

Acute Appendicitis in the Reference Health Center of Municipality II of Bamako District

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Abstract

This was a prospective study from January 2019 to December 2019 in the reference health center of municipality II of the Bamako district. During this period, we operated on 73 patients for acute appendicitis, including 51 men and 22 women, for a sex ratio of 1.7. The average age was 25.5 with extremes of 1 and 40 years. Abdominal pain was the main reason for consultation. The physical signs were dominated by the positivity of the Blumberg sign in 97.3% of the cases, the defense of the right iliac fossa in 79.5%, and the Rovsing sign in 61.6% of the cases. This physical examination made it possible to make the diagnosis in the majority of cases. In the face of some doubtful cases, we requested an abdominal ultrasound. Locoregional anesthesia was the most used anesthesia technique at 72.6%. The classic anterograde appendectomy with stump burial by Mac Burney was the most commonly used technique, respectively. The postoperative consequences were straightforward in 87.6%. Anatomopathology examination was performed on 69 surgical specimens and 4 appendectomy specimens were not subjected to an anatomic-pathological examination. Phlegmonous appendicitis was the most common at 63% of cases. Appendicitis remains the most common surgical emergency in a community setting. The early diagnosis and the speed of treatment guarantee improvements in the prognosis. The treatment is mainly surgical.

Keywords

Acute Appendicitis, Clinical Aspects, Appendectomy, Postoperative Effects

1. Introduction

Acute appendicitis is an acute inflammation of the ileocecal appendix, which is a surgical emergency [1]. This pathology occupies an important place in digestive surgical emergencies by its frequency.

It is seen mostly in young people and children, but not exclusively. Its diagnosis is essentially clinical despite the diagnostic criteria of Alvarado and Saint Jones [2]. There is no anatomo-clinical parallelism. The essential prognostic factor is the time elapsed between the onset of clinical signs and treatment [3]. Its etiology is multifactorial. Diagnostic errors still persist today. A 2001 American study reports that in 15.5% of cases, the appendix is normal during surgery and this rate can reach up to 45% in certain subgroups such as women of child-bearing age, the elderly and children [4]. More than 6000 child and adult patients were operated on for appendicitis in France in 2014, and this pathology remains one of the most frequent that any visceral and digestive surgeon will encounter during his professional life [5]. In Nigeria in 2004, it accounted for 38.9% of abdominal surgeries and 4.4% in the same year in Niger [6].

The hospital frequency of acute appendicitis found in Mali:

A study carried out at the Gabriel Touré Hospital in 2003 showed that it accounted for 28.77% of surgical emergencies and 37.4% of acute abdomens [7]. Despite the frequency of this disease in daily digestive surgery, no prior study had been carried out at the Reference Health Center of Commune II (CS Réf C II) in the district of Bamako and with the aim of updating the data. We intend to conduct this study there, the objectives of which were to determine the frequency; to describe the socio-demographic, clinical, paraclinical, therapeutic and anatomo-pathological aspects; to analyze the postoperative consequences of acute appendicitis.

2. Methodology

This was a one-year prospective study from 1 January to 31 December 2019 in the general surgery department of the commune II reference health centre (CS Réf C II) in the district of Bamako. We counted 73 patients during our study period who met the inclusion criteria. The patients came on their own, or were referred by other health facilities in commune II or other communes in the district of Bamako.

The following were included:

- Patients received and diagnosed with acute appendicitis in the health centre of the commune II of Bamako aged over 15 years were included;
- Patients operated on for acute appendicitis in the health centre of reference;
- Patients operated on for acute appendicitis in the reference health centre of Bamako commune II;
- Patients operated on for appendicular abscesses;
- Patients with a cooled appendicular plastron who were operated on.

Not included:

- Appendectomies not performed on the ward;
- Any patient without surgical appendicular pathology;
- Appendicular peritonitis.

