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Evaluate the delay in the management of acute abdomen at the Yaounde central hospital: a prospective cohort study

Abstract

Background: Early surgical treatment remains the first factor of good prognosis for the management of acute abdominal diseases. The aim of this study was to evaluate the delay in the management of these pathologies in our context.

Material and methods: We conducted a prospective cross-sectional study at the Yaoundé Central Hospital (HCY) over 7 months. All patients over 15 years of age presenting with an acute non-traumatic digestive surgical abdomen were included. The follow-up was done during the entire hospital stay of the patients. The dates and times of the different stages of management were recorded.

Results: We collected 63 patients, 37 men, with a sex ratio M/F of 1.42. The mean age was 41.06±18 years. The mean time between arrival in the emergency room and the indication for surgery was 16.9 hours. Acute generalized peritonitis (n=26) was the most common diagnosis with 41.3% of cases. The average time between the indication for surgery and the availability of the surgical kit was 19 hours. The average time between the availability of the operating kit and the start of the surgical procedure was 6.2 hours. The complication rate was 33.3%. The mortality rate was 15.9%.

Conclusion: Our delays in the management of acute abdomens are relatively long. A better organisation of the system and continuous training of the medical staff of peripheral hospitals would improve the prognosis of our patients.

Keywords: acute non-traumatic digestive abdomen, management delay, Cameroon

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Introduction

Acute abdomen is an abnormal condition characterised by the sudden onset of severe and intense pain in the abdominal cavity requiring immediate medical and surgical consultation, rapid diagnosis and very often emergency surgery.[1] These conditions include a range of conditions that must be managed within hours or even minutes of the patient's arrival at the hospital.[2] They represent an ever-increasing cause of morbidity and mortality in Africa and the West.[3] Even today, early surgical treatment remains the primary factor in good prognosis.[4,5] In Africa, several authors have reported relatively longer treatment times than in Western countries.[6,7,8] Numerous elements of delay have been incriminated, in particular the availability of the surgical kit and the different actors of the operation.[6,8]

It therefore seemed appropriate to evaluate the delays in the management of these patients in our context in order to identify the elements that delay them and thus improve the management of these pathologies.

Material and methods

We conducted a descriptive cohort study with prospective data collection. The study took place at the Yaoundé Central Hospital (YCH) over a period of 7 months. All consenting patients over 15 years of age, presenting with an acute surgical abdomen of digestive and non-traumatic origin were included.

Patients were followed from hospital admission to discharge. The outcome variable included socio-demographic and clinical data. The dates and times of the different stages of management were recorded. These included the date of onset of symptoms, date and time of consultation, date and time of indication for surgery, date and time of availability of surgical kit, date and time of commencement of surgery. The availability of the various resources required for the operation was assessed. The impact of the delay in the management of patients on their outcome was assessed by the length of hospital stay, the occurrence of complications and deaths recorded.

Data were recorded using CS Pro version 7software and analysed using IBM_ SPSS (Statistical Package of Social Sciences) software, version 23.0. Qualitative data were expressed as numbers and percentages; illustrated in tables and figures. Chi-square and Fischer tests were used to test for association between categorical values; while the Student's t test was used to compare means.

Ethical clearance was obtained from the Research and Ethics Committee of the Faculty of Medicine and Biomedical Sciences, University of Yaoundé I. Study authorization was obtained from the administrative services of the YCH.

Results

We collected 63 patients. There were 37 men, with a sex ratio of 1.42. The mean age was 41.06 ± 18 years with extremes ranging from 17 to 84 years. The most common age group was between 25 and 35 years, i.e. 38.1% (n=24). The majority of patients (66.7%, n=42) had a monthly income of less than 100,000 CFA francs, 14.3% (n=9) had a monthly income of between 100,000 CFA francs and 200,000 CFA francs, and 19% (n=12) had a monthly income of over 200,000 CFA francs.

The majority of patients, 63.5% (n=40) had a previous consultation before coming to our facility. Among them, 27.5% (n=11) had consulted a traditional practitioner, the rest, 72.5% (n=29) had previously consulted a hospital.

