

Acute Appendicitis In Children At Teaching Paediatric Hospital Charles De Gaulle Of Ouagadougou BURKINA FASO: A Study With 367 Cases

I Ouédraogo, Z Cyprien, M Napon, E Ouangré, L Savadogo, F Ouédraogo, E Bandré, W Tapsoba, O Soré, B Béré, A Wandaogo

Citation

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Abstract

Background: The purpose of this retrospective study is to determine the epidemiologic, clinic, therapeutic and evolutive aspects of acute appendicitis in children.

Patients and Methods: We conducted a retrospective study over six years between January 1st 2005 and December 31st 2010 at the Training Paediatric Hospital Charles de Gaulle of Ouagadougou on 367 children from 0 to 14 years old admitted for acute appendicitis and who benefited appendicectomy. The data have been constituted from emergency admission register, surgery protocols, hospitalized patient register, consultations register.

Results: A total of 367 children were involved in the study. Acute appendicitis of children was frequent and represented 27% of non traumatic abdominal pain and 10.8% of digestive surgical interventions. Ages between 11 and 14 years old were most frequently seen (55.3%). The male-to-female ratio was 2.2. Eighty three (83.9%) of patients got treatment before their admission at surgical emergency departments. The mean consultation delay was 5.06 days. The rate of appendicular peritonitis (41%) has been too high. The mean delay of surgery in our study has been 20.4 hours. The appendix was perforated in 36.8% cases. Complications of surgery have been noticed in 12% of cases and parietal suppuration represented 90% of these. The lethality linked to acute appendicitis has been 1.36%.

Conclusion: The clinical figures of children acute appendicitis are superposable to adult one's. The reduction of complications and lethality linked to acute appendicitis was in relation to the reduction of consultation delay.

INTRODUCTION

Acute appendicitis in children can be defined as an inflammation of the vermiform appendix of the child. It is a frequent surgery emergency which stands as a major disorder in digestive surgery in paediatrics. Although its treatment is well standardized, diagnosing it in children is still a big challenge for practitioners.

Bobossi and al. in Central African Republic have found that appendicitis which represents 32.4 % of all abdominal pain in children is the most common affection in children [1].

Appendicitis has always been considered a trivial disease by the population, but in reality, it conveys dreadful

complications and its socio-economic impact is very significant. The purpose of this study is to investigate the epidemiological, clinical, therapeutic and evolutionary aspects of acute appendicitis among in children.

PATIENTS AND METHODS

We have conducted a retrospective study from January 1st 2005 to December 31st 2010 in the surgery department of the Charles de Gaulle Paediatric Hospital on three hundred and sixty-seven (367) children aged 0-14 who have been admitted for acute appendicitis and who have undergone an appendicectomy. The data have been collected from the emergency admission register books, surgery report books, clinical files of hospitalized patients, their consultation and

follow up charts. For each patient the following data have been sought:

- Sociodemographic characteristics : Patients' age and gender, patients have been divided into three brackets: 0-5, 6-10, 11-14
- Hospitalization parameters : consultation time-limit, hospitalization period
- Clinical variable: functional symptomatology, general signs, pains characteristics, physical tests data
- Para clinical variables: abdominal roentgenogram, abdominal scan, white numeration, the bacteriology of the peritoneal fluid, anatomical-pathological exam
- Terms for better management (route first; observations during operation, actions done)
- Outcomes of the treatment

