FALSE POSITIVE MECKEL'S DIVERTICULUM

Jenelle Fernandez, MD
Pediatric PGY-1
Mercer University School of Medicine
Children's Hospital Navicent Health

Conflict of Interest

I have no actual or potential conflict of interest in relation to this program/presentation

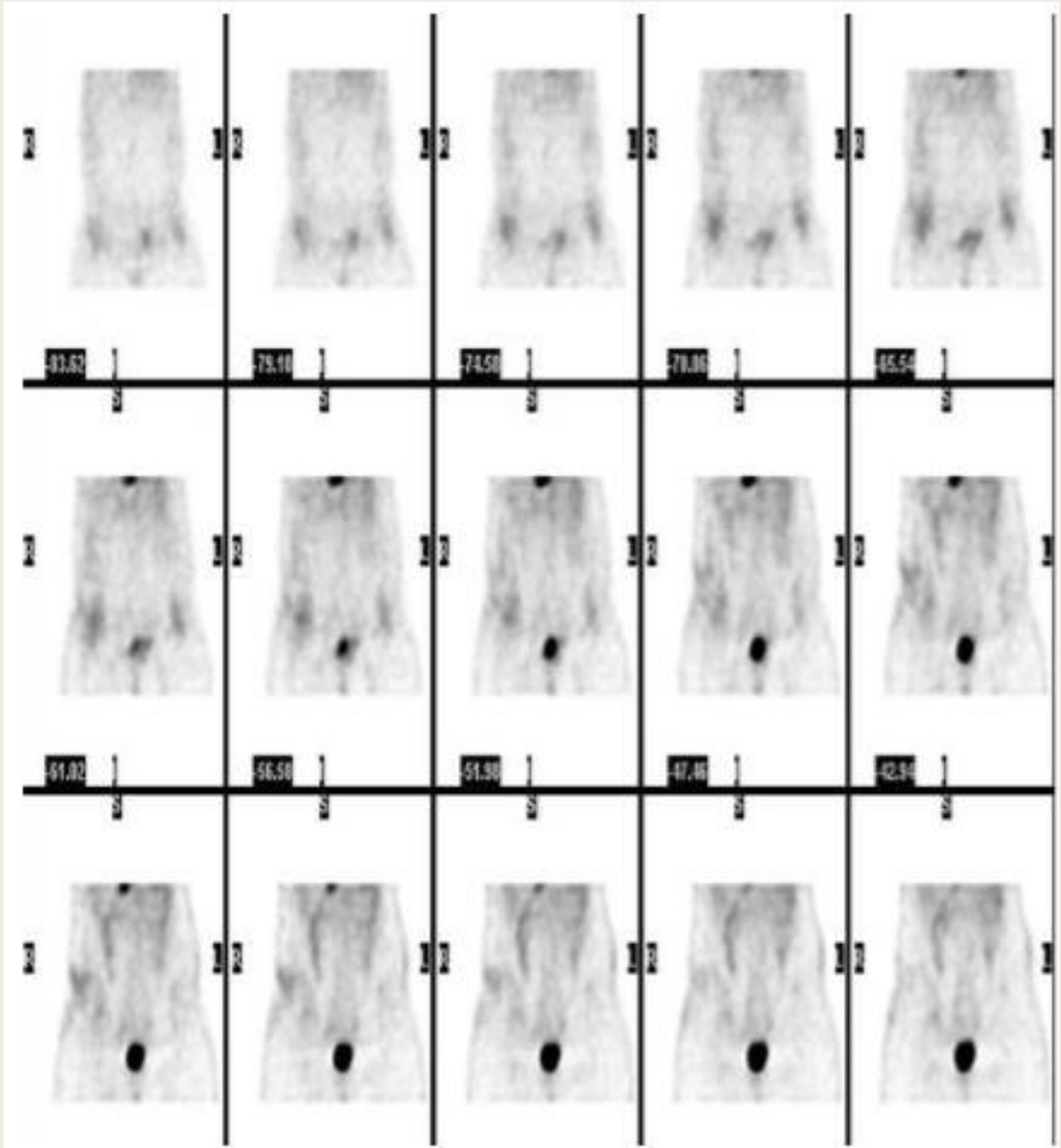
Case

- A 13-year-old female patient presented with acute onset, colicky, right lower quadrant abdominal pain that started one day ago
- This pain was associated with bright red, painless rectal bleeding that had been ongoing for the past one month. The blood was noticed on wiping as well as mixed in stool
- There was no history of hard bowel movements or painful defecation.
- Past medical history: bilateral hip dysplasia that required periacetabular osteotomy a month ago
- Physical exam :
  - *Patient was in mild distress with a pain scale of 6/10 in intensity, but the rest of the physical exam was within normal limits*
  - *Abdominal exam was significant for generalized tenderness, but no guarding and rigidity*

