

## THE AUTHOR'S REPLY

The extension of hepatic tissue into the left quarter of the abdomen, on posterior view, occurs in perhaps one-third of the cases we have seen. This has been referred to as "hepatic-walk" and might be more common when the spleen is removed. The point made by Dr. Ryo is well taken. Hepatic tissue crossing into the left upper quadrant must be distinguished from the spleen with a defect. We have used the following aids:

1. Multiple angulated views are often helpful (and in the case we reported, the defect was confirmed on several views). Incidentally,

- we had other studies on the patient showing the progressive change in the lesion.
2. When the liver extends into the left, a continuous band of tissue can often be seen (although "thinned" by attenuation from the vertebral column).
  3. A change of position can be helpful in making the decision, as suggested by Dr. Ryo.
  4. Finally, "spleen-specific" scanning agents can be used to resolve uncertainties.

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RADIONUCLIDE SYNOVECTOMY WITH  $^{32}\text{P}$ -CHROMIC PHOSPHATE

The paper of Martin A. Winston, et al (*J Nucl Med* 14: 886-889, 1973) is very interesting in proposing a new radiocolloid for radiation synovectomy. Surgical synovectomy is a procedure extensively used in rheumatoid arthritic patients for alleviation of pain. Some of these patients and others with pathologic traumatic arthritis have chronic effusion and for this latter group radiation synovectomies have been conducted since 1963 by Ansell (1) and Makin (2-6).

As is well known, in rheumatic and osteoarthritic patients, external x-ray radiation was widely used many years ago by radiotherapists for alleviation of pain in the involved joints and in some places it is still used.

In the extensive population under treatment for rheumatoid diseases there is a place for the procedure reported by Winston, et al as shown by the following case.

NE, a 73-year-old white woman, was admitted in August 1972 for exacerbation of rheumatoid arthritis. She complained of pains and difficulty in bending her right knee, which prevented her from walking. Corticosteroids, indomethacine, and acetylsalicylic acid were withdrawn because of gastric complications. Her right knee was hot, active, but without effusion, and the patient refused a proposed surgical synovectomy. Accordingly, we administered radioactive colloidal gold. The patient received 10 mCi  $^{198}\text{Au}$  intra-articularly. Makin proposed a minimum dose of 8 mCi to absorb effusion, which we chose for these treatments. As reported by Winston, et al there was a flare-up without increase in pain in

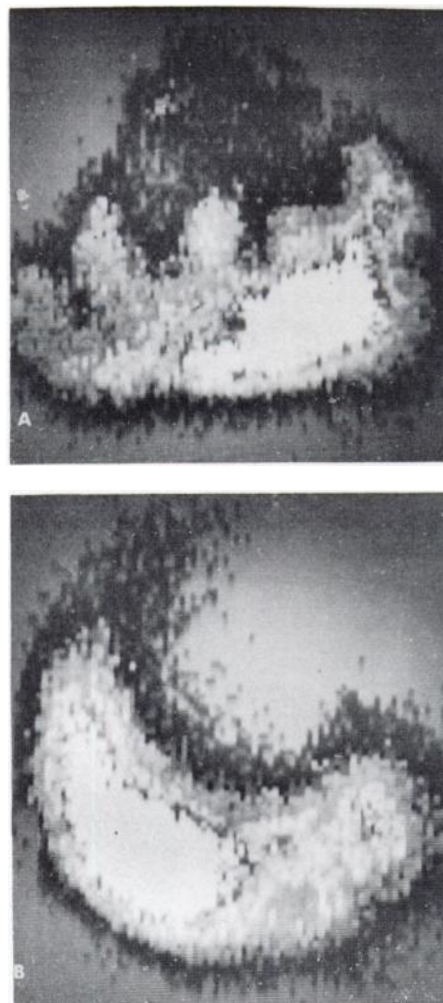


FIG. 1. (A) Anterior view of right knee following intra-articular administration of  $^{198}\text{Au}$ -colloid. (B) Lateral view.

the instilled joint, local heat and mild reddening were observed between Days 4 through 6 after treatment, and relief of pain was noted about 3 days after that with improved movement of the involved knee in the wheel chair and the possibility of walking. The patient's knee scan made a few days after the instillation showed the anatomy of the synovial structures (Fig. 1) (7).

