Case Report

Alcoholic delirium tremens with hollow viscus perforation scheduled for emergency laparotomy

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ABSTRACT

Alcohol is a drug consumed at some time in life by up to 80% of the population according to western statistics. Wide differences in socioeconomic status in India contribute to various degrees and severity of alcoholism and its associated complications. The symptoms of alcohol withdrawal range from such minor ones as insomnia and tremulousness to severe complications such as withdrawal seizures and delirium tremens. Although alcohol withdrawal syndrome has been reported in the literature in post-operative periods and in Intensive Care Unit, there is paucity of information on treatment and preparation of a patient with alcohol withdrawal syndrome coming for emergency surgical procedures. The surgical stress and deranged liver function in such cases poses an additional challenge to the anaesthesiologist. Here, we report the successful management of a case of acute alcoholic delirium tremens who presented with hollow viscous perforation for emergency exploratory laparotomy.

Key words: Alcoholism, delirium tremens, emergency surgery, laparotomy

INTRODUCTION

Alcohol is the most abused drug worldwide.[1] People who are addicted to alcohol tend to have many complications starting from malnutrition to complicating medical conditions including arrhythmias, congestive heart failure, coronary artery disease, gastrointestinal bleeding, infections, liver disease, nervous system impairment and pancreatitis.[2] Alcohol withdrawal syndrome consists of a range of signs and symptoms that typically develop in alcohol-dependent individuals in 6–24 h of their last drink.[3] It may occur unintentionally if abstinence is enforced by illness or injury or other causes. The symptoms range from such minor symptoms as insomnia and tremulousness to severe complications such as withdrawal seizures and delirium tremens.[2] Alcoholic patients with delirium tremens undergoing emergency surgical procedures has not been reported in the literature. Here, we report the successful management of a case of delirium tremens coming with hollow viscous perforation for exploratory laparotomy.

Institutional ethical committee clearance and consent from the patient was obtained before reporting the case.

CASE REPORT

A 35-year-old male patient was brought to the Medical College Hospital with severe pain abdomen and vomiting since 2 days. The patient was restless, agitated, talking irrelevantly and needed three male attenders to control him on the bed. The patient's attenders gave a history of chronic smoking with alcoholism for past the 20 years. The patient had tremors and was sweating profusely. On examination, the pulse rate was 136 beats/min and BP was 160/90 mmHg, with a respiratory rate of 40 breaths/min. The patient had jaundice with dry tongue. Systemic examination of the respiratory system revealed bilateral rhonchi in all the lung fields. The venous access was secured with two 18 G intravenous (IV) cannulas. Blood was sent for routine investigations and liver function tests. With the help of the attenders, an erect abdomen

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X-ray taken, which revealed gas under the diaphragm. Positive blood investigations revealed Hb 9 g/dL and C-reactive protein 24 mg/dL (normal 0–6 mg/dL). Liver function tests revealed serum total bilirubin 3.2 mg/dL, serum albumin 2.9 g/dL and gamma glutamyl transpeptidase 60 IU/L. Coagulation profile showed prothrombin test as: Test 22.9 s with Control 16.5 s and International normalized ratio 1.45. The activated plasma thromboplastin time showed: Test 39.7 s (Control 34.0 s) and serum amylase 155 units/L (normal 25–130 units/L). The X-ray chest revealed prominent bronchovascular markings.

