are detected by CT, what appears to be a complete block on routine myelography is often shown to be incomplete with computer-assisted myelography, thus obviating the need of a second puncture above the lesion. This greater sensitivity also allows for the use of smaller doses of metrizamide, particularly important in evaluating upper cord lesions that have the added risk of seizures due to contrast material.

Still, the use of computer-assisted myelography is not without its disadvantages. The procedure is invasive, requires contrast, exposes a patient to radiation and is limited to transverse projection.

Although in its relative infancy, magnetic resonance imaging (MRI) provides a new and in many ways superior evaluation of cord compression. The spine can be seen in both the sagittal and transverse projections. Abnormalities in cord diameter and contour are easily seen. Differences in soft-tissue densities are better delineated. As such, MRI is as accurate as CT and myelography in showing the cranial and caudal levels of obstruction without the invasive use of contrast material or exposure to radiation.

MRI, however, is not without its limitations. Slice thickness, although improving, is still quite large compared with CT. The procedure is relatively lengthy, and patient handling is more difficult in the confined spaces of MRI. Patients requiring advanced life-support equipment or cardiac pacemakers cannot be studied. Nevertheless, as technologic advances correct these limitations, MRI shows great potential as the diagnostic tool of choice in the evaluation of spinal cord compression.

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Computed Tomography Versus Peritoneal Lavage in Blunt Abdominal Trauma

PERITONEAL LAVAGE has for years been a useful technique in the evaluation of blunt abdominal trauma. Recently, however, computed tomography (CT) has gained favor and in many institutions has replaced lavage as the most frequently used modality.

Three questions are crucial to the evaluation of blunt abdominal trauma: (1) is blood present? (2) how much blood is present? (3) what organs are damaged? Tomography is superior to lavage in answering questions 2 and 3 and has some advantages relative to question 1.

Is blood present? Lavage is very sensitive in diagnosing intraperitoneal blood. Many studies have indicated that CT is equally sensitive, although some recent articles discussed below have questioned its reliability. There is no question, however, that lavage does not detect retroperitoneal hemorrhage, whereas CT does. Moreover, unlike CT, lavage may yield false-positive results due to either a traumatic tap or dissection of retroperitoneal blood into the peritoneal cavity through torn fascial planes.

How much blood is present? While lavage may detect intraperitoneal bleeding, it may not be very accurate in measuring the amount of free blood. Many clinically stable patients who might undergo laparotomy based on abnormalities detected by lavage can avoid surgical intervention if intraperitoneal bleeding is estimated to be relatively minor based on CT findings. In two studies, 60% of patients with liver lacerations and 79% of children with splenic injury were spared laparotomy.

What organs are damaged? Lavage offers no information regarding the specific organ(s) damaged. CT is quite sensitive and specific for the most frequently injured organs: liver, spleen and kidney. It is less sensitive for bowel and pancreatic trauma, but can often detect injuries to these organs as well.

Tomography does require time and is indicated only for patients who are hemodynamically stable. Unstable patients with obvious abdominal injuries should be taken directly to the operating room. Results of a previous lavage may be useful in confirming free intraperitoneal bleeding in such patients if there is any question.

While a number of studies have indicated nearly 100% sensitivity of CT in detecting clinically significant intraperitoneal bleeding, several recent articles have reported dramatically less sensitivity. The discrepancy between results from reputable trauma centers is disturbing and indicates that the issue has not yet been resolved. It is suggested that relying on CT alone in institutions with relatively little experience is not advisable. Yet the reports from some major trauma centers suggest that in hospitals with sufficient volume, CT may prove to be the most useful method for evaluating blunt abdominal trauma. Even one of the articles casting doubt on the reliability of CT states that if experienced CT interpretation is immediately available to determine the need for laparotomy, CT may be equal in sensitivity to lavage. Regardless of how the issue is ultimately resolved, however, there is no question that peritoneal lavage will always have an important role.

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Digoxin-Specific Fab Fragments

THE DEVELOPMENT of digoxin-specific antibodies has provided a significant therapeutic option for the treatment of digitalis intoxication. Hitherto experimental and available only at a limited number of centers, digoxin-immune Fab (Digibind) has been commercially released within the past year. The antibodies are produced by immunizing animals with digoxin coupled to a protein carrier, removal of serum, enzymatic digestion of the immune complex and separation of the digoxin-specific Fab fragments. Administered intravenously, the fragments bind to digoxin, rendering it pharmacologically inactive.

Fab fragments should be administered to a patient with digoxin or digitoxin intoxication who exhibits serious cardiac rhythm disturbance, hyperkalemia or both. Mild to pro-

nounced hyperkalemia is typically present in acute digitalis intoxication. The standard management of acute drug ingestion and antidysrhythmic management should be initiated until the immune fragments can be given. Therapy is considered successful if the rhythm disturbances cease and hyperkalemia resolves. Clinical trials have described remarkable success with the use of antibody fragments, with reversal of toxicity usually occurring within minutes to hours.

No notable side effects, adverse effects or hypersensitivity reactions have been reported following administration of Fab fragments. There is, however, limited experience with reexposure of patients to these agents. In patients with adequate renal function, the digoxin-Fab complex is fairly rapidly eliminated by glomerular filtration, with a half-life of about 16 to 20 hours. Once antibody fragments are administered, serum digoxin determinations become invalid as indicators of a patient's course because inactive, antibody-bound digoxin is measured.

The contents of a single vial of antibody fragments will bind approximately 0.6 mg of digoxin. The amounts required in treatment will vary with the quantity of digitalis ingested. An average of 12.5 vials per patient has been used in several major series. It has been recommended that 25 vials be stored at the treatment center.

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