

An Uncommon and a Rare Presentation of Acute Appendicitis with Calculus Cholecystitis in a 12-Year-Old Girl: A Case Report

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Abstract

Acute appendicitis is very common general surgical emergency in teenagers while cholecystitis is common in middle-aged females but cholecystitis at the age of twelve year is very rare and along with acute appendicitis is even rarer. We describe a case of 12-year-old female who came to the outpatient department of Abbasi Shaheed Hospital with the complain of on and off pain in the right iliac fossa for the last one year. Abdominal examination was positive for rebound tenderness in right iliac fossa at the McBurney's point. Computed Tomography scan of whole abdomen showed gallstones with normal looking appendix. Impression of acute calculus cholecystitis with recurrent acute appendicitis was made. Laparoscopy along with laparoscopic cholecystectomy was planned. On Laparoscopy appendix was found to be inflamed so laparoscopic cholecystectomy along with laparoscopic appendectomy was done via the same ports. Acute appendicitis along with cholecystitis due to cholelithiasis is very uncommon and very few cases have been reported in literature.

Keywords: Appendicitis, acute cholecystitis, laparoscopy.

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Introduction

Acute appendicitis is a surgical emergency that is defined as inflammation of appendix, which is very common in teenagers regardless of gender. Cholecystitis either calculus or acalculus, is defined as the inflammation of gall bladder. It is common in females who are usually fertile, are in their forties and are fat. Despite the fact that both of them are the most common cause of abdominal pain and they are third most common surgical cases worldwide, simultaneous presentation of both pathologies is extremely rare with common female predilection^{1,2}. Likewise in children it is even rarer. Appendicitis is proposed as being linked to the pathogenesis of gallstones. For example, due to inflammation, ulceration of the mucosa of the appendix occurs during appendicitis, which enables

bacterial translocation from the appendix to nearby structures. The roles of bacterial infections and inflammatory processes have also received attention in the formation of gallstones. Although acute appendicitis was observed to be associated with certain GI track illnesses, no one has specifically examined its relationship with gallstones^{3,11}.

Acute appendicitis is one of the common clinical emergencies in young children, if not treated timely can lead to complications like peritonitis and ruptured appendix with high mortality rates^{3,4}. A little is known about the prevalence of cholecystitis due to cholelithiasis in paediatric population however, majority of them had some predisposing factors like haemolytic anaemia, cystic fibrosis, etc. with female predilection and most commonly idiopathic gallstones^{1,5}. Here we present a case of acute appendicitis along with calculus cholecystitis in a twelve-year old female patient.

Case Report

A 12-year-old female child, with no known comorbidities presented to surgical outpatient department at Abbasi Shaheed Hospital with the complain of on and off pain in right iliac fossa and

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epigastrium for around one year. According to my patient she was in her usual state of health one year back when she started having pain in the right iliac fossa and epigastrium. Pain was localized to right iliac fossa and epigastrium which was sudden in onset, continuous in nature, severe in intensity, throbbing, non-radiating, associated with nausea, vomiting and low-grade fever. Vomitus contained food particles and was small in quantity. Fever was low-grade, continuous, undocumented, relieved with anti-pyretic and has no aggravating factors. Patient went to the local clinic and was given analgesics and antibiotics, and her complaints were relieved for the time being. She had multiple similar episodes in the last one year with the history of multiple admissions in different hospitals where she was managed conservatively with the antibiotics and painkillers.

On general physical examination patient was thin and lean, ill looking, sitting comfortably on the stool, well oriented with time, place and person. On per abdominal examination abdomen was soft, mildly tender at right iliac fossa and epigastrium, with positive rebound tenderness in right iliac fossa at the McBurney's point. Haematological work up showed Haemoglobin of 10.9 gm/dL with normal total leukocyte count. Ultrasound whole abdomen was done multiple times from different laboratories, some of them showing cholelithiasis while others showed no sonographic evidence of acute cholecystitis or acute appendicitis. However, computed tomography scan of the whole abdomen was done which showed multiple small gallstones with normal looking appendix. To rule out hereditary spherocytosis or any other haematological disorder haemoglobin electrophoresis was done which was normal. Liver Function Tests and PT, APTT & INR were done which were also within normal range. Rest of the work up was unremarkable. Impression of acute calculus cholecystitis was made on clinical grounds, which was confirmed by computed tomography scan. The diagnosis of recurrent acute appendicitis which was suspected by clinical examination was also made.

