

Acute appendicitis in a child of 4 years of age: diagnostic and management challenge in general practice

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ABSTRACT

Acute appendicitis is a common surgical emergency in children but rare before age 6 years. Due to atypical presentation, diagnosis is difficult in young children and very often these children face increase rate of complications. Maintaining a high index of suspicion at early childhood is important. Even with prompt diagnosis, controversy exists between medical versus surgical management. We report a rare case of acute appendicitis in child of 4 years of age who underwent surgery by a working general practitioner at remote setting of Nepal.

Keywords: Acute appendicitis, general practitioner, surgery, young children

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INTRODUCTION

Acute appendicitis is common surgical emergency among children however is uncommon in pre-school children.¹ Misdiagnosis of acute appendicitis rates ranges from 28-57% in 2-12 years of children due to atypical presentations.² The delay in diagnosis in young children usually presents with late complications like abscess formation, peritonitis and sepsis.

Acute appendicitis in early childhood presents with atypical presentations which makes diagnosis difficult. The varied clinical presentations in different age group depend on anatomical variation and pathophysiological differences. Clinical presentations of acute appendicitis in pre-school child (Age 3-5 years) are abdominal pain, vomiting, fever and anorexia with diffuse tenderness in lower abdomen.³

CASE REPORT

A 4-year-old, apparently healthy, boy was referred from a local health post with 5 days of vague abdominal pain, vomiting and fever. Parents reported loss of appetite since the onset of symptoms. There was no history of diarrhea, melena, and changes in bowel habits, rashes and substance ingestion. No history of travel, sick contacts. His immunizations were up to date. The family and social history was not significant.

On physical examination, the child was awake, toxic in appearance. His vital signs were: Pulse was 130/min, respiratory rate: 32/min, temperature: 100 °F, blood pressure was 90/50 mmHg (50-90th percentile for age 4 years). He had dry mucus membrane and cold periphery. His abdomen was diffusely tender at right lower quadrant and suprapubic area however per-rectal examination was unremarkable.

Laboratory tests revealed leukocytosis (Total count 16,700) with predominant neutrophils (Neutrophils 95%) and elevated C-reactive protein. Other routine tests including urine analysis, electrolytes, liver function tests and blood sugar were within normal range. Initial abdominal x-ray was normal but ultrasound showed some collections in right iliac fossa with probe tenderness. The child was admitted with intravenous ceftriaxone 500mg IV twice a day, metronidazole 250mg IV thrice a day, antipyretics and fluid therapy. Following a shared decision with the parents regarding risks and benefits of medical treatment and surgery, the child underwent open surgery at remote setting by a general practitioner. Surgery findings revealed acutely

inflamed appendix with abscess formation and peri-caecal inflammation (Fig. 1)



Figure 1. Operative findings- inflamed appendix with abscess formation

Open appendectomy was done and abscess drained with drainage tube in situ for 2 days and intravenous antibiotics continued for 3 days. Child's general condition improved and was discharged on 5th day of surgery, followed up on 7th, 14th and 28th day of surgery. No complications (Surgical site infections, pelvic abscess, peritonitis and sepsis) were found during follow up.

DISCUSSION

Appendix is a thin diverticulum arising from the inferior tip of the caecum whose function is not known but its lymphatic tissue and immunoglobulin secretion plays role in immune system.³

Acute appendicitis remains one of the most common causes of abdominal pain in children with the incidence of 3.6/10,000-1.1/10,000 in preschoolers.⁴

Although exact pathophysiology is not known, multifactorial pathology is explained like luminal obstruction and lymphoid hyperplasia. The most common symptoms in acute appendicitis in pre-school children are vomiting, abdominal pain, fever, diarrhea, abdominal distension and lethargy.⁴

The differentials in children are very extensive such as gastroenteritis, constipation, Meckel's

diverticulum, cystitis and pyelonephritis. Misdiagnosis remains common causes of medical malpractice in pediatric emergency care, thus high index of suspicion is required with prompt treatment. Alvarado score in adults or Pediatric Appendicitis Score (PAS) in children are represented to diagnose acute appendicitis however the classic story of periumbilical pain migrating towards right iliac fossa with associated fever, vomiting and anorexia is seen in less than 50% of pediatric patients.⁵ PAS score in our case was only 5.

Diagnostic delay increases risks of complications like perforation, obstruction, peritonitis and abscess formation.⁶ Although CT imaging remains the gold standard for the diagnosis of acute appendicitis, utilizing ultrasound imaging is the first line of choice due to its specificity but it is highly operator dependent.⁷

Medical treatment⁸ is an alternative in cases of uncomplicated appendicitis where family refuses surgery but we opted for open surgery with shared decision approach with risks of more complications. However, mortality and morbidity rates in acute appendicitis significantly reduced with early diagnosis, broad spectrum antibiotics, fluid therapy and improved surgical skills.⁹

There are some case reports of appendectomies by surgeons or GP surgeons¹⁰ but this case is operated by a working general practitioner in remote Nepal with no complications. There is no similar case report operated by Nepali GPs.

CONCLUSION

Acute appendicitis in pre-school children is quite rare but usually presents with atypical presentations (vague lower abdominal pain and fever in our case). High index of suspicion is required for the prompt management.

Consent

A written consent was taken from the parents for the publication.

Conflict of Interests

None

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