

# Appendicular Abscess: Epidemio-Clinical and Therapeutic Aspects in the General Surgery Department of the Reference Health Center of Commune III (C.s.ref CIII) of the District of Bamako

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## Abstract

**Objectives:** The main goal of this study is to determine the hospital frequency of appendicular abscess, to describe the diagnostic and therapeutic aspects and to analyze the postoperative follow-up. **Methodology:** This was a descriptive and analytical prospective study from January 1, 2020 to June 30, 2021 including patients admitted to our department for appendicular abscess diagnosed pre- and or intraoperatively and confirmed to histology. **Results:** We collected 30 appendicular abscesses that accounted for 18.75% of emergency interventions. The 16 - 25 age group was the most represented at 53%. The average age was 24 years with extremes of 10 and 58 years. The male sex was mostly represented (60%) with a sex ratio of 1.5. The majority of our patients were students (53.3%). The main clinical signs found were abdominal pain and vomiting (100%). The pain was localized in the Right Iliac Fossa (RIF) in 80% of cases. Fever was present in all our patients with a temperature between 38°C and 38.5°C. The physical examination found pain with defense of the right iliac fossa in 93.3% of cases. A painful mass was present in 27 patients (90%). Treatment consisted of appendectomy with abscess drainage in all patients. Postoperative follow-up was simple in 83.3% of cases; we recorded three cases (10%) of parietal suppuration, one case of fistula (3.3%) and one death. **Conclusion:** Appendicular abscess is a medical-surgical emergency frequent surgery in our context because of the delay in diagnosis. It is a

condition with low morbidity and mortality subject to early diagnosis and prompt and appropriate treatment.

## Keywords

Abscess, Appendix, Surgery

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## 1. Introduction

The appendicular abscess is one of the evolutionary modes that follow the perforation of the appendix in which the spread of the infection is “contained” by the large omentum and the small loops resulting in the constitution of a true septal abscess of the large peritoneal cavity [1].

Appendicular abscess accounts for 10% of acute appendicitis in adults in Africa [2].

In Cameroon, Guifo Marc Leroy found out of 200 cases of acute appendicitis, 19 cases of appendicular abscess or 9.5% [2].

In Mali, Koumaré *et al.* on 109 cases of appendicitis collected in one year in emergency rooms in Bamako found a frequency of 12.5% [3]. In 2008, appendicular abscesses accounted for 11% of the interventions of the pediatric surgery department of the CHU Gabriel Touré [4].

The diagnosis is clinical, in case of doubt the ultrasound makes it possible to make the diagnosis.

Treatment of the abscess is emergency drainage by radiological or surgical route combined with antibiotic therapy [5].

Given the paucity of work carried out in Mali’s reference health centres, we carried out this study with the objectives of determining the frequency of this pathology, describing the diagnostic and therapeutic aspects, and analyzing the results of care.

## 2. Materials & Methods

This was a descriptive and analytical prospective study from 1<sup>st</sup> January 2020 to 30<sup>th</sup> June 2021 carried out in the general surgery department of the Reference Health Center (CSRef) of commune III of the district of Bamako. We included patients admitted to the department for appendicular abscess diagnosed pre- and or intraoperatively and confirmed to histology. Appendicular abscesses operated elsewhere but hospitalized in the ward, appendicular plastron, acute appendicitis, and generalized appendicitis were excluded from the study.

## 3. Results

Over an 18-month period, we collected 30 cases of appendicular abscess which represented 28.5% of appendicitis operated in this period and 18.75% of emergency interventions. The mean age of patients was 24 years with extremes of 10

and 58 years. The male sex was in the majority (60%) with a sex ratio of 1.5. Students were mainly represented (53.3%) followed by shopkeepers (13.3%).

Clinically, right iliac fossa pain associated with vomiting was present in all patients. This pain was stinging and permanent in 86.7% of cases. The duration of symptoms progression before surgical management was between 4 and 6 days in 43% of our patients. **Table 1** summarizes the evolution of symptoms by patient.

Pain and defense of the right iliac fossa were present in 93.3% of patients. A painful mass of the right iliac fossa was found in 90% of cases. On digital rectal examination 90% of patients experienced pain in the cul de sac of the right lateral Douglass. Fever between 38°C and 38.5°C was present in all patients and associated with tachycardia in 28 patients (93.3%). All patients were classified ASA 1 + U.

Complete blood counts (CBC) in all patients revealed hyper leukocytosis between 15,000 and 30,000/mm<sup>3</sup> in 86.6% of cases. An abdominal ultrasound performed in patients objectified periappendicular effusion in 25 patients (83.3%). The diagnosis of appendicular abscess could be made preoperatively in 83.3% of patients.

Therapeutically, we have performed a dual antibiotic therapy in all patients made of Ceftriaxone and Metronidazole because of their availability in our structure. This antibiotic therapy was then adapted to the results of the antibiogram. Pain and fever were managed by the administration of paracetamol and/or Nefopam depending on the weight of the patients.

General anesthesia was the most commonly used type of anesthesia (90%). We performed abscess drainage with appendectomy by Mac Burney route in 27 patients (90%) and by Jalaguier type first route (right pararectal incision) in three patients (10%). The gesture performed is summarized in **Table 2**.

The appendages had a perforated macroscopic appearance in 80% of cases and suppurated in 20% of cases. The results of the histopathological examination of the operating rooms are shown in **Table 3**.