Diagnostic +/- therapeutic laparoscopy was planned with laparoscopic cholecystectomy and/or appendectomy. On laparoscopy, appendix was found to be swollen, oedematous, and hyperaemic and adhered to the lateral abdominal wall. Adhesions were removed and appendectomy was performed along with laparoscopic cholecystectomy via the same ports. Post operatively patient was kept nil by mouth for 8 hours and recovery was smooth. On third post-operative day patient was discharged home and follow-up was done which was satisfactory.

Histopathology of appendix showed acute appendicitis. Sections of gallbladder revealed chronic cholecystitis with cholesterosis.

Discussion

Literature review showed very few citations of synchronous cholecystitis due to cholelithiasis along with acute appendicitis where the common risk factors observed were adult age group, with a female predilection, chronic illness, and pregnancy¹. Unique to our above mention case is paediatric age group where no known case of such pattern has been cited until now. Clinical feature of appendicitis and cholecystitis can be very different from one and other with certain features more predictive of one or the other¹.

The clinical presentation of acute appendicitis is very much variable. However, patient typically presents with migratory nature of pain, which initially begins in the paraumbilical region, which then shifts to the right iliac fossa. Migratory pain is useful discriminating feature with a sensitivity of upto 80%. Tenderness on palpation, rebound tenderness at McBurney's point along with Psoas sign, Rovsing's sign, Dunphy's sign, and rarely performed Markel's sign are used to rule in appendicitis⁶. However, absence of any of these or all of these does not rule out appendicitis. Elevated total leucocyte count in haematological reports along with clinical signs are usually initials of diagnosis of acute appendicitis. Although research proves that total leucocyte count may be normal in acute appendicitis⁷.

Patients with acute Cholecystitis present with the short history of right upper quadrant of abdominal pain. Cholelithiasis, although common in females², occurs rarely in children which may be due to some predisposing factor. Most common predisposing factor was cephalosporin intake (27.3%) related to the widespread use of ceftriaxone in treatment of paediatric infectious diseases. Haemolytic anaemias (13.6%), were the second most common predisposing factor for inducing cholelithiasis. Cystic Fibrosis was also the significant risk factor for gallstones, but idiopathic gallstones are more common than any other cause of cholelithiasis⁵. Classical clinical signs of cholecystitis are right upper quadrant pain and positive Murphy's sign.

Nowadays computed tomography has been reported for detection of cholelithiasis with sensitivity of 85 - 95% and specificity of 100% and likewise confirm diagnosis of calculous cholecystitis was made on computed tomography scan of abdomen⁸. Computed tomography has high accuracy for the non-invasive assessment of patients with suspected appendicitis, with reported sensitivities of 88 - 100%, specificities of 91 - 99%⁹. However, in our case, computed tomography scan did not identify appendicitis and diagnosis were made clinically based on rebound

