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Epidemio-Clinical and Therapeutic Aspects of Acute Appendicitis at the Dioila Reference Health Center

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Abstract | **Original Research Article**

Objective: To assess the epidemiological, clinical and therapeutic aspects of appendicitis at the Dioïla Reference Health Center. Methods: This was a retrospective study conducted in the surgery department of the Dioïla Reference Health Center. The records of patients admitted for acute appendicitis during the period from July 1, 2019 to December 31, 2023 were collected. Patients operated on for simple and complicated acute appendicitis were included in the study. ***Results***: We collected the records of 221 patients operated on for acute appendicitis. They represented 16.9% of surgical procedures (n = 1301) and 67.4% (n = 328) of digestive surgical emergencies. The mean age was 28.4 ± 15.4 years. There was a male predominance (62.4%, n = 138) with a sex ratio of 1.7. Appendicitis was simple in 155 patients (70.1%) and complicated in 66 patients (29.9%). The occurrence of complicated forms was linked to a delay in consultation (p = 0.01). Appendectomy was performed in 219 patients (99.1%), the appendix was completely necrotic in 2 patients. The overall postoperative morbidity of appendicitis was 6.3% (n = 14). Mortality was zero. The average length of hospitalization was 3.1 ± 1.1 days. ***Conclusion***: Acute appendicitis is common in Dioïla. Delay in consultation is associated with complicated forms. Laparotomy remains the only surgical approach in our department. Postoperative morbidity is high in complicated appendicitis and mortality is zero.

Keywords: Appendix, Abscess, Peritonitis, Dioïla.

1. INTRODUCTION

Acute simple and complicated appendicitis is a common pathology worldwide and occupies an important place in digestive surgery departments [1]. In Thailand [2], 2139 appendectomies were performed in eight hospitals in 2006 and in France 83,400 appendectomies were performed in 2012 [3]. In Mali, in 2018, according to Coulibaly M *et al*., 62 cases of appendicitis were treated in one year in the Koutiala district hospital in 2018 [4]. This pathology generally affects young male subjects [6, 7]. The uncomplicated form represents 70% of appendicitis [8-10]. The diagnosis is clinical, but additional examinations such as abdominal ultrasound, biological examinations and abdominal CT scan retain their place in difficult cases [6]. Appendectomy is the radical surgical treatment, either by conventional laparotomy or by laparoscopic surgery. Morbidity remains high and the rate varies between 8% and 15% [10, 11]. Mortality is low [10]. Due to the lack of data on appendicitis in the health district of Dioïla, we initiated this work, the aim of which was to evaluate the epidemiological, clinical and therapeutic aspects of appendicitis.

2. METHOD

This was a retrospective study conducted in the general surgery department of the Dioïla Reference Health Center. The records of patients admitted for simple and complicated acute appendicitis during the period from July 1, 2019 to December 31, 2023 were collected. Patients operated on for simple and complicated acute appendicitis were included in the study. We used the patients' medical records, consultation register, hospitalization register and surgical report. The parameters studied were age, sex, clinical examination data, paraclinical examination results, etiologies, treatment therapeutic data and their results.

3. RESULTS

We collected the records of 221 patients operated for simple and complicated acute appendicitis.

