

Epidemiological and Therapeutic Aspects of Appendicitis at the Fana Reference Health Center

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Abstract

Review Article

Summary: Acute appendicitis is an acute inflammation of the vermiform appendix. The objective is to study acute appendicitis in the Fana reference health center. Patients and methods: prospective study which extended over a period of twelve months from January 1, 2020 to December 31, 2020. **Results:** 72 cases of appendicitis identified which represented 11.52% of surgical interventions, 48.98% of digestive surgical emergencies and 90.3% of our patients were received in emergency. We observed a male predominance with 55.6%, a ratio of 1.25. The most represented age group was that of 5 to 20 years, i.e. a rate of 38.9% and the average age was 27.31 ± 13.76 years with extremes ranging from 7 to 65 years. The housekeeping profession was the most dominant with a workforce of 24 or a rate of 33.3%. The majority of our patients were operated under general anesthesia with a rate of 66.7%. The Mac Burney point was the site of the incision of the majority of our patients, a rate of 87.5%. The duration of hospitalization of our patients was 5 days in 68 of our patients, a rate of 94.4%. **Conclusion:** Acute appendicitis is the most frequent abdominal emergency at CS Ref Fana but similar to that observed in other tropical African countries. It is a condition with low morbidity and mortality when diagnosed and treated early.

Keywords: Acute appendicitis; epidemiological; therapy, Csref Fana.

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I - INTRODUCTION

Acute appendicitis is an acute inflammation of the vermiform appendix [1, 2]. Acute appendicitis always represents a surgical challenge due to its frequency, the fact that it mainly affects young and active subjects, its semiological polymorphism and its potential severity [2, 3].

In the U.S.A, according to a study carried out between 1993-2008, the hospital frequency of appendicitis represented 7.62 to 9.38% [4].

In Europe, the incidence has been estimated at 100 cases per 100,000 inhabitants and it represented 26% of digestive surgical procedures in France.

However, appendicitis is only involved in 60% of these appendectomies [5]. In Australia, its estimate is 103-122 cases per 100,000 population [5, 6].

In Africa, appendicitis has been described as rare at less than 1% [7, 8], but recent studies have revealed rates approaching those of industrialized countries.

According to a study carried out in 1991, appendicitis accounted for 42.3% of abdominal emergencies [7].

However, in 2004, it accounted for 38.9% of surgical emergencies in Nigeria [9]. It represented one of the most frequent surgical emergencies of visceral surgical procedures performed in Ivory Coast with respectively 30.3% of procedures followed by peritonitis 28.1% and strangulated hernia 22.2% [10].

GUINDO O.Y reported a frequency of 37.19% of surgical emergencies at CS Ref de Fana [11].

The main risk of appendicitis is progression to perforation and then generalized peritonitis, which is life-threatening: mortality is 0.1%.

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In the uncomplicated form, it is 1.5 to 5% in the event of appendicular perforation [12].

The recommended treatment of acute appendicitis is to date surgical: it consists of performing an appendectomy either by laparotomy at the point of Mac

Burney or by laparoscopy [13, 14]. The latter is less invasive with minimal postoperative complications and a fairly short hospital stay.

Has the policy of decentralization in the field of health through the creation of reference health structures been effective in the management of this pathology?

Faced with the scarcity of work carried out in our reference health center, we carried out this study.

2- Type of study and study period: this was a prospective study which extended over a period of twelve months from January 1, 2020 to December 31, 2020.

3- Sampling: we recruited all the patients who had been operated on for acute appendicitis at the CSRef of Fana.

4- Inclusion criteria: any patient operated in the general surgery unit of the Fana referral health center for acute appendicitis.

5-Criteria for non-inclusion: any patient operated on at the CS Ref for other pathologies

6-Patients and methods:

The data collection was carried out by ourselves. An interrogation at the patient's bedside made it possible to complete the questionnaire which included;

- Personal and administrative data.
- Epidemiological and therapeutic data.