After confirmation of diagnosis by the surgical department, the case was posted for emergency laparotomy. The patient was nil oral for 18 h. Informed high-risk consent was obtained from the patient's attenders. The surgical team contemplated immediate surgery. Thus, the patient was shifted directly to the operation theatre from the casualty department. As the patient was agitated, Inj diazepam 10 mg IV was administered with pulse oximeter monitoring. The patient was calm with this dose. The pulse oximeter and non-invasive blood pressure were connected followed by Inj. glycopyrrolate 0.2 mg IV as antisialogogue and Inj. Xylocard (preservative free lignocaine) 50 mg IV to attenuate laryngoscopy and intubation response before induction drug was administered. Following this, induction with Inj. thiopentone sodium 350 mg IV + Inj. succinylcholine 100 mg IV was achieved. The airway was secured with a No. 8.5 cuffed oral endotracheal tube and the patient was ventilated with O_2 in 50% N_2O with isoflurane 0.4%. Inj. fentanyl 100 μg was administered intravenously. Other monitors like electrocardiogram, capnography, urinary catheter and temperature probe were connected. IV Inj. deriphylline 50 mg + Inj. hydrocortisone 100 mg were given. As the patient was in alcoholic delirium, immediate post-operative extubation was not considered. Inj. diazepam 10 mg IV was administered. Surgical relaxation was maintained with IV Inj. atracurium 25 mg and 5 mg topups up to a total of 40 mg. Intra-operative fluid management was done with dextrose normal saline 1.5 L and ringer lactate 1.5 L, Inj. neurobion forte containing thiamine 100 mg added to drip with Inj. vitamin K. Intra-operative surgical diagnosis was anterior duodenal ulcer perforation. As the urine output was low and high colored, Inj. mannitol 20% 100 mL was administered intravenously followed by Inj. frusemide 10 mg IV to prevent hepatorenal syndrome.

Post-operatively, the patient was shifted to the Intensive Care Unit (ICU) for ventilator support. In the ICU, the patient was administered Inj. diazepam 5 mg IV 8th hourly + Inj. mannitol 20% 100 mL IV 12th hourly with Inj. L-ornithine L-aspartate 5 gm IV 12th hourly by infusion. Levosalbutamol plus ipratropium bromide (doulin) nebulization was administered 6th hourly. Analgesia was maintained with Inj. fentanyl infusion at the rate of 50 μg/h IV for the first 24 h and was later reduced to 30 μg/h IV. The patient awakened after 24 h with little restlessness, which was managed by Inj. diazepam 5 mg IV stat. The patient was comfortable and calm with normal vitals when extubated after 48 hr [Figure 1].

After 3 days, oral feeding was started with a low-protein hepatic diet and syrup lactulose 15 mL 8th hourly administered orally. Regular multivitamin tablets were administered. Liver function tests returned to normal limits after 1 week. The patient was shifted to the ward with Tab. diazepam 5 mg orally twice daily for a further period of 21 days, after which he was referred to a psychiatrist for further de-addiction program.

DISCUSSION

Chronic alcohol exposure exerts numerous pharmacological effects by means of interactions with various neurotransmitters and neuromodulators.[4] The brain maintains neurochemical balance through inhibitory and excitatory neurotransmitters. Alcohol enhances the effects of gamma aminobutyric acid (GABA) on GABA-A neuroreceptors, resulting in decreased overall brain excitability. During chronic alcohol consumption, compensatory changes can result in the upregulation of glutaminergic transmission of N-methyl-D-aspartate and downregulation of GABAnergic functions, restoring equilibrium in the presence of alcohol but resulting in withdrawal hyperactivity in its absence.[4] Alcohol withdrawal

