

## Acute Peritonitis Generalized by Typhoid Perforation at Kankan Regional Hospital

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### Keywords:

Acute peritonitis; Frequency; Clinical aspects; Therapy

## 1. Abstract

**1.1. Aim:** The aim of this study is to make our contribution to the study of acute generalized peritonitis of typhus origin at the Kankan Regional Hospital.

Typhoid perforation is defined as the opening of a hollow viscus in the abdominal cavity due to salmonella.

**1.2. Methodology:** We carried out a 6-month prospective study from June 1, 2019 to November 30, 2019 inclusive.

Were included in our study, all the patients operated on for peritonitis by typhoid perforation and hospitalized in the department and in whom the diagnosis of typhus perforation was made intraoperatively and confirmed by the positivity of Widal and Félix in the department during the study period. Any patient operated on for non-typhus peritonitis was not included in the study. All patients diagnosed with

typhoid perforation but who died before surgery.

Results during our study period we had 423 patients of whom 8 percent developed peritonitis from typhoid perforation. The study involved 21 men and 12 women, for a sex ratio of 1.75, which showed a clear predominance of the affection of men.

The history of gastroenteritis was noted in 45.45 percent of our patients, typhoid fever in 36.36 percent, malaria in 18.18 percent, arterial hypertension in 12.12 percent and parasitosis in 9.09 percent. However, perforations were single in 19 patients, double in 9 patients and multiple in 5 patients. The treatment was medico-surgical, the operative consequences were simple in 33 percent and complicated in 67 percent. Unfortunately, we had recorded 5 cases of death against 28 cases of cure.

**1.3. Conclusion:** Acute generalized peritonitis represents frequent

tropical pathologies, the management is medico-surgical (Table 1).

**2. Introduction**

Peritonitis is defined as the inflammatory response of all or part of the peritoneum to an attack, the origin of which is most often infectious (Monteiro et al. 2007) [1].

Typhoid perforation is defined as the opening of a hollow viscus in the abdominal cavity due to salmonella [2]. Typhoid fever is a serious multisystem infection caused by Salmonella typhi and sometimes by Salmonella paratyphi [3]. It is usually transmitted by the faecal-oral route and is often endemic [4]. An estimated 22 million people are infected worldwide each year and 200,000 deaths [5]. The natural course of Salmonella typhi infection can lead to ulceration and perforation occurs in the terminal ileum as a result of Peyer's patches necrosis 2-3 weeks after the onset of the disease which ends to peritonitis [6, 7] (Figure 1).

Typhoid perforation of the ileum remains the digestive complication of typhoid fever with significant morbidity and mortality [8].

In most parts of the world, the perforation rate ranges from 0.6% to 4.9% of enteric fever cases. But in West Africa, higher rates of 10 to 33% have been observed [5].

In urban Africa, ileal perforations are often the leading cause of peritonitis, with a mortality rate of up to 20% [9]. The mortality reported in developing countries is linked to a variety of factors, including sep-

sis (diffuse peritonitis), late treatment, malnutrition in many patients, age (many patients are young children) inadequate antibiotic therapy and the scarcity or the total absence of therapeutic resources [4].

In the USA in 1996 GROSFELD et al. [10], reported a frequency of 58.65% of typhoid perforation peritonitis (Table 2).

In Turkey in 2007 Gedik E et al. Reported that the incidence of enteric perforation of typhoid origin was between 0.5 and 78.6% [11].

In Togo in 2016 Kassegne I et al. Reported a frequency of 67.9% of acute generalized peritonitis by Typhic perforation [12]. In Burkina Faso in 2016 Ouedraogo S et al. reported that 42.5% of the etiologies of peritonitis were related to typhoid fever [9]. In Mali in 2013, Togola B et al. Reported that 29.0% of peritonitis was of typhoid origin [13].

