

# Evaluation of the Conformity of Care of Patients Hospitalized for Cervico-Facial Odontogenic Cellulitis in Yaounde-Cameroon

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## Abstract

**Introduction:** Cervicofacial odontogenic cellulitis is a poly-bacterial inflammatory process of the cellulo-adipal tissue involving the dental organ. The severity of its clinical picture can compromise its treatment and cause death. The vital prognosis of a hospitalized patient depends on the conformity of his management conditions. It is in this perspective that this study was carried out with the **aim** of evaluating the conformity of care of patients hospitalized for odontogenic cervico-facial cellulitis in Yaounde.

**Material and method:** This was a descriptive and retrospective study that took place over 7 months during 2022, including all patients hospitalised for cervico-facial cellulitis of oral origin during a 3-year period, from 1<sup>er</sup> January 2019 to 31 December 2021 at the Yaoundé Central Hospital (HCY), the Yaoundé University Hospital (CHUY) and the Efoulan District Hospital (HDE). Socio-demographic characteristics, clinical and therapeutic aspects, and compliance with management were recorded. Data collection was done with a pre-designed form and the results were processed and analysed using SPSS version 26.0 and Excel 2013.

**Results:** Out of 134 patient records collected, 67% were male with a sex ratio of 2.04. The age range, Age group [20-40] represented 56% of the cases. About 52.2% of the patients worked in the informal sector, followed by 25.4% of pupils and students. Trismus was present in 92.5% of cases. Cellulitis was diffuse in 81.3% of cases, suppurative in 73.9% and acute in 71.6%. Dual therapy with 99.3% Penicillin and 97.8% Imidazole was used in 69.4% of cases; the first level of Paracetamol was used in 94% as an analgesic. Antimalarial drugs were associated with the initial treatment in 5.2% of cases. Incision and drainage used in 52% of cases. The prescribed care was notified and regularly administered in 73.1% of cases; the case fatality rate was 15.7%, with sepsis as the cause in 80% of cases. All the records included the identification, the reason for hospitalization and the therapeutic prescription. The elements of the hospitalization report, the prescription established at discharge and the conclusion of the clinical examination were contained in 84.3%, 94.8% and 97.8% of cases respectively.

**Conclusion:** cellulitis affects resourceful men. Even if the compliance of the management conditions was found to be fair, the prognosis is vital with the severity of the infection.

**Keywords:** cervicofacial cellulitis; drug management; hospitalization; compliance; Yaounde

**Introduction**

Cervicofacial cellulitis due to dental causes is a polymicrobial infection of the celluloid tissues, the severity of which can lead to death [1]. The severity of the initial or ongoing clinical picture requires hospitalization and makes their management a real clinical challenge [2]. The vital prognosis of a patient hospitalized for cellulitis depends on the compliance of his or her management conditions; and the total consolidation of his or her state of health depends on the evaluation of his or her permanent or temporary injuries [3]. Compliance in forensic medicine is the quality of what is accurate and meets the established standards [3]. Indeed, the vital prognosis of a patient hospitalized for cellulitis depends on the conformity of the conditions of his care; also, the total consolidation of his state of health depends on the evaluation of his permanent or temporary prejudices [4]. In this study, we aimed to evaluate the conformity of care of patients hospitalized for cervico-facial odontogenic cellulitis in the Cameroonian context.

**Methodology**

This was a descriptive and retrospective study that was carried out during 4 months in 2022 in the odontostomatology and ENT departments of the Yaounde University Hospital, the Efoulan District Hospital and the Yaounde Central Hospital. The study included all the records of patients

who were hospitalized for cervico-facial cellulitis of oral origin during the 3 years from 1 January 2019 to 31 December 2021. The data collected were socio-demographic characteristics, clinical and therapeutic aspects and compliance of the record. Any record with at least 6 of the 11 elements of a good medical record was considered compliant. The data were collected using a pre-designed form and taking into consideration the overall ethical rules relating to the respect of confidentiality and protection of patient information. The data were entered and analyzed using SPSS version 26.0 and Excel 2013 for the diagrams.

