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Infectious ENT Emergencies: A One-Year Experience at the ENT Department of Mamou Regional Hospital

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Abstract

Introduction: ENT infectious emergencies encompass all infectious pathologies affecting the ear, nose, sinuses, throat, and neck. A good understanding of these emergencies is essential for organizing appropriate care. In Guinea, few studies have described ENT infectious pathologies in rural areas. **Objective:** To study ENT infectious emergencies in the Otorhinolaryngology department of the Mamou Regional Hospital. **Materials and Methods:** This is a retrospective and prospective descriptive study, conducted from August 1, 2021, to July 31, 2022. All patients admitted to the ENT department of the Mamou Regional Hospital for an infectious emergency were included. **Results:** Among the 1854 recorded consultations, 261 cases involved ENT infectious emergencies, representing a prevalence of 14.07%. The most represented age group was 0 to 10 years (31.03%), with a majority of female patients (59%) and a predominantly urban origin (81.61%). Students accounted for 32.18% of the cases. The main reasons for consultation were odynophagia/dysphagia (32.42%) and otalgia (22.94%). The primary etiologies were tonsillitis (28.73%) and otitis (27.20%). Treatments administered included probabilistic antibiotic therapy (38.80%), analgesics (32.03%), and corticosteroid therapy (10.47%). The outcome was favorable in 98.85% of cases, with only 0.38% lost to follow-up. **Conclusion:** The results of our study confirm the frequency of ENT infectious pathologies. Their management requires joint actions for

population awareness, staff training, and services equipment, particularly in rural areas.

Keywords

ENT Infection, Emergency, Mamou Regional Hospital

1. Introduction

ENT infectious emergencies are common and encompass a wide range of pathologies that can affect the vascular, respiratory, and/or sensory systems [1]. These emergencies vary greatly in terms of frequency, the diversity of their etiologies, the age at which they occur, the difficulty of their management, and the severity of their complications [2]. They are particularly critical as they can be life-threatening in the short or medium term and require urgent and effective management due to the location of the ENT region at the crossroads of the aerodigestive tract and the presence of vital anatomical structures [3]. Effective management requires knowledge of the different etiologies, early and accurate diagnosis, and appropriate treatment.

Each ENT infectious emergency requires a therapeutic approach that must be regularly re-evaluated to be adapted to the clinical evolution [4].

Infectious otorhinolaryngological (ENT) emergencies constitute a significant portion of admissions to ENT departments, particularly in rural regions where access to healthcare is limited. If not treated promptly and effectively, ENT infections can lead to severe complications. Despite their frequency and potential for severe outcomes, these emergencies are understudied, especially in rural contexts of developing countries like Guinea.

Previous research on infectious ENT emergencies has primarily been conducted in urban settings or high-income countries, leaving a substantial gap in understanding these conditions in rural and underdeveloped areas. Moreover, existing studies often focus on specific aspects of ENT infections, without providing a comprehensive overview of the various types of infectious emergencies encountered in regional hospitals.

Study Aim:

This study aims to fill these gaps by providing a detailed analysis of infectious ENT emergencies observed over one year in the ENT department of Mamou Regional Hospital, Guinea. By offering an overview of the types of infections encountered, epidemiological data, diagnostic and therapeutic approaches, and patient outcomes, this research aspires to provide essential information to improve the management of these emergencies in similar contexts.

Study Objective:

The objective of this work is to describe and analyze the clinical, epidemiological, and therapeutic characteristics of infectious ENT emergencies in the ENT

department of Mamou Regional Hospital over a one-year period. The goal is to provide recommendations for better management of these conditions in the rural areas of Guinea.

2. Methodology

2.1. Study Setting

The ENT department of the Mamou Regional Hospital served as the setting for this study. It has three main functions:

- Care
- Training, and
- Research.

2.2. Type and Period of Study

This is a retrospective and prospective descriptive study conducted over:

- Six months for the retrospective part from August 1, 2021, to January 31, 2022;
- Six months for the prospective part from February 1, 2022, to July 31, 2022.

2.3. Target Population

This study targeted all ENT emergencies received in the department during the study period.

2.4. Study Population

It included all ENT infectious emergencies received in the ENT department of the Mamou Regional Hospital.

