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Self-inflicted oral penetration injury: An intravenous drip pole advanced from the mouth to the retroperitoneum



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ABSTRACT

INTRODUCTION: Patients with oral penetration injuries require a systematic physical examination. These patients should be managed by a multidisciplinary medical team. Airway management, operative procedures, and transfusion needs of the patient with an oral penetration injury should be discussed before surgery.

PRESENTATION OF CASE: A 63-year-old man with a history of recurrent hepatic duct cancer attempted suicide by advancing an intravenous pole through his mouth, neck, and thorax, ultimately penetrating into the right retroperitoneal space. A multidisciplinary team assembled by code blue emergently treated the patient, initially with fiberoptic intubation. The injured right lower lung was resected under one lung ventilation via a double lumen tube after tracheostomy. Fortunately, the pole did not injure any other organs or major vessels. Despite successful removal of the pole after lung resection, the patient died 14 days postoperatively due to his primary hepatic duct cancer.

DISCUSSION: We highlight the need for a multidisciplinary approach to this patient's management and discuss particular aspects of airway and transfusion management.

CONCLUSION: A systematic and multidisciplinary approach allowed successful removal of the drip pole and stabilization of the patient's respiratory and hemodynamic status.

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1. Introduction

The treatment of multiple trauma is difficult and requires proper airway management and a multidisciplinary approach for multiple organ dysfunction and potentially massive hemorrhage. Furthermore, oral penetration injuries present with more difficult airway management due to difficulty with intubation, ventilation, and tracheostomy. We present this unusual case to highlight some of the difficulties encountered in airway management and therapy in patients with an oral penetration traumatic injury.

2. Presentation of case

A 63-year-old man with a history of recurrent hepatic duct cancer after pancreatoduodenectomy two years previously, cholangitis, and carcinomatous pleural effusion was admitted with a complaint of epigastric cramps. The patient had refractory ascites thought to be due to hepatic dysfunction and carcinoma. The treatment options were under consideration by the patient and his physicians. However, before additional treatment was instituted

the patient was found face-down in his hospital room with an intravenous (IV) drip pole protruding from his bleeding mouth. The patient was immediately transferred to the emergency room for an initial evaluation. Hemodynamic respiratory conditions were stable, and Glasgow Coma Score was E3V1M6. Airway patency was maintained; there was no stridor due to airway obstruction despite continued bleeding from the upper respiratory tract. Written informed consent was obtained from the patient for publication of this case report.

2.1. Investigations

Focused Assessment with Sonography for Trauma (FAST) was implemented and showed no abnormalities; there was no sign of pneumothorax. Airway patency was confirmed by the symmetrical rise and fall of the chest and by auscultation of the neck and chest. Even though the airway was maintained, intubation was mandatory due to the potential for a penetrating wound of the neck to distort the patient's airway anatomy.

Examination of the laryngopharyngeal space with an Airway Scope AWS-S100 (Pentax, Tokyo, Japan) and McGRATH[®] MAC video laryngoscope (Covidien, USA) was attempted, but the pole prevented insertion of either device. Therefore, a fiberoptic bronchoscope was inserted nasally, and the vocal cords and laryngeal

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Fig. 1. A drip pole penetrating the mouth into the pharyngeal space. The emergency physician is immobilizing the pole to prevent swinging. The endotracheal tube was inserted via the nasal passage.

space were visualized. A 7-mm diameter spiral endotracheal tube was inserted through the nasal cavity with fiberoptic bronchoscopy guidance. Subsequently, propofol and neuromuscular blockade (rocuronium bromide) were administered for sedation after confirmation of appropriate tube placement (Fig. 1a and b).

Chest radiography showed the pole extending into the mouth and extending below the diaphragm, with a slight right pneumothorax and a deep sulcus sign. The radiograph also showed opacity in the right lung due to lung contusion, but no rib fractures were noted, and the mediastinum was not deviated (Fig. 2a). Abdominal radiography showed the tip of the pole located near the iliac bone (Fig. 2b).

