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Research Article

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Acute Appendicitis in Adults in an Urban-Rural Setting In Democratic Republic of Congo (DRC)

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Abstract

Objective: *Our objective was to describe the epidemioclinical profile of appendicitis in the digestive surgery department of Saint Luc hospital in Kisantu.*

Method: *Descriptive documentary study, based on the description of the files of the patients admitted for appendicitis in our study environment during a period of 10 years, that is to say from January 1, 2010 to December 31, 2020 carried out in the digestive surgery department of the Saint Luc hospital of Kisantu.*

Results: *The median age was 30 years with extremes of 18 years and 30 years with a female predominance (Sex-ratio=1,2). Pain in the form of abdominal cramps (94.1%) and located in the right iliac fossa for 44 patients (86.3%) was the main reason for consultation. Rebound was found in 47 patients (92.2%) and McBurney in 44 patients (86.3%). The approach for the majority of appendectomies was the median and subumbilical incision in 66.7%. Catarrhal appendicitis was the most common form in 73.3% of cases. Appendectomy with burial of the stump was performed in most cases with 71%. The postoperative evolution was favorable in 63% of cases. Complications were noted in 37% of cases.*

Conclusion: *Appendicitis often affects the young and female subject. Its clinic is mainly made of abdominal pain, localized to the right iliac fossa, while its management is surgical, preferentially via the median and sub-umbilical incision in our study environment. The postoperative course is generally favorable.*

Keywords: Epidemiology, Clinical, Therapeutic, Appendicitis

Introduction

Appendicitis is an inflammation of the vermiform appendix, which can be acute, subacute or chronic. It is the most frequent abdominal surgical emergency when acute [1-4]. Its incidence varies significantly from one region to another. In France in 1997, there were 130,000 appendectomies for acute appendicitis, i.e. an incidence of 20 per 10,000 inhabitants. This incidence is currently 12.5 per 10,000 inhabitants. This decrease is probably multifactorial [5]. Acute appendicitis is more frequent in men (52%) than in women (48%) and is significantly more important in adolescents [5].

In Africa, appendicitis had been described as rare at less than 1% but recent studies report rates close to those in industrialized countries [5, 6]. The dreaded complication of appendicitis is that of a progression towards perforation and then generalized peritonitis, which is life-threatening: mortality is 0.1% in the uncomplicated form, and 1.5 to 5% in the case of appendicular perforation [7]. Because of its frequency, as seen in the literature, and seen in practice in our communities, appendicitis represents a real public health problem.

However, few authors in our environment pay particular attention to the study of the management of this condition, especially in the university clinics of Kinshasa. This justifies the initiation of our study. Our interest is to make an inventory of the management of acute appendicitis in our study environment.

Methods

Study Setting and Type and Period of Study

Our study setting is the digestive and visceral surgery department (ward 3) of the Saint Luc hospital in Kinsantu.) This is a descriptive documentary study, based on the description of the records of patients admitted for appendicitis in our study setting during a period of 10 years, from January 1, 2011 to December 31, 2020.

Study Population

The present study includes all the records of patients followed in the digestive surgery department of the university clinics of Kinshasa, particularly those of patients followed for acute appendicitis. These records were subject to inclusion and non-inclusion criteria.

In order to be retained, the patients' files should contain the following elements

• Socio-demographic characteristics: age, gender
• The complete diagnosis made on admission or after the operation;
• The paraclinical workup performed;
• The treatment applied
• The following were not included in our study:
• All incomplete records: not containing all variables of interest

Sample Size

Our sample consisted of 86 records of patients operated on for appendicitis in our study setting. This is a non-probability and convenience sample, drawn from an exhaustive population.

Variables of Interest and Operational Definitions

- Age: only patients older than 16 years will be considered; patients will be grouped by age, expressed in years.
- Sex: two sexes will be taken into account, i.e. female and male;
- Diagnosis: surgical indication and intraoperative diagnosis.
- Anatomopathological forms: catarrhal appendicitis, suppurated appendicitis, appendicular abscess, appendicular gangrene
- Clinical characteristics: symptoms, physical signs, etc.
- The paraclinical workup performed; additional examination performed for the development or to conduct the treatment.
- The admission time: the time elapsed between the onset of the disease and the consultation
- The treatment applied: the type of intervention performed and the postoperative behavior.
- The evolution: presence of complications or not. The characteristics of the different complications observed and the time of their appearance (early and late).

Data Analysis Plan and Technique

The data were entered into Excel 2010. They were then exported to IBM SPSS 21 (Statistical Package for social sciences), version 21.0 for processing and analysis. The mean and standard deviation were searched for quantitative data with Gaussian distribution. The relative (%) and absolute (n) proportions for categorical data. The Pearson Chi-square test was performed to compare means. For all tests performed, the threshold of statistical significance (p-value) was $p < 0.05$.

Ethical Considerations

Data collection will be anonymous and strictly confidential. Data will be treated fairly.

Results

Sociodemographic Characteristics

The majority of patients were female, 53% of them with a sex ratio of 1.2. In the majority of cases, the patients were between 31 and 46 years of age, i.e. in 47.1% of cases. The median age was 30 years with extremes of 18 and 30 years.

Clinical Features

In all cases the patients had consulted for abdominal pain. In the vast majority of cases, this pain was located in the right iliac fossa in 44 patients (86.3%), while it was epigastric in 7 patients (13.7%). This pain was felt as abdominal cramps in 48 patients (94.1%).