RESULTS

The surgery department registered during the period of study 5581 hospitalizations among which 1362 for non traumatic etiology of abdominal pain. Acute appendicitis represented 27%. Three thousand three hundred and eighty-nine (3389) patients got digestive surgical interventions among which 10.8 % for acute appendicitis. The average age of the entirety of our series was 10, 68 years \pm 2, 65 years (extreme: 3- 14 years). The 11-14 ages bracket represented 55, 3% of the cases. Male patients predominated with a sex ratio of 2.2. The average duration of the evolution of the disease was 5.7 days; 83.9% of the patients got treatment before their admission to the surgical emergency ward. This treatment consisted of antibiotics (40.3%), antalgics (67.6%), usual treatment (35.7%), anti- inflammatory non sterieriodals (24%), anti malarial (24%) drugs. Abdominal pains were the principal sign. They were found in all the patients. They were the first sign in the clinical chart in 321 patients that is to say 87.5%. Fever was found in 290 patients that is to say 79% of the cases. It was the third sign in 45% of cases and fourth in 10% of cases. It inaugurated the clinical chart in 6.3% of the cases. Vomiting was reported in 268 patients (73% of the cases). Vomiting went with abdominal pains in 208 patients (56.7% of the cases). The right iliac fossa was the maximal seat of the pain in 78. 7% of patients. A secondary migration of the periumbilical and epigastric pain to the right iliac fossa was reported in 47.6% of the cases. Signs of peritonitis were reported in 41% of the cases. Typical abdominal pain was found in 204 patients, that is to say 55.6% of all our series. Mc Burney's lancing was utilized in 55.6%.

In our series a scan was done in more than half of the patients (55.6% of the cases). In 10% of the cases it was

normal (Figure 1).

The macroscopic aspects of appendicitis were represented in the table I. An appendicular stercolithe was reported in 15 patients, false membranes in 72 patients (19.6%), a Meckel diverticle situated at 40 cm of the ileo-caecal junction in one patient. The anatomical-pathological test was carried out in only one (1) patient (0.3% of the cases).

A bacteriological test of the pus swab and an antibiogram were conducted in 21 patients (5.7% of the cases). The culture was negative in 7 patients that is to say 33.3% of cases. *Escherichia coli* was the identified germ in 11 patients, that is to say 52.4%. *Streptococcus* sp was found in 03 patients. An *E. coli* stump was resistant to all the antibiotics except the imipenems and amakacin.

Post- surgery handling was simple in 88% of the cases. Five cases of acute intestinal stoppage were discovered with an average delay of six months. We registered 4 post-surgery deaths, that is to say 1.1% of all our series. The etiologies of these deaths were the following ones: two cases of hypovolemic impacts and two septic cases which led to a cardiorespiratory arrest. All these patients have presented an altered general state at their admission at the surgery emergency. The average delay of hospitalization of all our patients was 6.02 days. It was about 5 days for the simple cases and about 7.5 days in complicated cases of peritonitis.

Figure 1

Representation of ultrasound aspects

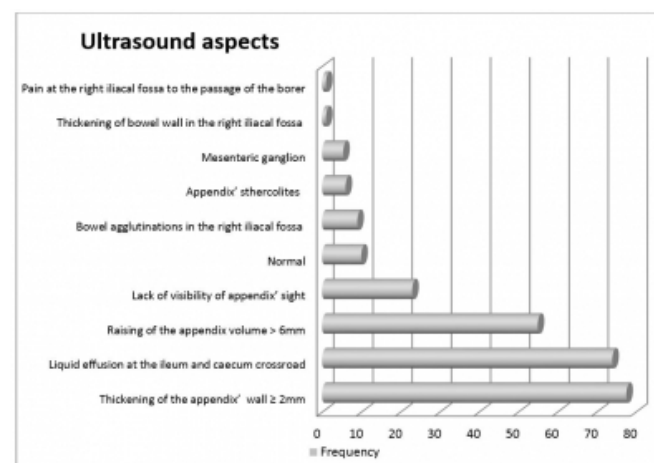


Table 1

Macroscopic aspects of the appendicitis

Macroscopic Aspects	Number of cases	(%)
Apparent healthy Appendicitis	25	6,8
Catarrhal Appendicitis	76	20,7
phlegmonous /ulcerated Appendicitis	63	17,2
Suppurated Appendicitis	54	14,7
Gangrened /perforated Appendicitis	135	36,8
Appendicular Plastron	1	0,3
Appendicular Abscess	13	3,5
Total	367	100

