IMAGE FOR EDUCATION

Miosis, Bradypnea and Loss of Consciousness with Several Compacted Solid Materials in Rectum and Colon in Abdominal X-Ray

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QUESTION

Case: A 26-year-old man referred to emergency service with coma, bradypnea (respiratory rate = 4 breaths per minute) and pinpoint pupil. On chest auscultation, diffuse coarse crackle and on abdominal auscultation, decrease of abdominal sounds were found. At first evaluation, pulse oximetry showed 19% saturation of oxygen. After oxygen therapy with facial mask and infusion of 8.4 mg naloxone in divided doses, he regained consciousness with normal respiratory rate (16 breaths per minute) with 98% saturation of oxygen. The patient denied use of any illicit substances; however, due to triad of bradypnea, miosis and decreased level of consciousness, and also responsiveness to naloxone, the physician suspected opioid overdose and decided to admit the patient in Mashhad Medical Toxicology Center in Imam Reza Hospital. Forty minutes later, the patient deteriorated with decrease of oxygen saturation, tachypnea and decrease of consciousness. Chest X-ray showed diffuse infiltration in both lungs. In the urine screen test morphine metabolites were detected. Abdominal plain X-ray showed several compacted solid materials in rectum and colon (Figure 1).

What are the differential diagnoses and appropriate management of this patient?

ANSWER

Differential diagnoses: The principle problems of this patient were relapse of unconsciousness in addition to miosis and apnea or bradypnea that suggest a) opioid toxicity, b) body packer, c) body stuffer, d) acute respiratory distress syndrome (ARDS), e) clonidine toxicity, f) parasympathomimetic agents toxicity, g) organophosphate toxicity, h) carbamate toxicity, i) sedative hypnotic toxicity, j) ethanol toxicity and k) barbiturate toxicity (Table 1).

Approach: the presence of miosis, bradypnea and decrease of consciousness in addition to positive response to naloxone, is highly suggestive of opioid toxicity (1). Notwithstanding, recurrent decrease of consciousness can be attributed to release of high amount of opioid in blood circulation which mostly occurs in opioid body packers and body stuffers (2).

Figure 1. Abdominal plain X-ray of the patient

Treatment: After admission to medical toxicology department, the patient became intubated with mechanical ventilation support with high positive end expiratory pressure (PEEP). Consequently, O_2 saturation increased to 89%. Whole bowel irrigation with 70 g polyethylene glycol (PEG) was prescribed in 1000 mL water per hour and after 4 doses, the patient defecated 23 intact packs with 1 semi open pack that contained raw opium (Figure 2).

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Table 1. Differential diagnoses of decreased level of consciousness, bradypnea and miosis

Disorder	Pathophysiology	Specific features
Opioid overdose	Agonist of μ2	Responsive to naloxone therapy
Body packer	Agonist of μ2	Responsive to naloxone therapy, opioid packs in abdominal X-ray
Body stuffer	Agonist of μ2	Responsive to naloxone therapy, recurrent bradypnea
Barbiturate toxicity	GABA-ergic	Depression of all vital signs, Irritability
Ethanol toxicity	GABA-ergic and antagonist of N-methyl aspartate	Agitation, flushing, tachycardia, diuresis
Clonidine toxicity	α2 adrenergic agonist	Orthostatic hypotension
Organophosphate toxicity	Irreversible choline esterase inhibitor	Cholinergic crisis (in a long duration)
Carbamate toxicity	Reversible choline esterase inhibitor	Cholinergic crisis (in a short duration)
Parasympathomimetic agent toxicity	Parasympathomimetic	Bradycardia, Cholinergic crisis

Subsequent to 2 other doses of PEG, the patient defecated only lucid water with no remaining pack. Due to the presence of tachypnea, coarse crackle on chest auscultation, and clinical suspicion of the opioid induced lung injury (ARDS), further doses of naloxone were not administered. In addition, ceftriaxone (2 g stat and 1 g q 12 h) and clindamycin (600 mg q 8 h) were administered intravenously. In the next abdominal X-ray no pack was seen.

Etiology: Body packers are illicit drug smugglers that swallow many packs with careful packing for the aim of transferring illicit substances including opioids, amphetamines and cocaine between two specific locations (1-4). On condition that the packs are torn in the alimentary tract, the substance leaks and the person can be influenced by active ingredients of the substance (5). The active ingredients can be absorbed through entroentric cycle or entrohepatic cycle. Hence, recurrent opioid triads occur, refractory to naloxone therapy. The other similar but more life-threatening situation is body stuffer. These people swallow packets of illicit substances that are not carefully wrapped on due to having limited time when they are on escape or on police arrest. This group is prone to severer toxicity (2,6).

Figure 2. Packs and packets obtained from the present case (A) and 3 previous body packers (B, C, D)

Figure 3. Abdominal CT scan of the patient

Outcome: This patient was on mechanical ventilation for 30 hours. His pulmonary function upturned to normal condition. Then he was weaned off and extubated. The patient was discharged on the third day post-admission with good condition.

Conclusion: Body packers may give misleading history. Moreover, physician may neglect body packer as one of differential diagnoses for triad of bradypnea, miosis and loss of consciousness. Hence, body packers may sometimes be missed until they die and the packs (Figure 2) are revealed in autopsy (5,7). Perhaps a patient with miosis, relapse of bradypnea and loss of consciousness is candidate to undergo abdominal radiography or preferably abdominal computed tomography (CT) scan (Figure 3) immediately after initial stabilization (7). For cases with definite diagnosis of body packer, all packs should be irrigated with either laxative (PEG) or surgical procedure (8). Discharge of these patients predicates upon normal abdominal and pelvic CT Scan without any pack and regaining consciousness with normal respiratory rate (9).

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