LETTER TO THE EDITOR

Fetal death associated with ingestion of shampoo and development of hypotension and lactic acidosis

To the Editor:

Shampoo is generally considered to be a non-toxic or mildly toxic cleaning agent which is intended for external use only to clean the hair and treat certain diseases. We report a case of shock and fetal death due to oral intake of shampoo.

A 21-year-old woman (at 27 weeks of pregnancy, weighing 55 kg) visited our emergency department due to repeated vomiting, diarrhea, and ceased fetal movements 17 h after drinking half a bottle of shampoo (about 200 ml) during altercation with her family. The shampoo was produced by Procter & Gamble Co., Ltd., located in Guangzhou, China and its brand was Head & Shoulders. The product comprises water, sodium laureth sulfate, sodium laureth sulfate, cocamide MEA, zinc carbonate, glycol distearate, cetyl alcohol, palmityl alcohol, guar hydroxypropyltrimonium chloride, magnesium sulfate, sodium benzoate, magnesium subcarbonate, ammonium laureth sulfate, pyrrithione zinc, sodium chloride, benzyl alcohol, methylchloroisothiazolinone, methylisothiazolinone, and sodium xylenesulfonate. The patient took regular prenatal care since 12 weeks after amenorrhea, and fetal development was found to be good. The last physical examination conducted 2 weeks ago showed a body weight of 56.3 kg, blood pressure of 145/80 mmHg, a heart rate of 86 bpm, and a hemoglobin content of 98 g/l.

Physical examination upon emergency department visit revealed blood pressures as 98/50 mmHg, a heart rate of 169 beats/min, temperature 36.4 °C and a respiratory rate 28 times/min. The patient was mentally clear, and her abdomen was soft, with abdominal tenderness, but without rebound tenderness or muscular tension. Fetal heart tones were not detected. Ultrasonography confirmed fetal death (fetal measurements: biparietal diameter 7.1 cm, femur length 4.6 cm). Hypovolemic shock and fetal death were taken into consideration. Gastrointestinal decompression by nasogastric tube, monitoring of vital signs, supplemental oxygen, and intravenous treatment, especially adequate rehydration, is essential to prevent hypovolemic shock. In addition, ultrasound examination detected a 27-week-old fetus. Since fetal movements ceased after severe vomiting and diarrhea, we believe that fetal death occurred after intake of shampoo. We posit the continuum involved as follows: shampoo led to the osmotic pressure rise in the gastrointestinal tract, which in turn resulted in diarrhea and vomiting. Substantial body fluid loss resulted in hypovolemic shock, leading to fetal hypoxia and death. A HIV-infected pregnant woman was found to die from acute pancreatitis and hyperlactacidemia [1]. Although we did not perform toxicological analysis, we cannot rule out the possibility of hyperlactacidemia or certain ingredients of the shampoo directly causing fetal death. Our limited experience is that oral intake of a large volume of shampoo may lead to hypovolemic shock, but with little interference to the liver and kidney function. Early treatment, especially adequate rehydration, is essential to prevent hypovolemic shock.

After fluid replacement, the patient’s blood pressures increased gradually. The highest pressures were 165/95 mmHg, and urapidil was administered to control the blood pressure to normal levels. After treatment, the patient’s heart rate decreased gradually to approximately 86 beats per minute. She did not complain of any discomfort. A second ultrasonography reconfirmed fetal death. The patient was then referred to her primary health care provider (OB/GYN) for elective labor induction. A telephone follow-up 3 months later found the patient had recovered satisfactorily. This rare case of hypovolemic shock and fetal death associated with oral intake of shampoo during pregnancy was managed by rehydration therapy, and the patient recovered satisfactorily. The patient had taken prenatal checkups regularly before and she had felt fetal movements prior to intake of shampoo. In addition, ultrasound examination detected a 27-week-old fetus. Since fetal movements ceased after severe vomiting and diarrhea, we believe that fetal death occurred after intake of shampoo. We posit the continuum involved as follows: shampoo led to the osmotic pressure rise in the gastrointestinal tract, which in turn resulted in diarrhea and vomiting. Substantial body fluid loss resulted in hypovolemic shock, leading to fetal hypoxia and death. A HIV-infected pregnant woman was found to die from acute pancreatitis and hyperlactacidemia [1]. Although we did not perform toxicological analysis, we cannot rule out the possibility of hyperlactacidemia or certain ingredients of the shampoo directly causing the fetal death. Our limited experience is that oral intake of a large volume of shampoo may lead to hypovolemic shock, but with little interference to the liver and kidney function. Early treatment, especially adequate rehydration, is essential to prevent hypovolemic shock.

The authors report no conflicts of interest. The authors alone are responsible for the content and writing of the paper.

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