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Review of Two Years of Surgical Activities of the General Surgery Department of the Reference Health Center of Commune I of Bamako Mali

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Abstract

The objectives of this work were to evaluate the surgical activities carried out in the general surgery department of the Reference Health Center of Commune I of Bamako, to describe the sociodemographic characteristics of the operated patients, to determine the main pathologies encountered and to evaluate qualitatively the result of the treatment. In order to improve performance, and the quality of care, and to identify common pathologies in the surgical department, we undertook a retrospective study on surgical activities from January 2009 to December 2010. At the end of this study, out of 474 men and 187 women (equal sex ratio 2.53); we were able to determine the frequency of surgical pathologies. Farmers, housewives and pupils/students were the most represented with 25.9% respectively; 20% and 13.3%. The most frequently observed pathologies were wall hernia (44.8%), prostate adenoma (12%) and acute appendicitis (10.5%). The average length of hospitalization was 3.43 days. Infectious complications affected 25 patients (3.8% of cases) and a death rate of 0.45% (*i.e.* 3 patients). The average cost of care was 53,500 FCFA. Indeed, the reality of surgical practice in health centers was not the same because of the level of skills of practicing surgeons.

Keywords

Assessment, Surgical Activities, 2 Years, Reference Health Center of Commune I, Bamako

1. Introduction

Surgery is the medical discipline specializing in the treatment of diseases and trauma, which consists of performing operations manually and using instruments on a living body [1]. The advent of the sectorial health and population policy in 1990 allowed district health centers to play the role of reference health center (CSREF) around which a certain number of community health centers (CSCOM) revolve [2].

The Cs ref has qualified personnel who provide care for surgical emergencies such as wall hernias, hydroceles, prolapse, appendicitis and gynecological surgical pathologies.

To assess the quality of surgical care activity, it is necessary to establish as faithfully as possible a record of pathologies based on sociodemographic data and the main pathologies [3].

In Belgium, groin hernia surgery was the most frequent intervention in adult surgery [4].

In Cameroon, hospital mortality in surgical settings "need for medical audit" was 208 deaths or 3.14% in the retrospective study covering 6615 medical records from 1982 to 1992 [5].

In Mali, the analysis of the surgical activities of the general surgery department "A" at Point G from January 2005 to January 2006 made it possible to determine the frequency of interventions performed and their immediate results [6]. All this work was carried out in central university hospitals.

The reality of surgical practice in reference health centers differs depending on the level of skills, the experience of the practitioners, the choice of patients due to the lack of intensive care units and the types of equipment.

We undertook this work on surgical practice in the reference health center of commune I of the Bamako district in order to clarify the diversities by setting ourselves objectives.

2. Research Methodology

This work was carried out in the Reference Health Center of Commune I of the District of Bamako which has a general surgery department.

This was a retrospective and descriptive study of 24 months from January 2009 to December 2010 in the general surgery department of the Reference Health Center of Commune I of the District of Bamako.

2.1. Course of the Study

The method of patient recruitment was carried out through consultations, emergency consultations and patients referred by other health structures.

The diagnosis of surgical pathologies was made on the basis of a clinical examination. Additional examinations were requested based on the diagnostic suspicion of the pathology and their accessibility. In case of surgical indication, a preoperative assessment was carried out: blood count, rhesus grouping, blood

sugar, creatinemia and bleeding and coagulation times.

2.2. Sampling and Inclusion Criteria

We carried out a systematic recruitment of all patients and included any patient seen in surgical consultation and operated on in the general surgery department of the Cs ref of commune I regardless of the surgical pathology presented.

All cases were subject to a systematic clinical assessment assessment by the surgeon.

Patients of both sexes and of all ages are seen in consultation in the department and/or hospitalized but not operated on.

2.3. We Studied the Following Variables

- Sociodemographic (Age, Sex, "Profession, Residence and/or Origin of parents").
- Clinical examination: general signs, functional signs and physical signs.
- Additional examinations: (Biology, Imaging, Radiology, etc.) depending on the pathologies.
- Treatment: Medications used, surgical technique, type of anesthesia and post-operative follow-up.

2.4. The Supports Used Were

- Outpatient consultation registers; register recording operating reports; hospitalization; the anesthesia protocol.
- Patient files.
- The patient's investigation sheet.