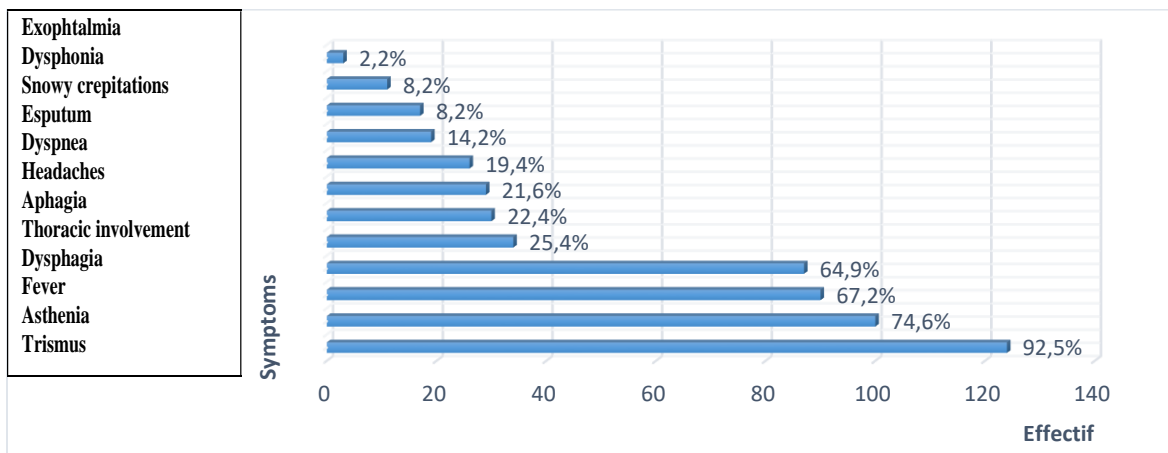
**Results**

Out of 134 records selected, 67% were male with a sex ratio of 2.03. The age group [20-40] represented 56% of the cases. About 52.2% of the patients worked in the informal sector, followed by 25.4% of pupils and students.

About 31.3% of the inpatients came to the clinic alone, while 68.7% were referred.

**On the clinical level**

The most striking clinical signs were asthenia in all patients and trismus in 124 patients (92.5%) (figure 1).



**Figure 1:** Distribution according to clinical signs.

According to the clinical stages, 81.3% of patients had diffuse cellulitis. Following the evolution of the cellulitis, the acute form was found in 71.6% of cases. The suppurative stage was found in 73.9% of cases. Table

1 shows the different forms of cellulitis. The most common aetiology was dental caries with a total of 114 cases (85%), followed by dental trauma in 8% of cases and dental care in 7% of cases (Table 1).

Clinical forms	Number (N=134)	Percentage (%)
<b>Topographic</b>		
Circumscribed	26	19.4
Diffuse	<b>109</b>	<b>81.3</b>
<b>Clinic</b>		
Acute	<b>96</b>	<b>71.6</b>
Chronicle	27	20.1
<b>Evolutionary</b>		
Suppurated	<b>99</b>	<b>73.9</b>
Serous	9	6.7
Gangreneux	20	14.9

**Table 1:** Distribution according to clinical forms.

The most frequently requested radiological examination was the orthopantomogram in 43.3% of cases. The most frequently requested biological examination was the CBC in 50.7% of cases (Table 2).

Variables	Number (N=134)	Percentage (%)
<b>Radiological Examination</b>		
Dental Panorama	58	43,3
Cervico-thoracic scan	18	13,4
Chest X-ray	15	11,2
Craniofacial X-ray	10	7,5
<b>Biological Examination</b>		
CBC	<b>68</b>	<b>50,7</b>
Fasting blood glucose	43	32,1
HIV serology	42	31,3
Examination of pus	16	11,9
CRP***	7	5,2
TP/TCK	3	2,2

\*CBC=Blood Count; \*\*HIV=Human Immunodeficiency Virus; \*\*\*CRP=C Reactive Protein; PT=Prothrombin Time; APT=Activated Cephalin Time

**Table 2:** Distribution according to paraclinical examinations

The most common antibiotic therapy was dual therapy in 69.4% of cases. Imidazoles and Penicillins were prescribed in 99.3% and 97.8% of cases respectively. Level 1 analgesics (Paracetamol) were prescribed in 94% of cases. Incision with drainage was performed in 79 patients (52%); associated with tooth extraction in 35% of cases.