7- Study variables:

They concerned sex, age, profession, treatment (first approaches, experience of the operator), the postoperative course and the cost of treatment.

8- Data entry and analysis:

Data entry and analysis were performed using SPSS 25.0 and Epi Info 6.0 software. Text, tables and graphics were processed using Microsoft Word and Excel 2007.

The statistical test used was χ^2 and Fisher's exact test. The significance level $p \leq 0.05$.

9- Ethical consideration: the patient's free and informed consent was obtained.

II RESULTS

A-Frequency:

During our study period, 13,471 consultations were performed, 625 surgical procedures performed, including 147 surgical acute abdomens, representing a rate of 23.52% of these surgical emergencies.

We identified 72 cases of appendicitis which represented 11.52% of surgical interventions, 48.98% of digestive surgical emergencies.

B-Socio-demographic data:

Gender:

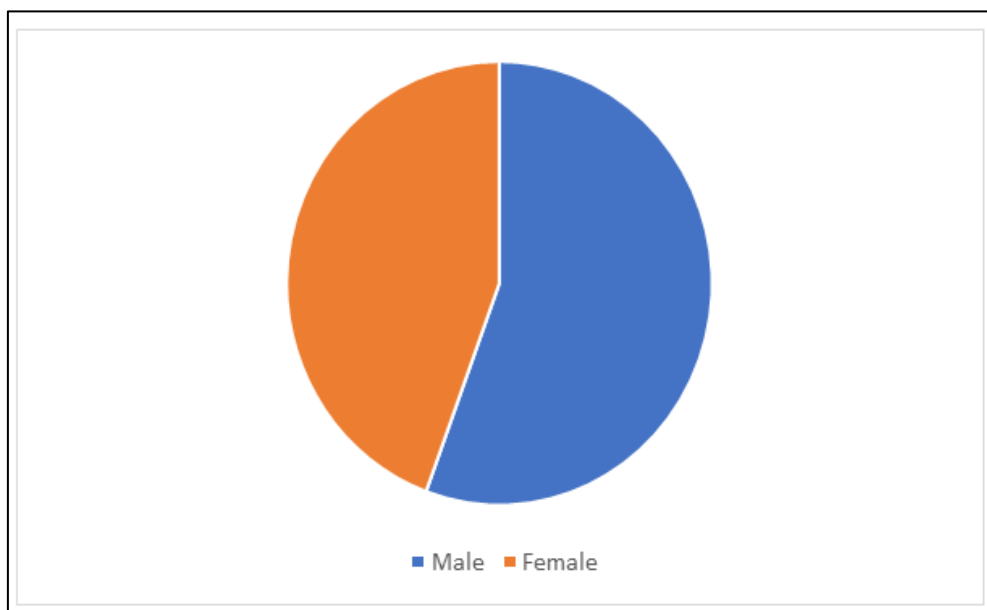


Figure 1: Distributions of cases by gender

We observed a male predominance with 55.6%, a ratio of 1.25.

Age:

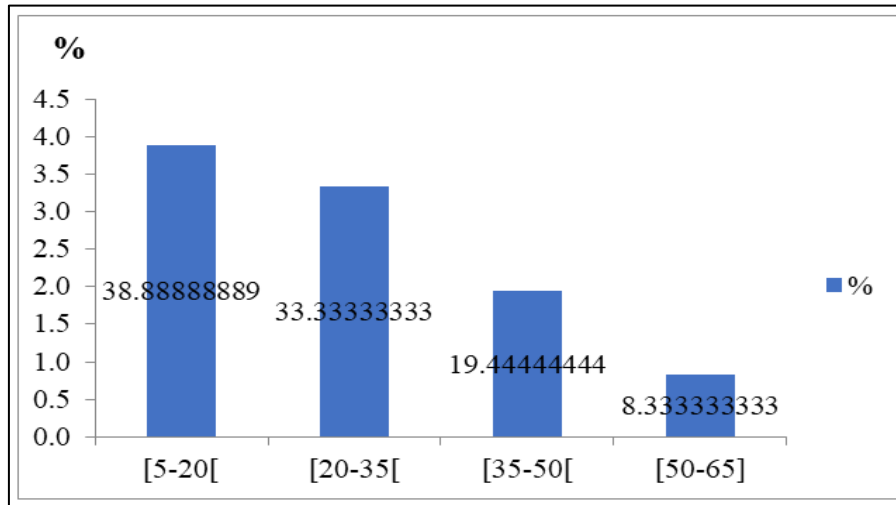


Figure 2: Breakdown of patients by age

The most represented age group was that of 5 to 20 years with a rate of 38.9% and the average age was 27.31 ± 13.76 years with extremes ranging from 7 to 65 years.

Occupation:

Table I: Distribution of patients according to profession

Profession	Workforce	%
Pupil/Student	23	31,9
Housewife	24	33,3
Cultivator	12	16,7
Shopkeeper	4	5,6
Worker	6	8,3
Teacher	3	4,2
Total	72	100,0

The housekeeping profession was the most dominant with a workforce of 24 or a rate of 33.3%.

C- Treatments:

Operator:

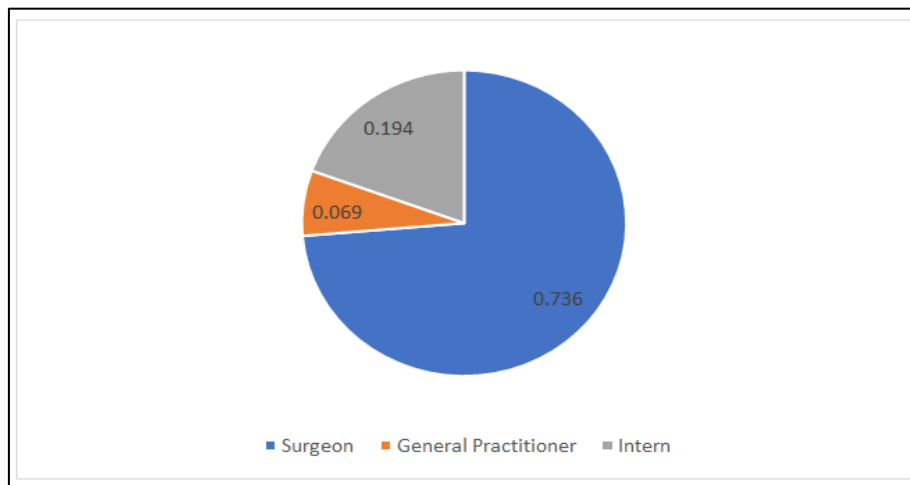


Figure 3: Distribution of the sample according to the operator

Of our entire sample, 73.6% were operated on by the surgeon.