Some files were incomplete and were not used.

The data were entered and analyzed using the EPI INFOS software version 7.2.1.0 and the Chi^2 comparison test was used with a significance threshold of $P < 0.05$.

Verbal consent was obtained from each patient before blood samples were taken for preoperative assessment.

The information collected for each patient was entered in a file bearing an identification number guaranteeing anonymity. For safety reasons in relation to certain communicable diseases, particularly HIV and hepatitis B, when handling blood samples, certain safety measures have been taken: wearing gowns and gloves; decontamination of contaminated products and equipment used; the use of safety boxes and waste incineration.

3. Results

From January 2009 to December 2010, we carried out 3312 consultations; 832 hospitalizations and 661 surgical interventions, *i.e.* 19.95% of consultations and 79.45% of hospitalizations.

The average age was 39.45 years with extremes of 1 month to 95 years. The sex

ratio was 2.53 in favor of men. Married patients were the most represented (429/661 or 64.9% of cases). The most represented socio-professional groups were farmers (25.9%), housewives (20%) and pupils/students (13.3%) of the cases (Table 1). The majority of our patients were seen in outpatient consultation, *i.e.* 79.6% of cases and came from Bamako in 56.60% of cases, of which 79% of cases resided in commune I of the Bamako district.

Abdominal pain constituted 157 cases or 23.8% of cases. Digestive surgical pathologies were the most observed with 452 cases or 68.4% of cases including 352 cases or 66.9% received in ordinary consultation (Table 2). Digestive surgical pathologies represented 74.1% of emergency consultations with an age group of 20 - 39 years, *i.e.* 40% of cases, including 93 men, *i.e.* 68.9% of patients undergoing emergency surgery.

The diagnosis of digestive surgical pathologies constituted 68.5% of intraoperative interventions, of which hernia pathology represented 296 cases or 65.3% of all digestive surgical pathologies; gynecological (39.5% of all gynecological pathologies); urological: prostate adenoma was the most operated urological pathology, *i.e.* 12% of cases and 60.8% of all urological pathologies and osteoarticular pathologies represented 2 cases or 0.3% of cases.

The majority of our patients were operated on in 2009 (N = 356) or 53.9% of cases including 221 hospitalized or 59.2% of cases (Table 3).

General anesthesia was the type of anesthesia commonly used (392/661) or 59.3% and in emergency (116/135) or 86% of cases. The majority of our patients were operated on and hospitalized in 2009 (221/661) or 59.2% of cases. The average length of hospitalization was 3.43 days (Table 4). The postoperative course was simple in 95.8% of cases. Complications were surgical site infections in 8 cases of wall herniation.

The mortality rate was 0.45% (one case of appendicular peritonitis; one case of small bowel obstruction and one case of gastric tumor). The average cost of care was 53,500 FCFA with extremes ranging from 22,970 FCFA and 154,000 FCFA (Table 5).

4. Discussion

Our study was retrospective, carried out in the general surgery department of the reference health center of commune I of the district of Bamako Mali, ranging from January 2009 to December 2010. We collected 661 cases of surgical pathologies operated on in the department.

The aim of this work was to understand the problem of surgical pathologies in the surgery department of the Cs ref of commune I. We were not able to explore all the parameters such as the operating technique.

The maximum number of patients who were operated on was in February with 14.8%. This time of year is at the end of the harvest, hence a greater influx of rural populations to surgical services. Fofana M. [7] found that the months of August and February were the most frequent with 11.8% and 10% respectively.

Table 1. Sociodemographic data.

Sociodemographic data		Effective	Percentage
Age	0 - 9 years	86	13
	10 - 19 years old	61	9.2
	20 - 29 years old	100	15.1
	30 - 39 years old	94	14.2
	40 - 49 years old	75	11.3
	50 - 59 years old	67	10.1
	60 years and over	178	27
Sex	Male	474	71.7
	Feminine	187	28.3
Marital status	Bride	429	64.9
	Child and or single	197	29.8
	Divorced	4	0.6
	Widower widow	31	4.7
Residence	Municipality I	522	79
	Commune II	28	4.2
	Commune III	9	1.4
	Municipality IV	25	3.8
	Municipality V	40	6.1
	Municipality VI	28	4.2
	Others	9	1.4
Occupation	Farmer/Farmer	171	25.9
	Official	35	5.3
	Trader	45	6.8
	Household	132	20
	Worker	52	7.9
	Student/Pupil	88	13.3
	Driver	18	2.7
	Retirement	34	5.1
	Breeder	7	1.1
	No occupation	64	9.7
	Others	15	2.3
Total		661	661

Table 2. Distribution of patients according to method of recruitment, reason for consultation and types of surgery.