They represented 4.5% of consultations (n = 4860), 16.9% of surgical procedures (n = 1301) and 67.4% (n = 328) of digestive surgical emergencies. The 16-30 age group was the most affected with 50.7%, with a mean age of 28.4 ± 15.4 years, the extremes were 5 and 81 years. There was a male predominance (62.4%, n = 138) with a sex ratio of 1.7. The symptomatology was represented by abdominal pain in 100% of cases (n = 221), with parietal defense in 98.6% (n = 218), vomiting (83.3%, n = 184), fever (65.2%, n = 144), cessation of stools and gas (8.6%, n = 19) and pain in the cul-de-sac of Douglas in 65.2% (n = 144). Physical signs are noted in Table 1. More than half of the patients were in their first painful episode (59.3%, n = 131), 90 patients were in their 2nd, 3rd or 4th painful episode evolving for several months or years. The overall mean duration of evolution of the current episode was 4.2 ± 2.7 days. It was 3.9 days ± 2.7 (extreme 6 hours and 15 days) for simple acute appendicitis and 4.7 days ± 2.7 (1 and 15 days) for complicated appendicitis. The blood count (CBC) performed in 33 patients revealed hyperleukocytosis in 26 patients, or 78.8%. An abdominopelvic ultrasound performed in 137 patients revealed an ultrasound Murphy of the right iliac fossa in 73 patients (53.2%), an intraperitoneal effusion in 32 patients (23.4%), and a thickening of the appendicular wall in 20 patients (14.6%). According to the progressive forms, appendicitis was uncomplicated in 155 patients (70.1%), and complicated in 66 patients (29.9%) including 34 cases of appendicular abscess, 19 cases of peritonitis and 13 cases of appendicular plastron. A consultation delay of more than 3 days was associated with the occurrence of complicated forms (64.3% versus 35.7%, p = 0.01). The progressive forms are presented in Table 2. All our patients underwent emergency surgery except for the thirteen cases of appendicular plastron. These were cooled with medical treatment consisting of parenteral antibiotics (ceftriaxone, gentamicin and metronidazole) and analgesics (paracetamol combined with metamizol), ice pack and a low-fiber diet for 3 days. This treatment brought about a lull in the 13 patients and the relay was taken orally (amoxicillin-clavulanic acid and metronidazole) for 10 days. Surgical treatment was carried out four months after the cooling. Preoperative antibiotic prophylaxis with 2 grams of amoxicillin was performed in 155 patients (70.1%) and triple antibiotic therapy in 66 patients (29.9%). Classical laparotomy was performed for all patients. This consisted of a Mac Burney incision in 199 patients (90.1%) and a midline laparotomy in 19 patients (8.6%). Intraoperatively, we found the appendix in 219 patients (99.1%). In 2 patients (0.9%), the appendix was completely necrotic (2 cases of appendiceal abscess). The appendix was catarrhal in 15 patients (6.8%), phlegmonous (62.9%, n = 139) and gangrenous (0.9%, n = 2), and perforated (23.1%, n = 52); 13 cases were cases of cooled plastron. The appendix was in the iliac position in 192 patients (86%), including 2 cases of subserous, pelvic (4.9%, n = 11), mesocoeliac (0.9%, n = 2), retrocecal (4.9%, n = 11) and subhepatic (0.5%, n = 5). Appendectomy was performed in 219 patients (99.1%), including thirteen delayed cases (13 cases of appendicular plastron). It was associated with burial of the appendicular stump in 166 patients (75.1%), cleaning of the peritoneal cavity in 52 patients (23.5) and abdominal drainage in 45 patients (20.4%). In the 2 cases where the appendix was completely necrotic and not seen, we were satisfied with washing and draining the right iliac fossa. The operating procedures are summarized in Table 3. Analysis of the effusion collected intraoperatively was performed in only 20 patients out of the 53 cases of abscessation (37.7%). It demonstrated the presence of Gram-negative bacilli in all cases due to the inability to culture in the center. The antibiotics used perioperatively and postoperatively in complicated forms were the combination of a third-generation cephalosporin (ceftriaxone), an imidazole (metronidazole) and gentamicin. The postoperative course was simple in 93.7% with an overall postoperative morbidity of 6.3% (n = 14). It was 19.7% (n = 13) for complicated appendicitis and 0.6% (n = 1) in uncomplicated forms. There were 12 cases of surgical site infection that were treated with local care and antibiotic therapy, and two cases of abdominal distension with delayed resumption of transit. Mortality was zero. The mean length of hospitalization was 3.1±1.1 days (1 to 9 days) for uncomplicated appendicitis and 5.2±1.7 (2 to 9 days) for complicated appendicitis. The evolution at 3 months of follow-up was marked by cases of keloid scars in 12 patients (5.4%) and residual scar pain in 20 patients (9%).

