Blunt abdominal trauma-A rare cause of Acute Appendicitis

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ABSTRACT

Combination of blunt abdominal trauma and acute appendicitis is a rarely encountered condition in surgical emergency. It is a debatable issue whether abdominal trauma is a cause of acute appendicitis or it is a coincidental finding. Herein, we report a case of 13 years old boy who presented with blunt abdominal trauma. Further clinical and radiological finding suggests acute appendicitis. He underwent appendicectomy and was discharged in a healthy condition after one week.

Keywords: acute appendicitis, blunt abdominal trauma

INTRODUCTION

Acute Appendicitis is the very common acute abdominal condition encountered by the surgeons in emergency. Well known etiological factors are infections, dietary and genetic factors.[1] Although blunt abdominal trauma has also been suggested as a rare cause of acute appendicitis in some studies, still doubts persists regarding its casual association.[2] this instant case reinforce the evidences of blunt abdominal trauma being a cause of acute appendicitis.

CASE REPORT

A thirteen years old boy presented to emergency department after sustaining blunt abdominal trauma while playing. His vitals were normal: PR-80/min, BP-110/70 mm Hg; Hb-13gm%. Abdominal examination was normal except mild tenderness on right side. Abdominal ultrasound revealed free fluid in pelvis and laceration in the right lobe of liver. Findings were confirmed by CECT abdomen (Figure 1).

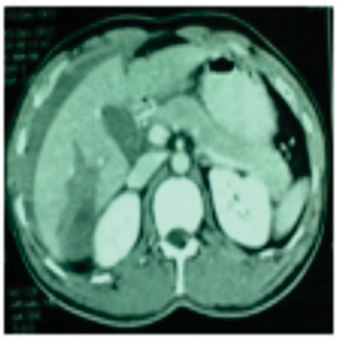

Fig.1.CECT film showing laceration of right lobe of liver and free fluid in peritoneal cavity

Patient was managed conservatively with i/v fluids and antibiotics and vitals were monitored. Gradually pain abdomen increased with evident distension, diffuse tenderness and fever. Repeat USG showed earlier information plus inflamed appendix and some free fluid in the right iliac fossa. The WBC count raised to 16,000 mm^3. The patient was posted for appendectomy. Appendix was acutely inflamed with burst at tip with some purulent fluid in right iliac fossa (Figure-2).

Fig. 2. Peroperative photograph showing acutely inflammed appendix with burst at tip

Appendicectomy and peritoneal lavage of peritoneal cavity was carried out. Diagnosis of acute appendicitis was also confirmed by histo-pathological examination. Patient maintained well in post operative period and was discharged on 7th post operative day in healthy condition. At one month follow up the patient was doing well.

DISCUSSION

Acute appendicitis is one of the most common surgical emergencies worldwide affecting approximately 7% of general population.[3] The most acceptable pathophysiology of appendicitis is obstruction of its lumen triggered by fecoliths, foreign body and by bacterial infections.[4] Blunt abdominal trauma though rare, has also been reported as a cause of acute appendicitis in some of the studies.[2,3]

The pathological process of development of traumatic appendicitis has been explained by many mechanisms. One of the suggested mechanisms of acute appendicitis following blunt abdominal trauma is appendiceal edema, inflammation and hyperplasia of lymphoid tissue which eventually lead to obstruction of its lumen and thus acute appendicitis.[5]

A researcher proposed that following blunt trauma there is sudden increase in intra-abdominal pressure lead to increased intracaecal pressure, appendiceal mucosal injury and decreased appendiceal blood flow which lead to acute appendicitis.[6] Direct or crushing injury over caecum in the presence of fecoliths leads to trauma or expulsion of gas and fecal content into the lumen, causing increased luminal pressure. Moreover, mucosal laceration allow invasion of bacteria into submucosa. This leads to obstruction, decreased circulation, gangrene and subsequent perforation of appendix as in present case.[2] Since caecum is the widest part of the colon, it is most susceptible to distension with increased intra-colic pressure resulting in injury to appendiceal orifice. This leads to increased inflammation of appendiceal orifice and eventually appendicitis.[7] Few authors attribute traumatic appendicitis to visceral edema caused by vigorous fluid administration during resuscitation after blunt abdominal trauma.

In the present case the points in favor of acute appendicitis resulting due to blunt abdominal trauma are: 1) No abdominal pain prior to trauma as the boy was playing normally before trauma, 2) Presence of severe abdominal trauma indicated by presence of liver laceration on CECT abdomen, 3) Symptoms suggestive of acute appendicitis appeared after 3 days, time taken for appendiceal inflammation to set in.

There is no difference between clinical presentations of appendicitis due to traumatic and non- traumatic causes. Moreover, while managing such cases the attention of treating doctor is drawn more towards commonly occurring injuries of liver, spleen, other solid and hollow viscera, and other trauma associated injuries. The important thing is to keep the possibility of acute appendicitis while dealing with blunt abdominal trauma; and in suspicious cases ultrasonography is a good diagnostic tool for confirmation. Some author even advocate E-FAST scan (Extended Focused Assessment with Sonography in Trauma) which include the visualization of appendix for evaluation of blunt abdominal trauma cases.[8] In doubtful cases CECT abdomen is the investigation of choice, which can diagnose acute appendicitis besides other organ injuries

in blunt abdominal trauma. Routine hematological and biochemical investigations are not very useful in such cases. The treatment of traumatic appendicitis is appendicectomy, similar to that done in non-traumatic cases.

CONCLUSION

Acute appendicitis must be kept in differential diagnosis following blunt abdominal trauma. Hemodynamically stable patient who presents with clinical progression suggestive of appendicitis should undergo immediate imaging modalities like abdominal ultrasound or abdominal CT scan; so that in positive cases timely appendicectomy can be done and potential complications of delayed treatment can be avoided.

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REFRENCES

1. Wangensteen OH, Buirge RE, Dennis C, Ritchie WP. Studies in the etiology of acute appendicitis. *Ann Surg*. 1937; 106:910-42.
2. Fowler RH. The rare incidence of acute appendicitis resulting from external trauma. *Ann Surg*. 1938;107:529–39.
3. Toumi Z, Chan A, Hadfield MB, Hulton NR. Systematic review of blunt abdominal trauma as a cause of acute appendicitis. *Ann R Coll Surg Engl*. 2010;92:477-82.
4. Etensel B, Yazici M, Gursoy H, Ozkisacik S, Erkus M. The effect of blunt abdominal trauma on appendix vermiformis. *Emerg Med J*. 2005, 22:874-7.
5. Etensel B, Yazici M, Gürsoy H, Ozkisacik S, Erkus M. The effect of blunt abdominal trauma on appendix vermiformis. *Emerg Med J*. 2005;22:874–7.
6. Ramsook C. Traumatic appendicitis: fact or fiction? *Pediatr Emerg Care*. 2001;17:264–6.
7. Sharma AK, Vig S, Neades GT. Seat-belt compression appendicitis. *Br J Surg*. 1995;82:999.
8. Derr C, Goldner DE. Posttraumatic appendicitis: further extending the extended focused assessment with sonography in trauma examination. *Am J Emerg Med*. 2009;27:632.e5–7.