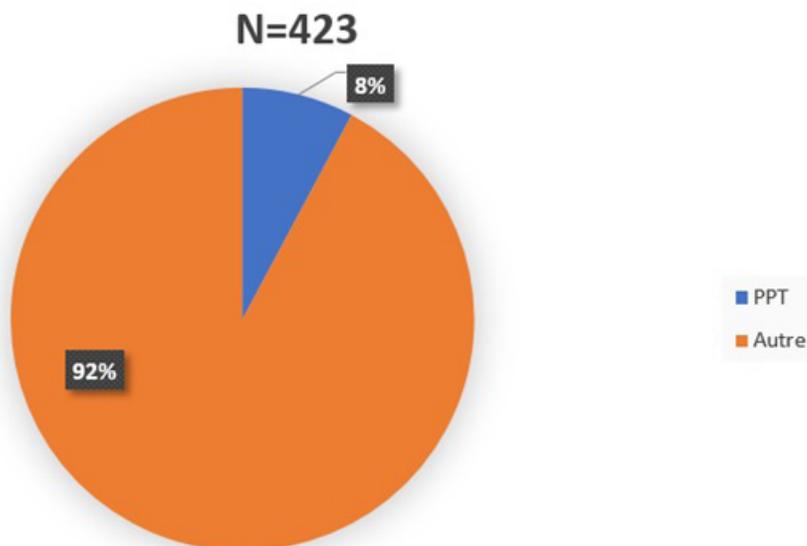
In Guinea.

DIALLO T.M in 2013 at the regional hospital of Labe, Yattara A in 2014 at the prefectural hospital of Dubreka reported a respective frequency of 2.64% and 1.49% [14, 15].

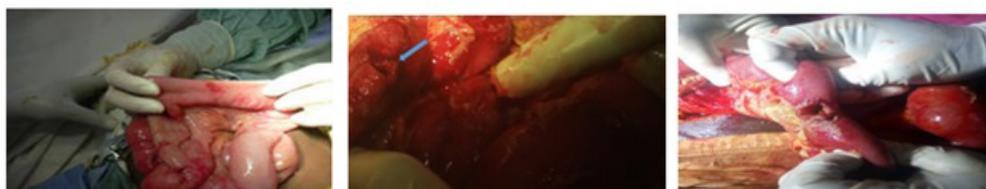
While the position of the problem is well known in large urban hospitals, it is less so in secondary hospitals in Africa where the problem seems more worrying [9].

**3. Methodology**

It was a prospective, descriptive study lasting 6 months from June 1 to November 31, 2019 (Figure 2,3,4).



**Figure 1:** Frequency of typhus peritonitis compared to other etiologies of peritonitis.



**Figures 2,3,4:** show ileal typhoid perforals

**Table 1:** Distribution of patients according to the reasons for consultation.

Motifs de consultation	Frequence	%
Abdominal pain	33	100
Fever	33	100
Anorexia	30	90,90
Physical asthenia	28	84,84
Vomiting / Nausea	26	78,78
Stopping of materials and gases	25	75,75
Voiding burn	5	15,15
Diarrhea	3	9,09

**Table 2:** Distribution of patients according to medical history.

Medical history	Frequency	%
Gastroenteritis	15	45,45
Typhoid fever	12	36,36
Malaria	6	18,18
HTA	4	12,12
Parasitosis	3	9,09

We targeted all patients received and operated on in the surgical wards of Kankan Regional Hospital for acute peritonitis during our study period. The study actually looked at patients operated on for acute typhoid perforation peritonitis during our study period. Were included in our study, all the patients operated on for peritonitis by typhoid perforation and hospitalized in the department and in whom the diagnosis of typhus perforation was made intraoperatively and confirmed by the positivity of Widal and Felix in the department during the study period (Table 3).