The most frequent diagnosis was acute generalised peritonitis with 41.2% of cases (n=26). Table 1 shows the different diagnoses found.

Table 1 Main diagnoses found

Diagnosis	N	Percent %
Acute generalized peritonitis	26	41,2
Intestinal obstruction	21	33,3
Acute appendicitis	11	17,5
Strangulated hernia	2	3,2
Acute cholecystitis	3	4,8
Total	**63**	**100,0**

The average time to consultation was 69.6 hours with extremes ranging from 0.2 hours to 152.2 hours. The majority of patients, 30.2% (n=19) consulted between 24 and 72 hours after the onset of symptoms. Table 2 shows the time between the onset of symptoms and consultation (consultation time).

Table 2 Delay between onset of symptoms and consultation

Delay of consultation	N	Percent %
Less than 6h	13	20,6
[6h; 24h]	15	23,8
[24h; 72h]	19	30,2
More than 72h	16	25,4
Total	**63**	**100,0**

The average time to diagnosis and delivery of surgical orders was 16.9 hours, with extremes ranging from 0.4 to 169 hours after patient arrival. The majority of patients, 60.3% (n=38), had a diagnostic delay of less than 6 hours. Table 3 shows the different diagnostic times.

Table 3 Diagnostic delay with delivery of surgical orders

Delay betwen diagnosis and surgical orders	Effectifs	Pourcentage %
Less than 6h	38	60,3
[6h; 24h]	9	14,3
More than 24h	16	25,4
Total	**63**	**100,0**

After the surgical orders were given, the average time for the availability of the surgical kit was 19 hours, with extremes ranging from 0.1 to 71 hours. The majority of patients, 42.9% (n=27), had completed their surgical kits between 6 and 24 hours after the orders were issued. Table 4 shows the delay between the delivery of the surgical orders and the availability of the surgical kit.

The majority of patients (61.9%, n=39) had used loans to finance the purchase of their surgical kits. 27% (n=17) used their personal funds, 5 patients (7.9%) had used indigent vouchers and 2 patients (3.2%) had used vouchers.

Table 4 Delay between prescription submission and availability of surgical kit

Availability time of the surgical kit	N	Percent %
Less than 1h	3	4,8
[1h-3h]	2	3,2
[3h;6h]	13	20,6
[6h; 24h]	27	42,9
More than 24h	18	28,6
Total	**63**	**100,0**

The average time between the availability of the surgical kit and the start of the operation was 6.2 hours, with extremes ranging from 0.3 to 13 hours. The majority of surgeries, 46% (n=29), started more than 2 hours after the availability of the surgical kit. Table 5 shows the delay between the availability of the operating kit and the start of the surgical procedure.

Table 5 Time between availability of the operating kit and the start of the operation

Delay	N	Percent %
Lessthan1/2h	12	19,0
[1/2h; 1 h]	11	17,5
[1 h; 2 h]	11	17,5
More than 2h	29	46,0
Total	**63**	**100,0**

The average time from arrival in the emergency department to the start of surgery was 42.3 hours, with extremes ranging from 0.83 to 174 hours. Within 30 minutes of the availability of the operating kit, the surgeon was available in 93.6% of cases, the anaesthetist in 20.5% of cases, the operating theatre in 40% of cases and the nurses circulating from the theatre in 96.8% of cases. The majority of patients, 66.7% (n=42), were operated on more than 24 hours after their arrival at the hospital. 26.5% (n=16) were operated on between 6 and 24 hours after arrival, and 7.9% (n=5) less than 6 hours after arrival.

The average length of hospitalisation was 9.33±4.84days, with extremes ranging from 1 day to 26 days.

The average total cost of care was 255,000 FCFA±185,000 FCFA.

The complication rate was 33.3%. We counted 10 deaths, a mortality rate of 15.9%. The patients who died had an average consultation time of 86.4 hours, with extremes ranging from 3 to 211 hours, and an average time between the onset of symptoms and the start of the operation of 143.1 hours, with extremes ranging from 3 to 384 hours.

