



## NEURO IMAGE

### THE USE OF METRIZAMIDE

Metrizamide, or Amipaque, is now being widely used in Canada ever since it was accepted a few years ago.

Numerous publications are stressing its usefulness in the accurate assessment of the spinal cord and of the cauda equina. Not only is it used as a replacement of Ethiodan or Pantopaque in myelography but also as a replacement of the same in cisternography, and of oxygen in pneumoencephalography. It is also used in conjunction with computed tomography in the assessment of the spinal canal. There is no doubt that such a wide range of indications make Metrizamide a very useful contrast in the investigation of many neurological disorders.

Our short experience is that Metrizamide is less innocuous than most reports may indicate. It has side effects that are unpleasant to the patient and sometimes dangerous. We think that the use of Metrizamide should be reserved for specific problems, and the recommended pre-medication (Valium) should always be given: this in order to prevent or control those most common side effects, headaches, nausea, vomiting and also the rare but possible transient neurological disorders.

Denis Melançon

\*See survey on last page.

### METRIZAMIDE AND COMPUTED TOMOGRAPHY IN THE DIAGNOSIS OF SYRINGOMYELIA

We recently studied several examples of syringomyelia. The investigation was done by myelography and computed tomography. Metrizamide was injected in the lumbar region in concentration of 220 mg/ml in all cases. Computed tomography was done roughly one hour following the contrast injection and a second time six hours later.

The only conclusions that we derive from our observations are the following:

- Metrizamide easily reaches the fourth ventricle. (Lushka foramina probably help as much as Magendie's).
- Faint opacification of the syrinx is present on the 6 hour scan.
- The communication at the obex is probable but not demonstrated.

The phenomenon of ball-valve effect could be different from one patient to another; that could explain variable filling. Contrast will be more obvious in an empty cyst than in a full one because it won't be diluted. There is a slight change in density between the 0 and 6 hour scans, as if the contrast had diffused within the cord without any layering.

It would seem that computed tomography with Metrizamide does not always give the anticipated results. Many unknown factors remain. For better results, we should perhaps change or vary the concentration of the contrast and the lapse of time between exams.

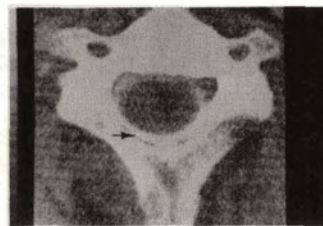


Figure 1  
1 hour scan: contrast in SAS outlining spinal cord



Figure 2  
6 hour scan: less contrast in SAS  
relative increase density of the cord

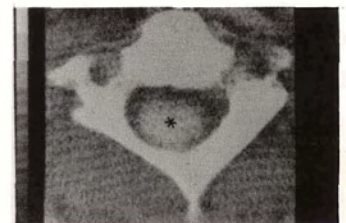


Figure 3  
Metrizamide within the spinal cord injected  
by percutaneous puncture

## VERTEBRAL SCALLOPING

Vertebral scalloping has been described as a manifestation of neurofibromatosis. It has often been understood as the result of erosion from a localized meningocele or by the presence of a neurofibroma.

In reviewing numerous examples of such scalloping, at different degrees, one realizes that it is not necessarily associated with a neurofibroma and not necessarily associated with a meningocele either. Most benign forms of scalloping are seen with a very distended dural tube which indents the vertebral bodies in between the intervertebral disc spaces. It is well known indeed that bone will be eroded easily by a pulsating fluid pocket, whereas more inert tissue such as collagen and cartilage will not. Such scalloping due to a large dural tube can also be seen on the pedicle. In most instances however, not only does the dural tube dilate generally but it may also produce outpocketings at different places and thus create a true meningocele, that is, herniation of the arachnoid and its fluid through a weak or dehiscent dural layer. This dural ectasia can also exist often without any neurofibroma.

The present article gives a variety of examples of vertebral scalloping.

