

ambiguous nature of symptoms, signs, and specificity of diagnostic tests associated with epidural infections.^{1,2,8} Pain progressing in a radicular pattern and fever are the most common early findings, and, once neurological loss ensues, the diagnosis becomes more obvious. However, at this later stage, progression to irreversible neurological deficit due to localized spinal cord compression and vascular compromise is rapid.⁹

Early diagnosis requires aggressive diagnostic testing for confirmation by myelography, contrast enhanced computerized tomography, or magnetic resonance imaging. Although early diagnosis is of paramount importance so that definitive surgical therapy can prevent permanent neurologic loss, this can be a conundrum in chronic pain patients, exemplified by the case presented. When pain is the only early presenting complaint and the assessment of the pain complaint is confounded by exaggerated responses, one must depend on reproducible clinical findings and support these with corroborating tests.

One of the tenets of management of most chronic (non-malignancy-related) pain syndromes is non-reinforcement; *i.e.*, limiting operant conditioning factors, such as medical interventions, purely for pain complaints, except on a time-contingent "preventative" basis or when clinical signs dictate otherwise. Patients who express painful sensations in a florid and inconsistent fashion may require invasive nerve-blocking procedures for diagnostic and clarification purposes. How-

ever, an additional risk in these patients may be the difficulty in making rapid diagnoses of complications where pain or unusual sensations are premonitory features.

As the practice of chronic pain management grows, these dilemmas are sure to surface with increasing frequency. Those involved in these patients' care must add this unsettling dimension and enhanced risk to an arena already brimming with ambiguity.

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Extrapyramidal Reactions to Low-dose Droperidol

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Nausea and vomiting is the most frequently reported postoperative adverse reaction in ambulatory surgery.¹ Low doses of droperidol are used to prevent postoperative nausea and vomiting. It is effective in children undergoing strabismus surgery,²⁻⁴ and in adults undergo-

ing gynecologic⁵⁻⁸ and orthopedic surgery.⁹ In the low doses commonly used (0.6-1.25 mg) in adults, adverse side effects such as extrapyramidal reactions or severe anxiety have not been reported to occur. Phillip states that these side effects are not seen with the above doses.¹⁰ Two cases of severe extrapyramidal reactions, apparently caused by low-dose droperidol, are described, following outpatient anesthesia and surgery.

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CASE REPORTS

Case 1. A 24-yr-old, 58-kg woman, ASA classification I, taking no medications, underwent diagnostic laparoscopy and tubal lavage for evaluation of primary infertility. General anesthesia was given with endotracheal intubation. d-tubocurarine, 3 mg, and droperidol, 0.65

mg, were given iv prior to induction of anesthesia, which was with 320 mg thiamylal iv and tracheal intubation facilitated by administration of succinylcholine 100 mg iv. Anesthesia was maintained with nitrous oxide/oxygen and isoflurane ranging from 0–2% inspired concentration. The entire anesthetic and surgical procedure which lasted 43 min were uneventful. In the recovery room, the patient received 400 mg ibuprofen po for abdominal pain with good relief. She had no nausea. Approximately 5 min prior to discharge (140 min after admission to recovery room), the patient complained of a mild sensation of tightness in the area between her neck and shoulders. The discharging physician felt it was due to residual pneumoperitoneum and sent the patient home. Approximately 3 h later, the patient was admitted to her local emergency room with a diagnosis of acute dystonia, with spasm of neck and tongue muscles. She was given 50 mg diphenhydramine iv and observed as symptoms resolved over the next 30 min. She was discharged home after 2 h. The remainder of her postoperative course was uneventful.

Case 2. A healthy 35-year-old, 62-kg woman, ASA classification I, on no medications underwent laparoscopic tubal banding under general endotracheal anesthesia. Prior to induction of anesthesia, she received d-tubocurarine 3 mg, droperidol 0.65 mg, and fentanyl .05 mg iv. Induction of anesthesia was with thiamylal 300 mg iv. Tracheal intubation was facilitated with succinylcholine 100 mg iv. Maintenance of anesthesia was with isoflurane 0–3.5% inspired concentration in oxygen. Surgical procedure and the anesthetic were uneventful. The total anesthetic time was 27 min. Postoperatively, the patient received a total dose of .0375 mg fentanyl iv for pain with good relief. The patient was discharged 170 min after admission to the recovery room. She was sitting in a chair fully dressed, ready to go home, when she expressed that she felt very anxious and restless and began to move about. She then became diaphoretic. She was immediately returned to the recovery room, where an electrocardiogram monitor showed a sinus tachycardia of 130 bpm; arterial blood pressure was 110/70 mmHg. Diphenhydramine 50 mg iv bolus and diazepam 10 mg iv given over 20 min reduced the heart rate to 90 bpm and greatly decreased her subjective feelings of restlessness and anxiety. All laboratory studies, including 12-lead electrocardiogram, arterial blood gases, and serum electrolytes, were normal. The patient was admitted to the hospital for observation overnight with no return of symptoms.