Method and patients:

All patients on admission had a full clinical examination, blood count and Rhesus grouping. At the end of this examination, those whose diagnosis of acute appendicitis was obvious were exempted from ultrasound examination. In addition, ultrasound was requested in others due to diagnostic confusion or associated pathologies; some came with their ultrasound images. The patients who presented with acute appendicitis without plastron were admitted to hospital for a period of three days to one week. The surgical procedures were performed by a general surgeon who decided on the surgical technique. An anatomico-pathological examination was systematically carried out on all surgical parts. Complications were investigated at the patient's bed during the hospitalization period and 01 months of follow-up in the outpatient department at discharge outpatient follow-up at discharge, which was the regular postoperative visit. We studied the following variables: Socio-demographic variables: age, gender, occupation, residence, mode of admission.

- Physical examination: general signs, functional signs, physical signs;
- Complementary examinations: ultrasound, biological examinations, anatomical anatomico-pathological examination of the surgical specimen;
- Treatment: techniques, postoperative follow-up;
- Anaesthesia: locoregional and general. The follow-up of the patients was carried out at home, by appointment at the service, or by telephone contact (health worker) after the intervention. The minimum follow-up time was 03 months.

The media used are:

- Outpatient registers;
- The registers of operating reports;
- Hospitalization registers;
- Patient records;
- Para-clinical data;
- The results of the anatomico-pathological examination of the surgical parts.

For this purpose, we drew up a survey form in the form of questionnaires. Word processing and tables were done on Microsoft Word 2013 and IBM SPSS version 20 software; for statistical comparisons we used Fisher's Chi² statistical comparisons we used Fisher's Chi² with a significant value of significant value $p < 0.05$.

3. Results

During the study period, we recorded 556 consultations and 218 hospitalizations; 208 surgical interventions including 101 acute surgical abdomens; 73 acute appendicitis operated on. Acute appendicitis accounted for 33.4% of hospitaliza-

tions, 35.0% of surgical indications, 72.27% of emergency indications. The mean age was 25.5 years with a standard deviation = 16.54. The sex ratio was 1.7. 64.4% of our patients were referred by a health worker. The socio-economic level was low in 45%. The different professions of our patients are in **Table 1**

The disease progressed within 1 - 3 days with an average duration of 2 days with extremes 1 - 5 days. Abdominal pain represented 100% of the reasons for consultations. The pain was located in the right iliac fossa in 80.8% of cases. In 53, 4% of the cases the pain was rated at 5 or moderate pain. The mode of onset was abrupt in 60, 27% of cases. The pain was fixed in 61.6% of cases. The pain progressed intermittently in 69.9% of cases. In 60.3% of cases, the pain was spontaneous onset and triggered by movement in 31.5% of cases. There were no calming factors in 47.9% of the cases. The associated digestive signs were vomiting and nausea in 54.8% and 23.3% of cases, respectively. There was fever in 57.5% of cases; with extremes of 38.2 - 39.6. Most of our patients had received treatment, *i.e.* 74% of cases with analgesics (41.1%); antibiotics (24.7%) and antimalarials (4.1%). Pathological leucorrhoea was the most frequent gynecological history, at 16.4% in women. We had one case of appendicitis during pregnancy, *i.e.* 1.4%. The defense of the right iliac fossa was the most represented physical sign with a frequency of 97.3% of cases; followed by the defense of the right iliac fossa by a frequency of 79.5%. The rectal examination was painful on the right in 72.6% of cases.

Complicated forms accounted for 24.6% of cases. Appendicular abscess accounted for 13.7%; and peritonitis in 8.2% of cases. The two cases of plastron were cooled and operated on, *i.e.* 2.7% of cases. The ultrasound revealed in most cases a cockade image with an increase in the size of the appendix, *i.e.* 52.1% of cases. The result of the NFS objectified a hyperleukocytosis with polynuclear neutrophils in 86.3% of the cases. Antibiotic prophylaxis was performed in all of our patients. The most common technique was general anesthesia. The approach first was a Mac Burney's point incision, 83.6% of cases. The laterocecal seat of the appendix was the most represented, at 28.8% of cases. The phlegmonous appendix accounted for 45.2% of cases. Anterograde appendectomy with burial of

Table 1. Patients by occupation.