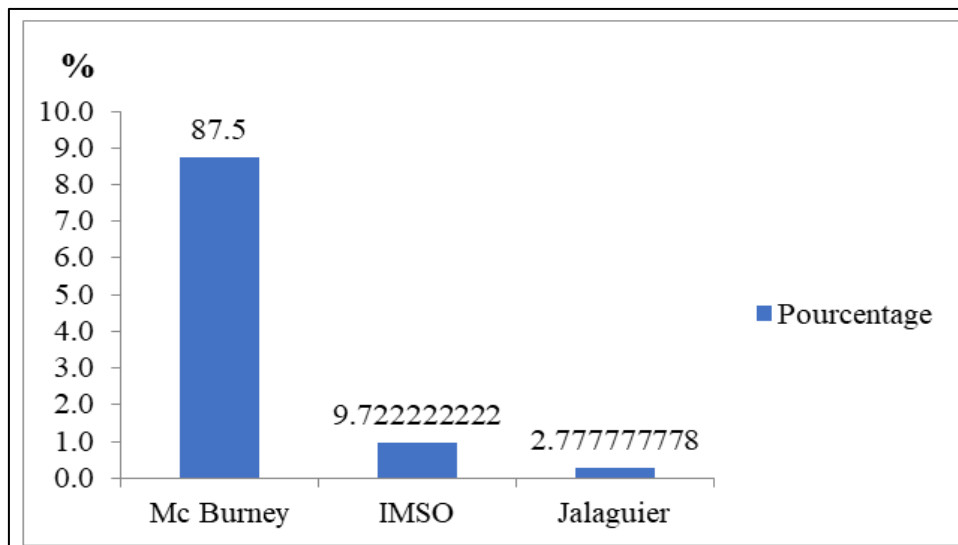


Figure 4: Distribution of patients according to the nature of the incision

The Mac Burney point was the site of the incision of the majority of our patients, a rate of 87.5%.

Seat of the appendix:

Table II: Distribution of patients according to the location of the appendix

Appendix site	Number	Percentage
IDF	62	86,1
Subhepatic	2	2,8
Retro cecal	3	4,2
Pelvic	5	6,9
Total	72	100

The right iliac fossa was the most frequent seat 86.1%.

Appendectomy technique:

Table III: Distribution of cases according to appendectomy technique

Appendectomy technique:	Number	Pourcentage
Simple appendectomy	28	38,9
Appendectomy with burial	42	58,3
Appendectomy +washing +drainage	2	2,8
Total	72	100,0

Appendectomy with stump burial was the most used technique, with a rate of 58.3%.

During our study, we recorded 4 cases of postoperative complications, i.e. 9.72%, including 3 cases of parietal suppuration and 1 case of hemorrhage.

Postoperative follow-up:

Cost of support:

Table IV: Distribution of the sample according to the cost of treatment

Cost of treatment	Number	Pourcentage
(0-60000)	71	98,6
(60000 and more)	1	1,4
Total	72	100,0

The majority of our patients were operated on between 60,000 and 75,000, a rate of 98.6%.

III- COMMENTS AND DISCUSSION

1- Epidemiological aspects:

1.1. Frequency:

During this study we collected 72 cases of appendicitis, i.e. 11.52% of surgical activities and 48.98% of surgical emergencies.

Table V: Frequency distribution according to different authors

Authors	Numbers	Frequencies	Test statistics
GUINDO O.Y [11]	45	37,19%	$P=0,25$
DIABATE S [16]	37	38,94%	$P=0,28$
Our Series	72	48,98%	

1.2 Gender:

The male sex was predominant in our sample. This result is consistent with those of POUDJOUYOU B and DIAWARA M [15, 17]. However, the female sex was predominant in the Diakit  S study [18].

We can conclude that sex is not a risk factor in the occurrence of appendicitis.

1.3 Age:

We observed a high frequency in the age group [5-19], i.e. 38.9% with an average age of 27.26 ± 13.79 years and extremes of 7 to 65 years.

This average is comparable to that of POUDJOUYOU B which reported 27.26 [15]. However, it is lower than that of MOUNKORO S and DIAKITE S who successively reported 31.5 years [20] and 29.18 years [18] and higher than that of DIAWARA M 22.43 years [17].

In these different series like ours, appendicitis occurs in young subjects.

2. Therapeutic aspects:

The treatment of appendicitis is unequivocal: it is emergency appendectomy.

In case of uncomplicated appendicitis, it is accompanied by systematic antibiotic prophylaxis to reduce postoperative infectious complications.

In case of complicated appendicitis (suppurative appendicitis, peritonitis) antibiotic therapy will be curative, directed against anaerobic germs especially [14, 19].

During our study, 100% of our patients were treated surgically.

Medical treatment is aimed at controlling the infectious syndrome. It essentially includes antibiotics, preferably those that have an elective action on intestinal germs.

This frequency was reported by POUDJOUYOU B 12.20% [15].

However, in the literature, appendicitis ranks first among surgical emergencies. Our data agree with those of GUINDO O.Y and DIABATE S [11-16].