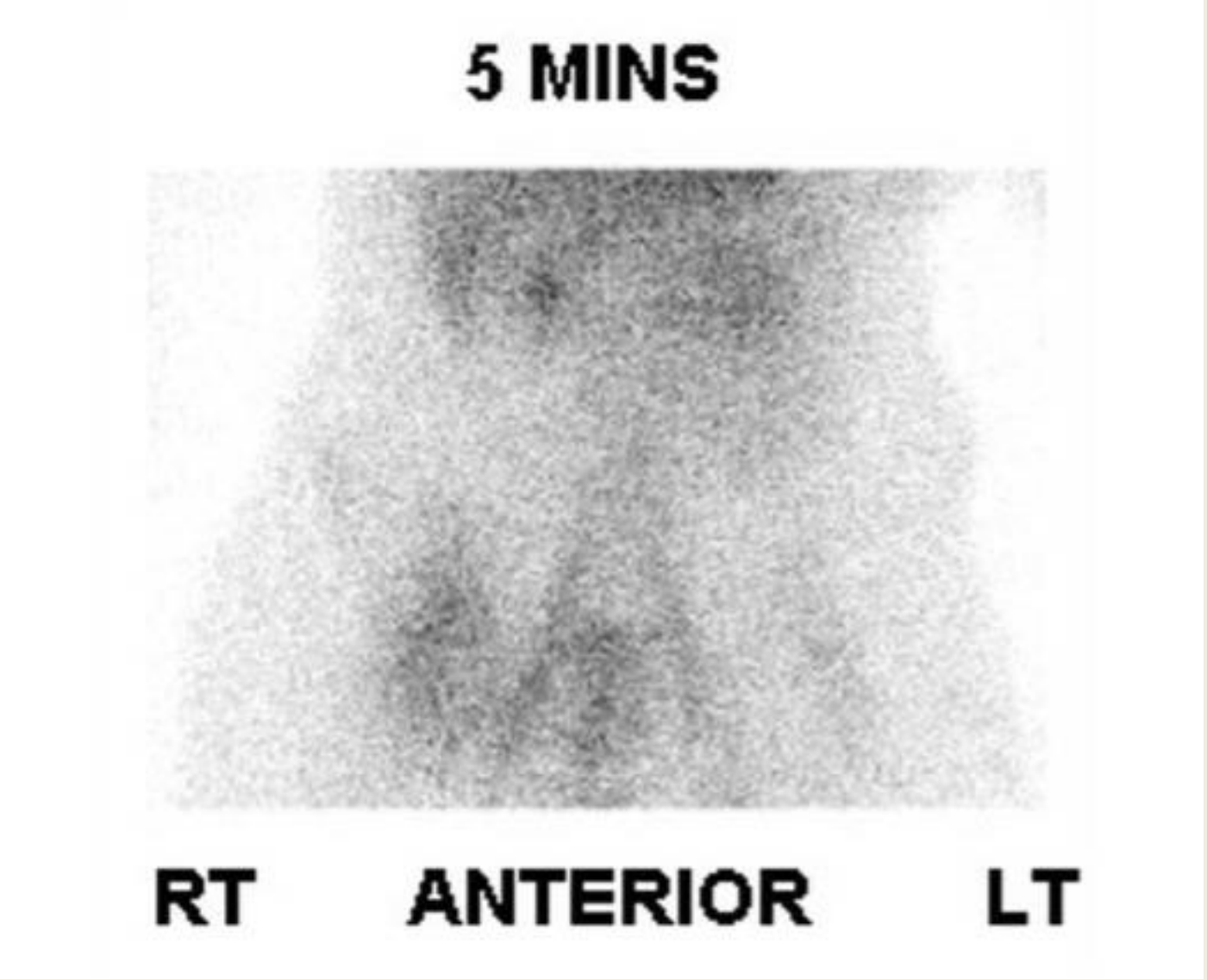
Labs/Radiology

- **Hemoglobin: Hematocrit -**9.7 g/dL/31.2 %
- **MCV:** 80.5
- **Meckel's Scan:** diffuse streaky uptake of the tracer in the right lower quadrant, more lateral in location than normal which coincided with that of the stomach
- **SPECT:** Accumulation of the 99mTc was noted in the right joint capsule
- **MRE:** Soft tissue enhancement was noted around the right hip, deep to the iliacus and psoas muscle. The findings are most consistent with post-surgical inflammation of the right hip.

Meckel's Scan



SPECT



MRE

DISCUSSION

False positivity during a Meckel’s scan and approach needed

Background

- Meckel's diverticulum is the most common congenital malformation of the gastrointestinal tract (present in 2%-4% of population) due to persistence of the congenital vitello-intestinal duct
- Bleeding from Meckel's diverticulum due to ectopic gastric mucosa is the most common clinical presentation, especially in younger patients, but adults present with complications such as obstruction; intussusception; ulceration; hemorrhage
- Since introduction of the scan by Harper et al. in 1962 as a method of diagnosing Meckel's diverticulum Technetium-99m pertechnate scan is the most common and often first line approach used by physicians presented with such cases of rectal bleeding
- In children, it has a sensitivity of 80%-90%, a specificity of 95% and an accuracy of 90 %

False positive Meckel's Scan

- False positive studies are uncommon but have been reported, with emphasis on the early/ late appearance of tracer as compared to that of the gastric mucosa, that fades over time