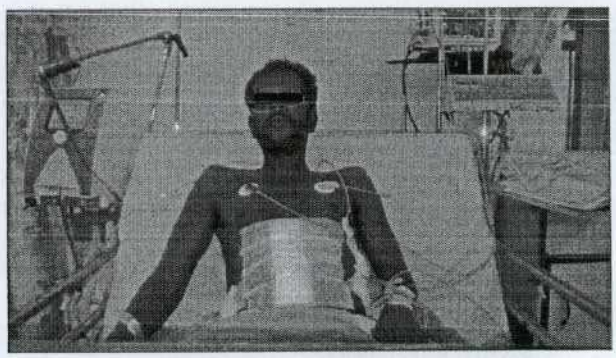

Figure 1: Patient after extubation in the intensive care unit

syndrome has been reported in the literature in post-operative cases.[5,6] Spies *et al.* have reported a 16% incidence of alcohol withdrawal syndrome after surgery, while there was a 31% incidence in post-trauma patients.[7] Imdahl *et al.* have shown that in 72% of 672 surgical patients, prophylactic treatment was administered based mostly on a combination of benzodiazepines, chlormethiazole, haloperidol, clonidine or ethanol.[6] Spies *et al.* assessed the efficacy of four different prophylactic regimens (benzodiazepines and haloperidol versus benzodiazepine and clonidine versus chlormethiazole and haloperidol versus ethanol). Based on their studies, ethanol and benzodiazepine like diazepam have been effective and have lesser complication rates.[3] Christopher *et al.* have noted an improved outcome in patients with head and neck cancer using a standardized care protocol for post-operative alcohol withdrawal. They have used benzodiazepines, clonidine and haloperidol in controlling the post-operative delirious state in patients with history of alcoholism. According to them, use of the standardized symptom-triggered protocol decreased delirium, violence and alcohol withdrawal syndrome-related ICU transfers without significantly increasing hospital charges. In this study, drugs have been used on a symptom-based approach.[8]

Clonidine, a central α_2 agonist, was first used to treat hypertension. Clonidine acts on α_2 receptors in central nervous system and lowers blood pressure, reduces heart rate and decreases the body's reaction to the withdrawal of chemicals like alcohol, opiates, cocaine and nicotine.[9]

Dexmedetomidine, a successor of clonidine, is a sedative medication used by ICUs and anaesthetists. Dexmedetomidine may offer an advantage over current sedative medications used in the ICU, such as not requiring intubation with its use, and therefore may benefit in alcohol withdrawal.[9] Clonidine and dexmedetomidine can be used as adjunctive treatment to benzodiazepines, the standard of care in alcohol withdrawal.[9]

Dobrydnjov *et al.* have studied single dose of prophylactic oral diazepam 10 mg vs intrathecal and oral clonidine to prevent post-operative alcohol withdrawal syndrome in patients undergoing a transurethral resection of prostate procedure with history of alcoholism, under spinal anaesthesia. They noted, at 72 h post-operatively, that clonidine exerted better control than diazepam in controlling symptoms.[10] In the present case, the patient was already in delirium tremens and the surgical procedure was a dire emergency; the patient was induced with sleep dose of Inj. thiopentone as the liver enzymes were near normal and microsomal enzyme induction was suspected. As the patient was not drowsy, intra-operative bleeding was minimal, serum sodium and potassium were within normal limits and hydration was well corrected, the chance of hepatic encephalopathy being precipitated by thiopentone or diazepam was not a possibility.[11] It was clinical judgment that prompted us to use thiopentone and diazepam intra-operatively as the patient was already in alcohol withdrawal syndrome. Mannitol was used to abort any chance of hepatorenal syndrome. Syrup lactulose and hepatic diet ensured prevention of hepatic coma and smoother outcome of patient.[11]

Alcohol withdrawal syndrome, a potentially life-threatening condition, could pose a serious challenge to the practicing anaesthesiologist perioperatively. Some studies have established safety of benzodiazepines in preventing withdrawal syndrome post-operatively,[3,6] while newer drugs like clonidine and dexmedetomidine are in the channel of research to be established as alternatives to benzodiazepines.

CONCLUSION

Alcohol withdrawal syndrome, although extensively studied, is still a challenge to the anaesthesiologist when present as an unprepared case scheduled for emergency surgery. Although medical management of alcohol intoxication has been extensively reviewed, pre-operative stabilization of such cases is well established and post-operative ICU care protocols of these patients written, but the management of an unprepared case of alcohol withdrawal with minimally raised liver enzymes is a challenge to the anaesthesiologist when scheduled for emergency surgery.

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Announcement