

## Propofol and fentanyl induced perioperative anaphylaxis

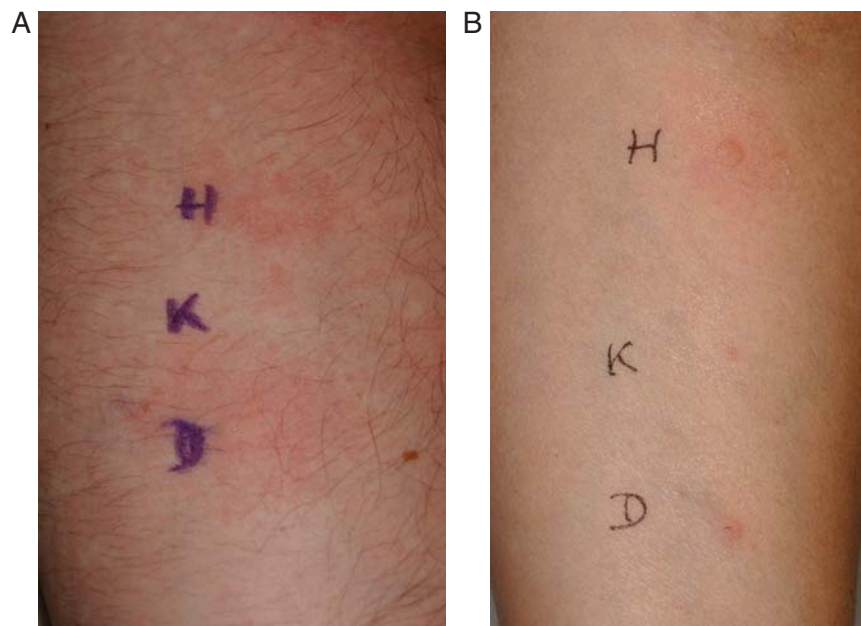
Editor—Although rare, perioperative anaphylaxis can lead to severe cardiorespiratory dysfunction or death. Numerous agents have been identified as triggers: the most common being neuromuscular blocking drugs, latex, and antibiotics. In contrast, sedatives, local anaesthetics, and opioids rarely cause anaphylaxis. The incidence of perioperative anaphylaxis ranges from 1:5000 to 1:25 000 and its mortality rate is 3.4%.<sup>1–2</sup> Clinical signs are often hard to recognize because they may be masked by the effect of administered drugs. After a reaction, a clear description of the presenting clinical symptoms together with a thorough case history, *in vivo* tests (histamine releasing and serum tryptase tests), *in vitro* tests (specific IgE assay, basophil activation assay, and detection of CD63 expression in the presence of the allergen), skin tests (prick skin test, intradermal test), and drug provocation test are useful in determining the correct diagnosis.<sup>3–6</sup>

A 25-yr-old man with a history of acne inversa was admitted for surgery to our department. The patient had childhood asthma, otherwise his past medical history was unremarkable, and no drug allergy was known. About 10 min after induction of anaesthesia with propofol, fentanyl, and rocuronium, the patient developed ventilatory difficulty, with wheezing, poor expiration, copious frothy secretions from the tracheal tube, and oxygen saturation decreased. Theophylline was given i.v. and the bronchospasm improved, but a significant amount of frothy secretion was removed

from the trachea. After extubation, he could not cough up the tracheal secretion and saturation decreased from 97% to 80%. Reintubation, repeated removal of secretion, and i.v. hydrocortisone was administered. Oxyhaemoglobin saturation was 97–98% after re-extubation, but some bronchospasm was still detectable. The surgery was cancelled. The anaesthetist initiated an investigation of the patient. Lymphocyte transformation test (LTT) was positive for fentanyl and propofol. The test for rocuronium, the third drug in question, was negative. To find replacement drugs to be safely administered during the next surgery, we also performed LTTs with potentially usable anaesthesia-inducing agents. Of these, LTT was positive for etomidate, and negative for thiopental, paracetamol, and diclofenac–orfenadrin. The skin-prick testing showed an increased sensitivity to meperidine; epicutaneous patch tests for fentanyl, etomidate, and thiopental showed no signs of allergic reaction. We performed the skin-prick test with the original formula of the injection, for patch tests drugs were mixed with vaseline and applied on the skin in occlusion. We used epicutaneous tests instead of skin-prick tests for tissue toxic agents. The next surgery was carried out in accordance with the test results and the surgery went on without incident, and the patient was discharged from the hospital on the sixth postoperative day.

Opioid-induced anaphylaxis is rare; to date, there have been seven reported cases of fentanyl-induced anaphylaxis.