- Whereas in a Meckel's diverticulum, uptake of radio-tracer occurs simultaneously, usually between 10 and 20 min after tracer injection, and persists throughout the study, increasing in intensity parallel to the intensity of the stomach.
- In false positive studies such findings may be related to the accompanying hyperemia seen with bowel ulceration, bleeding and obstruction
- Misdiagnosis can be avoided if careful attention to the timing and visualization of the tracer during the perfusion scan is made

Discussion

- However, in our patient localization of radiotracer, in the right lower quadrant, coincided with that of the stomach, mimicking activity noted with a Meckel’s diverticulum
- Since tracer accumulation was broader, more lateral and streaky in configuration as compared to the focal small rounded appearance seen with a Meckel’s diverticulum, the diagnosis of a Meckel's diverticulum was avoided and led to further investigation
- SPECT imaging, localized tracer uptake in the right hip joint capsule, possibly due to inflammation
- MRE confirmed inflammation of the right joint capsule
- It is possible the drop in the hemoglobin and hematocrit may have been related to the surgical repair of the hip dysplasia and rectal bleeding due to an anal fissure.
- The patient was treated with stool softeners and iron supplementation. Since then she has remained asymptomatic with normalization of the hemoglobin and hematocrit

Conclusion

- Our case highlights the importance of not only concentrating on the timing of enhancement of the radiotracer in relation to that of the gastric mucosa, but also on the shape and location of the accumulation, in order to avoid misdiagnosis and unnecessary surgical exploration
- Often a multidisciplinary approach is needed

Thank you for you time
Questions?

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