

Usefulness of Abdominal Computed Tomography for the Detection of Drugs in the Stomach

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Abstract

Case Report

An eighty-year-old woman was found by her family in an unconscious state. She was transported to our hospital by an ambulance. She had Sjögren's syndrome, depression and had overdosed two times in the past. On arrival, she was in a deep coma and shock state. Physiological and neurological studies revealed no specific findings. As her initial glucose level was 46 mg/dl, a 50% glucose infusion was administered; however, her consciousness did not improve. A urinary drug screening test was positive for benzodiazepine. Head brain computed tomography (CT) revealed no specific findings. Truncal CT showed a high density fluid level in the fundus of her stomach. Her history of repeated overdose, the positive urinary drug screening test and abdominal CT findings strongly suggested that she had overdosed again. She was admitted to our hospital. Her consciousness became clear on the third day and the patient reported that she had had overdosed again. A high-density fluid level at the bottom of the stomach on CT predicted overdose with high specificity. Accordingly, this finding may be usefulness for evaluating patients with diminished consciousness.

Keywords: overdose; abdominal CT; high-density fluid level; stomach.

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INTRODUCTION

Denser materials or elements with higher atomic numbers have an increased radiopacity, which prevents the passage of electromagnetic radiation. Drugs in tablet and capsule form are condensed, thus their high density means that they can easily found by computed tomography (CT) using a high contrast resolution[1]. We report the usefulness of abdominal CT in the diagnosis of a patient who had overdosed.

CASE REPORT

An eighty-year-old woman was found in an unconsciousness state by her family at 18:00. In the morning, she had been awake as usual. She was transported to our hospital by an ambulance. Emergency medical technicians did not find any empty press-through drug packets. She had Sjögren's syndrome, depression and had overdosed two times in the past. She had prescriptions for Mirtazapine, eszopiclone, pilocarpine, oxybutynin, minodronic acid, loxoprofen, magnesium oxide and sennoside. On arrival, her vital signs were as follows: Glasgow Coma Scale, E1V1M1; blood pressure, 82/50 mmHg; pulse

rate, regular at 85 beats per minute; and respiratory rate, 20 breaths per minute; percutaneous oxygen saturation, 99% under 5 L per minute of oxygen; and body temperature, 36.4°C. Both physiological and neurological studies were negative. Her deep tendon reflex was hypotensive. As her initial glucose level was 46 mg/dl a 50% glucose infusion was administered; however, her consciousness did not improve. A biochemical analysis, including an arterial blood gas analysis showed no specific findings that would have caused coma, other than hypoglycemia. A urinary drug screening test was positive for benzodiazepine. Head brain computed tomography (CT) revealed no specific findings but truncal CT showed a high-density fluid level in the fundus of her stomach (Figure 1). Her history of repeated overdose, the positive urinary drug screening test and abdominal CT findings strongly suggested that she had overdosed again. Her consciousness became clear on the third day after admission to our hospital and she reported that she had had overdosed again. She was transferred to a psychiatric hospital.

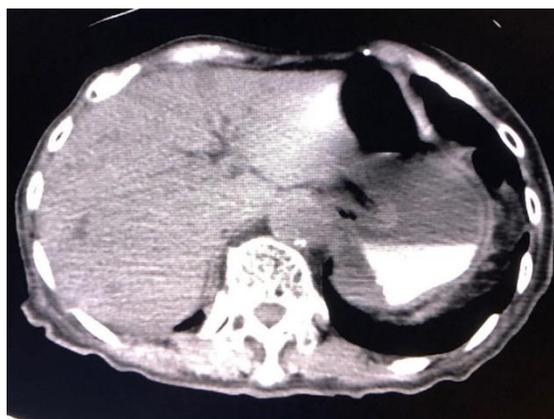


Fig-1: Abdominal computed tomography (CT) on arrival CT shows a high-density fluid level in the fundus of the stomach

DISCUSSION

CT is superior to a plain roentgenography for the detection of materials with low radiolucency due to the absence of the superimposition of lesions in trans-axial CT views and high-contrast resolution [2]. Based on the finding of high-density deposition (fluid level) in the bottom of the stomach, CT predicts overdose with 98.5% specificity [1]. Overdose patients may take psychotropic drugs regularly; thus it can be difficult to diagnose an overdose correctly based on the results of urinary screening tests. A diagnosis of overdose can also be based on physical findings that suggest the occurrence of toxidrome, but they are often variable or obscured by the co-ingestion of multiple drugs. Accordingly, CT findings of a high-density fluid level in the stomach of a patient with diminished consciousness may suggest a recent overdose.

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