- Not included in this study
- Any patient not operated on and hospitalized in the department;
- Any patient operated elsewhere and received in the wards for another complication
- Any patient operated on for non-typhus peritonitis.
- All patients diagnosed with typhoid perforation but who died before surgery.
- We conducted an exhaustive recruitment of all patients who met our inclusion criteria.
- For the collection of our data the following steps have been respected
- Our study variables were quantitative and qualitative

**Table 3:** Distribution of patients according to physical signs.

physical Signs	Frequency	%
Umbilical cry positive	33	100
Defense or contracture	33	100
Douglas Cree	33	100
Abdominal distension	23	69,69
Tympanism / Meteorism	15	45,45
Dullness	13	39,39

## 4. Results

- The main postoperative complications were among others
- Wall suppurations in 36.36 percent,
- Intra-abdominal abscess in 18.18 percent
- Stercoral fistulas in 22.72 percent,
- Sepsis in 13.63 percent
- Eventration in 9.09 percent
- Average length of hospitalization was 20.82 days with the extremes of 7 and 72 days
- We had recorded 85 percent recovery versus 15 percent death.

## 5. Discussions

During our study period, we recorded 33 cases of PAG / PT of the small bowel out of 423 patients admitted and operated, i.e. a frequency of 7.80%.

This result is higher than that of Diallo T M in 2017 at the regional hospital of Labe [14] who reported a frequency of 2.64%, but lower than those of Togola B et al. [13] in 2019 in Mali which reported a frequency of 29%.

This high frequency of PAG / PT could be explained on the one hand, the lack of health education, promiscuity, the low socio-economic level favoring the spread of typhoid fever and on the other hand self-medication, the delay in the consultation and use of traditional medicines are non-compliance with hygienic rules and the use of traditional medicines.

This result is comparable to those of Verma H et al. [17] in 2015 in India who reported that 85% of patients were of rural origin and lower than that of Diallo TM [14] in 2017 at Labe regional hospital which reported a predominance of the urban area with a frequency of 39.47%.

This result could be explained by the lack of health education, improved health centers and poverty.

The clinical picture of the patients was dominated by abdominal pain and fever in all patients, gas and fecal arrest in 75.75%, physical asthenia 84.84% and vomiting / nausea 78.78%.

Our result confirms those of Ibrahim M et al. [3] in 2013 in Nigeria who reported that 97.9% of patients presented classic clinical signs of typhoid perforation peritonitis and superimposed on those of Ugochukwu AI et al [23] in 2013 in Nigeria who reported that patients presented of the following signs on admission: abdominal pain (90.7%), abdominal distension (75.6%), nausea and vomiting (70.9%), constipation (54.7%) and fever (50.1 %).

Time to admission or perforation: The average time to admission for our patients was  $10.5 \pm$  days with extremes of 3 and 19 days.

This result is different from that of Coulibaly C A T in 2011 in Mali in his doctoral thesis which reported that the perforation takes place

in the second septenary (period between 7 and 14 days).

This difference could be explained by the high dose of antibiotics and traditional drugs.

In our study, gastroenteritis was the most common antecedent, 45.45% followed by typhoid fever, or 36.36%.

General signs: In our study, 93.93% of patients presented with fever, followed by physical asthenia 84.84% and weight loss or 42.42%.

All the patients presented the signs of peritoneal irritation namely: abdominal contracture, umbilical and Douglass cries, abdominal distension was present in 69.69%.

This result can be applied to that of Sanogo ZZ et al [6]. in 2013 in Mali, who reported that on physical examination there was generalized abdominal defense in 81.6%, abdominal contracture in 87.5%, and umbilical cry in 88.3% of patients.

Additional examinations: In our study, Félix and Widal serology was positive in all patients.

This result corroborates that of Kouame BD et al [8] in 2001 in Ivory Coast who reported that the serodiagnosis of WIDAL and FELIX was positive in all patients and those of Togo A et al [24] in 2009 in Mali who reported that Widal's sensitivity was 82%.

Note that the sensitivity and specificity of this test are respectively close to 52% and 88%. It would be enough alone to make the diagnosis when blood cultures and stool cultures are not available (Table 4).

**Table 4:** Distribution of patients according to the number of perforations

Number of perforation	Number of cases	Percentage
Unic Perforation	19	27,27
Doubles	9	57,58
Multiples Perforations	5	15,15
Total	33	100

Pre and postoperatively, all of our patients received antibiotic therapy, analgesics and intravenous rehydration followed by iso-rhesus group blood transfusion, i.e., 63.63%.

