

# Appendicitis In Children Having Intercurrent Diseases:

S H Dar M Tahir S U Rehman M N Raza

Department of Paediatric Surgery, King Edward Medical College, Mayo Hospital, Lahore.

Correspondance to : Dr Mohammad Naseem Raza

In a period of one year ( Jan 1996 to December 1996), 216 children had appendectomy after establishing the diagnosis of acute appendicitis. Out of these twenty six (12.04%) had other associated intercurrent illness. The association of an intercurrent disease with acute appendicitis is stressed to avoid undue delay in the diagnosis and treatment of appendicitis, a dangerous pathology.

**Key Words:** Intercurrent disease, Appendicitis.

A large number of systemic as well as local diseases are included in the differential diagnosis of acute appendicitis in children. These can either simulate or be associated with this most common entity. Both the referring pediatrician as well as the Paediatric surgeon should have the knowledge about these diseases, so as to minimize the serious complications of appendicitis.

## Materials And Methods:

This is a prospective study of 216 children under went appendectomy in the department of Paediatric Surgery, Mayo Hospital, Lahore from Jan 1996 to Dec. 1996. The age varied from 3 years to 13 years, with 118 (54.63%) males and 98 (45.37%) females. Twenty six (12.04%) had associated intercurrent disease (Table 1). The diagnosis was based on careful evaluation of history and detailed physical examination (repeated wherever indicated). Every appendix removed was submitted for histopathology. This study presents the clinical course of twenty six children having associated intercurrent disease.

**Table No.1:**Children with intercurrent diseases

No	n=	Intercurrent Disease:
1	6 (23.07%)	Ac. Tonsillitis
2	6 (23.07%)	Gastroenteritis
3.	5 (29.23%)	UTI
4.	3 (11.54%)	Mesenteric Lymphadenopathy
5.	3 (11.54%)	Bronchitis
6.	1 (3.84%)	Varicella
7	1 (3.84%)	Malrotation with non fixed Rt.Colon
8	1 (3.84%)	Pneumonia

## Results:

The associated intercurrent diseases found in this group are acute tonsillitis<sup>6</sup>, acute gastroenteritis<sup>6</sup> urinary tract infection<sup>5</sup> mesenteric lymphadenopathy<sup>3</sup>, Bronchitis<sup>3</sup>, varicella<sup>1</sup>, Malrotation<sup>1</sup> and right sided pneumonia<sup>1</sup>. Fifteen patients (57.69%) had temperature more than 101<sup>0</sup>F. The leucocyte count ranged from 8,000-16,000

mm<sup>3</sup> with fourteen patients (53.84%) showing a TLC of greater than 13,000/mm<sup>3</sup>. The diagnosis of acute appendicitis was confirmed at operation in all the cases. The post operative period was normal except higher rate of wound infection (12% versus 4%)

## Discussion:

Acute appendicitis is the most common surgical problem of the abdomen in children and adolescents<sup>1</sup>. The classical history of shifting pain and localized tenderness is found in only about 50% of the children<sup>2</sup>. To complicate it further a number of systemic disease can either mimic or be associated with appendicitis. Emergency appendectomy still remains the most commonly performed abdominal procedure<sup>3</sup>. As in the cases of intussusception the morbidity and mortality is directly related to the delay in the treatment. For this reason many centers still accept a rate of 15-20% normal appendectomies out of fear of missing an abnormal one<sup>4</sup>.

A long list of systemic diseases have been documented either simulate or be associated with appendicitis. Obstruction of the appendiceal lumen can be due to faecal matter or bacterial infection. The lumen of appendix has a capacity of 0.1-0.2 ml<sup>5</sup>. The early luminal obstruction has a greater practical importance in children<sup>6</sup>. The bacterial agents involved are salmonella new port<sup>7</sup>, Yersinia enterocolitica, shigella. Compylobacter jejuni and Escherichia Coli 0157: H7. These bacteria are also the causative organism for Acute ileocecalitis<sup>8</sup>.

Many viral illness including measles chicken pox<sup>9</sup> infectious mononucleolosis<sup>10</sup> and cytomegalovirus are also reported to cause or coexist with appendicitis. These produce symptoms because of ensuing appendiceal oedema.

Tuberculous appendicitis is a known entity<sup>11</sup>. Fungal infestation e.g., Actinomyces has been known to produce signs of acute appendicitis.

Chronic inflammatory diseases of the bowel including Crohn's disease and ulcerative colitis can produce clinical



picture of appendicitis<sup>12</sup>.

Meckel's diverticulitis, intussusception, leukemic and amoebic typhlitis are other intestinal lesions which can imitate acute appendicitis<sup>13</sup>.