Profession	Number	Percentage
Pupils/Students	26	35.6
Housewives	19	26.0
Tradespeople	9	12.3
Maneuvers	6	8.2
Officials	5	6.8
Others	5	6.8
Peasants	3	4.1
Total	73	100.0

the stump was the most used technique, at 97.2% of cases. Early postoperative complications were dominated by parietal suppurations in 10.9% of cases. No death was reported. 64.4% of patients had a stay of 1 to 3 days. The average length of hospitalization was 2 days or 48 hours with extremes of 1 and 12 days. In 63% of cases, the appendix was phlegmonous on pathological examination. We did not find a link between the intraoperative diagnosis and the result of the ultrasound.

There was a relationship between intraoperative diagnosis (AnaPath form) and postoperative complications. Early postoperative complications such as parietal suppurations occurred in appendicular peritonitis, *i.e.* 6.8% followed by appendicular abscess, or 2.7% of cases.

In AnaPath, phlegmonous appendicitis was the most prevalent with 63% of cases and the age groups 1 - 15 and 16 - 35 years had the same number of observations with a frequency of 47.9%. Complicated forms were observed in 38.4% when the disease progressed for 4 days or more; 50% of these complicated forms were appendicular abscess and 33% were appendicular peritonitis. When it progressed for 3 days there were 27.2% of complicated forms of which 66% were appendicular abscess.

There is an association between the clinical forms and the duration of the disease in our

4. Comments

During our study period, appendectomy occupied 35.0% of surgeries, *i.e.* the first surgery followed by hernias. It represented 72.2% of surgical emergencies. This result is comparable to that of the systematic review by Sobnach [8] in South Africa. Gender is not a risk factor in the general literature. The male sex was the most represented with a frequency of 69.9%, *i.e.* a sex ratio of 1.7; this notion has been demonstrated by several authors [9] [10]. In the literature, appendicitis is pathology in young people, but it can occur at any age of life, its frequency is low at the extreme ages of life [1]. The average age in our series was 25.5 years with ranges of 1 - 57 years. The 16 - 35 age group was the most represented, at 61.6%. The mean age of our patients is comparable to the result of Oguntola *et al.* [9]. In appendicitis pain is the primary reason for patient consultation; it was the main functional sign in all patients. This pain was associated with other signs including vomiting and nausea with rates of 54.8% and 23.3% respectively in our series. Pain was found in IDF in 80.8% of patients, this rate is comparable to that of CHAVDA in Kenya in 2005 [11]. Three signs are essential to the diagnosis: Blumberg's sign is present in 50% of cases; Rovsing's sign which is not of too much clinical importance and defense in the right iliac fossa, the absence of defense should lead to doubt the diagnosis of appendicitis in the laterocecal position but does not rule out appendicitis in pelvic or retrocecal position [12]. CBC: The blood count was carried out in 63 of our patients, *i.e.* 86.3%, it objectified a neutrophilic hyperleukocytosis in all these patients. All

patients received postoperative analgesia.

All of our patients were on a diet; their basic hydroelectrolyte needs were met by rehydration before the operation. We performed antibiotic prophylaxis 1 hour before the incision. All of our patients were put on postoperative antibiotic therapy except for catarrhal appendicitis. Appendectomy was performed in all of our patients. The postoperative consequences were straightforward in 86.3%. Morbidity was dominated by parietal suppurations with a frequency of 11% of cases. These parietal suppurations concerned appendicular peritonitis, one case of appendicular abscess on unmonitored HIV site that we diagnosed in this circumstance, and two cases of appendicular plastron abscess. Our rate is statistically higher than that of Champault in 2008 in France (chi-square of Yates = 1.13, $p = 0.28$) which was found in a series of 2074 patients with morbidity of 4.5% and that of laparoscopic surgery. Besides, some authors have reported a stump fistula; 5th-day syndrome; thrombosis of the ileocolic vein [13].

5. Conclusion

Acute appendicitis remains the most frequent surgical emergency in commune II of the district of Bamako. It is pathology of young adults but can be found at all ages of life. Its symptomatology is polymorphic. His diagnosis is clinical. There is an absence of anatomy clinical parallelism. Confirmation is histological. It is pathology with low morbidity and mortality, subject to early diagnosis and surgical treatment. The standard treatment for acute appendicitis is laparoscopic appendectomy.

Conflicts of Interest

The authors declare no conflicts of interest regarding the publication of this paper.

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