

Large Bolus Radionuclide Esophageal Transit May Predict Response to Esophageal Dilatation in Achalasia

R.G. McLean
R.C. Smart
D. de Carle
A. Lau

St. George Hospital
Kogarah, Sydney, Australia

TO THE EDITOR: In the clinicopathological conference, "Esophageal Scintigraphy in Achalasia and Achalasia-like Disorders," in the April issue of the *Journal*, it is stated that "It would appear that a primary role for esophageal scintigraphy would be in following the long-term response of patients with achalasia and comparing the scintigraphic findings to other clinical parameters, including symptoms. Unfortunately, no such long-term study critically assessing this role has been reported" (1). However, our study published in 1991 (2) discussed the predictive role of radionuclide esophageal transit in patients with achalasia.

We performed small (10 ml) and large (140 ml) bolus esophageal transit studies using a liquid tracer in 31 patients with achalasia who were undergoing pneumatic dilatation in an attempt to predict subsequent clinical response to the procedure. Thirty-three paired studies were performed immediately before and one day following dilatation, and clinical response was assessed at 1 mo. The large bolus studies accurately predicted the clinical response in 30/33 cases (91%), while small bolus studies were correct in 19/31 (58%) ($p < 0.01$). The reason for performing a study before discharge is that many of our patients may have to travel long distances (up to 500 km) for the procedure, and it is therefore advantageous to be able to predict who will need to undergo redilatation before discharge. While our paper reported clinical follow-up at 1 mo, the results at 6 mo were identical.

Our technique was a modification of that previously reported by Oei et al. (3) and Akkermans et al. (4) who used a large liquid bolus as opposed to the standard small bolus in patients with achalasia. The rationale is that in such patients, the effect of gravity, which is not normally an important factor in esophageal transit, is important in aiding passage through a hypomotile esophagus and hypertensive esophageal sphincter. Similar results have been found by Robertson et al. (5).

Our study demonstrates that the standard small bolus study is relatively insensitive in predicting response to dilatation, however, when using a large bolus and comparing transit immediately before and one day following dilatation, the procedure had an accuracy of 0.91 (positive predictive value 0.95, negative predictive value 0.82). We feel that in the management of patients with achalasia, large bolus esophageal transit studies are the preferred technique.

REFERENCES

1. Lichtenstein GR, Alavi A. Esophageal scintigraphy in achalasia and achalasia-like disorders. *J Nucl Med* 1992;33:590-594.
2. McLean RG, Smart RC, de Carle D, Lau A. Radionuclide oesophageal transit in achalasia: prediction of response to oesophageal dilatation. *Gullet* 1991;1:131-134.
3. Oei HY, Akkermans LMA, Bogaard JW, ten Thije OJ. Assessment of oesophageal function in achalasia using small and large test volumes. *Eur J Nucl Med* 1985;11:A31.
4. Akkermans LMA, Oei HY, Bogaard JW, Smout AJPM, ten Thije OJ. Radionuclide measurement of oesophageal transit in achalasia before and after treatment using small and large test volumes. *Gastroenterology* 1986; 90:1323.
5. Robertson CS, Hardy JG, Atkinson M. Quantitative assessment of the response to therapy in achalasia of the cardia. *Gut* 1989;30:768-773.

REPLY: This is interesting work, however, the published data on this paper reports clinical follow-up at 1 mo. This is a short-term follow-up, not a long term follow-up. My statement that "no such long-term study critically assessing this role has been reported" is accurate. The finding that the results at 6 mo were similar to the results at 1 mo is of interest and it would be important to follow these patients further and subsequently publish this data.

Gary R. Lichtenstein
Hospital of the University of Pennsylvania
University of Pennsylvania School of Medicine
Philadelphia, Pennsylvania

Technical Considerations in the Handling of a Cadaver Having Received Radioiodine Prior to Death

TO THE EDITOR: While a 41-yr-old white male patient with known thyroid cancer was worked up for possible uptake by metastases with a whole-body radioiodine (NaI-131) study (WBS), the patient died from an unknown cause. He had received 5 mCi (185 MBq) NaI-131, p.o., approximately 4 hr prior to death.

The patient had been admitted to the hospital complaining of low back pain radiating to his lower extremities. A bone scan obtained the day after admission showed abnormal uptake at L-3 as well as in the right temporo-parietal area of the skull. A CT scan following the bone scan showed two axial lesions: one just below the calvarium in the right temporo-parietal area, and another smaller lesion in the left thalamus.

Although a rare occurrence, the possibility of edema or hemorrhage due to functioning metastases in the brain should be avoided by prior elimination of function in these metastases using external beam radiation. After x-ray therapy (XRT), one can proceed with radioiodine therapy (1).

The patient was treated with whole brain radiation (30 Gy in 12 fractions). Ten days later the patient received the 5 mCi radioiodine WBS dose. Since the patient was considered to be at high risk by the extent of his disease, a Memorial Sloan-Kettering dosimetric protocol was begun (2). When the patient did not return for his body burden measurement 4 hr after receiving the dose of radioiodine, it was learned that he had been found in full arrest in his room and had been pronounced dead by the code team. Although the patient was found in asystole and without spontaneous respiration, the team leader noted the presence of bowel sounds at the time he examined the patient while responding to the code.

The hospital was faced with two problems: an unknown cause of death requiring an autopsy and the control of potential internal contamination of staff from the previously administered 5 mCi of NaI-131. The radiation exposure levels were measured on