Confusion, Dysphasia, and Asterixis Following Metrizamide Myelography

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SUMMARY: A patient exhibited confusion, dysphasia, and striking asterixis 18 hours after metrizamide myelography. The symptoms lasted for a day and a half. While metrizamide is a useful contrast medium, side effects are not unusual and can, on occasion, be quite severe.

Metrizamide is the first water soluble contrast medium to be approved for use in myelography in this country. Since its approval, it has become widely used for many reasons (Boyd and Gardner, 1977). It allows better visualization of nerve roots and its lower viscosity enables the contrast to fill the distal dural sheath, thereby defining subtle degrees of nerve root compression or impingement. As the contrast is water soluble, it need not be withdrawn at the conclusion of myelography, shortening the procedure, lessening fluoroscopy time, and producing less pain. A smaller gauge needle may be used for the initial puncture, theoretically lessening the incidence of post-lumbar puncture headache. Removal of the needle after contrast injection is routine and allows supine myelography. Finally, there is less likelihood of arachnoiditis.


Case report

A 43 year-old right-handed electronics technician with a past history of L5-S1 disc removal for left sided S1 radiculopathy was admitted with a four month history of low back pain radiating to the right lower extremity and great toe. Examination was consistent with a right L5 radiculopathy. Mental status was normal.

Three days after admission, the patient underwent lumbar myelography with metrizamide. At the time of the study, he had been without food or water for five hours. The lumbar puncture was performed after the L2-3 interspace and fourteen cubic centimeters (cc) of metrizamide, concentration 190 mg/cc, was injected. All the contrast was subarachnoid. The spinal fluid had 1 lymphocyte/cubic millimeter, a protein of 26 mg. per cent, and a glucose of 68 mg. per cent. The myelogram demonstrated a filling defect at the L4-5 interspace on the right consistent with intervertebral disc protrusion at that level. During the procedure, the patient's head was elevated except for a brief period of time when it was lowered so as to visualize the conus medullaris.

The following morning, seventeen hours after myelography, the patient was well despite having had a transient increase in his radicular pain and some vomiting initially following the procedure. An hour later, however, he was found to be confused. At that time, his pulse was 76, blood pressure 148/100, and respiration 20. He was afebrile. The patient was jocular. He was oriented to name and place but did not know month or year. When asked who the examiner was, the patient continually repeated the question and showed marked perseveration with other lines of questioning as well. He was unable to name the president or to repeat a series of digits. He did, however, remember the examiner after a two minute hiatus. Speech was clear, occasionally halting, with difficulty saying “no ifs, ands, or buts.” The patient could follow simple one step
Another floor of the hospital. While days later, he was found wandering on the floor, he was initially calm, he became belligerent and repeat CSF analysis was normal. The patient was observed overnight in the intensive care unit. Eight hours after onset of the confusional state he was unchanged. The following morning, twenty hours after onset, he was better, being oriented to person, place, and time, but with some expressive aphasia and perseveration still present. The asterixis had disappeared. An EEG at this time showed generalized slowing with intermittent frontal bursts of high voltage 1-2Hz activity and occasional right anterior temporal sharp waves. By that evening, thirty-two hours after the onset of the confusional state he was oriented to person, place, and time, but transient increase in back and leg pain effects referable to that particular area. Hindmarsh (1975) noted that a transient increase in back and leg pain following metrizamide myelography was common. Clonic spasms of the legs were noted as well, but no true spinal myoclonus occurred.

EEG abnormalities, CSF abnormalities, and seizures after metrizamide myelography have been of some concern. Grainger (1976) reported 16% of patients after metrizamide myelography had EEG abnormalities. In Instam and Sellden's series (1976), EEG abnormalities occurred in 8% with some bursts seen but no definite paroxysmal activity. Skalpe (1975) found 13 of 79 patients with transitory EEG abnormalities following use of metrizamide and 21 of 29 patients with CSF pleocytosis. Two years later, he noted a 32% incidence of EEG abnormalities with some spike-wave activity seen (Skalpe, 1977). Kaada (1977) performed electroencephalography before and after use of metrizamide. There was a 10% incidence of EEG abnormalities in the pre-study population and 16% in the post-study population. He felt that many of the post-metrizamide EEGs simply accentuated the pre-existing abnormality. Lundervold and Sortland (1977) described two abnormal EEG patterns: the first was transitory slow waves occurring no sooner than 24 hours following myelography. The second pattern was evident as early as four hours after myelography and consisted of spikes, sharp waves, atypical spike and wave patterns, and intermittent rhythmic frontal delta activity. The above case and discussion should illustrate, however, that pre-metrazamide central nervous system disease, the dose and location of metrizamide, and post-metrazamide care are crucial parameters that must be considered in the selection of metrizamide for the individual patient. Ahlgren's statement (1975): “Amipaque is so innocuous that it can be used in all regions of the spinal canal . . .” would appear at this time to be excessively optimistic.

REFERENCES


