

Case of the Quarter

Diagnostic Possibilities for ^{99m}Tc Abdominal Scanning

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Case History

A 5-year-old male was brought to the emergency room with the chief complaint of weakness and tenderness in the right periumbilical area as well as black stools for the past 48 to 72 h. The parents of the child stated no previous history of gastrointestinal abnormalities or a trauma to the area of concern. Laboratory blood studies showed a 17.7% hematocrit and a 6.1-g hemoglobin. The patient was admitted for further tests and observation.

Radiographs of the upper GI, small bowel, and a ^{99m}Tc abdominal scan were ordered. The UGI and small bowel were read as normal. The abdominal scan demonstrated an area of increased activity in the lower right abdomen (Fig. 1).

Considering the patient's symptoms and laboratory and x-ray results, the increase in activity seen on the scintiphoto of the abdomen is probably due to:

1. Neoplastic disease of the small bowel.
2. Meckel's diverticulum.

3. Duodenal ulcer with bleeding.
4. Intussusception.

Solution and Discussion

The correct answer is 4, intussusception (1, 2). The uptake of activity at the site of the intussusception is probably due to a high degree of edema and hyperemia of the bowel. Furthermore, the size of the area of activity remained constant throughout serial scans up to 1 h postinjection.

The patient had an exploratory laparotomy at which time an intussusception involving 2 in. of the small bowel was found. An appendectomy and repair of the intussusception were performed. A specimen of the appendix was sent to pathology along with a portion of the affected small bowel. The report indicated no gastric mucosa was

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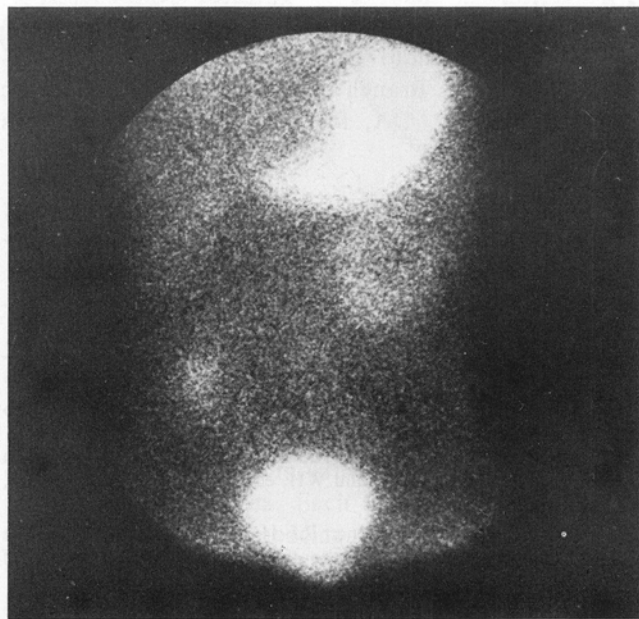


FIG. 1. Abdominal scan 45 min post injection showing area of increased uptake.

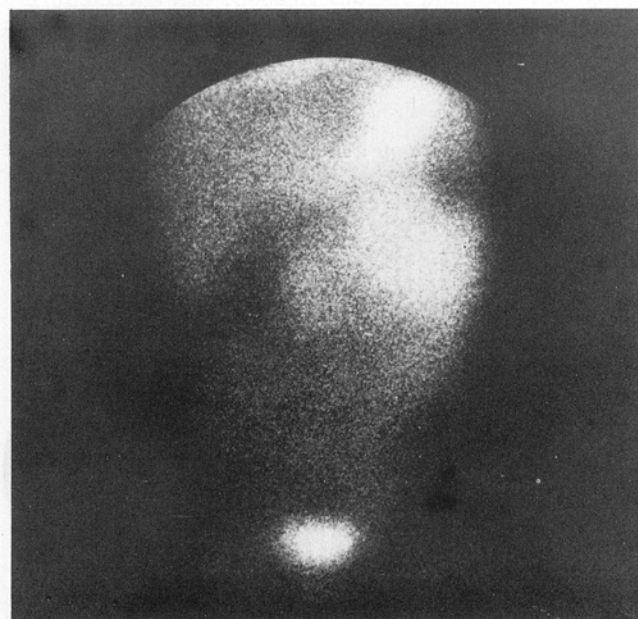


FIG. 2. Abdominal scan 4 days post surgery with no evidence of increased uptake.

present; however, there were traces of fresh blood in the appendix. A followup scan was done four days postsurgery that showed a normal pattern (Fig. 2).

Our procedure was a modification of that described by Jewett et al. (3) and Leonidas and Germann (4).

Conclusion

The increased uptake pattern seen on the ^{99m}Tc abdominal scan is probably representative of the site of intussusception. This would account for the positive scan prior to surgery. The other possibilities listed should be considered when a positive abdominal scan is seen.

References

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2. Duszynski DO, Jewett RC, Allen JE: Tc 99m Na pertechnetate scanning of the abdomen with particular reference to small bowel pathology. *Am J Roentgenol Radium Ther Nucl Med* 113: 258-262, 1971
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4. Leonidas JC, Germann DR: Technetium 99m pertechnetate imaging in diagnosis of Meckel's diverticulum. *Arch Dis Child* 49: 21-26, 1974