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Short study of acute appendicitis cases in pediatrics age groups

Dr. Mohammed Kadhém Ziedan Al Jarrah

M.B.Ch.B, D.G.S., I.M.A, General surgeon, Department of surgery, AL-Sheikh Zayed Hospital, Baghdad, Iraq

Email: mohammedkadhém500@yahoo.com

Abstract---Acute abdominal pain in children represent a diagnostic dilemma, generally although many causes of acute abdomen are benign, other require rapid diagnosis and treatment to minimize morbidity. Numerous disorders can cause abdominal pain. The most common surgical cause is acute appendicitis. This study tries to evaluate the distribution of cases through the age and the fate of the management and complications that may occur during the course of the disease. This is a prospective study over a period of six months starting from March 15th to September 15th 2018. A total of 82 child were included in this study who are presented to our hospital complaining of acute appendicitis. The patients divided in to three groups according to their age, undergo careful clinical evaluation supplemented by laboratory and radiological investigations followed by surgical intervention and histopathological study. Eighty – two child suffering from acute appendicitis were included in this study, 44 male and 38 female , those 82 case undergone surgical line of appendectomy, no line of conservative treatment was applied and no any case of appendicular mass was included in this study, seven cases from those patients were presented with generalized peritonitis due to perforated appendices. From estimation of the cases we found that acute appendicitis in pediatrics age groups. during comparing the examination of child with adult patient has revealed that any child with abdominal pain should be carefully examined and the examination may be repeated more than one time to cover the area of examination in order to enhance good management through perfect diagnosis because the examination is more difficult than in older patients and need skills of communication between the surgeon and the child.

Keywords---short study, acute appendicitis, pediatrics age.

Introduction

The term acute abdomen denotes any sudden non traumatic or traumatic disorders whose chief manifestations in the abdominal area and for which urgent management may be necessary since there is frequently a progressive underlying intra-abdominal disorder, undue delay in the diagnosis and treatment inversely affect outcome. Abdominal pain is a common problem in children, although most children with acute abdominal pain have self-limited conditions. The pain may herald surgical or medical emergency, the most difficult challenge is making a timely diagnosis where frequent examinations done to reach to the diagnosis so that treatment can be initiated and morbidity prevented.

Mechanism of the Abdominal pain

ABDOMINAL PAIN is the usual presenting symptom in acute surgical lesions of the abdominal viscera. The diagnosis and indications for treatment of these urgent conditions rests largely on a correct analysis and interpretation of this most important complaint. Evaluation of abdominal pain involves not only location, character, rhythm and type, but also its mode of onset and factors which aggravate or bring relief. A better understanding of the physiology or mechanisms of abdominal pain will result in a more rational analysis of these signs and symptoms and, consequently, a more intelligent approach to the diagnosis and surgical management. Abdominal pain falls in three categories visceral (splanchnic pain), parietal (somatic pain) and referred pain. Visceral pain usually dull, poorly localized and felt in foregut and midgut structures like stomach and intestine respectively. The parietal pain usually sharp, intense, discrete and localized so cough and movement can aggravate it. The referred pain has many of characteristics of parietal pain but resulting from the visceral innervation of the midgut structures like small intestine, a classical example is a patient with pneumonia who presented with Abdominal pain because T9 dermatome distribution is shared by the Lung and the Abdomen.

Etiology

There are many medical (non-surgical) disorders which must be kept in mind to avoid unnecessary surgical intervention that may increase the morbidity and mortality rates. The incidence and the clinical features of different disorders vary greatly over the pediatrics age groups spectrum as the age of the child, be a key factor in evaluating the cause of the disorder.

Evaluation

In the evaluation we take the main principles of managing patient with acute abdomen, for example the clinical diagnosis of Acute appendicitis is not easy and consist of few steps analysis as follow as:

- To exclude medical causes that gives features resemble Acute appendicitis like mesenteric lymph adenitis and gastro enteritis. In Acute appendicitis, pain generally precede vomiting while the reverse is true in the medical causes where diarrhea and vomiting precedes the pain.