### Conditions of hospital management

**Compliance with treatment administered:** Of the patients hospitalized in our sample, the prescribed treatment was regularly administered in 98 patients, i.e. a percentage of 73.1%.

**Type of discharge:** After hospitalization, 21 cases of death (15.7%) were recorded. Ninety-four cases (70.1%) had a discharge authorized by the doctor (Table 3).

Variables	Number (N=134)	Percentage (%)
<b>Type of outputs</b>		
Authorised exit	<b>94</b>	<b>70,1</b>
Discharge without medical advice	16	11,9
Transfer/Reference	4	3,0
Deaths	21	15,7
<b>Total</b>	<b>134</b>	<b>100</b>

**Table 3:** Breakdown by type of exit.

**Causes of death:** Of the 21 cases of death recorded, 15 deaths were due to sepsis or 80%.

**Conformity of the medical record:** With regard to the conformity of the medical record, any record with at least 6 elements out of the 11 constituting a good medical record was deemed to be conform. The following elements constituted the medical record evaluation grid [16] :

- The patient identification form.
- The medical document indicating the reasons for hospitalisation.
- The conclusions of the initial clinical examination or of successive clinical examinations carried out by any doctor assigned to the patient's bedside.
- The reports of the para-clinical explorations and complementary examinations (anatomy-pathological).
- The pre-anaesthetic consultation sheet with its conclusions and the results of the examinations requested, as well as the anaesthetic monitoring sheet.
- The operating reports.
- The therapeutic prescriptions.
- Hospitalization report including discharge diagnosis.
- The prescriptions drawn up at the patient's discharge.
- The patient's discharge is carried out on the doctor's proposal by a discharge note containing no diagnosis or medical mention.
- The attending physician must inform, after the patient has been discharged, of the medical prescriptions to which the patient must continue to adhere.
- In particular cases of voluntary refusal of care, the hospitalised patient must sign a document stipulating his refusal to accept, or even his discharge against medical advice.
- The health professional is therefore obliged to inform the patient about the various medical acts in order to obtain his or her consent (the legal guardian for minors and incapable adults).
- Medical records are kept in the hospital archives, which can only be consulted with the authorisation of the head of department. All necessary arrangements had to be made to ensure safekeeping and confidentiality [17].

All records included identification, reason for hospitalization and treatment prescription. The elements of the hospitalization report, the prescription established at discharge and the conclusion of the clinical

examination were contained in 84.3%, 94.8% and 97.8% of cases respectively. The table 4 provides a good summary (Table 4).

Variables	Number (N=134)	Percentage (%)
<b>Compliance of the medical file</b>		
Identification sheet	134	100,0
Reason for hospitalisation	134	100,0
Conclusion of the clinical examination	131	97,8
Conclusion of additional examinations	80	59,7
Pre-anaesthetic consultation form	0	0
Surgical reports	53	39,6
Therapeutic prescription	134	100,05
Hospitalization report	113	84,3
Prescription at discharge	127	94,8
Document stipulating LAMA*.	91	67,9
Written consent of the patient for all medical procedures	70	52,2

\*LAMA=Leaving against medical advice

**Table 4:** Compliance elements of the medical file.

## Discussion

### Socio-demographic data

Cervicofacial cellulitis affects the age group (20-40) in particular, and is most common in young men working in the informal sector. This result is similar to those found in the literature, and can be explained by the accidental evolution of wisdom teeth, which are erupting, the neglect of oral hygiene, and the exposure of the male gender to the main risk factors [6-8]. The resourcefulness and lack of means of this poor population are the reasons for their late consultations. Patients only came to the hospital for treatment when complications arose [9-11].

### Clinical aspects

The main reason for consultation was swelling in 66% of cases, associated with pain in 34% of cases, the aetiology of which was dental caries in 85% of cases. Trismus was associated in almost all patients, 92.5% [10]. This swelling is the result of congestion during the acute inflammatory reaction. HIV was diagnosed in 6.7% of cases, a condition that impairs the defence system and favours the occurrence of infections [8].

