Retained barium in the appendix or right ureteric colic? A case report of surgeons dilemma

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ABSTRACT

INTRODUCTION: Retention of barium in the vermiform appendix for more than 72 h following barium meal study is uncommon. It may produce undue concern for increased risk for appendicitis and even prophylactic appendectomies have been performed for this.

PRESENTATION OF CASE: We encountered one such patient who presented with X-ray plate suggestive of tubular radio-opacity in the right iliac fossa region. The patient had episodes of severe pain in the right lower abdomen for which he underwent barium meal study. Further evaluation and investigations established the diagnosis as, a case of recurrent right ureteric colic with retained barium in the appendix.

DISCUSSION: Review of the literature suggests that, in absence of acute appendicitis there is no role of appendectomy, even in a case of retained barium in the appendix.

CONCLUSION: If atypical presentation is there, they should be appropriately further investigated.

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1. Introduction

Barium meal follow through is a radiological investigation to delineate the small bowel anatomy. Visualization of the appendix in these studies is common and normal, but persistent visualization in subsequent X-ray films even after 72 h has been considered abnormal.1 Cases have been reported where appendicitis developed in such appendices and were termed “barium induced appendicitis”.2 However studies have failed to establish a cause and effect relationship between barium retention in the appendix and subsequent development of the appendicitis. It is still not advisable to perform appendectomy in such circumstances without the evidence of an acute episode.3

We present one such patient who had features suggestive of right ureteric colic and presented with retained barium in the appendix.

2. Presenting concerns

A 28 years old male attended our outdoor with an 8 days old X-ray film showing tubular radio-opacity in the right iliac fossa region.

He had two episodes of severe pain right lower abdomen in past 2 months for which he underwent barium meal follow through. Although the report came out to be normal but again he had an episode of pain. This time X-ray abdomen was not completely normal and the patient came to our OPD for advice.

2.1. Clinical findings

The patient was pain free at presentation. His bladder and bowel activities were normal. No abnormality was detected on abdominal examination and general examination.

2.2. Timeline

| Days | Events |
|------|--------|
| 0    | Barium meal follow through study |
| 4    | X-ray abdomen for repeat episode of pain abdomen |
| 12   | Presented to our OPD with X-ray film |
|      | Routine blood investigations, repeat X-ray abdomen (Fig. 1), USG abdomen advised |
| 15   | CT scan abdomen performed |
| 20   | X-ray abdomen (Fig. 2) done |
| 60   | X-ray abdomen-normal |
| 5 months | Lost in follow up |

2.3. Diagnostic focus and assessment

Routine blood investigation were sent and found to be normal. Repeat X-ray abdomen confirmed that the findings were not an artifact (Fig. 1). Ultrasound abdomen was advised to rule out abnor-
malities in right urinary system or some obvious bowel pathology. It revealed 2 tiny calculi of 4 mm size in right kidney. A contrast enhanced CT scan of the abdomen was then performed to rule out any bowel pathology especially in the appendix or near ileocaecal region. It concluded that the bowel was normal but there was a tiny right renal calculi. An X-ray of abdomen performed 7 days later, showed persistence of the radiographic opacity (Fig. 2).

2.4. Therapeutic focus and assessment

Based on above findings and investigation we concluded that this is a case of retained barium in appendix with recurrent right ureteric colic because of passage of renal calculi. Symptoms got relieved on conservative therapy and subsequent USG showed no calculi in renal system.

2.5. Follow-up and outcomes

The radio-opacity was not noticeable on X-ray abdomen, 2 months after barium study. Prophylactic appendectomy was not done in our case, and the patient did not developed signs of acute appendicitis till 5 months when he was lost in follow up.

3. Discussion

The appendix is visualized in 80–90% of barium swallow or enema studies, and this is accepted as a reliable sign of a non-diseased appendix but post-examination only 10% of the patients retain barium in the appendix beyond 72 h. Its prolonged retention in the appendix has been viewed as altered physiology or pathological.

Although barium sulphate is inert and not harmful to the mucosa, cases have been reported where appendicitis developed long after barium studies and were tagged as barium induced appendicitis. Baroliths have been conclusively retrieved from appendectomy specimen, even after 3 months following barium study in patients with acute appendicitis. Despite these case reports studies have failed to prove the cause and effect relationship between barium study and acute appendicitis. Important in this regard is the work of Maglinte et al. who studied thirty-one patients with retained barium in the appendix for longer than 72 h and followed them for over 1 year. He failed to find any association between barium retention and development of acute appendicitis. This finding has also been supported by other workers.

Based on above we conclude that the decision to perform appendectomy should be based on the diagnosis of acute appendicitis and that the prolonged retention of barium in the appendix is not an indication for surgery.

In our case since no signs or symptoms were suggestive of acute appendicitis, the active search for other causes were made. Finding of small renal calculi in right kidney suggested that the etiology could be ureteric colic.

4. Conclusion

If a person presents with retained barium in the appendix, no appendectomy should be performed in absence of findings suggestive of acute appendicitis. If atypical presentation is found, then they should be appropriately further investigated. Some unusual things like right ureteric colic (as in our case), may be the answer to the atypicality of the presentation.

Conflict of interest

None.

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Ethical approval

Written informed consent was obtained from the patient for publication of this case report and accompanying images. A copy of the written consent is available for review by the Editor-in-Chief of this journal on request.
Author contributions

Dr Mithilesh Kumar Sinha: data collections, data analysis and writing, Dr Rajan Kumar Sinha: writing.

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