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REPLY

Drs. Samson, Baxter and Penning present an interesting hypothesis which we did not consider during our study. We did not elaborate in our "Methods" section on further questioning we did of our patients who responded negatively to the question "Are you comfortable?" If patients indicated that they were not comfortable then they were indeed asked if they were having pain. The scale in the "Methods" section and Table IV use the word "pain." Those patients experiencing severe discomfort pointed emphatically to their surgical wound. This does not rule out the possibility of laryngeal discomfort, but we were convinced that patients 13, 18 and 20 had incisional pain.

The authors speculate whether the three patients who required morphine would have "settled down" had they been extubated immediately after their small dose of nalbuphine. Clinical judgment suggested, and our experimental protocol dictated the more conservative approach, however. Seven of the ten patients who received nalbuphine tolerated their endotracheal tubes for some time after the nalbuphine was administered. The tubes were left in place so that a ventilatory response to CO_2 could be performed. The nature of this latter procedure (progressive hyperventilation) is such that if the endotracheal tubes were the major source of discomfort, our patients should have become acutely distressed. Such was not the case.

We agree that the hypothesis of these authors warrants further investigation. From the above it should be clear that we are not as enthusiastic about how our results support the hypothesis, and remain convinced that nalbuphine reversed analgesia in several of our patients.

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Anaphylactic reaction to fentanyl or preservative

To the Editor:

We read with interest the recent paper by Bennett *et al.*[1] which represents, for the first time, a case report of vascular collapse, generalized erythema and urticaria following the administration of fentanyl. In their patient fentanyl allergy was later confirmed by intradermal test. Recently we encountered a case of anaphylactoid reaction following the administration of fentanyl during anaesthesia.

Our patient was a 45-year-old female who underwent three operations for dissecting aneurysm and pituitary tumour during a nine month period. During each of the three anaesthetics she developed anaphylactoid reactions including an urticaria-like skin rash and arterial hypotension (<60 mmHg systolic) following the administration of different anaesthetic agents. Based upon the time course of these events, 0.5 per cent lidocaine used for skin analgesia was suspected as a causative factor in the first event; 4.0 per cent lidocaine spray, which was administrated into the larynx and trachea, was suspected as a causative factor in the second; and in the third event, fentanyl was primarily suspected to have caused the anaphylactoid reaction.

It was later discovered that each of the preparations of the three drugs contain methylparaben as a preservative. Although methylparaben allergy has not been previously proven by several tests, including the intradermal test and the Prausnitz-Küstner test, this preservative was strongly suspected as a causative agent in our patient.

Stoelting[2] and Moudgil[3] suspect that anaphylaxis to local anaesthetics and muscle relaxants is mainly due to reaction to methylparaben. Swanson[4] proposed using small test doses (0.1 ml) of pure

lidocaine intradermally to help discriminate between methylparaben and lidocaine-induced anaphylactoid reactions. Although drug companies have recently tried to produce injectates without adding preservative, many agents used during anaesthesia still contain preservatives. For example, in Japan solutions of fentanyl, lidocaine, droperidol and hydrocortisone contain methylparaben as a preservative.* Therefore, we must consider preservatives as a potential causitive factor of drug-induced anaphylactoid reactions during anaesthesia.

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*Bennett *et al.* have advised that the fentanyl administered to their patient was free of preservatives. (personal communication).

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Flexion deformity of metacarpo-phalangeal joint following extravasation of thiopentone

To the Editor:

A flexion deformity of the metacarpo-phalangeal joint, caused by extravasation of thiopentone into the interossei muscles and around the joint, has not previously been reported[1].

A twenty-six-year-old woman presented with pain and inability to straighten her left ring and little fingers because of a joint deformity. About six weeks earlier she had had a general anaesthetic, during which she received thiopentone 2.5 per cent, injected directly into a superficial vein near a knuckle. At that time she had felt no pain and no extravasation had been noted. After the anaesthetic, she found her left fourth and fifth fingers to be bent at the joints, and she was unable to straighten them. The hand was swollen and painful and the deformity followed in about six weeks.

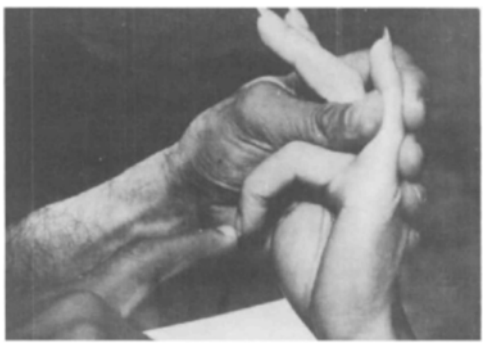

FIGURE Demonstration under anaesthesia of range of movement at the proximal and distal interphalangeal joints.

Examination revealed tenderness over the metacarpo-phalangeal joint of the left ring finger, with a 70- to 80-degree flexion movement of that joint. The proximal interphalangeal joint had a movement range of 0 to 70 degrees. The distal interphalangeal joint was normal. The little finger movement was not limited but was painful. Examination under general anaesthesia showed an intrinsic contracture of the left ring finger, with tightness of the middle and little fingers but without contractures (Figure).

A Littler's release was done after exploration via dorsal incisions on either side of the ring finger. A triangular flap of oblique ligament was excised on both sides of the ring finger, preserving the transverse ligament. Through the same incision the radial side of the oblique ligament of the little finger was excised. The ring and little fingers assumed normal resting positions after the release.

Adhesions of the volar plate and of the oblique ligaments had occurred; the fibrosis and contracture, plus shortening of the interossei muscles had contributed to the flexion deformity.