- To make a proper history according to the age and sex of the patient where the history taking in older patient is easier than in pediatric patients.
- To make a good communication between the physician and the patient, so good history taking is needed and the best examination should undertake to cover the signs and symptoms of the case.

Difficulties and Problems

Various difficulties and problems are encountered during examination of acute abdominal pain; some are listed below:

- Proper history taking in small children depend on some degree on their parents so it is hard to fulfill all aspects of the child complaining.
- In most cases of pediatrics disorders, difficulties are sometimes occurring during abdominal examinations in un comfortable child, like crying or fearing child always make palpation un easy even the school boy may not be able to give us accurate answer, leading to incomplete examination.
- protective mechanism in the abdomen are not well developed in children as in the adult e.g. the omentum is small and not well developed in the infants and small children so the inflammatory process may spread rapidly leading to aggravation of the morbidity and organ failure or even bowel perforation may result and generalized peritonitis may ensue leading to the death of the child.
- As the pre-operative management is essential for saving the life of the child, also the post- operative measures are of critical importance to keep the child live because many children died if the post-operative measures badly Applied.

Investigations

The commonly used laboratory and radiological investigations for patient with acute abdomen.

- Complete blood picture, erythrocyte sedimentation rate. serum iron, serum ferritin, serum total binding capacity, blood film, Hb- electrophoresis, blood culture and other tests.
- General urine examination, mid-stream urine culture. Serum. Sodium, potassium and calcium, blood sugar, renal function test, liver function test and others.
- General stool examination.
- Abdominal plain x-ray. -, chest x-ray, contrast x ray, x-ray for other parts of the body.
- Ultrasound of the abdomen and pelvis. Computed tomography of the abdomen and pelvis, magnetic resonance imaging of abdomen, pelvis and chest

Patients and Methods

This is a prospective study of 82 patients of pediatrics age groups of both sexes were 44 males and 38 females, their age graduated from one year to 15 years admitted to the causality ward of Al-Sheikh Zayed hospital during an interval of 6 months starting from 15th March to 15th September 2018 suffering from acute abdominal pain then diagnosed as acute appendicitis.

- All those patients were evaluated clinically and received specific management.
- The diagnosis was based on the clinical assessment including careful history taking of the onset, duration, site and character of the pain with associated features, aggravating and relieving factors, details of the present illness.
- The past medical, surgical, family and drug history are essential.

Then adequate clinical examination was applied like General and Regional examination supplemented by laboratory and radiological investigation when needed, then these kids treat accordingly then maximum 3 days follow up were done to those undergone surgery and the outcome was recorded.

All this information's was registered in a special patient card for every patient.

Table 1
Demonstrate Age distribution against Sex in acute appendicitis patients

Age	Male	%	Female	%	Total	%
1-5 years	10	12.2%	8	9.7%	18	21.9%
5-10 years	12	14.6%	12	14.6%	24	29.2%
10-15 years	22	26.9%	18	22 %	40	48.9%
Total	44	53.7%	38	46.3%	82	100%

Table 2
Shows the findings of laboratory and ultrasound investigations done for 82 patients with acute appendicitis