Recruitment method/reason for consultation/Types of surgery		Effective	Percentage
Method of recruitment	Ordinary consultation	526	79.6
	Emergency	135	20.4
Patterns consultation	Acute urine retention	12	1.8
	Dysuria	63	9.5
	Pollakiuria	24	3.6
	Abdominal pain	157	23.8
	Anal pain	21	3.2
	Rectorrhagia	7	1.1
	Shutdown of materials and gases	6	0.9
	Pelvic pain	32	4.8
	Swelling and/or scrotal pain	97	14.7
	Swelling and/or groin pain	150	22.7
	Hematuria	10	1.5
	Abdominal mass	8	1.2
	Umbilical swelling	29	4.4
	Metrorrhagia	19	2.9
	Wound	2	0.3
	Malformation	3	0.5
	Desire for a child	7	1.1
	Ulcero-necrotizing wound	2	0.3
	Pelvic gravity	9	1.4
	Low back pain	3	0.5
Types of surgery	Digestive surgical pathologies	452	68.4
	Gynecological surgical pathologies	75	11.3
	Urological surgical pathologies	132	20
	Surgical trauma pathologies	2	0.3
	Total	661	100

Surgical pathologies are seen at all ages. The average age was 39.45 years. In Ouagadougou, Ouiminga R.M. *et al.* [8], found that the average age was 31.2 years at the Yalgado Ouedrago national hospital center.

Table 3. Distribution of patients according to the type of surgery, the diagnosis chosen and the year of surgical intervention.

Types of surgery, diagnosis made and year of operation		Effective	Percentage
Pathologies Surgical Digestives (452)	Wall herniation	296	44.8
	Acute appendicitis	69	10.5
	Peritonitis	29	4.4
	Bowel obstruction	10	1.5
	Gastric tumor	4	0.6
	Post-operative eventration	6	0.9
	Hemorrhoids	13	2
	Colon tumor	4	0.6
	Anal fissure	5	0.8
	Mesenteric tumor	2	0.3
	Anal fistula	8	1.2
	Meckel's diverticulum	2	0.3
	Colic fistula	1	0.15
	Splenic tumor	1	0.15
	Omphalocele	2	0.3
Surgical Pathologies Gynecological (76)	Ovarian cyst	9	1.4
	Ruptured ectopic pregnancy	18	2.7
	Uterine prolapse	18	2.7
	Uterine and ovarian tumors	30	4.5
	Aftereffects of excision	1	0.15
Pathologies Surgical Urological (130)	Prostate adenoma	79	12
	Hydrocele	15	2.3
	Renal lithiasis	7	1.1
	Urethral stricture	8	1.2
	Cystocele	2	0.3
	Testicular tumor	5	0.8
	Bladder tumor	12	1.8
	Cryptorchidism	1	0.15
	Bladder neck sclerosis	1	0.15
Surgical Pathologies Traumatological (2)	Knee tumor	1	0.15
	Palmar fingers	1	0.15
Year of surgery	2009	356	53.9
	2010	305	46.1
Total		661	100

Table 4. Distribution of patients according to type of anesthesia, hospitalization and post-operative outcomes.

Type of anesthesia/Hospitalization/Operative follow-up		Effective	Percentage
Types of anesthesia	Local anesthesia	177	26.8
	Locoregional anesthesia	92	13.9
	General anaesthesia	392	59.3
Hospitalization	Yes	373	56.4
	No	288	43.6
Aftermath of surgery	Simple	633	95.8
	Wall infection	21	3.2
	Deep infection	4	0.6
	Death	3	0.4
Total		661	100

Table 5. Distribution of patients according to the cost of care.