2.5. Selection Criteria

2.5.1. Inclusion Criteria

All patients who were admitted and treated for infectious ENT emergencies during the study period, and who agreed to participate in the study, were included.

2.5.2. Exclusion Criteria

The following were excluded from the study:

- Incomplete medical records. Incomplete medical records were identified as those lacking essential information such as epidemiological data, clinical examination results, and treatment details.
- Patients who were treated for infectious ENT emergencies but did not consent to participate in the study.

2.5.3. Sampling

We conducted a comprehensive census of all patients meeting the above selection criteria. The detailed sampling process was as follows:

a) Approaching Patients:

- Patients were informed about the study upon their admission to the ENT emergency department.

- Informed consent was obtained verbally or in writing, as appropriate, before their inclusion in the study.

b) Data Collection:

- Data from included patients were systematically collected using a standardized form.
- The information collected included epidemiological data (age, sex, medical history), sociodemographic data (occupation, residence), clinical data (symptoms, diagnosis), and therapeutic data (treatment administered, outcome).

c) Managing Potential Bias:

- To minimize selection bias, all eligible patients during the study period were included, regardless of the severity or type of infection.
- Information bias was reduced by using standardized data collection forms and training medical staff in their use.
- Consent bias was addressed by ensuring that all patients received the same information about the study and by respecting their decision to participate or not without external influence.

2.5.4. Study Variables

Our study variables were both qualitative and quantitative, categorized into four main groups:

1. Epidemiological Data:

- Age of patients
- Sex of patients
- Relevant medical history
- Disease history

2. Sociodemographic Data:

- Occupation
- Level of education
- Place of residence (urban or rural)
- Socio-economic status

3. Clinical Data:

- Symptoms presented at admission
- Initial diagnosis
- Physical examination and clinical test results
- Associated comorbidities

4. Therapeutic Data:

- Treatment administered (medications, surgical interventions, etc.)
- Response to treatment
- Duration of hospital stay
- Clinical outcome (improvement, complications, death)

These variables were chosen to provide a comprehensive and detailed overview of the infectious ENT emergencies managed in the department and to allow for an in-depth analysis of the various epidemiological, sociodemographic, clinical,

and therapeutic aspects of the cases treated.

2.5.5. Data Entry and Analysis

Our data were collected using a data collection form, and then transcribed into the KoBoToolbox server, where they were stored in a database and downloaded to Excel for analysis using the Epi-info 7.2.2.6 software. Data entry, presentation, and processing were carried out using Word, Excel, and PowerPoint from the Office 2013 suite. For bibliographic management, we used the Zotero software with the Vancouver referencing system.

2.5.6. Research Ethics

Patient data were collected with their informed consent for strictly scientific purposes. Confidentiality was maintained throughout our study, and the collected data were used anonymously.

2.5.7. Difficulties and Limitations

During this study, we encountered several difficulties and limitations, including:

- Insufficient technical resources;
- Unavailability of certain paraclinical examinations such as CT scans, cytobacteriological tests, and antibiotic sensitivity tests;
- Patients not adhering to scheduled appointments;
- Low socioeconomic status of patients.

Appendix

The questionnaire used in this study is provided in the appendix at the end of this document, in its English version.

3. Results

From August 1, 2021, to July 31, 2022, we received 1854 patients in consultation, of which 261 cases were ENT infectious emergencies, representing a hospital frequency of 14.07% (Figure 1).

In our study, the age group of 0 to 10 years was the most represented. The average age of patients was 21.42 ± 19.42 years, with extremes ranging from 1 to 77 years (Table 1). In our study, females were predominant with a sex ratio of 0.69 (Figure 2). Regarding occupation, students represented 32.18% of the total (Table 2).