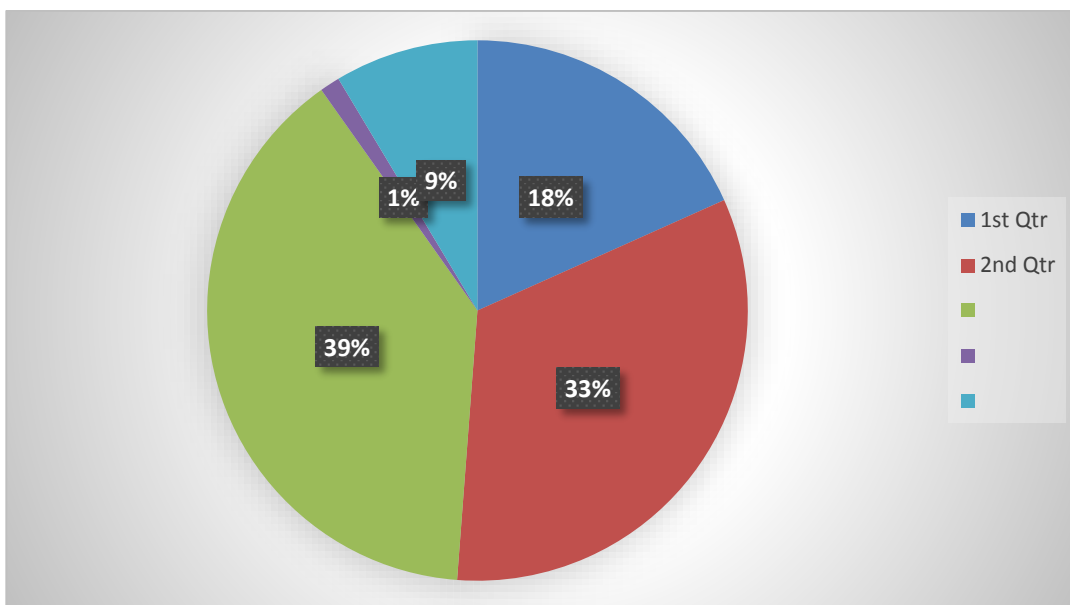
Investigation	Total	%	Positive	%	Negative	%
W.B.C count	82	100%	75	91.5%	7	8.5%
ultrasound	82	100%	54	66.4%	28	33.6%

Table 3
Shows case and histopathological study of specimen of appendicular excision

Pathology	Normal appendix	Obstructive appendix	Supportive appendix	Gangrenous appendix	Perforated appendix	Total
Male	6	11	21	1	4	43
%	7.3%	13.4%	25.6%	1.2%	4.9%	

						52.4%
Female	9	16	11	---	3	39
%	11%	19.5%	13.4%	---	3.7%	47.6%
Total	15	27	32	1	7	82
%	18.3%	32.9%	39%	1.2%	8.6%	100%

Pie chart show the surgical cases distribution in 82 child



Results

In our study 82 kids were admitted to the causality ward of Al sadder teaching hospital suffering acute abdominal pain were 44(53.7%) male and 38(46.3%) female. According to their age, these kids divided into the following (three) groups (Below one year) no case was reported to had an acute appendicitis were we believed the their must be several cases but because the features interact with other disease like gastro enteritis which make the diagnosis very difficult.

- (From 1-5 years) 18 child's out of 82 (21.9%) were 10 (12.2%) male and 8 (9.7%) female.
- (From 5-10 years) 24 child's out of 82 (29.2%) were 12 (14.6%) male and 12 (14.6%) female.
- (from 10-15 years) 40 child's out of 82 (48.9%) were 22 (26.9%) male and 18 (22%) female.

For all of 82 patients, the investigations were done, from these investigations white blood cell count was done for all patients that appear elevated in 75 patients (91.5%) and 7 patients (8.5%) with normal white blood cell count. Other investigation was done is ultrasound assessment of abdomen and pelvis were 82 patients (100%) from the 82 patient had undergo ultrasound examination, from them 54 patients (66.4%) appear to had positive findings and 28 patients (33.6%) appear to had normal (negative) findings on ultrasound assessment. On the basis of analyzing the data of the causes of the surgically managed acute abdominal illness. Regarding the histopathological findings of the 82 patients that diagnosed as acute appendicitis and perforated appendicitis and sanded for histopathological study, the appendix specimen divided in to five groups:

- Normal appendices in 15 patients (18.3%) diagnosed as acute appendicitis, were 6 cases males and 9 cases females.
- Obstructive appendicitis in 27 patients (32.9%) diagnosed as acute appendicitis, were 11 cases males and 16 cases females.
- Suppurated appendicitis in 32 patients (39%) diagnosed as acute appendicitis, were 21 cases males and 11 cases females.
- Gangrenous appendicitis in one patient (1.2%) diagnosed as acute appendicitis was a male.
- Perforated appendicitis in 7 patients (8.6%) diagnosed as perforated appendicitis. were 4 cases males and 3 cases females.