Cost of support (Franc CFA)	Number	Frequency
<50.000	251	38
50.000 - 75.000	136	20.6
75.000 - 100.000	119	18
100.000 - 125.000	106	16
>125.000	40	6
Undetermined	9	1.4
Total	661	100

In Bamako in 2005, Dembélé B.M. reported an average age of 26 years [9]. Our average age is higher than those of the authors mentioned with a fairly significant difference for a $Chi^2 = 16.05$, $P = 0.025$. The sex ratio was 2.53 (standard deviation = 2.295). The male gender was significantly more numerous regardless of the type of surgical intervention apart from rare gynecological conditions, as in other series [5] [10] [11] [12].

This conformity of results between structures of different levels reflects the orientation of women towards the gynecology department of said structures, the high frequency of hernia pathology in men and prostate adenoma. All socio-professional strata were represented in our series. The cultivators (25.86%), were the most numerous as in the works of Fofana M. [8] (23.3%) and Diakité M. [13] (23%).

The reason for consultation was abdominal pain (157/661) or 23.8%, linked to the frequency of digestive pathologies. Clot P.H. [14] as well as Rasmoelina N. and Coll. [15] also found pain to be a dominant functional sign. Our patients

(79.6%) were seen in ordinary consultation, higher than those of Chianakwana *et al.* [16] in 2005, (74.4%) and Fofana M. [10] in 2006, (63.4%) in the surgery department of the Ségou regional hospital.

Our patients received in emergency (20.4%) were lower than those of Chianakwana *et al.* in 2005 (25.6%) and Fofana M. in 2006 (36.6%). We are a Cs ref unlike hospitals according to the health pyramid of Mali.

Digestive surgical pathologies (68.5%), Mianfoutila S. *et al.* [17] found 62.5% at the Pierre Mobengo central army hospital in Brazzaville. Hernia pathology represented (296/661) or 44.8% of surgical pathologies and 65.3% of digestive interventions. This high prevalence of hernia is found in other series in Mali [18] [19] [20], in Africa [8] [21] [22] and in Europe [4].

Gynecological surgical pathologies (76/661) or 11.5%, mainly concerned uterine tumors, GEU and uterine prolapse and Diallo S.S. in Mali (26.4%) and Sanou M. J. [23] (26.6%) in Ouagadougou. Urological surgical pathologies (130/661) or 19.7%; prostate adenoma constituted 12% of interventions compared to 60.8% urological, Dara A.E. [24] reported 14.9%; Noutacdie K. R. [25] (30.7%) and Guindo B. [2] (55.2%). This work was carried out in urology departments unlike ours.

General anesthesia (59.3%) in our series corroborates with that of Fofana M. [8] (55%), $Chi^2 = 2.62$, $P = 0.121187$. It represented 77% and 86% of cases in other studies [3] [6] [26].

The surgical consequences were simple in 95.8% of cases, with infectious postoperative complications (3.8%) including SSI (3.18%). We have identified 21 cases of wall infection, and 4 cases of deep infection, with the hernia pathology having experienced the most complications.

Coulibaly S. [26] found a suppuration rate of 6.6% and N'Dayisaba G. *et al.* [27] reported 7% septic complications. They vary from 2.08% to 19% [27]; [28]; [29]. We deplored 3 cases of postoperative death, *i.e.* 0.4% including a case of small bowel obstruction, a case of peritonitis due to appendicular perforation and a case of gastric tumor compared to 0.3% at Diakité M.L. [13].

Authors found rates of 8% to 16% [7] [30] [31] [32] [33]. Our sample size was smaller than the others (hospital structures).

The average cost of care was 53,500 FCFA, higher than the minimum wage (28,460 FCFA).

This average cost of care is well above the income of the vast majority of the population.

5. Conclusions

This work allowed us to evaluate the performance and inadequacies of the general surgery department of the Reference Health Center of commune I of the Bamako district in Mali.

Wall hernia constituted the majority of surgical pathologies operated on. Most of our patients were operated on as an outpatient procedure, thereby reducing healthcare costs. The postoperative course was simple in most cases.

The case fatality rate was low (one case of peritonitis due to appendiceal perforation, one case of small bowel obstruction and one case of gastric tumor). Other studies will complete this work.

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Conflicts of Interest

The authors declare no conflicts of interest regarding the publication of this paper.

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