For ROHR *et al.*, [6], antibiotic therapy should begin intravenously, using 2nd generation cephalosporins as a priority; in case of allergy to these molecules, a nitro-imidazole/aminoside or clindamycin/aminoside combination is used. The main purpose of this antibiotic therapy is to reduce the incidence of wall abscesses.

In our series, preoperative medical treatment was recommended in 100% of cases, based on analgesics (79.2%) after diagnosis.

The treatment of acute appendicitis is surgical.

3-2- Approaches:

The classical approach and preferably is a laparotomy in FID, at the point of Mac Burney.

Laparoscopy of more recent use allows the realization of the appendectomy. None of our patients benefited from this laparoscopy.

The removal of the appendix is essential, this act makes it possible to remove the infectious and toxic focus.

However, this operating time is not always easy due to the local inflammatory state causing retraction and friability of the meso, often having a tendency to bleed.

The appendix is sometimes in the process of necrosis, and must be approached and dissected cautiously. This surgical gesture is completed by a ligature of the base of the appendix; burying the appendicular stump with a bursa is currently used less and less because of a septic risk with the possible formation of an intramural abscess [20].

EMIL *et al.*, [21] asserted that healing after appendectomy in children is dictated by the severity of the appendicitis and not by the technique used.

In our series, all operated cases of acute appendicitis were successfully treated by conventional means.

- 63 cases (87.5%) were approached by a Mac Burney type horizontal incision.

- 07 cases (9.7%) were approached by a midline laparotomy of the IMSO type.
- 02 cases (2.8%) were approached by a Jalaguier type incision.

Table VI: Approaches

Approach according to the authors	Classic approach Mc Burney	IMSO	Jalaguier
POUDIOUGOU B [15]	94,44% <i>p=0,14</i>	0%	5,56% <i>p=0,68</i>
BOUAZZAOU M [22]	78,57% <i>p=0,42</i>	3,57% <i>p=0,54</i>	
KEITA M.B [23]	98,2% <i>p=0,008</i>		1,8% <i>p=0,93</i>
GULLER U and al USA 2004 [24]	82,2%		
Our series	87,5%	9,7%	2,8%

This predominance of the classic McBurney pathway has been reported by various authors with statistically significant values. This could be explained by the preferential seat of the appendix motivating this approach first.

-Postoperative antibiotic therapy is systematic.

Treatment includes removal of the appendix and thorough thorough peritoneal cleansing to eradicate all septic foci. The exploration constitutes an essential time allowing the positive, topographical, evolutionary diagnosis and the macroscopic aspect of the appendicitis.

The iliac position was predominant with 86.1% of cases. This predominance of the iliac position is the most encountered in the literature [25]. However, BOUAZZAOU M [22] reported a mesocolic predominance, i.e. 42.86% of cases.

2- Operative follow-up:

During our study, we recorded 4 cases of postoperative complications, i.e. 9.72%, including 3 cases of parietal suppuration and 1 case of hemorrhage.

This result is comparable to those reported by various authors [15, 20, 22].

Table VII: Surgical follow-up according to the authors

Authors	Morbidity	Statistical value
MOUNKORO S [20]	2,67%	<i>p=0,05</i>
POUDIOUGOU B [15]	8,33%	<i>p=0,77</i>
BOUAZZAOU M [22]	3,57%	<i>p=0,5</i>
Our series	9,72%	

3- Cost of care:

The cost of caring for the majority of our patients was between 60,000 and 75,000. This cost is much higher than the Malian minimum wage, which today stands at 42,500 CFA francs. It is increased by the occurrence of complications. Our cost is lower than that obtained by DJIBRILAH I which was 86,750 CFA francs [26]. This difference is explained by the fact that an affordable operating kit (34.765F) was put together by the department head and is given for each intervention.

CONCLUSION

Acute appendicitis is the most frequent abdominal emergency at CSRef Fana but similar to that observed in other tropical African countries.

It is a condition with low morbidity and mortality when diagnosed and treated early.

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