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#### REFERENCES

1. ANSELL BM, CROOK A, MALLARD JR, et al: Evaluation of intra-articular colloidal gold Au 198 in the treatment of persistent knee effusions. *Ann Rheum Dis* 22: 435-439, 1963

2. MAKIN M, ROBIN GC: Intra-articular radioactive gold in the treatment of chronic synovial effusions. *J Bone Joint Surg* 48B: 582, 1966

3. MAKIN M, ROBIN GC, STEIN JA: Radio-active gold in the treatment of persistent synovial effusion. *Isr J Med Sci* 22: 107-111, 1963

4. MAKIN M, ROBIN GC: Chronic synovial effusions treated with intra-articular radioactive gold. *JAMA* 188: 725-728, 1964

5. MAKIN M, ROBIN GC: Radioactive colloidal gold in the treatment of chronic synovial effusions. *Proc R Soc Med* 61: 908-910, 1968

6. MAKIN M: Treatment of chronic synovial effusions by interarticular radioactive gold. *XL congress inter de chir orthop et de traum*, Mexico, 6-10 Oct 1969, pp 1039-1047

7. MAXFIELD WS, WEISS TE, SHULER SE: Synovial membrane scanning in arthritic disease. *Semin Nucl Med* 2: 50-70, 1972

#### RADIATION DOSE TO THE BRAIN FROM $^{169}\text{Yb}$ -DTPA IN CISTERNOGRAPHY

The radiation dose to the brain from  $^{169}\text{Yb}$ -DTPA administered intrathecally has recently come into question. J. Barbizet, et al (1) have suggested the radiation dose to the brain can be as high as 1,500 rads/mCi administered. The high radiation dose is due to apparent persistence of activity in the meningoencephalitic structures and can be detected over a period of 3 months' time.

In their recent letter to the editor, R. Morris and F. DeLand (2) studied five patients from 9 to 87 days to detect any long-term retention of  $^{169}\text{Yb}$  and found only a few percent of the administered activity to have long-term retention in the brain.

We also have made quantitative measurements on six patients to assess the retention of  $^{169}\text{Yb}$  in the head region. Three of the patients were studied out to 4 days postadministration and three out to 9 days. One patient returned at 3 months with no detectable radioactivity. Of these six patients four showed abnormal flow patterns and two were normal.

All measurements were made with the gamma camera coupled to a PDP-11 computer. The brain region excluding the brain stem was flagged to determine background counts. The net brain counts were obtained for anterior, posterior, and right and left lateral views. The geometric mean of the anterior and posterior counts was determined and similarly for the right and left lateral views. A calibration factor relating microcuries of  $^{169}\text{Yb}$  to imaged counts was obtained from a standard 50-ml volume source in a water phantom. Corrections were made for varying head dimensions and skull attenuation (3).

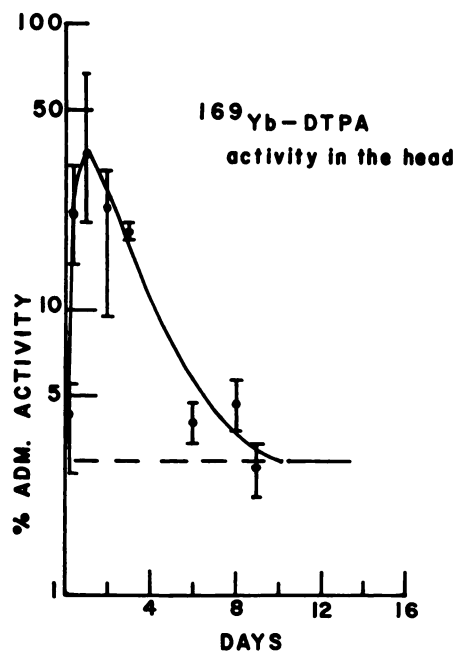


FIG. 1. Percent of administered activity in head region following intrathecal injection of 1.0 mCi of  $^{169}\text{Yb}$ -DTPA. Error bars indicate range of measured values.

The fraction of administered activity in the head is shown in Fig. 1 as a function of time. The initial flow of activity into the head follows a half-time of about 8 hr, the disappearance half-time is on the order of 24 hr, and 3% of the activity is assumed to be retained with an effective half-life of 32 days.

The activity in the head at t hours after adminis-