DISCUSSION

Extrapyramidal reactions to droperidol have been classified in three groups:¹¹ 1) acute dystonia that involves spasm of muscles of tongue, face, neck, and back (this can also include oculogyric crisis and episodes including sweating, tachypnea, and vasodilation); 2) Parkinsonism, which includes bradykinesia, rigidity, and tremor; and 3) akathisia, which can be defined as motor restlessness. The onset of symptoms can occur anywhere from a few minutes¹² until more than 12 h¹³ after administration of droperidol. Adverse reactions to droperidol are thought to be dose related, requiring at least 2.5 mg iv in adults or 0.1 mg iv in children.^{8,13,14} Studies evaluating the antiemetic efficacy of low-dose droperidol (0.625–1.25 mg iv) in adults have not reported extrapyramidal side effects.^{5–7,9,15} Phillip suggested they do not occur at these doses.¹⁰

Both of my patients experienced extrapyramidal reactions several hours postoperatively. The first experienced acute dystonia and the second akathisia with

some cardiopulmonary characteristics of acute dystonia (sweating, vasodilation, tachypnea). Both patients required acute in-hospital care to terminate the extrapyramidal reactions. Although no real harm came to either patient, both considered the episodes to be quite distressing.

Numerous medications and psychiatric conditions can cause reactions similar to the ones reported here. Both of the patients had no history of psychiatric illness and appeared normal to everyone involved in their care. Neither were taking any medications preoperatively. Both received numerous medications in the perioperative period. Of these, only droperidol has been reported to cause extrapyramidal reactions. Isoflurane has been associated with abnormal electroencephalographic patterns 4 h postoperatively.¹⁶ Fentanyl can cause both muscle rigidity¹⁷ and seizure-like activity.¹⁸ It is possible that an interaction between droperidol and fentanyl or isoflurane or an interaction between all three was responsible. Low-dose droperidol may not cause extrapyramidal effects by itself. Because of the known properties of the drugs involved, it is probable that droperidol was the major cause.

Two important points are illustrated by these cases. The first is that severe extrapyramidal reactions can occur after low-dose droperidol administration in adults. The second is that these reactions can begin several hours after the administration of droperidol. If an ambulatory surgical patient has already left the facility, these can happen outside the hospital setting. If the patient is not following instructions and is alone or operating a motor vehicle at the time, a tragedy could occur.

From routine postoperative phone calls at our institution, we also feel a less severe form of akathisia is common in adults receiving prophylactic low-dose droperidol during ambulatory surgery. We are presently conducting a study to determine if this is indeed true, and, if so, the exact incidence.

In summary, extrapyramidal reactions to low doses of droperidol do occur, and can occur several hours after administration. It is important to keep this in mind when administering it prophylactically to ambulatory surgical patients.

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Postoperative Apnea in a Full-term Infant

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General anesthesia for elective surgical procedures in young former preterm infants appears to be associated with a high incidence of respiratory complications.¹ Precautions to detect and treat apnea are recommended for these children up to 60 weeks post-conceptual age,²⁻⁶ especially if there is prior history of apnea.

We report a case of a full-term infant who had two

prolonged apnea spells in the postoperative period, and discuss the anesthetic care and postoperative course. This is the first reported instance of post-anesthetic apnea in an otherwise healthy full-term infant.

REPORT OF A CASE

A 3.2-kg female infant, twin A of identical twin gestation at 39 weeks was brought to the Operating Room at age 21 days, 42 weeks post-conception, for excision of the left of bilateral congenital cataracts. The right eye was to be operated on the following day. Her 3.1-kg twin was also scheduled for the same procedure. Neither baby had other congenital anomalies, except for bilateral congenital cataract. She was brought to the operating room unpremedicated, where anesthesia was induced *via* a mask using nitrous oxide, oxygen, and halothane. When obtunded, an iv was started and atropine 0.1 mg given iv. Anesthesia was deepened until oral tracheal intubation could be performed without use of a muscle relaxant. Anesthesia was maintained with nitrous oxide/oxygen and halothane by non-rebreathing circuit. The intraoperative course of 110 min was benign. When she was awake, the pharynx was suctioned and the trachea extubated. All extremities moved actively; there was a vigorous cry. Respiratory rate was regular with normal depth. She was transported to recovery room with spontaneous ventilation, crying loudly. In the recovery room, while breathing 40% oxygen, respiration was reported as regular in 26-32 breaths/minute range with regular pulse rate 130-150 bpm.

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