Cellulitis was diffuse in 81.3% of cases. The evolution was acute in 71.6% of cases. The suppurative stage constituted 73.9% of cases. This result can be explained by the relatively long delay in consulting the patients and by the rapid evolution of the cellulitis, which can evolve from the serous stage to the gangrenous stage in a few days if appropriate treatment is not provided [9].

### Therapeutic aspects

#### Paraclinical examination

Dental panoramic radiography was performed in 43.3% of cases and blood count (CBC) as a biological examination in 50.7% of cases. In the literature, the radiological examination shows the presence of a peri apical clearness in front of the causal tooth, which constitutes the starting point of the infection. It therefore confirms the dental origin of the cellulitis[12,13].

#### Medical and surgical treatment

The medical treatment of cellulitis consists of effective antibiotic therapy and good analgesic treatment [14]. The most commonly used type of antibiotic therapy is dual therapy in 69.4% of cases, with penicillins and imidazoles being used in 97.8% and 99.3% of cases respectively. The combination of a beta-lactam (active against streptococci) and an

imidazole (against anaerobes) is widely recommended and has been shown to produce satisfactory results[15]. A level 1 analgesic, such as paracetamol, was used in 94% of cases.

The treatment of cervico-facial cellulitis is regulated. It is a medical and surgical treatment associated with the treatment of the entry point. In our case, the etiological treatment was tooth extraction, which was done in 38.8% of cases. Extraction of the causative tooth is frequently found in the literature, and allows effective and rapid management of cellulitis [11]. In the case of a purulent collection, an incision was made to flatten it and surgical debridement of the necrotic tissue was performed [12].

In combination with the treatment of cellulitis, antimalarial drugs were administered to hospitalised patients in 5.2% of cases; this could be explained by the fact that the patient's immune system was already weakened by the cellulitis infection, and therefore more exposed to other opportunistic diseases [10-12].

#### Compliance with hospital management conditions

During the patients' hospitalisation, medical care was recorded in the file and regularly administered to the patients in 73.1% of cases. According to the study by Faye I in 2011, the care given during the patient's surveillance must be reported in the file because if legal action is taken an expert opinion is likely to be sought; he also lists the different constituents of a good medical file [16]. The constituents of a good record identified in the study were the following:

- The identification form, the reason for hospitalisation, and the therapeutic prescription were found in all the files, as these elements are the basis of a medical file.

- The conclusions of the clinical and paraclinical examinations were found in 97.8% and 59.7% of cases respectively. These components must imperatively and inexorably appear on the medical file to avoid legal action. Indeed, if legal action is taken, an expert opinion will be sought [17].

- The anaesthetic consultation form was not present in any of the files during our study. This could be explained by the fact that the anaesthetists in our context did not keep their record in the medical file, but rather in their department. Faye I states in his study that it is not enough to only monitor the patient during or after an anaesthesia, the measured values must be reported as well as all the findings made because an incomplete or missing anaesthesia sheet will be difficult or impossible to justify.

- The operative report was reported in 39.6% of cases, while the hospital report was reported in 84.3% of cases. This clarifies the surgeon's responsibility and personal involvement in the event of an accident during or after the operation [16].

- The discharge prescription was found in 94.8% of cases; it allows the patient to be monitored even after hospitalisation [16].

- The documents stipulating the Discharge without medical advice were found in 67.9% of cases and the patient's written consent for all medical acts was found in 52.2% of cases; the obligation to request the patient's consent is a legal obligation [16].

## Conclusion

The patients were men of the third decade on average, working in the informal sector; they came to the clinic mainly for swelling, the etiology of which was caries and evolutionary accidents of wisdom teeth. HIV was the major antecedent, trismus and fever the most common symptoms, and the clinical forms most frequently found were diffuse, acute and suppurated. The medical management consisted of the administration of a dual therapy comprising Beta-lactam and Imidazole; and a level I analgesic such as Paracetamol. Surgical treatment consisted of incision and drainage with or without tooth extraction. The medical records were generally consistent and the presence or absence of certain elements depended on the different hospitals and practitioners

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## Conflict of Interest

No conflict of interest.

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