In our study, the majority of patients were from urban areas, with 213 cases representing 81.61%, compared to 48 cases from rural areas, or 18.39%. Most of the patients were uneducated, with 135 cases, representing a frequency of 51.92% (Table 3). According to the admission time, most of our patients were admitted between 8 a.m. and 4 p.m., with 218 cases representing 83.52%. Additionally, 25 cases were admitted between 4 p.m. and midnight, or 9.57%, and 18 cases, or 6.89%, between midnight and 6 a.m. Half of our patients, or 132 cases (50.57%), consulted within 7 days. Additionally, 60 patients (22.98%) consulted between 8 and 14 days, 13 patients (4.98%) between 15 and 21 days, and finally, 56 patients

(21.45%) beyond 21 days. The predominant symptom was dysphagia/odynophagia, accounting for 32.41%, followed by otalgia at 29.94% (Table 4). Inflammation of the palatine tonsils was the most commonly found physical sign at 28.08%, followed by tympanic membrane congestion at 16.85% (Table 5). The most frequently found etiologies were tonsillitis and otitis, followed by rhinosinusitis, with 75 cases (28.73%), 71 cases (27.20%), and 37 cases (14.17%) respectively (Table 6). Regarding treatment, all our patients received antibiotic therapy (Table 7). Table 8 shows the distribution of patients according to the type of antibiotic used. The outcome was favorable in 98.85% of our patients. We recorded one death in a 45-year-old patient suffering from cervicothoracic cellulitis of dental origin, complicated by mediastinitis.

Figure 3. 21-year-old female patient presenting with cervico-thoracic cellulitis with fistula upon admission. Figure 4. The same patient on day 7 after incision, drainage, and antibiotic therapy.

Table 1. Distribution of the 261 patients presenting with ORL infectious emergencies at the ENT department of the Regional Hospital of Mamou from August 1, 2021, to July 31, 2022.

Age Group	Numbers	Percentage
[0 - 10[ans	81	31.03
[11 - 20[ans	59	22.60
[21 - 30[ans	47	18
[31 - 40[ans	28	10.72
[41 - 50[ans	19	7.27
[≥ 51[ans	27	10.34
Total	261	100

Average age: 21.42 ± 19.32 years. **Extremes:** 1 year and 77 years.

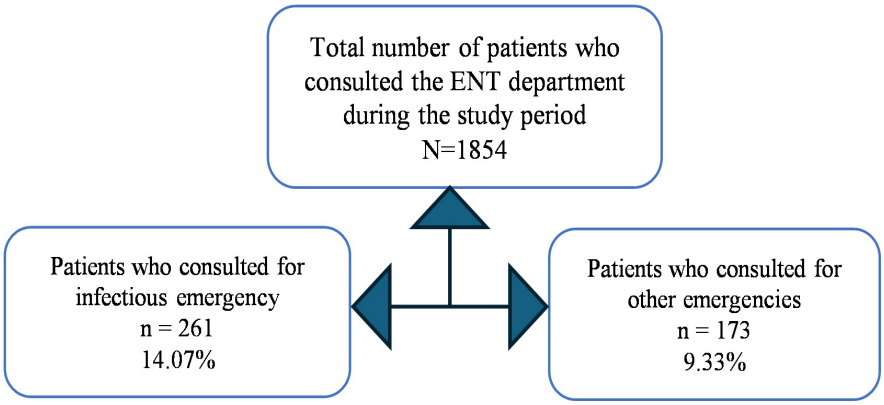

Figure 1. Flowchart of the 261 patients presenting with ORL infectious emergencies at the ENT department of the Regional Hospital of Mamou from August 1, 2021, to July 31, 2022.

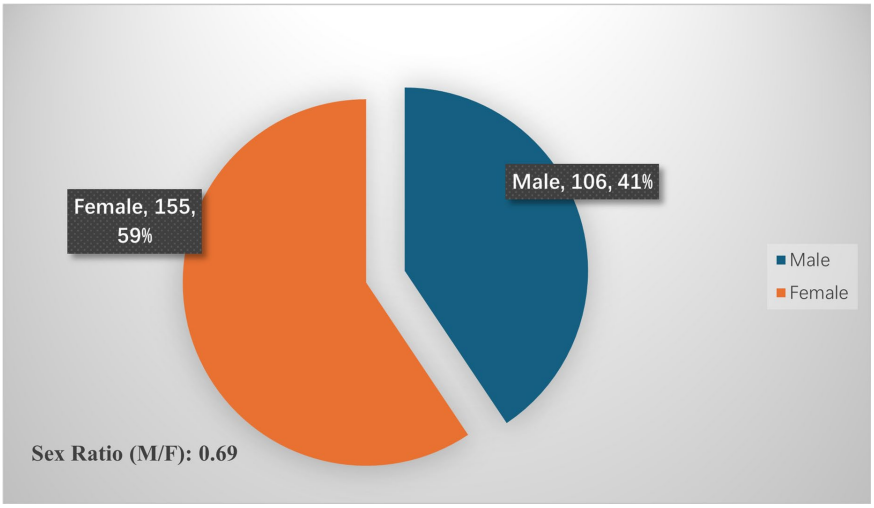

Figure 2. Distribution by gender of the 261 patients presenting with ENT infectious emergencies at the ENT department of the Regional Hospital of Mamou from August 1, 2021 to July 31, 2022.