Autoimmune diseases such as Systemic Lupus Erythematosus can present as acute appendicitis by producing a patch of inflamed peritoneum over right iliac fossa. In about 24% of cases there is evidence of mild upper or lower respiratory tract infection before coming to hospital<sup>14</sup>. Infarction of omentum or appendices epiploicae can present with findings suggestive of appendicitis<sup>15</sup>.

Acute suppurative lesion of sacroiliac joint and carcinoid tumor of the appendix can closely mimic acute appendicitis<sup>16</sup>. Similarly other systemic diseases including haematologic disorders such as purpura, juvenile diabetes, porphyria and sickle cell disease should be ruled out.

Lastly unrecognized trauma in abused children and psychological stress can simulate appendicitis. The latter is said to depress immunity and produce a local pathological lesion<sup>17</sup>.

The clinical picture of acute appendicitis is well established since many decades but there is a long list of systemic diseases which can either mimic or be associated with acute appendicitis (as is evident by twenty six cases in our series). This may lead to confusion and delay in the diagnosis. The possibility of intercurrent disease should always be entertained so as to avoid the delay in treatment. Newer diagnostic modalities has been advocated e.g. technetium 99m leucocyte scan<sup>18</sup> & ultra sonography to facilitate early diagnosis. As is evident from this study it is the repeated clinical examination and eliciting local tenderness which always led to correct diagnosis despite the presence of an intercurrent illness. Other studies also substantiate this observation<sup>19</sup>.

#### Reference:

1. Steel Russel W. The Clinical hand book of Paediatric infection diseases. The parthenon publishing Group 1994: 296-297.
2. Filler M. Robert. Acute appendicitis. In: Grascfeld L.Jay Ed. Common Problems in Paediatric surgery. Mosby year book 1991: 71-76.
3. Peltokallio P, Tykka H. Evaluation of the age distribution and mortality of acute appendicitis. Arch Surg 1981; 116:153.

4. Lister James . The Alimentary Tract. In complication of Paediatric Surgery. 1st edition. Baillieve Trindal Alden Press Oxford London, 1986: 125.
5. Silen William a Acute Appendicitis. Petersdorf G. Robert, Adams D. Raymond, Braunwald Eugene, Isselbacher J Kurt, Martin B Joseph, Wilson D. Jean; Eds Harrison's Principles of internal Medicine, Tenth Ed. New York; Mcgraw Hill International book company. 1986, 1768.
6. Berry L. Colin & Keeling W. Jean. Gastrointestinal system. In berry L. Colin Ed Paediatric Pathology. NewYork Springer-Verlog 1981;258.
7. Goon K. H. & Martin H.C.O. Salmonella Ileocecal lymphadenitis Masquerading as appendicitis. J. Pediatric Surgery. 1986 Apr Vol xx1 No.4: 377-378.
8. Sonnino R.E.. Lakerge J.M, Mucklow MG, Moir CR: Pathogenic Escherichia Coli: A new etiology for acute ileitis in Children J. Paediatric Surg 1989; 24: 812-814.
9. Owen W.J. Measels Appendicitis. Br. J. Clin Pract 1990; 44(12):749.
10. Lopez Navidad A, Domingo P, Cadofalch J, et al: Acute Appendicitis complicating infectious mononucleosis: case report and review. Rev Infect Dis 1990; 12(2):297.
11. Singh MK, Arunabh, Kapoor VK: Tuberculosis of the appendix- a report of 17 cases and a suggested actio-pathological classification. Postgrad Med 1987; 63 (744): 855.
12. Jacoleson S: Crohn's disease of the appendix, manifesting as acute appendicitis with post operative fistula. Am J Gastroenterol 1979; 71:592.
13. Bell MJ, Bower R.J. et al. Appendectomy in childhood; Am J Surg 1982; 144:335-337.
14. Forar O. John & Arneil C. Gravin; Ed Text Book of Paediatrics, Second Edition. London; Churchill Living stone. 1978;413.
15. Knight P.J.; Vassy L.E. Specific disease mimicking appendicitis in childhood. Arch Surg. 1981; 116:744.
16. Cohn S.M. Schoetz D.J.Jr. Pyogenic Sacroillitis; another imitator of the acute abdomen. Surgery 1986; 100 (1)95.
17. Greed F. Life events and appendectomy. Lancet 1981; 1:1381.
18. Henneman P.L. Marcus C.S., inkelis S.H. Butler J. A. & Baumgartner F.J. Evaluation of children with possible appendicitis using Technetium 99m Leucocyte Scan Paediatrics 1990, 85: 838-843.
19. O'Shea J.S., Bishop M.E. Alario A.J., & Cooper J.M.. Diagnosing appendicitis in children with acute abdominal pain Paediatric Emerg Care 1988, Sept; 4: 172-176