

Intraperitoneal Injection of Technetium-99m Sulfur Colloid in Visualization of a Peritoneo-Vaginalis Connection

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Ten minutes after an intraperitoneal infusion of Tc-99m sulfur colloid, a gamma camera was used to obtain anterior abdominal views. This visualized a peritoneo-scrotal communication in an 80-yr-old patient. He had developed extensive edema of the genitals and lower limbs after about 6 wk of continuous ambulatory peritoneal dialysis. At operation the communication was confirmed and closed. A repeat test verified the success of operation.

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CASE REPORT

An 80-yr-old man with chronic renal failure of undetermined cause started continuous ambulatory peritoneal dialysis (CAPD) on November 30, 1982. A peritoneal catheter was inserted in the subumbilical median region. This treatment produced satisfactory results for 6 wk. The water balance was negative and the amount of fluid leakage in 24 hr was 1.5 l greater than the dialysate volume infused into the peritoneal cavity. On January 13, 1983, the patient was readmitted for increasing edema. His weight had increased by about 3.5 kg and a considerable decrease of ultrafiltration was noted. The daily excess of peritoneal drainage was about 500 ml in the 4 days before hospitalization. There was no abdominal pain. The peritoneal draining liquid was clear and the culture remained negative.

There was little edema in the malleoli, internal thighs, and lateral lumbar regions, but it was much greater in the scrotum and penis, especially the right side. The scrotal diameter was about 15 cm; otherwise, the clinical examination was normal. With a sodium-restricted diet (1 g of NaCl per 24 hr), furosemide therapy (250 mg i.v. each 24 hr), and a supine position, the patient completely resorbed the lower-limb edema.

In spite of the disappearance of most of the edema after reduction of both water and sodium retention, scrotal edema persisted. A continuous total draining of the peritoneal liquid during 72 hr allowed us to observe a considerable decrease of the scrotal volume, but after restarting peritoneal dialysis, the hydrocele reappeared.

In view of these results, it was possible to consider an effusion of the dialysis liquid through the inguinal duct. Addition of 5 mCi of Tc-99m sulfur colloid to the bag of peritoneal dialysis fluid allowed us to visualize a striking peritoneo-vaginalis communication.

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Anterior views of the lower abdomen and scrotum were obtained with a large-field-of-view gamma camera at 10 min and 1 hr after tagging the peritoneal infusion. Note, however, that as soon as 10 min after radionuclide infusion, a clearly visible passage of radioactivity to the right side of the scrotum was visible, suggesting an open processus vaginalis (Fig. 1).

At surgery the hernial sac was ligated at its neck. Three days later, peritoneal dialysis was restarted. The scrotum remained normal in size and the tracer study was repeated. This time the scintigrams showed no passage of the labeled infusion into the right side of the scrotum, either at 10 min or at 1 hr (Fig. 2).

DISCUSSION

CAPD often causes dialysate leakage through an abnormal opening in the abdominal wall. Previously, a radionuclide infused into the peritoneal space had led us to visualize an abnormal pleuro-peritoneal connection (1,2). The disadvantages of the methylene-blue procedure are not present in this simple, painless, and noninvasive method, and it was able to demonstrate a peritoneo-vaginalis connection in an 80-yr-old patient undergoing CAPD.

We selected Tc-99m sulfur colloid as the radiotracer because of both the simplicity of the preparation and the particle size, which was most appropriate to this investigation. Scrotal edema had first appeared after 6 wk of CAPD, and this suggested that increasing intraabdominal pressure had led to the opening of a hernial orifice. If an inguinal hernia occurs after the commencement of CAPD, it is rarely detectable before this procedure is started. However, 15% to 37% of adult males have a processus vaginalis that is partially or fully open (3). Cryptorchidism can similarly be the cause of an open processus vaginalis.

During the first few weeks of CAPD, any suspicion of liquid passing through an orifice in the abdominal wall can be investigated by intraperitoneal administration of Tc-99m sulfur colloid.



FIG. 1. Anterior view of lower abdomen and scrotum, with 5 mCi Tc-99m sulfur colloid. Tracer can be seen in lower abdomen and in right side of scrotum.

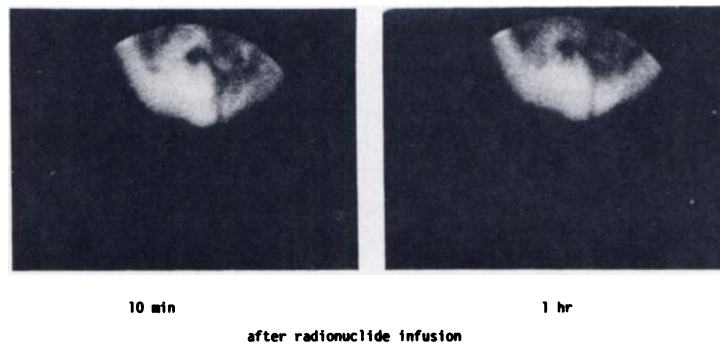


FIG. 2. Anterior view of lower abdomen, with 5 mCi Tc-99m sulfur colloid. Right side of scrotum is no longer seen.

In our case, a repeat test after surgical correction confirmed the success of the operation.

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