Table 2. Distribution by profession of the 261 patients presenting with ENT infectious emergencies at the ENT department of the Mamou Regional Hospital from August 1, 2021, to July 31, 2022.

Profession	Numbers	Percentage
Student	**84**	**32.18**
Trader/Merchant	36	13.79
Homemaker	28	10.72
Unemployed	25	9.57
Quranic student	21	8.04
Driver	18	6.89
Farmer	13	4.98
Seamstress	12	4.59
Civil servant	9	3.44
Worker	7	2.68
Others professions	8	3.06
Total	**261**	**100**

Table 3. Distribution by level of education of the 261 patients presenting with ENT infectious emergencies at the ENT department of the Mamou Regional Hospital from August 1, 2021, to July 31, 2022.

Level of Education	Numbers	Percentage
Non-educated	135	51.92
Secondary	65	24.90
Primary	49	18.85
Higher	12	4.62
Total	**261**	**100**

Table 4. Distribution by reasons for consultation of the 261 patients presenting with ENT infectious emergencies at the ENT department of the Mamou Regional Hospital from August 1, 2021, to July 31, 2022.

Reasons for Consultation	Numbers	Percentage
Odynophagia/dysphagia	130	32.41
Otalgia	92	22.94
Headache	50	12.46
Cervicofacial swelling	38	9.47
Otorrhea	36	8.97
Fever	32	7.98
Hypoacusis	11	2.74
Purulent rhinorrhea	8	1.99
Others reasons	4	0.99

Table 5. Distribution by physical signs of the 261 patients presenting with ENT infectious emergencies at the ENT department of the Mamou Regional Hospital from August 1, 2021, to July 31, 2022.

Physical Signs	Numbers	Percentage
Inflammation of the palatine tonsils	75	28.08
Congestion of the tympanic membrane	45	16.85
Cervicofacial swelling	37	13.85
Purulent otorrhea	28	10.48
Hypertrophy of the inferior turbinates	24	8.98
Purulent rhinorrhea	18	6.75
Hyperemia of the oropharynx	13	4.86
Peritonsillar swelling	8	2.99
Edema of the uvula	7	2.62
Cervicothoracic swelling	6	2.24
Others physical signs	6	2.24

Table 6. Distribution by etiologies of the 261 patients presenting with ENT infectious emergencies at the ENT department of the Mamou Regional Hospital from August 1, 2021, to July 31, 2022.

Etiologies	Numbers	Percentage
Tonsillitis	75	28.73
Otitis	71	27.20
Rhinosinusitis	37	14.17
Pharyngitis/Laryngitis	34	13.02
Parotitis	16	6.13
Peritonsillar abscess	8	3.06
Cellulitis	7	2.68
Submandibular abscess	6	2.29
Others etiologies	7	2.68
Total	**261**	**100**

Table 7. Distribution by types of treatment of the 261 patients presenting with ENT infectious emergencies at the ENT department of the Mamou Regional Hospital from August 1, 2021, to July 31, 2022.

Types of treatment	Numbers	Percentage
Antibiotic	261	100
Painkiller	156	32.03
Corticosteroid	51	10.47
Ear drops	34	6.9
Surgery	30	6.16
Aspiration/Care	27	5.54

Table 8. Distribution by types of antibiotics used among the 261 patients presenting with ENT infectious emergencies at the ENT department of the Mamou Regional Hospital from August 1, 2021, to July 31, 2022.

Types of antibiotics	Numbers	Percentage
Amoxicillin-clavulanic acid	83	43.91
Amoxicillin	39	20.63
Ampicillin	37	19.57
Third-generation cephalosporin	22	11.64
Imidazoles	6	3.17
Aminoglycosides	2	1.05

Right lateral

Figure 3. 21-year-old female patient presenting with cervico-thoracic cellulitis with fistula upon admission.

