Radio- Opaque Material In A Non- Contrast CT Scan Of Abdomen -A Radiology Dilemma.

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INTRODUCTION

This is a case of a radiology dilemma in which a CT scan without oral or IV contrast showed radiopaque materials in the stomach of an IV drug abuser in the setting of a positive UDS for cocaine raising suspicion for a drug bezoar which was later found to be a commonly consumed food.

CASE DESCRIPTION

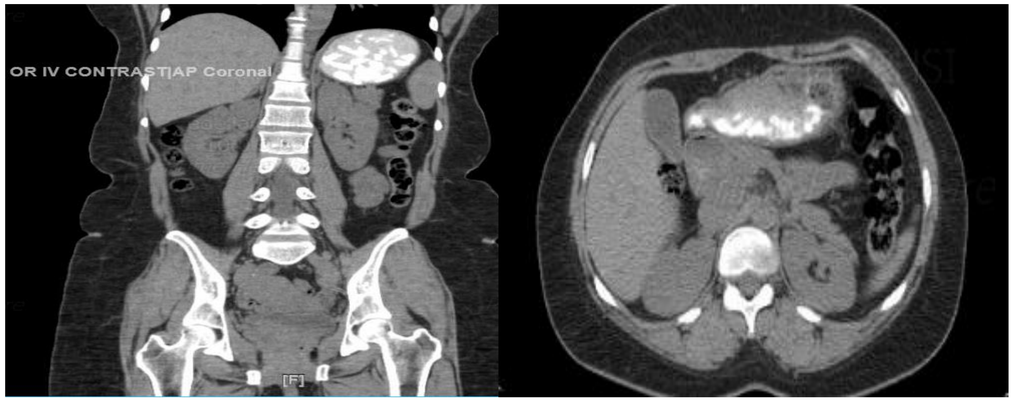
- 35-year-old female presented to the ED for abdominal pain and drainage from groin.
- Past medical history includes chronic osteomyelitis of pubic ramus, recurrent pubic abscess on suppressive therapy with minocycline, MRSA bacteremia and IV drug abuse.
- Her complains include vague abdominal discomfort and drainage from right groin where she recently had an I&D done for an abscess. It started 2 days ago associated with swelling and pain in the same area along with generalized lower quadrant abdominal pain and chills.
- Her vitals were stable and pertinent physical exam findings includes draining pus from I&D scar and tenderness in pubic bones.

WORKUP

- Urinary drug screening was positive for cocaine and marijuana.
- Ultrasound of soft tissue showed pubic abscess measuring 1.8 x 1.2 cm.
- CT scan without oral or IV contrast was taken. CT showed abscess near pubic symphysis with associated cortical destruction. There was multiple tubular and oval shaped radio-opaque materials in the stomach.

IMAGES

FIGURE : Radio-Opaque tubular and oval shaped materials in a non-contrast CT of abdomen.



DISCUSSION

- Based on the CT findings there was a strong suspicion of body packer syndrome or drug bezoar, especially in the setting of patient's history of drug abuse and positive UDS findings.
- There was further dilemma as this was a non-contrast study and bezoar will be visualized only in a contrast study. Further history taking revealed patient had 1 packet of gummy worm gummies prior to the CT. The radio-opaque materials were hence found to be gummy worm gummies.
- We believe that the likely reason for these gummy bears to have been radio-opaque on CT scan is the presence of Red Dye Number 3 (also known as Erythrosine B).

- Red Dye Number 3 is a tetraiodofluorescein dye that is widely used as a color additive in food and drugs[1]
- The large amount of iodine (4 atoms per molecule of Red Dye Number 3) would explain why a concentration of gummy bears, would mimic calcification on the CT scan.
- In fact, thyroid cancer patients are advised to avoid food and medications containing Red Dye Number 3 due to its high iodine content.

Conclusions

- Although this case is unremarkable from the standpoint of history, physical examination, and ultimate diagnosis, the finding that gummy bear candy is radio-opaque is extremely interesting.
- Sir William Osler said, "medicine is a science of uncertainty and an art of probability". When there was uncertainty, our medical team believed in sticking to the basics, which is thorough history taking which opened us the path to solve this radiological dilemma.
- Case reports have shown that these gummies have caused bezoar causing bowel obstructions especially in children hence knowing their radiological features helps us solve such gastrointestinal cases without dilemma.
- We should educate more about the possible causes of radiolucency in CT scan. There has been previous reports describing CT opacifications due to jelly candies[2] and bubble gum simulating abdominal calcifications[3] . Pepto-Bismol has been reported to mimic pancreatic calcification, most likely due to the bismuth component.[4]The authors attribute this to the presence of calcium carbonate in the gum base. Amiodarone contains 37% iodine by weight, and high-resolution CT scan has been studied to diagnose early amiodarone-induced pulmonary toxicity by identifying radio-opaque iodine deposition on the lungs and pleura .[5]

This case led us to consider the mnemonic PIG BEACH for radio-opaque substances that may appear on our abdominal radiographs or CT scans

PIG BEACH
P: phenothiazines
I: iodinated compounds, e.g., contrast media
G/B: gummy bears (due to an iodinated food dye 2)
E: enteric-coated pills
A: amiodarone
C: chloral hydrate/cocaine packets
H: heavy metals

Contact

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