Discussion

The results obtained in this study concerned 63 patients, 37 of whom were men, i.e. a sex ratio of 1.42. The age group most represented was between 25 and 35 years. These results found in most African authors[9-12] make acute abdomen the prerogative of the young adult male.

Peritonitis was the most common pathology, 41.3%. This result differs from that of some European and African authors[13-15] who find appendicitis as the first etiology and can be explained by the fact that

the majority of patients with acute appendicitis arrived at the hospital with complications such as appendicular peritonitis in our series.

The average time between the onset of symptoms and consultation in the emergency department for the majority of our patients was 2.9 days, thus improving on that of Mando et al. who found 4.8 days in similar conditions.[13] This average is nevertheless high for so-called developed countries because health is covered by social security, whereas in our country patients think first of collecting the costs of their treatment or seek help from a relative to go to the hospital. Sometimes they make previous consultations with traditional practitioners, hoping to reduce the cost of treatment.

On average it took 16 hours to get a diagnosis and prescriptions for surgery and anaesthesia. This high delay can be explained in our context by the low availability of imaging tests for positive diagnosis, as well as their relatively high cost, which sometimes forces the patient to wait for the necessary means.

The delay between the delivery of the prescriptions and the availability of the operating kit remains very long, i.e. 19 hours, due to the fact that each individual patient pays for the care. In most advanced countries there is a social care system that facilitates early admission to care for patients. In the UK, for example, studies by Wyatt MG et al. and Magee TR et al. found that many emergency operations were performed within an hour of admission.[16,17] In these countries, social security has helped to solve the problem of lack of financial means, in contrast to our patients for whom the most common means of payment for care was money lent by families for their relatives' operations.

It is true that 8% of patients benefited from the indigence voucher covering the cost of the operation, but all the medicines needed for the operation still have to be bought. Apart from the late acquisition of the operating kit, other factors could explain the delay in surgery: the frequent unavailability of the anaesthetist team, which is more often shared between gynaecological, obstetric, traumatological, urological, paediatric surgery and resuscitation emergencies. Jawaid et al in Pakistan found that the delay in management in 36.3% of cases was due to the inefficiency of the surgical team.[18] Windokun et al in 2002 on 498 patients found that 38% of operations were cancelled due to the unavailability of the surgeon.[19] Hospital staff and particularly anaesthetists would increase the delay of the surgical procedure in our study. In addition, the surgical emergency department of our hospital, which has only one operating theatre, is shared between trauma, digestive, urological and neurosurgical emergencies, with a consequent increase in waiting times.

Many authors have shown that a long delay before the start of the surgical procedure increases the incidence of complications and the postoperative stay.[20,21,22] We had an average delay of 42 hours from patient arrival to the start of surgery, with a complication rate of 33.3% and an average hospital stay of almost 10 days. In Europe, Stefano Patelli et al in 2009 went further and found 5.97% of complications distributed as follows 4.48% in patients operated on less than 10 hours after admission, compared to 1.49% in patients operated on after more than 18 hours.[23]

The mortality rate in our study was 15.9%, close to that of some African authors.[10,13] This rate is correlated with the relatively high delay in management in our series. Indeed, the patients who died had an average delay between the onset of symptoms and surgical management of 143 hours, thus contributing to a poor prognosis.[24]

Conclusion

Acute abdomen is a medical and surgical emergency and remains predominantly in young adult males. Peritonitis, appendicitis and intestinal obstruction are the conditions most often responsible for acute abdominal pain. Early management of this condition is associated with a better prognosis. In our environment, care is often delayed by late consultation, lack of financial resources, unavailability of the medical team and sometimes even the operating theatre due to multiple requests. We therefore found delays that were higher than in the majority of European studies. These delays contributed to an increase in the morbidity and mortality of our patients. In a country where universal health coverage is only in its embryonic stage and where most patients pay for their care from their own funds, all measures should be taken to improve the time taken to treat patients. A better organisation of our potential and continuous training of medical staff in peripheral hospitals would improve the prognosis of our patients.

Conflicts of interest

The authors declare that they have no competing interests.

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