### References:

-Skeletal lesions in neurofibromatosis.  
J. Hunt and D. Pugh  
Radiology; 76:1. 1961

-Neurofibromatosis  
W. Mezzaras et al.  
Amer. J. Roentgen.; 98:3, 1966

All three prints are a courtesy of Gus O'Gorman  
Montreal Children's Hospital

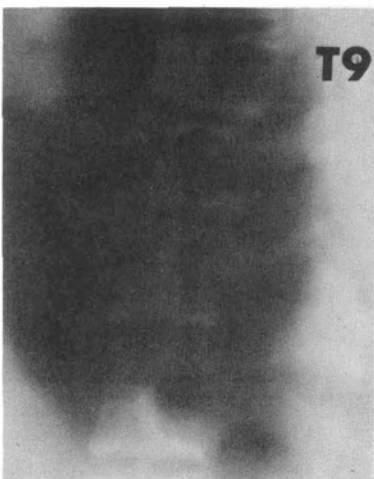


Figure 4

Extreme scalloping of thoracic vertebrae on a lateral tomography

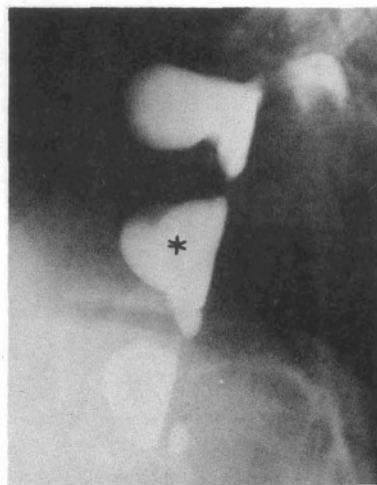


Figure 5

Myelography shows that scalloping is due to large invagination of the arachnoid space  
(Meningoceles, not neurofibromas)

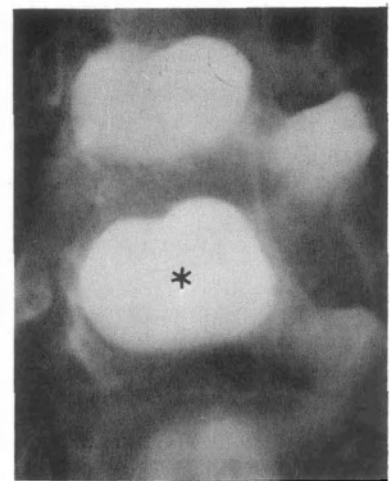
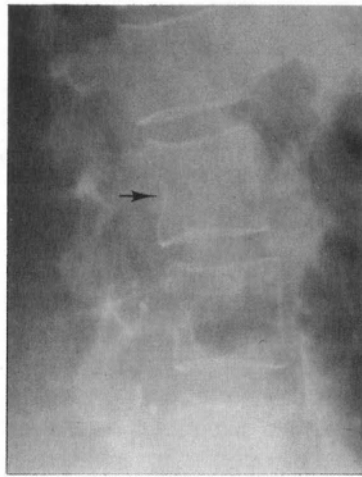
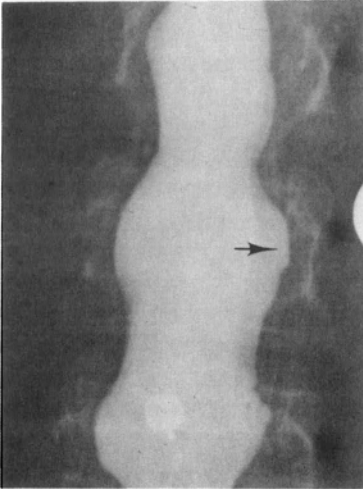


Figure 6

Same as figure 5  
Frontal view showing also meningoceles at intervertebral foramina