2.2. Treatment

After completion of the radiography studies, the patient's hemodynamic status deteriorated and he was immediately transferred to the operating room for removal of the pole without completing the computerized tomography (CT) scan. The operation was performed by a multidisciplinary team of surgeons. Initially, exploratory laparotomy was performed by the gastrointestinal surgeons, and no abdominal injury was detected. The pole had been advanced along a course dorsal to the diaphragm and liver; the tip of the pole was in the retroperitoneal space. Next, the femoral artery and vein were cannulated by the cardiac surgeons in preparation for percutaneous circulatory pulmonary support (PCPS). Tracheostomy was

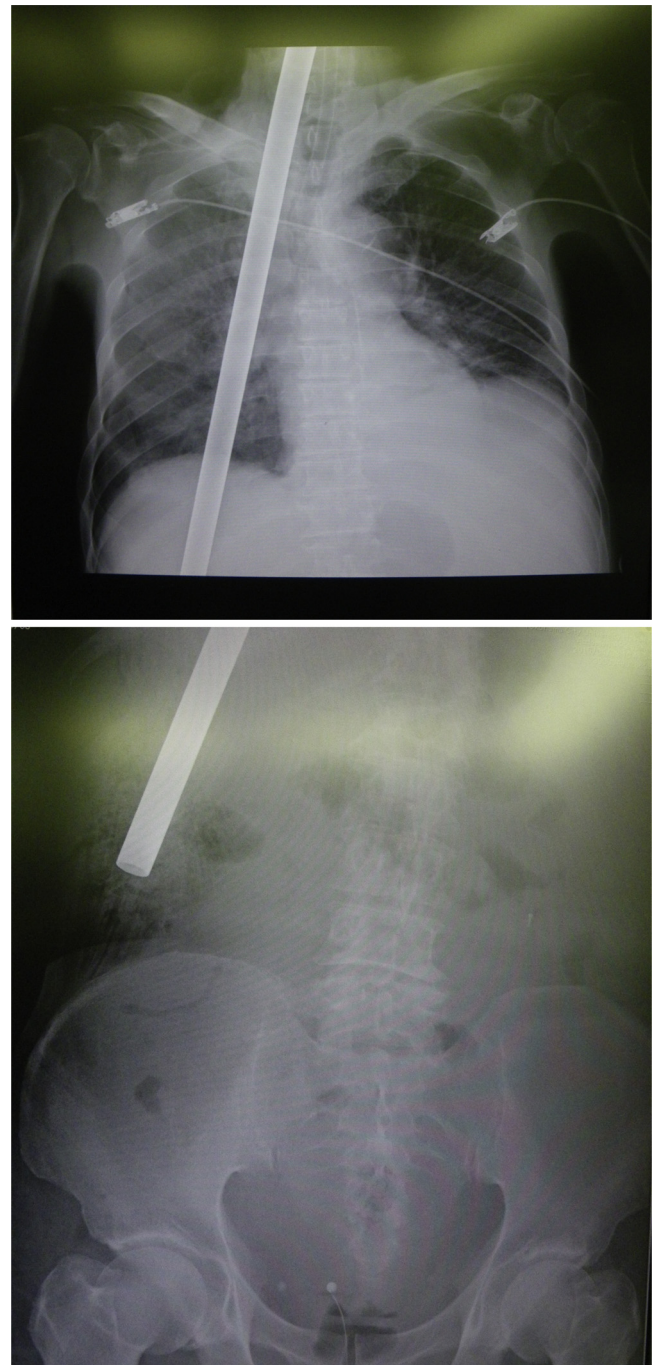


Fig. 2. Chest radiograph showing the pole extending through the neck and chest and under the right diaphragm. Abdominal radiograph showed the end of the pole just above the iliac bone.

performed by an otolaryngologist and a double lumen tube (DLT) was inserted into the left main bronchus through the tracheostomy. The major vessels of the neck and esophagus were fortunately not damaged. After median sternotomy was performed, the right thoracic cavity was opened with discharge of retained blood from inside the right thoracic cavity. The pericardium was opened and revealed no evidence of major vessel damage since the pole had passed dorsally to the major vessels. There was no apparent damage of the right main stem bronchus. One lung ventilation was maintained for exploratory lung resection. The pole was carefully removed from the mouth, and the punctured lower lobe of the right lung was resected (Fig. 3).

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