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Accidental consumption of mercury by 3 year-old child - case report

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Abstract

Consumption of mercury can be accidental or on purpose. The article presents a case of a 3 yo child's word patient after accidental consumption of mercury contained in the thermometer used to check the body temperature of body during infection.

The medical examination showed viral infection, routine laboratory diagnostic was carried out – without damaging internal organs and picture diagnostic which confirmed the presence of intensely saturated radiological shades which may correspond to mercury drops in digestive truck.

After 3 days of observation in children's ward, no signs of poisoning were found and the patient was sent home.

Despite the withdrawal from production and sale within the European Union, thermometers with mercury are still in widespread use because of lack of social awareness of the harmful effects of mercury on human body and the environment.

Key words: mercury, poisoning

Introduction

The mercury is a trace element which does not have any function in the human body. To human body most often it can get after eating for instance fish and seafood, via dental amalgam and during the incorrect use of many industrial products used in everyday life like thermometers, fluorescent lamps. [1,2]

The European Union has been targeting for the mercury to be removed from products used on daily basis. Therefore, from 2009 thermometers containing mercury were withdrawn from production and sales. They are still in use for example in the countries of the former Soviet Union, from there they often come to Poland.

Now mercury -free indicator thermometers are used. They usually contain galinstan – it is a common name for liquid metal mainly consisting of gallium, indium and tin, or electronic thermometers.

Mercury changes its physical state after being released from the thermometer from liquid to gaseous in room temperature. Mercury vapour is highly toxic to the body, they accumulate in tissues, move with mother's milk while feeding.

In the form of liquid metallic mercury is harmless, it is not absorbed from the gastrointestinal tract after oral ingestion provided that the continuity of the gastrointestinal mucous is maintained. [3]

Absorbing even a small amount of mercury into the body (like for example in mercury thermometer) most often does not cause side effects. However, in the case of mercury vapour inhalation it can result in many multi-organ complications due to the high risk of toxicity.

The effects of poisoning can be: irritability, fatigue, headache, behavioral disorders, polyneuropathy, arrhythmia, dyspnoea, pain in the chest, renal and liver dysfunction, skin erythema, stomatitis, abdominal pain, nausea, vomiting, diarrhoea, myoclonus. [3,4]

In the period of an increased number of infectious diseases the number of accidental mercury intake increases.

Case report

To the emergency department of the children's ward Provincial Hospital a 3 year-old girl was admitted after the her accidental bite of a mercury medical thermometer while measuring her body temperature due to the beginning of infection.

From the account of the child's mother ,given immediately after the event ,the visible mercury and fragments of glass from the oral cavity were removed.



Fig. 1. After examining the child laboratory tests were collected, a viewing X-ray of chest and abdomen in standing position was ordered.

At the time of examination of the child in the emergency department of the children's ward by doctor on duty, child was in good general condition, efficient respiratorily and circulatorily, with features of upper respiratory tract infection- bloodshot throat and scarifical tonsils and fever 38,6 degree of Celsius.

Auscultated symmetrical symphonic vesicular murmur, heart rate about 100 /per minute, abdomen soft, painless without pathological resistance; Chełmonski's syndrome and Goldflamm's syndrome are negative on both sides, oral mucous pink without mechanical damage.

In the interview, the tendency for constipation. Not treated chronically. Vaccinated according to the vaccination schedule.

After examining the child laboratory tests were collected, a viewing X-ray of chest and abdomen in standing position was ordered. (Fig. 1).

The child was observed in the hospital.

Laboratory tests revealed the characteristics of a viral infection.

X-ray showed, near the upper and in the middle part of abdomen, two clusters of intensely saturated shadows that may have been the drops of mercury in gastrointestinal tract.

Symptomatic treatment of the infection were started and drugs that accelerate gastrointestinal motility were used to speed up the elimination of mercury from the gastrointestinal tract.

In the following hours of hospitalization no disturbing symptoms of gastrointestinal, respiratory system, nervous system were observed. The child was released home on the third day after admission to the hospital, with recommendation of a medical check in case of alarming symptoms.

Discussion

A period of increased infection increases the frequency of using mercury thermometers of which, despite the withdrawal from sale in the European Union, use is still common. Public awareness of the correct use of these thermometers should be increased as well as dealing with exposure to mercury at home.

Due to its physical properties after being released from the thermometer, mercury can spread on a large area in the room. In such cases mercury drops should immediately be collected and protected in a jar with cold water. Do not use vacuum cleaner for this purpose. It is necessary to remove heat sources from the area, to avoid increased pairing.

The alternative methods to measure body temperature should be promoted, they are constantly being improved to reduce occurrence of measurement errors.

There is no justification for further use of mercury containing thermometers.

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