Left lateral

Figure 4. the same patient on day 7 after incision, drainage, and antibiotic therapy.

4. Discussion

From August 1, 2021, to July 31, 2022, we received 1854 patients for consultation, among whom 261 presented with ENT infectious emergencies, representing a hospital frequency of 14.07%. Our result is higher than that of Rana AK *et al.* [5] in India in 2019, who found a frequency of 8.14%, and of Ramarozatovo NP *et al.* [6] in Madagascar in 2010, who noted a frequency of 8.56% for infectious emergencies.

In our study, the age group of 0-10 years was the most represented, with a mean age of 21.42 ± 19.42 years and extremes ranging from 1 to 77 years. Our result is similar to that of KEITA A *et al.* [1] in Guinea in 2014, who recorded a mean age of 19.43 years with a predominance of the 0 to 10 years age group at 37.5%. However, our result differs from that of PHOLO Manzimbala JP *et al.* [7] in Kinshasa, Congo, in 2023, who reported a predominance of the 11 to 20 years age group at 34%. In our study, females predominated. Our result is similar to that of Pholo Manzimbala JP *et al.* [7] in Kinshasa, Congo, 2023, which recorded 63% of females. Conversely, Sereme M *et al.* [8] in Burkina Faso in 2016 noted no difference in gender. The mode of admission in our study was direct admission in 89.65% of cases and referral admission in 10.34% of cases. This differs from the results of

Bertin Priva *et al*. [9] in Burkina Faso in 2018, where the mode of admission was referral in 76% of cases, transfer from another hospital department in 1.5% of cases, and direct admission in 22.5% of cases.

Regarding occupation, students were the most represented, with a result lower than that of PHOLO Manzimbala JP *et al*. in Kinshasa, Congo, in 2023, who reported that the Student Association as a profession was more dominant, at 67.7%. In our series, the majority of patients came from urban areas at a proportion of 81.61%. In our observation, the majority of patients were not educated, exceeding the result reported by Ondzotto G *et al*. [3] in Brazzaville, Congo, in 2009, who noted 40% of non-educated individuals. In our study, the consultation delay of less than seven days was the most frequent, contrary to the result reported by Sereme M *et al*. [8] in Burkina Faso in 2016, who recorded an average consultation delay of 13 days, with extremes ranging from 4 hours to 90 days.

In our sample, the most frequent reasons for consultation were odynophagia/dysphagia, otalgia, and headaches. This finding is similar to that of KEITA A *et al*. [1] in Guinea in 2014, who reported the following reasons for consultation: otalgia (59.37%), dysphagia (42.7%), and headaches (41.7%). It is also comparable to that of Amit KR *et al*. [5] in India in 2019, who noted foreign bodies (12.17%) and otalgia (12.15%). In our series, tonsillitis and otitis were the most frequently observed, at a proportion of 28.73% and 27.20%, respectively. This finding is consistent with that of Tall H *et al*. [10] in Senegal in 2011, where a predominance of tonsillitis and otitis was reported at 15.12% and 8.7%, respectively. In our series, the management of ENT infectious emergencies was mainly medical, with a predominant use of antibiotics and analgesics. This finding differs from that of Ondzotto G *et al*. [3] in Brazzaville, Congo, in 2009, where the use of antibiotics and analgesics was 18.6%. In our analysis, the predominant use of antibiotics was characterized by the combination of amoxicillin-clavulanic acid with a proportion of 43.91%. This observation is similar to that observed by Pholo Manzimbala JP *et al*. [7] in Kinshasa, in 2023, where the main use was of the amoxicillin-clavulanic acid combination, followed by third-generation cephalosporins, at 56.31% and 19.30% respectively. In our research, the vast majority of our participants, 98.85%, did not experience complications after their treatment. However, we noted one case of death in a 45-year-old patient, suffering from cervicothoracic cellulitis complicated by mediastinitis. These results are comparable to those obtained by Sereme M *et al*. [8] in Burkina Faso in 2016, who observed a favorable outcome in 80.76% of patients, as well as those of KEITA A *et al*. [1] in Guinea in 2014, who noted recovery in 97% of patients, with only 3% having an unfavorable outcome.