**Table 1.** Distribution of patients according to the duration of symptoms.

Duration of the evolution of symptoms	Staff	Percentage
4 - 6 days	13	<b>43.3</b>
7 - 10 days	9	<b>30</b>
1 - 3 days	8	<b>26.7</b>
Total	<b>30</b>	<b>100</b>

**Table 2.** Distribution of patients according surgical technique.

Technique	Staff	Percentage
Appendectomy + burial + drainage	24	<b>80</b>
Appendectomy + drainage	6	<b>20</b>
Total	<b>30</b>	<b>100</b>

**Table 3.** Patients according to the result of pathological anatomy.

Pathological Anatomy	Staff	Percentage
Appendicular abscess	<b>29</b>	<b>96.6</b>
Examination not completed	<b>1</b>	<b>3.3</b>

Postoperative follow-up was simple in 25 patients (83.3%); we recorded parietal suppuration in three patients (10%), digestive fistula in one patient (3.3%) and one case of death following sepsis.

#### 4. Discussions

Appendicular abscess is a significant complication of acute appendicitis. It represents 10% of acute appendicitis in adults in Africa [2], while it is the initial clinical picture found in about 50% of cases in young children [1]. It accounted for 28.5% of acute appendicitis in our series. This rate is statistically different from those reported by Nigerian and Korean authors [6] [7]. This difference could be explained by the early management of appendicitis in their series. According to the literature, it is a disease of the young subject, rare in the elderly [1] [8]. We found an average age of 24 years in our study. This age is close to those found by Testart in the USA in 2004 [9] and Guifo M. L in Cameroon in 2010 [2] with  $P > 0.05$ .

Sex is not a risk factor in the occurrence of an appendicular abscess. We found a male predominance with a sex ratio of 1.5. Our sex ratio is comparable to those found in the Korean and Ghanaian series, with respectively 1.5 and 1.7 [7] [10].

Clinically, fever is constant and above  $38.5^{\circ}\text{C}$  [11]. Conventionally fever is always present in patients with an appendicular abscess [1]. We found it in all patients. Pain is also a constant sign of appendicular abscess [11]. It was found in all our patients. It is pain in the right iliac fossa (RIF) because RIF is the most common anatomical site of the appendix [12]. RIF was the seat of pain in 80% of the cases in our series.

Digestive disorders can accompany pain in appendicular abscesses. We noted vomiting in all our patients. The high frequency of nausea and vomiting in our series can be explained by the late consultation of our patients.

The parietal defense of the right iliac fossa due to irritation of the peritoneum by inflammation associated with the perception of a real painful mass well limited and fluctuating in the right iliac fossa that corresponds to the different elements compartmentalizing the abscess are the main physical signs in favor of the diagnosis of appendicular abscess [11].

Pelvic pain is also a sign that should be systematically looked for, although its absence does not always mean that the appendix is free of the lesions [13].

Defense in the right iliac fossa and pelvic pain are the most common physical signs. These signs accounted for 93.3% and 90% respectively in our series. These signs have also been noted in the literature [14] [15].

Ultrasound with a sensitivity of 80% for diagnosis can provide additional information on both the pathological stage and the topography and useful when the diagnosis is difficult or doubtful [2].

During our study all our patients benefited from this examination among which the diagnosis of the appendicular abscess was made and confirmed intra-operatively in 83.3% of cases.

Computed tomography is also a means of diagnosing suspicious cases; We did not ask for that during our study.

For treatment, any diagnosed appendicular abscess should be operated on as soon as possible, in order to remove the infectious focus to prevent the spread of infection into the peritoneal cavity [16].

In the presence of an appendicular abscess, appendectomy with abscess drainage is not only safe operation with a low morbidity rate, but it is a procedure of choice allowing a significant reduction in hospitalization and health care costs [17].

In the literature, Mac Burney's incision is the elective route and the aesthetic character of this incision argues in its favor, when it is small and the perfect repair of plans. In our series it was the most used in 90% of cases. Our path first is similar to that of Guifo in Cameroon M.L in 2010 [2] which operated 14 patients (73.6%) by the conventional Mac Burney route on 19 cases of appendicular abscess. In some forms, percutaneous drainage is another alternative under radiological control (ultrasound or computed tomography), appendectomy will be performed at a distance from the infectious episode (usually 3 months). We did not perform percutaneous drainage in our study because there was no indication.

Regarding the operative technique, some authors practice the systematic burial of the appendicular stump. They argue that this practice isolates the septic stump from the peritoneal cavity, thus reducing the risk of infection and that of the flanges. Others, on the contrary, condemn this practice, for them necrosis and inflammation of the appendicular stump favor the perforation of the lower caecal bottom [11] [13].

The technique of appendectomy plus burial plus drainage was the most practiced in our series, 80% of cases. This technique was also used by Pius ISO in Nigeria 2003 [6] or 76.6% of its workforce. This rate is comparable to that observed in our series.

The postoperative follow-up was simple in 83.3% of cases in our series. In the literature, morbidity is represented by parietal suppurations, appendicular stump fistulas and sepsis. They are common in complicated forms [3].

We found a morbidity rate of 13.3%. This rate is close to that of Tolo M in Mali in 2014 [18].

Mortality varies according to the time elapsed between the onset of the pathology, management and other associated pathologies [17]. We recorded one case of death due to sepsis.

Despite the absence of therapeutic methods such as percutaneous drainage, laparoscopic surgery the postoperative evolution has been satisfactory in the majority of our patients.

## 5. Conclusion

Appendicular abscess is a frequent medical-surgical emergency in our context because of the delay in diagnosis. It is a condition with low morbidity and mortality subject to early diagnosis and prompt and appropriate treatment.

## Conflicts of Interest

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

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