Nausea was the main symptom in 47 patients (92.2%), followed by vomiting in 32 patients (62.8%). On physical examination, Rebound's sign was the most common in 47 patients (92.2%), followed by McBurney's sign in 44 patients (86.3%).

In our series, the diagnosis of acute appendicitis was more retained (72.6%).

The approach for the majority of appendectomies was the median and subumbilical incision in 66.7%. Catarrhal appendicitis was the most common form of appendicitis in 73.3% of cases, followed by suppurative appendicitis in 16.3%. The appendix was abscessed in 5.8% and gangrenous in 4.6%. Appendectomy with burial of the stump was performed in most cases (71%). The postoperative evolution was favorable in 63% of cases. Complications were noted in 37% of cases.

Table 1: Distribution of Patients According to Clinical and Therapeutical Characteristics

VARIABLES	n=51	%
Reason for consultation		
Abdominal pain	51	100
Location		
EPIGASTRE	7	13,7
FID	44	86,3
Mode of onset of pain		

Sudden	32	62,8
Progressive	19	37,2
Type of pain		
Burning	2	3,9
Gravity	1	2
Abdominal cramps	48	94,1
VARIABLES	n=51	%
Nausea	47	92,2
Vomiting	32	62,8
Diarrhea	18	35,3
Fever	15	29,4
VARIABLES	n=51	%
Rebound	47	92,2
McBurney	44	86,3
Rovsing	12	23,5
Blumberg	10	19,6
Psoitis	7	13,7
Digital rectal examination (Right side pain)	6	11,8
Diagnosis	n	%
Acute appendicitis	37	72,6
Appendicular abscess	6	11,8
Appendicular plastron	8	15,6
Total	51	100
Approach	n	%
Median and subumbilical	34	66,7
Pararectal	11	21,6
McBurney	4	7,8
Other	2	3,9
Total	51	100
Intraoperative diagnosis	n=51	%
Catarrhal appendicitis	37	72,6
Suppurative appendicitis	8	15,6
Appendicular abscess	3	5,9
Appendicular gangrene	3	5,9

Discussion

Sociodemographic Characteristics

In our series, female patients were in the majority, in 53% of cases with a sex ratio of 1.2. This female predominance is also reported by Ohene in Ghana (22) in 2006 (sex ratio 1.7), Villazon (21) in Mexico (sex ratio 1.7) and Dicko in Mali (sex ratio 2.4). However, our results differ from those of Poudiougou (25) and Oguntola in Nigeria (24) who reported sex ratios of 3.5, 1.9 and 1.1 in favor of the male sex, respectively. Although some hypotheses are reported by some authors, sex is not mentioned as an associated or determining factor of appendicitis.

In our series, the median age was 30 years with extremes of 18 and 30 years. Our results are similar to those of Oguntola A S et al, 2010 Nigeria (24), Poudiougou B Mali 2015 (25) and Dicko A Mali 2019 (26) who respectively reported medians of 25.8 years, 27.3 years and 26.9 years. Our results are relatively superior to those of M. Koné Mali 2020 (27) who found a median of 21.5 years.

Clinical Characteristics

Anamnestic Elements

In all cases, the patients consulted for abdominal pain. Poudiougou B, Dicko A and M Koné also made the same observation.

In the vast majority of cases, this pain was located in the right iliac fossa in 44 patients (86.3%), whereas it was epigastric in 7 patients (13.7%). This pain was felt as abdominal cramps in 48 patients (94.1%). These signs have also been reported by several authors in the literature.

Physical Signs

In our series, on physical examination, Rebound's sign was the most common in 47 patients (92.2%), followed by McBurney's sign in 44 patients (86.3%). These signs are also found by Poudiougou B, Mali 2015 (25), Poudiougou B, Mali 2015 (25), and M. Koné Mali (27) whose figures are close to ours.

Type of Incision

The approach for the majority of appendectomies was the midline and subumbilical incision in 66.7% while the McBurney incision was found in 7.8%. Indeed, the McBurney incision is the preferred route and its minimally invasive character pleads in its favor, which is in agreement with the data in the literature. On the other hand, this difference observed in our series could be explained by the preference of the doctor, or sometimes of the patients themselves for aesthetic reasons.

Anatomopathologique Forms

Catarrhal appendicitis was the most common form found in 73.3% of cases, followed by suppurative appendicitis in 16.3%. The appendix was abscessed in 5.8% and gangrenous in 4.6%. The risk of removing a healthy appendix is identical to that of leaving a pathological appendix in place when it is a case of end appendicitis characterized by minimal lesions of the mucosa and sub-mucosa.

Procedure and Early Postoperative Follow-Up

Appendectomy with burial of the stump was performed in most cases with 71%. Our result is close to that of Diallo B (30) in a series of 120 patients who reported 100% burial. In the literature, this practice is considered to be dangerous because of the risk of sepsis due to the formation of an intramural abscess [8-12]. The postoperative evolution was favorable in 63% of cases. Complications were noted in 37% of cases. In the literature, the frequency of wall infections is estimated at 2.5%.

Conclusion

With the objective of describing the epidemioclinical and therapeutic aspects of appendicitis at the Saint Luc hospital in Kisantu, this study allowed us to make the following observations.

Appendicitis often affects the young and female subject. Its clinical features are mainly abdominal pain, localized in the right iliac fossa. Its management is surgical, preferably via the median and sub umbilical incision in our study environment. The post opérative course is generally favorable.

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