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## Broken-needle Complication with a Disposable Spinal Introducer

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Disposable needles have become widely accepted for use in the administration of regional anesthesia. There is little chance of needle break-down because of prior bending and straightening stresses on the needle shaft. The following case is reported to call attention to the fact that needle breakage remains a potential complication during regional block.

### REPORT OF A CASE

A 19-year-old youth was scheduled for removal of a left femoral intramedullary nail utilizing spinal anesthesia. Premedication produced a sedated cooperative patient. He was placed in the left lateral decubitus position and the skin was prepared and draped for administration of the spinal anesthetic at the L3-4 interspace through a paramedian approach.<sup>1</sup> A 25-gauge 3½-inch disposable spinal needle (Becton Dickinson) and a 20-gauge 1¼-inch disposable introducer (Becton Dickinson) were selected for use. The initial insertion of the introducer led to placement of the tip of the 25-gauge needle at the L3 lamina. The introducer was gently withdrawn to the subcutaneous level to select a pathway with a slightly more obtuse angle. The spinal needle then slipped into the intervertebral space and the introducer and needle were advanced to the maximum depth possible before the

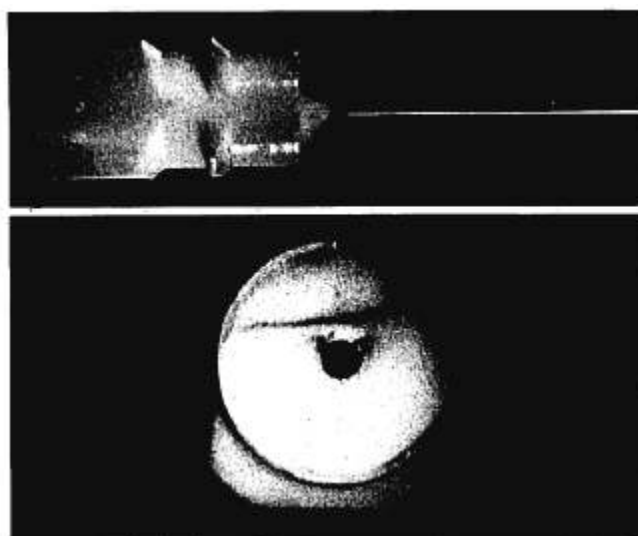


FIG. 1 (above). Hub separated from needle shaft. A small fragment of the hub remains attached to the shaft. The point where the piece was originally positioned can be seen at the tip of the hub taper.

FIG. 2 (below). End view of needle hub, showing crack (fine dark line running from right to left) and position of plastic fragment that remained attached to the needle shaft.

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subarachnoid space was identified. The local anesthetic was injected and the needles were withdrawn by grasping the hub of the introducer and removing both introducer and spinal needle with one motion. On close inspection of the removed needles the metal needle shaft of the spinal introducer was found missing. The free needle shaft was palpable immediately under the patient's skin; however, probing with a hemostat through a small incision in the skin made the needle

more inaccessible. The position of the needle shaft was reidentified with the aid of a portable fluoroscope and marked with a metal needle. A 5-cm incision was necessary to remove the needle shaft, which had migrated an additional centimeter deeper. The T10 spinal anesthesia level was adequate for removal of the missing needle shaft, as well as the intramedullary femoral nail.

### DISCUSSION

The metal needle shaft had become separated from the plastic hub (figs. 1 and 2) because the binding between the two was insufficient and obviously did not meet the usual standards of the manufacturer.

The complication might have been avoided if the junction of the hub and needle had been tested prior to use. The metal needle shaft might also have been more amenable to recovery if the introducer had not been inserted to the hub. The admonition to avoid the introduction of needles completely to the hub has been made frequently<sup>2,3</sup>. The security bead was designed to limit the depth to which a needle could be inserted; however, this feature is not incorporated in any disposable needle currently available.

Because broken pieces of needle tend to wander, immediate removal is indicated. If a needle is diagnosed as broken while still fixed in its relationship to a second needle or stylette, the intact item should be left in place as a marker. If needle breakage is discovered after the proximal portion has been removed, a second needle should be

inserted as a marker along the tract of the broken needle. The relationship of the marker needle to the broken needle can be verified by tactile sensations or x-ray and the broken fragment removed following surgical exposure. Broken needles are particularly a problem when breakage occurs in deep inaccessible areas such as those involved while administering spinal, caudal, paravertebral, sacral, or lumbar sympathetic blocks. Indeed, the most detailed discussions of broken-needle retrieval exist in literature dealing with spinal anesthesia.<sup>4,5</sup>

The era of disposable needles has been associated with neglect of precautions previously proven to be indicated for the use of needles incorporated in regional block administration. Disposable needles should be checked prior to use for weakness, particularly at the needle-hub junction. When executing any block, needles of various lengths should be available so that insertion of needles to the hub can be avoided.

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## Partial Recovery from Pancuronium Neuromuscular Blockade Following Hydrocortisone Administration

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In 1952, Torda and Wolff<sup>1</sup> observed that adrenocortical hormones restored decreased neuromuscular action potentials toward normal in hypophysectomized animals. We believe the following to be the first reported case in which adrenocortical extracts improved neuromuscular function of a patient with supposed adrenal insufficiency.

### REPORT OF A CASE

A 44-year-old Caucasian man was anesthetized for vitrectomy and lensectomy because of proliferative

diabetic retinopathy, vitreous hemorrhage, and retinal detachment of the right eye. He had been known to be diabetic for 22 years; cryohypophysectomy had been performed two years previously in an attempt to halt progression of retinopathy. His diabetes mellitus was well controlled. Otherwise, the past medical history was unremarkable.

Physical examination revealed bilateral diabetic retinopathy and neuropathy of both feet and legs. Weight was 84 kg and height 180 cm; blood pressure ranged between 120/90 and 160/90 torr. The patient appeared euthyroid.

Medications included cortisone, 37.5 mg/day in divided doses, sodium levothyroxine, 0.1 mg/day, methyltestosterone, 10 mg/day, and lente insulin, 80 units in the morning, 35 units in the evening.

Routine laboratory studies disclosed no abnormality except elevated postprandial blood glucose levels.

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