In our case, the patient showed hypersensitivity to: fentanyl (positive LTT) and meperidine (positive skin prick



**Fig 1** (A) The patient's skin-prick testing showed increased sensitivity to meperidine (H, histamine; K, control; D, meperidine). (B) In non-allergic control, skin-prick testing showed a reaction slightly larger than the negative control, but smaller than the histamine reaction (H, histamine; K, control; D, meperidine).

test), but tolerated the semi-synthetic analogue: nalbuphine (*in vivo* administration). Although meperidine can cause pseudo-allergic reaction, therefore 'false' positive prick tests, our patient's strong skin reaction compared with control persons indicated a true hypersensitivity (Fig. 1).

The case demonstrates the importance of drug allergy examinations in perioperative anaphylaxis and the existence of rare fentanyl and propofol induced severe reactions. Our patient's case was further complicated by the patient's hypersensitivity to the non-barbiturate-type sedative propofol, which likely contributed to the onset of anaphylaxis during anaesthesia. Patients who experience perioperative anaphylaxis need a thorough examination for drug allergy. The evaluation should include a precise clinical history, consideration of risk factors, and *in vitro* and *in vivo* drug allergy tests.

### Conflict of interest

None declared.

N. Belső\*

R. Kui

I. Szegesdi

M. Kakuja

K. Kapitány

L. Kemény

Z. Bata-Csörgő

Szeged, Hungary

\*E-mail: [noribels@mail.derma.szote.u-szeged.hu](mailto:noribels@mail.derma.szote.u-szeged.hu)

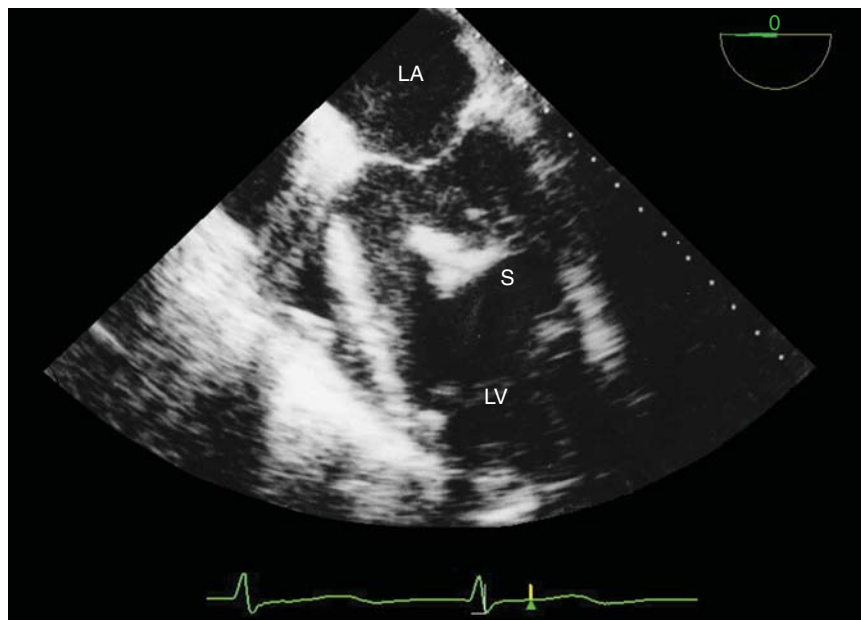
- 1 Whittington T, et al. Anaphylactic and anaphylactoid reactions. *Baillieres Clin Anaesthesiol* 1998; **12**: 301–23
- 2 Mertes PM, et al. Allergic reactions occurring during anesthesia. *Eur J Anaesthesiol* 2002; **19**: 240–62
- 3 Cummings KC, et al. Case report: Fentanyl-associated intraoperative anaphylaxis with pulmonary oedema. *Can J Anaesth* 2007; **54**: 301–6
- 4 Laroche D, et al. Biochemical markers of anaphylactoid reactions to drugs. Comparison of plasma histamine and tryptase. *Anesthesiology* 1991; **75**: 945–9
- 5 Société Française d'Anesthésie et de réanimation. Reducing the risk of anaphylaxis during anaesthesia. *Ann Fr Anesth Reanim* 2002; **21**: 7s–23s
- 6 Hepner DL. Anaphylaxis during the perioperative period. *Anesth Analg* 2003; **97**: 1381–95

doi:10.1093/bja/aeq384

### Intraoperative transoesophageal echocardiographic detection of a retained surgical sponge

Editor—We report a case where a retained surgical sponge after aortic valve replacement was detected using intraoperative transoesophageal echocardiography having allowed immediate diagnosis and its removal.

A 66-yr-old patient was admitted for aortic valve replacement. He had a long history of aortic stenosis and regurgitation. Preoperative angiography showed a 40% left ventricular ejection fraction and an enlargement of the left ventricular cavity. Coronary angiogram was normal. Anaesthesia was



**Fig 1** Mid-oesophageal four-chamber view at 0° showing the sponge in the left ventricle. LA, left atrium; LV, left ventricle; S, sponge.