

ALARM OVER ORAL BARIUM ADMINISTRATION BEFORE BONE SCANNING

We have been alarmed by a recent report (1) which advocates the administration of oral barium daily prior to bone scanning to better outline the large bowel roentgenographically. The stated purpose of this technique is to exclude false-positive areas due to ^{85}Sr in the bowel. Where barium con-

centrations superimpose abnormal areas of increased activity on the scan, bowel activity is presumed.

We feel this is a dangerous inference as is demonstrated by the case shown in Fig. 1A of a 35-year-old female studied to exclude breast metastases to bone. An area of increased activity is seen in the

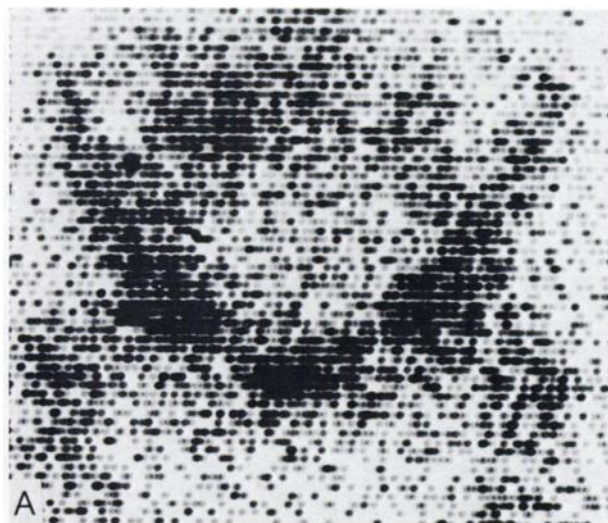


FIG. 1. Thirty-five-year-old female patient studied to exclude breast metastases to bone. A is ^{85}Sr scan of pelvis showing increased activity in right sacroiliac area. B is x-ray showing large-bowel shadow in same region. C is ^{85}Sr rescan several days later; activity in right sacroiliac area remains unchanged. D is pelvic tomograph showing lytic lesion in right ilium.

right sacro-iliac area. The concomitant roentgenogram (B) shows a large bowel shadow in the same region. On rescanning several days later (C) the activity in the right sacro-iliac area remains unchanged. Pelvic tomography (D) reveals a lytic lesion in the right ilium not seen on the metastatic series.

A review of the last fifty ^{85}Sr bone scans performed in this department shows that fully 25% of scans required repeating at least one view. By far the greatest number of these repeat scans (10 out of 13) were undertaken to rule out activity within the large bowel. In view of the long scanning time and appreciable patient discomfort involved in ^{85}Sr bone scanning, every effort should be made to cleanse the large bowel prior to scanning the spine and pelvis. We routinely administer laxatives or enemas where appropriate. If activity is seen within the pelvis or spine in an area that could be within bowel, we rescan to rule out bowel activity following a repeat

laxative order. In two of the 50 cases reviewed activity thought to be in bowel subsequently proved to be bony lesions. In another case activity thought to represent a lumbar spine lesion proved to be bowel activity.

The assumption that abnormal scan activity is within large bowel because it superimposes the bowel seen roentgenographically seems unwarranted. Rather than exclude false positives, it will result in false negatives. The way to exclude false positives is to rescan and this should include both spine and pelvis because bowel activity may occasionally superimpose the lumbar and lower thoracic spine.

REFERENCE

1. IRWIN, G. A. L.: The use of oral barium in bone scanning. *Am. J. Roentgenol.* **103**:432, 1968.

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REPLY BY THE AUTHOR

It would seem that Dr. Harbert's "alarm" may not be as serious as he imagines. It arises, I fear, out of both his misunderstanding the intent of my article and also my own poor attempts to state my ideas in a clear, concise way.

I would like to state first that I agree completely with Dr. Harbert's remarks, but would like to make several additional comments.

1. We use the barium only as a diagnostic aid to *localize* retained stool after thorough preparation with laxative and enemas (just as Dr. Harbert does). The barium is only to help discover retained stool, which may at times be impossible to detect otherwise on abdominal films, leading to a false impression of a cleansed bowel. Even the most experienced radiologist can fail to detect small amounts of feces on x-ray films at times.

2. I did *not* mean to imply that where bowel and areas of increased radioactivity coincide, the bowel

is the only cause of the activity. I intended to suggest rather that the positive area *could* be due to the bowel activity rather than a positive lesion of the bone. Obviously, rescanning *must* be done following additional cleansing (just as Dr. Harbert does), thus establishing whether the positive area is stool activity or bony abnormality. It seemed rather obvious to me that an experienced physician *would* repeat the scan under such circumstances, but perhaps I erred in not making this point more directly in the article. In summary then, I think Dr. Harbert and I actually agree with each other about the hazards of interpreting bone scan, and I heartily concur with him that with a doubtful scan, it is mandatory to rescan the area following additional cleansing.

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