Antibiotic regimen: In our study, the most used antibiotic regimen was the bi therapy compound Ceftriaxone 1g and infusable metro or ceftriaxone 1g and levofloxacin 500mg, i.e. 66.66% followed by triple therapy consisting of ceftriaxone 1g + infusable metro + gentamycin 80mg or 27.27%.

This result is comparable to those Kambire J.L et al. [19] in 2017 in Burkina Faso who reported that bi-antibiotic therapy based on third generation cephalosporins and metronidazole Injectable was used in all patients (i.e. 100%), and those of Sharma AK et al [6] in 2013 in India who reported that the 3rd generation cephalosporin + metronidazole + fluoroquinolone triple therapy was administered to all patients for 7 days.

This result could be explained by the high sensitivity of germs to different antibiotics

Look first:

In our study, midline supra and subumbilical laparotomy was performed in all of our patients.

The surgical techniques depended on the number of perforations and their location.

- Simple excision-suture 72.72%
- End-to-end intestinal resection and anastomosis 27.27%
- abundant washing with 0.9% 100% saline serum
- drainage in sloping areas was observed 100%.

This result corroborates those of Kassegne I et al. [04] in 2016 in Togo who reported that the surgical techniques were: Intestinal excision-suture, intestinal resection and anastomosis and ileostomy resection with a respective frequency of 54.5%, 32.8% and 12.7%. Operative follow-up: In our study, the operative follow-up was favorable in 33.33% and was accompanied by complications in 67.67% of cases.

This result is lower than those of Ouedraogo S et al. [9] in 2017 in Burkina Fasso who reported in their study that 72.2% of patients presented postoperative complications.

The most frequent complications were parietal suppuration in 36.36%, stercoral fistula in 22.72%, intra-abdominal abscess 18.18% sepsis 13.63%, eventration / evisceration in 9.09% of patients.

This result is close to those of Conventi R et al. [18] in 2018 in Uganda who reported that wall suppuration was the most common complication with a frequency of 40.42%.

During peritonitis there is an overgrowth of bacteria making the surgery septic which increases the risk of complications. We recorded a total of 5 deaths or 15.15%.

This result corroborates those of Sissoko F et al [22] in 2003 in Mali who reported a mortality rate of 16% and is higher than those of Conventi R et al [18] in 2018 in Uganda who reported a mortality rate. by 5.56%.

This high rate of death could be explained by the occurrence of complications namely: sepsis, septic shock, multiple visceral failure plus other complications. But also the lack of preoperative resuscitation.

The average length of stay was  $20.82 \pm$  days with extremes of 7 and 72 days.

Our result is comparable to those of Sanogo ZZ et al [6] in 2013 in Mali who reported an average hospital stay of 20.6 days with extremes of 10 and 35 days and higher than that of Diallo TM [14] in 2017 at the regional hospital of Labe which reported an average hospital stay of 14.5 days with extremes of 1 and 30 days.

This long stay of patients could be explained by the occurrence of postoperative complications (Table 5).

**Table 5:** Distribution of patients according to the antibiotic use pattern.

Antibiotic	Frequency	%
Ceftriaxone	2	6,06
Ceftriaxone + Metronidazol perf	18	66,66
Ceftriaxone 1g et lévofloxacine 500mg	4	12,12
Ceftri 1g + Metro perf + Genta 80mg	9	27,27

## 6. Conclusion

It emerged from this study that acute generalized peritonitis by typhoid perforation is a serious and frequent surgical pathology at Kankan Regional Hospital.

It mainly affects young, predominantly male subjects and immediately produces a frank acute peritonitis syndrome in an asthenic context.

The diagnosis is clinical and paraclinical, the management is medical (resuscitation measures and antibiotic therapy) and surgical (excision + suture and resection + anastomosis).

Resuscitation measures and the use of antibiotics improved the prognosis of typhoid perforations.

However, morbidity and mortality are still significant.

The reinforcement of hygieno-dietary measures and early treatment could improve the patient's vital prognosis.

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