

# Neuroleptic malignant syndrome after an emergency operation for acute appendicitis perforation

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## Case report

A 62-year-old man with no history of psychiatric or neurological problems came to hospital after 3 days of severe abdominal pain and constipation. Diagnosed with acute abdomen secondary to acute appendicitis perforation, he underwent an emergency operation anesthetized with sevoflurane, propofol, succinylcholine chloride and cis-atracurium. On the fourth day after, he began to show symptoms of delirium and agitation. He was given haloperidol (3 mg orally and then a 5-mg ampoule intramuscularly), with good results. Within a few hours he was mildly lethargic but confused, responding to verbal stimuli but not answering questions appropriately. He had diffuse rigidity. His baseline temperature climbed to 38°C and he developed persistent hypertension (180/100 mm Hg), tachypnea (24 breaths/min) and tachycardia (110–140 beats/min). Neurological and physical examinations revealed no source of infection or intracranial pathology; results of cranial CT were normal. His leukocyte count rose from 11.4/mm<sup>3</sup> to 14.2 (normal range 3.6–9.6/mm<sup>3</sup>), and other serum concentrations were high: creatinine phosphate 335 (normal 24–195) U/L, alanine aminotransferase 78 (normal 1–42) U/L and aspartate aminotransferase 64 (normal 1–37) U/L. Serum electrolyte results were normal.

We entertained a diagnosis of neuroleptic malignant syndrome (NMS) and

administered bromocriptine (15 mg/d for 15 days). The patient's confusion resolved, and his vital signs returned to normal.

## Discussion

The cause of NMS is unknown. It is attributed by some to a primary dopamine-receptor blockade in the basal ganglia and hypothalamus, and to a disturbance of calcium uptake in skeletal muscle by others.<sup>1</sup> The disease may be caused by a spectrum of inherited defects in genes responsible for a variety of calcium regulatory proteins within sympathetic neurons or the higher-order assemblies that regulate them.<sup>2</sup>

The clinical picture in NMS includes muscular rigidity, altered mental status and severe autonomic dysfunctions. It is associated with hyperthermia, elevated levels of plasma creatinine phosphate and leukocytosis.<sup>3</sup>

In recent years, there has been an increased awareness of the occurrence of NMS in surgical patients.<sup>1,4-6</sup> Its causative factors include an interruption or alteration of the administration of neuroleptic drugs, the added use of narcotics, and physical stress such as infection, dehydration, malnutrition and tissue injury.<sup>4</sup>

In emergency surgical patients whose condition is associated with severe tissue injury and infection, NMS symptoms are easily attributed to a surgical complication when these patients had no psychiatric or

neurological history. We recommend that surgeons bear the possibility of NMS in mind.

**Competing interests:** None declared.

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Accepted for publication Nov. 17, 2003

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