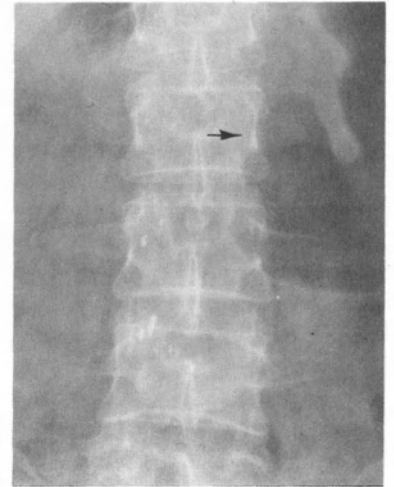


**Figure 7**  
Demonstrates erosion of pedicles

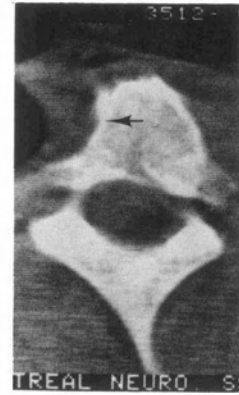
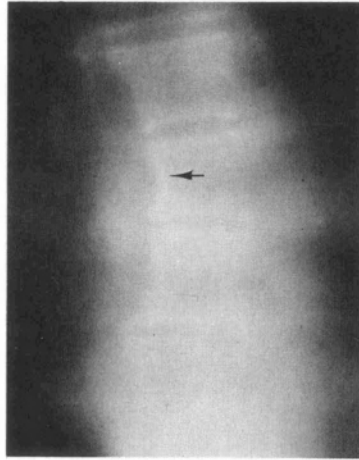


**Figure 8**  
Mild scalloping of the vertebral body

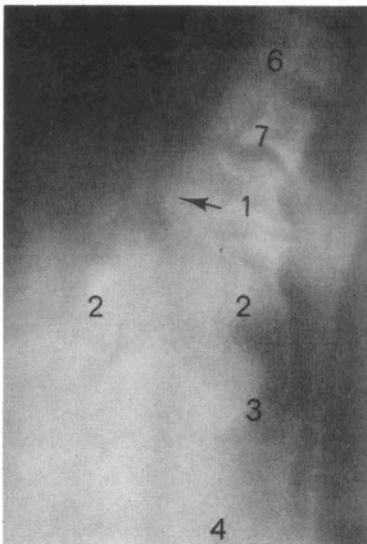
**Figure 9**  
Scalloping of pedicles  
Figure 7 explained by dural sac



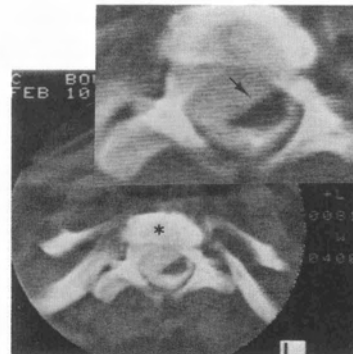
**Figure 10**  
Scalloping demonstrated on thoracic spine  
Tomography frontal and lateral



**Figure 11**  
CT shows scalloping but with no fluid mass  
Was interpreted as hypoplastic phenomenon



**Figure 12**  
Area of scalloping shown in vertebral bodies  
C7 T1 T2



**Figure 13**  
CT demonstrates displacement and deformity of cord

## \* SIDE EFFECTS OF AMIPAQUE

A survey of 181 consecutive patients.

88	No reaction	
83	Minor reactions:	nausea, vomiting, headaches, backpain.
10	Major reactions:	seizures (3), dysphasia (3), psychosis (1) severe weakness of legs (1), urinary retention (1), numbness in arm (1).

Since the above study our pre-medication has been modified to:

- . 200 mg phenobarbital p.o. the night before (to prevent seizure).
- . 10 mg Valium p.o. at the time of the study (for patient's relaxation).
- . Patient is fasting.

Following the study, the patient is kept sitting whenever possible.

Special supervision is requested and side effects are noted on report sheet from the time of the examination until 72 hours following it.

## CASES FOR NEURORADIOLOGY STUDY CLUB

### March 1981

- . GUS O'GORMAN
  - . Large thoracic intradural neurofibroma in neurofibromatosis.
  - . Arteriovenous malformation - occipital lobe.
  - . Subarachnoid cyst in one year old with repaired meningocele.
- . NORMAN JUST
  - . Subdural empyema
- . ROBERTO WEE
  - . Pituitary adenoma with coronal cuts.
  - . Cushing disease.
- . DENIS MELANÇON
  - . Methanol intoxication.
  - . Aneurysms, mycotic ?
  - . C.P.A. epidermoid.

### April 1981

- . GUS O'GORMAN
  - . Follow-up on subarachnoid cyst (March 1981).
  - . Two cases of inner table erosion in lower occipital squama.
- . NORMAN JUST
  - . Partial agenesis of corpus callosum.
- . MARVIN GOLDENBERG
  - . Pinealoma.
- . JEAN VÉZINA
  - . Retention cyst in sphenoid sinus.
- . DENIS MELANÇON
  - . Chiari Malformation on Metrizamide C.T.
  - . Primary cerebral neuroblastoma.