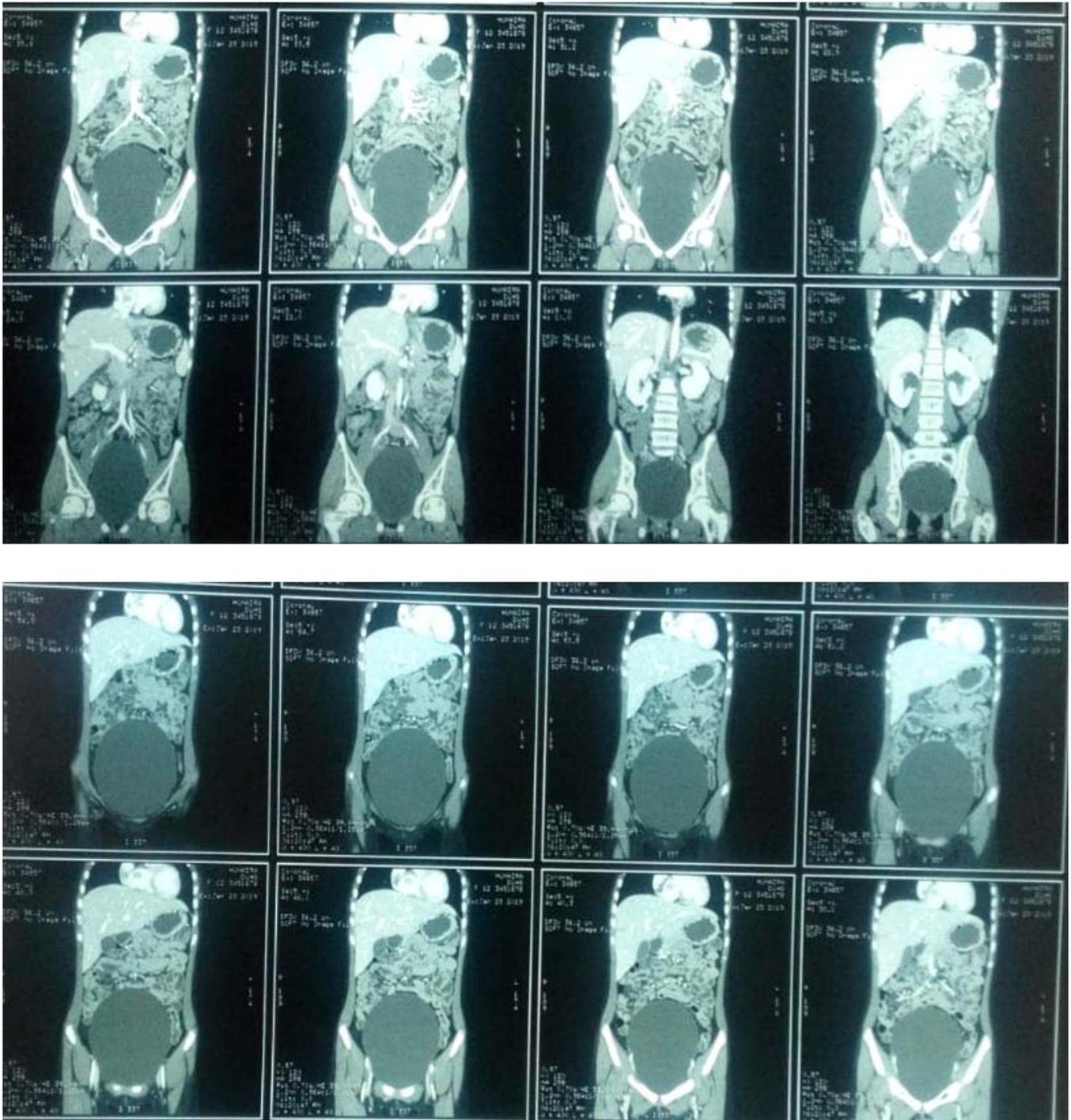


Fig 1. CT scan whole abdomen and pelvis with contrast coronal view showing cholelithiasis, rest of the scan is unremarkable

tenderness at McBurney's point. Such cases are seen rarely and sometimes even diagnostic test with high sensitivities and specificities do not give confirmatory findings. It is the expertise and clinical experience of surgeon who makes definitive diagnosis on

the basis of sign and symptoms of patient with clinical correlation and diagnose the case and make the management plan accordingly, as it was done in our case.

Very few cases have been reported which shows simultaneous presentation of appendicitis along with cholecystitis due to cholelithiasis in all age group especially in paediatric age group. We have found six articles in literature with the similar presentation but none of them were in young age group, as in our case, with more common female predilection and adult age group with co-morbidities. Clinical correlation plays utmost role to rule out the differentials even when highly sensitive and specific test like computed tomography scan are unable to make definite diagnosis. It depends on surgeon's experience and confidence to manage and diagnose the case by clinical evaluation of patient.

We can only hypothesize the pathogenesis of concurrent occurrence of acute appendicitis along with cholecystitis due to cholelithiasis due to the very few number of reported cases. It is very difficult to explain the aetiology of the concomitant occurrence of both. Previous studies have shown a similar pattern of concurrence and predicted that the possible pathogenesis may be due to impaired secretion of bile salts from the liver and invasion of *Escherichia Coli* in the cholangiolar level, directly damaging and invading muscularis propria of appendix and causing acute appendicitis¹⁰. However, both pathologies can be unrelated to each other and there is no evidence to support the exact aetiology of this co-existence¹¹.

Conclusion

Very few cases have been reported which shows simultaneous presentation of appendicitis along with cholecystitis due to cholelithiasis in all age group especially in paediatrics' age group. Clinical correlation plays utmost role to rule out the differentials even when highly sensitive and specific test like Computed Tomography scan are unable to make definite diagnosis. It depends on surgeon's experience and confidence to manage and diagnose the case by clinical evaluation of patient. Most of the time abdominal pain refers to the single diagnosis, but more than one diagnosis can still co-exist. In this case, diagnostic +/- therapeutic laparoscopy can be an ideal approach, allowing surgical access to the entire abdomen.

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