Table 2

Comparing peritoneal fluid culture according to the authors

Authors	Negative Culture (%).	<i>Escherichia Coli</i> (%)
Mosdell & al. [16]	5	25,2
Evan & al. [17]	3	29,3
Lin & al. [18]	-	31,1
Trifa & al.[19]	30	69
Parys & al. [20]	-	91
Our series	33,3	52,4

DISCUSSION

Abdominal pains are heterogeneous in children ranging from mild otitis to abdominal contusion. Acute appendicitis which is part of non traumatic aetiology abdominal pains represented 27% in our study. This high frequency of acute appendicitis in children was also reported by Bobossi S G. et al. [1] in Central African Republic where it was about 32.4%. In France, Le Hors-Albouze reported that the appendicular origin of abdominal pain represents only 10% in children aged under five [2]. This situation seems to contrast with the observations which stated that appendicitis have high rates in developed countries where its impact is estimated at 52 cases for 100000 inhabitants whereas it is only 10 for 100000 inhabitants in a South African study [3]. This gap is attributed to foods habits depending on the parts of the world.

The average limit of consultation of our series was 5.06 days \pm 4, 86 days; very few of our patients (11.7%) have consulted within a limit of less than 24 hours. Our figures are higher than those reported by Meier et al. (2 days) [4], Hafid and al. (3 days)[5] and Kong and al.(3.7 days)[3] . Our patients come late to hospitals for various reasons:

- Untimely self-medication; 83.9% of patients had a treatment before their admission to surgery emergencies.
- A diagnostic error in peripheral dispensaries; diagnostic error in initial consultation done in dispensaries and private clinics lengthens the consultation delay responsible for complications. In many Third World countries this consultation is still being done by some paramedical people. Mitsungou and Goma [6] have shown the danger of a systematic prescription of antibiotics, antispasmodics and antalgics in front of any abdominal pain without any correct physical test.
- Due to the low socio-economic level of most parents many patients consider the hospital as their last recourse. They only come to the hospital after the failure of the traditional cure and /or self-medication.

Delays in consultation complicates better management but on the other hand signs become more evident and the diagnosis a bit easier. Abdominal pains and vomiting are the most constant and frequent symptoms. Vomiting can sometimes be missed and changed to a nauseous state. Fever was present in 79% of cases. The patient's family or even the paramedical staff in suburbs systematically treats malaria through untimely administration of antalgics and antipyretics which retards diagnostic. In M. Hafid and al. [5] series of abdominal pain (100%), vomiting (76.4%), and fever (82.2%) characterized the functional symptomatology of acute appendicitis in children aged 2-5 years. The symptomatology is relatively superimposable compared to the one in children above 5 years. The secondary migration of the peri-umbilical and epigastric pain to the right iliacal fossa was reported in 47.6% of our series cases. It is very high in the diagnosis of acute appendicitis mainly in the beginning. Signs of peritonitis have been reported in 150 patients that is to say 41% of the cases in our series. Kong and al. in South Africa [3] have registered 31.5% of appendicular peritonitis on a series of 200 patients. This high rate of peritonitis in our series can be linked to the diagnostic delay which leads to a worsening of signs with appendicular perforation. Therefore non complicated acute appendicitis are treated in peripheral health centers equipped with surgery units and only complicated peritonitis cases are referred to our hospital. But the delay to consultation cannot alone explain this situation; there are toxic forms of appendicitis with quick evolution leads to peritonitis [7, 8, 9]. Out of the 135 cases of gangrened and perforated appendicitis reported in our series 7 cases have an evolution duration of under 24

hours, the 128 cases occurred following the second day of the evolution of the disease.

The abdominal scan is an easy test, which is non-irradiating and non invasive but operator dependent. In our series the scan was done in more than half of patients (55.6% of cases). In 10% of cases it was normal whereas the patients had a real acute appendicitis. Some authors have come to the conclusion that the better use of scan concerns the patients for whom the surgeon does not decide any direct operation, and those who do not present a classic symptomatology [9,10]. It does not provide any return when the diagnosis is evident. The combination of the surgeon's judgment and the scan causes a rate of negative of about 8.6%, which is very low [11,12]. But all the studies commonly agree that scan only is not enough to determine appendicitis diagnosis. It plays an important role in uncertain cases.

