).

가 (ACGIH) 가
0.5 ppm, 1 ppm
1 ppm, 3 ppm

(, 2002).

. 가

가 1 ppm

가 50%

(Paik, 1995).

가 가
가

(Benjamin E & Pickles J, 1997)

(LaDou, 2004).

가 가

가

가 가 가

가

가

가

가

가

가

- 가
3
가
(
1995).
,
,
,
,
가
가
(Doty et al., 1986),
가
가
가
.
:
2
:
2
2
Chromatography)
: 10
58
가
:
가
가
가
.
(2002-
- 8). 2002. pp 58-9.
. 1997. pp 51-7.
. 1995. 5 . pp 34-45.
: 1995;5(2): 23-40.
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