Title: Routine use of epidurograms – A five year experience

Author(s): Andreas H. Taenzer, MD FAAP Cantwell Clark V, MD MS

Affiliation(s): Dartmouth Hitchcock Medical Center

ABSTRACT BODY:

Introduction

Epidural analgesia via continuous catheters, placed either via the caudal approach or directly at the desired level, is a commonly used technique in children. It is particularly important that these catheters are placed appropriately since the vast majority are placed under general anesthesia and require deep sedation or general anesthesia for replacement if dysfunctional. Ideally, correct placement should be confirmed at the time of insertion.
Radiographic evaluation has been used by the authors routinely for more than 5 years and is standard practice at our institutions. We review some of our experiences in 724 patients.

Methods

The volume of the styletted and un-styletted catheters we use is 0.2 to 0.3 ml. In order to get an idea of catheter tip location we administer a total of 0.7 to 1.0 ml of contrast to confirm placement. More contrast can be given to get an idea regarding spread of the eventual volume.

Results

In this abstract we present the results of misplaced catheters that were only detected by epidurograms. In other words, they were surprises with no clinical indication of misplacement.
One case of intrathecal spread of local anesthetic with a normal epidurogram at time of insertion as well as at the time of spinal sensory level. Four (0.05%) catheters were found intraperitoneally, two (0.02%) intrathecally, one in the psoas compartment and one in the rectum.

Discussion

We believe confirmation of epidural catheter placement via epidurogram is the current gold standard. Epidurography is the only currently available technique that accomplishes all of the following: Confirms correct placement, rules out incorrect space, predicts analgesic coverage.
We recommend confirmation of epidural catheter position in all patients that have epidural catheters placed under general anesthesia, because of the high failure rate and the fact that non-functional catheters likely would have to be replaced under deep sedation or general anesthesia. Very young and non-verbal patients also benefit from imaging techniques because of the difficulties in evaluation. Ultrasound may well become the standard technique for detection of catheters in the future. Currently, age and weight are limiting factors (own, unpublished data) for technical reasons. The advantages are easy portability and the lack of radiation and contrast administration. It works very well as a live technique and allows easy follow-up at the patients bedside with portable ultrasound. Disadvantages are mainly due to technical aspects at this point. Detection of the tip is difficult, catheters that end up in non-desired locations are more difficult to detect because of lack of spatial resolution. Since no contrast is given, undetected wet taps causing rents in the dura leading to potential intrathecal leakage of local anesthetic cannot be detected.