ENT infections represent a significant portion of emergency consultations, with a predominance among children and young adults. Our findings are consistent with those of other studies, where young patients are most affected by ENT infections due to the immaturity of their immune systems and frequent exposure to infectious agents in school environments.

With dysphagia/odynophagia and otalgia being the predominant symptoms, it

is essential to enhance the training of healthcare professionals on the rapid recognition and appropriate treatment of these signs to improve patient care. Since tonsillitis and otitis are the main identified etiologies, it is necessary to develop standardized treatment protocols for these conditions to reduce complications and hospitalizations.

The systematic use of antibiotics in our study is a common practice, but it is crucial to promote rational use to prevent the emergence of bacterial resistance. Continuous education of healthcare professionals on antibiotics and treatment recommendations could help improve the management of ENT infections.

Our study highlights the importance of ENT infections in emergency consultations at the Mamou Regional Hospital. Special attention should be given to the training of healthcare professionals, patient education, and the development of treatment protocols to improve management and reduce complications related to these infections.

5. Conclusions

Infectious emergencies in otolaryngology (ENT) are common in the ENT department of Mamou Regional Hospital, affecting all age groups, with a particular prevalence among children aged 0 to 10 years. Women were most affected, and the profession of student was the most represented among patients. The most common symptoms at consultation were odynophagia/dysphagia and otalgia. The main etiologies of these emergencies were tonsillitis, otitis, and rhinosinusitis. Diagnosis was mainly clinical. Therapeutic management was of a medical-surgical nature, based on empirical antibiotic therapy initiated upon admission, combined with analgesics and corticosteroids. Surgical drainage was only considered in cases of collected abscess, performed via external or intraoral approach.

The outcome was favorable in the majority of cases. This study on ENT infectious emergencies raises perspectives for prevention and highlights the need for training in both ENT and general medicine. ENT infectious emergencies occurring outside the hospital environment were not included in our analysis, suggesting a future study to complete this comprehensive view of ENT infectious emergencies in Mamou.

Conflicts of Interest

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

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Appendix

Data Collection Sheet

Form Number: /___/ Admission Time: /_____/

1. Epidemiological Data:

Age: /___/

Gender: Male/___/ Female/___/

Antecedent: /___/

Medical History: /_____/

2. Sociodemographic data: Occupation:

Housewife/___/ Civil servant/__/ Worker/___/ Shopkeeper/___/ Seamstress/___/ Student/___/

Others to specify/……/

Residence: Urban /___/ Rural /___/

Education level: Not educated /___/ Primary /___/ Secondary /___/ Higher/___/

Socio-economic status: /___/

Consultation delay in days: /___/

Mode of admission: Self-referral /__/ Referred /__/

3. Clinical data:

Reasons for consultation: Otalgia /__/ Dysphagia /__/ Headaches /__/ Fever /__/ Odynophagia /__/ Trismus /__/ Dyspnea /__/ Otalgia with hypersalivation /__/ Otorrhea /__/ Vertigo /__/ Hypoacusis /__/ Purulent rhinorrhea /__/ Nasal obstruction /___/

Physical signs: Hypertrophy of the palatine tonsils /__/ Tympanic membrane congestion /__/ Cervico-facial swelling /__/ Purulent otorrhea /__/ Hypertrophy of the inferior turbinates /__/ Purulent rhinorrhea /__/ Hyperemia of the oropharynx /__/ Peritonsillar swelling /__/ Uvular edema /__/ Trismus /__/ Narrowing of the external auditory canal /__/ Pharyngeal granulation /__/

Associated comorbidities: /_____/

Etiologies: Otitis /__/ Pharyngitis /__/ Laryngitis /__/ Rhinosinusitis /__/ Cellulitis /__/ Peritonsillar abscess /__/ Tonsillitis /___/

Others to specify:/ ……/

4. Therapeutic data:

Medical: Antibiotic therapy: Yes /__/ No /__/ If yes, Third-generation cephalosporins /__/ Imidazole /__/ Aminoglycoside /__/ Amoxicillin/clavulanic acid /__/ Others to specify:/……../

Analgesics /__/ Corticosteroid /__/ Surgical: Incision and drainage of collection /___/ Other surgical

Treatment/……/ Duration of hospital stay: /____/ Clinical outcome:

Improvement /__/, Complications /__/, Death /___/