Acute appendicitis is a surgery emergency and its treatment is surgical, but some authors advocate the medical treatment but not indicated in complicated forms [13,14]. Appendicectomy done by incision of the right iliac pit which has been described by Mc Burney in 1894 remains the most widely used procedure for acute appendicitis in our situation due to the absence of column and the non generalization of the coeliosurgery. Acute appendicitis in children represented 10.8% of digestive operations in our series. This finding is lower than the one of Osarumwense and al. [15] which has reported a rate of 27.5% in their study.

In our study 5.7% of patients had a bacteriological swab during the operation, which is far from the other authors' observation (Table II). The culture was negative in 7 patients that is to say 3.3%.

The culture of the peritoneal fluid enables the therapeutic adaptation to sensitiveness to antibiotics of isolated germs. Some authors think that the routine practice of these cultures should be given up because the results are systematically ignored and are of no use in the post surgery better management of patients [16,17].

The rate lethality in our series is 1.1% of cases. This finding is higher than those of Orasumwense and al. [15] which reported rates about 0.2% in their series. That shows that acute appendicitis in children is still dreadful in our country. The delay in consultation is the principal forecast factor in our context. This lethality, which has most often a medical cause as shown in our series (hypovolemic shock, septic shock) could be explained not only by the inadequacy of our

means of reanimation which are limited, but also and above all by the particularity of the fields where those complications occur.

CONCLUSION

Acute appendicitis in children is frequent and represents 5.5% of hospitalizations or 27% of non traumatic abdominal painful syndromes. It is an affection occurring by the age often and concerns mainly male children. The clinical symptomatology is superimposable to the one of the adults. The number of peritonitis complicated acute appendicitis is important and that is related to the diagnostic delay. The morbimortality still remains high in our context. The lethality related to acute appendicitis is important (1.1%). The average hospital stay is long (6.02 days). The best prevention of complications resides in the reduction of the consultation delay.

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Author Information

Isso Ouédraogo

Department of Paediatric Surgery Teaching Paediatric Hospital Charles de Gaulle
Ouagadougou, Burkina Faso
ouedisso@hotmail.com

Zaré Cyprien

Department of Surgery Teaching Hospital Sourô Sanou
Bobo Dioulasso, Burkina Faso

Madina Aïcha Napon

Department of Radiology and Radiodiagnostic Teaching Paediatric Hospital Charles de Gaulle
Ouagadougou, Burkina Faso

Edgar Ouangré

Department of Surgery Teaching Hospital Yalgado Ouedraogo
Ouagadougou, Burkina Faso

Lassané Savadogo

Department of Paediatric Surgery Teaching Paediatric Hospital Charles de Gaulle
Ouagadougou, Burkina Faso

Francis Ouédraogo

Department of Paediatric Surgery Teaching Paediatric Hospital Charles de Gaulle
Ouagadougou, Burkina Faso

Emile Bandré

Department of Paediatric Surgery Teaching Paediatric Hospital Charles de Gaulle
Ouagadougou, Burkina Faso

Wendlamita Toussaint Tapsoba

Department of Paediatric Surgery Teaching Paediatric Hospital Charles de Gaulle
Ouagadougou, Burkina Faso

Oumarou Soré

Department of Paediatric Surgery Teaching Paediatric Hospital Charles de Gaulle
Ouagadougou, Burkina Faso

Bernadette Béré

Department of Paediatric Surgery Teaching Paediatric Hospital Charles de Gaulle
Ouagadougou, Burkina Faso

Albert Wandaogo

Department of Paediatric Surgery Teaching Paediatric Hospital Charles de Gaulle
Ouagadougou, Burkina Faso