Discussion

This is a study concerned with statistical data about acute appendicitis in pediatrics age groups during six months' interval, we try to cover most of the result in this research. The total number of the patients covered by the thesis was 82 children. In our study, the male / female ratio was about (1.16:1) which is found to be near to many studies all over the world. According to the age of the patients we divide the patients in to three groups (1-5 ,5-10 ,10-15) years old. The first group is from one to five years old include 18 patients (21.9%) were 10 cases males and 8 cases females out of 82. The second group is from five to ten years old include 24 patients (29.2%) were 12cases males and 12 cases females out of 82. The third group is from ten to fifteen years old include 40 patients (48.9%) were 22 cases males and 18 cases females out of 82. In this study the higher incidence of cases of acute appendicitis noted in the second and third groups which is mostly due to increase maturation of the appendix and increase the amount and types of the food taken.

In comparison with other studies, our study had more surgical data concerning patients that give us more details about this review. but when we compare our study results with results of a study done in our country by Dr Maunder Al - Aubydei a consultant surgeon under the title of (acute abdomen in patients above 60 years old) done in Baghdad teaching hospital. The result of this study reveal that the common surgical cause in this age group was the intestinal obstruction cases (52.6%) and the next common cause was acute cholecystitis cases (20.2%) then perforated peptic ulcer come thirdly (9%) from the cases and fourthly acute appendicitis cases was (6.2%) .from these results we conclude that intestinal obstruction and the gall stone are common causes of acute abdomen in elderly

opposite to the common cause in children and young age group which is acute appendicitis.

In our study, there are 7 patients (8.5%) from 82 had perforated appendicitis, This percentage of perforated appendices when compared with other study done by the Indian Researcher Dr. pallmo Khan in Forties Hospital where the percentage of perforated appendices was (6.2%) of the total number of the patients which is slightly lower than our percentage that is most probably due to the difficulties encountered in the early diagnosis and early management ,so leading to complication of the condition and high percent of perforated appendix ,also difficulties encountered during examination of children specially in un cooperative one will rise the percent.

In our study ,15 patients out of 82 patients (18.3%) six males and nine females were found to had normal appendix after surgical intervention for acute appendicitis and no pathology was found in the appendix. there is a study done by the Australian researcher named Dr. john Morris where the results of normal appendices post appendectomy was nearer to our study (16%) , who attribute the negative cases to a term known as non-specificities or nonspecific adenitis which is found in late childhood and early adolescent. In our study, all the 82 patients with acute appendicitis the white blood cell count was done for them. 75 patients from 82 (91.5%) show elevated white blood cell count and the reminder 7 patients (8.5%) had normal count. In addition, from the total 82 patients in the study ail patients (100%) undergo Abdominal and pelvic ultrasound examination, from them 54 patients (66.4%) reveal positive findings such as signs of inflammations or fluid collection or perforation and the reminder 28 patients (33.6%) from the total 82 patients had negative Abdominal and pelvic ultrasound examination. Regarding the outcome of the patients undergo surgical operations in this study was as follow: 82 patients from 82 patients undergo surgery discharged from the hospital after few days with good general health after assurance by doing needed examination and investigations and no any complication was reported.

Conclusion

From the present study we conclude:

- Acute Appendicitis in pediatric age group is more in males than females.
- Repeated physical examination of the kid by the same surgeon is essential for proper diagnosis and exclusion of medical causes can reduce surgical intervention and post-operative complications.
- Acute appendicitis in pediatrics age group is more common between 10-15 years old due to maturity of appendix and specialization of bowel.
- 4-Acute appendicitis in children more prone to perforation than in older.
- 5-Providing of good facilities for investigating pediatrics is essential to decrease mortality and morbidity.
- 6-Mortality in the neonate can be lowered by providing special nursing staff in the post-operative period.

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