Table 1: Physical signs of patients

Physical signs	Number	%
Right iliac fossa defense	218	98,6
Abdominal contracture	21	9,5
Painful mass in the right iliac fossa	26	11,8
Painful cul de sac of Douglas	144	65,2
Bulbed cul de sac of Douglas	21	9,5

Table 2: Evolutionary forms

Evolutionary forms	Number	%
Acute appendicitis	155	68,4
Appendiceal abscess	34	15,3
Appendiceal peritonitis	19	8,4
Appendiceal plastron	13	5,9
Total	221	100

Table 3: Surgical treatment according to the progressive forms

Progressive forms	Number	Surgical technique	%
Simple acute appendicitis	155	Appendectomy	70,1
Appendicular Abscess			
Appendix seen	32	Appendectomy + toilet + drainage	14,5
Complete appendiceal necrosis	2	Toilet + drainage	0,9
Appendicular peritonitis	19	Appendicectomy + toilet + drainage	8,6
Appendicular plastron	13	Appendectomy after cooling	5,9

4. DISCUSSION

Acute appendicitis ranks first in digestive surgical emergencies in our department with 67.4%. This first rank is reported by several authors [11, 12]. Uncomplicated acute appendicitis is the most common with 70.1% of cases. In a Malian study carried out at the CSRef in Koutiala in 2018, simple forms represented 56.5%. [4], p = 0.06. In Western series, we find the same result with a slightly higher frequency that varies between 55.6% [9] and 75% [7]. In our study as in the literature, appendicitis affects much more young male subjects [6, 7, 14, 15]. A consultation delay beyond 3 days was observed in 114 patients (51.6%), appendicitis having been confused in some cases with malaria syndrome or salmonellosis in peripheral health centers. However, this long delay is explained in the vast majority of cases by self-medication and traditional treatments in our context. This consultation delay explains the high rate of complicated appendicitis which was 29.9%; the occurrence of complicated forms being linked to the consultation delay, p = 0.01. The symptomatology of appendicitis is manifested by pain generally localized in the right iliac fossa but sometimes more diffuse and fever [1]. Abdominal pain remains the constant sign in this study, it is associated with vomiting, fever and hyperleukocytosis in most patients. This picture should lead to imaging examinations, of which ultrasound and CT scan are the most proposed. Among these examinations, only ultrasound is feasible in our health district. Ultrasound was only performed in 137 patients and contributed to the diagnosis in 46% of cases by showing direct signs of thickening of the appendicular wall or a collection of the right iliac fossa. The other patients were operated on based on clinical data. In the literature, some authors emphasize conservative treatment of uncomplicated appendicitis with antibiotic therapy [13]. This strategy is difficult to apply in our context due to insufficient platforms and qualified personnel for monitoring. This is why all our patients were operated on. The approach was conventional, either by Mac Burney incision or by median laparotomy. This result is different from that of the capital of our country (Bamako) where the treatment of appendicitis is often done by laparoscopic surgery [15]. Burial of the appendicular stump is not systematic, it depends on the state of the caecal base and local septic conditions. However, we performed it in 75% of cases given the frequency of cases of uncomplicated appendicitis. Cleaning of the peritoneal cavity and drainage are associated with the treatment of complicated appendicitis and, moreover, they were the only therapeutic methods for the two cases of total necrosis of the appendix. The postoperative morbidity of 19.7% of complicated appendicitis would be linked to a delay in consultation, therefore to a complicated form rather than to surgical intervention; explaining an average hospital stay of 5 days in these patients which can be up to 9 days. The same observation was made by the authors [4, 10, 11]. No cases of death were noted in our study. The limitations of this work were the insufficiency of the technical platform, qualified personnel and financial means of the patients.

5. CONCLUSION

Acute simple and complicated appendicitis is common in our department. Young male subjects are the most affected. Acute simple appendicitis is the most common. Laparotomy remains the only approach currently in Dioïla. Postoperative morbidity is high in complicated appendicitis.

Conflicts of Interest: The authors declare no conflicts of interest regarding the publication of this article.

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