

Oral Surgery Activities at the Odontostomatology Department of the Idrissa Pouye General Hospital (HOGIP)

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Abstract

Introduction: Surgical care activities in odontostomatology are numerous and varied with specificities that may differ depending on the competence of the practitioners, the site of implantation of the structure and the technical platform available. The objective of this work was to list the oral surgery activities of a reference service in a developing country. **Material and Method:** This was a descriptive cross-sectional study, over a period of 6 years. Any patient who had benefited from an oral surgery procedure in the department during the study period was included in the study. **Results:** A total of 14,962 procedures were performed grouped into 6 types. The acts are dominated by dental extractions, maxillomandibular blockages (MMB)/Contentions and excisions of benign tumors with respectively 93.9% (n = 14,962), 2.1% (n = 341) and 1.8% (n = 289). **Conclusion:** These results showed the diversity of oral surgery acts in this reference department, despite a modest technical platform.

Keywords

Surgery, Mouth, Odontostomatology Department

1. Introduction

The oral cavity is a complex environment, involved in several functions of human

life including phonation, swallowing and chewing [1]. It can be the site of several conditions that disrupt the quality of life of patients [2]. Oral diseases have significant morbidity and mortality, the psychological and social impact of which considerably alters the quality of life. As a result, these conditions represent a major public health problem due to their high prevalence and their impact on general health [3]. The most described are caries and periodontal disease. In Africa, these oral diseases are unevenly distributed in the population with a higher proportion in disadvantaged groups [3]. In Senegal, epidemiological data on the state of oral health of the population are rare; only partial studies on circumscribed territories or particular groups exist. Studies concerning children show poor dental health and unequal access to care [3]. There is a significant need for oral health care that cannot be met due to a largely insufficient and unequally distributed supply of care. Senegal has approximately one dental surgeon for 38,000 inhabitants, a ratio far from the WHO recommendations (one dentist for 10,000 inhabitants) [3]. In these countries, delays in consultation are linked to the use of other alternatives including traditional medicine, poverty, lack of qualified personnel and an insufficient technical platform [4]. Apart from the maxillofacial surgeon and the stomatologist, the management of certain conditions of the oral cavity requires the acquisition of a certain skill by the dental surgeon (Oral Surgery) and the availability of suitable equipment. The diversity of oral and dental conditions can explain the variety of surgical procedures used [5]. The objective of this study was to list the oral surgery activities within the odontostomatology department of the Idrissa Pouye General Hospital in Dakar. And to answer this object we will discuss this research equation below: what would be the impact of the Covid-19 pandemic on the care of patients in oral surgery in this department.

2. Material and Method

This was a cross-sectional descriptive study, on patient files, on oral surgery procedures performed in the Odontostomatology department of the Idrissa Pouye General Hospital in Dakar (HOGIP). The study took place over a period covering January 1, 2016, to December 31, 2021. The choice of the study period was made according to the availability of activity reports because some were not available or complete. The sample size consisted of all activity reports provided by the department supervisor (major) during this period. The activity reports contained all types of therapeutic procedures listed in number in tables for each month.

Included in the study were any patient file having benefited from an oral surgery procedure whose file was found. The variables studied were the type of oral surgery procedure (dental extraction, treatment of maxillomandibular and/or alveolodental fractures, excision of benign tumors, incisional biopsies, frenectomy, etc.), the use of general anesthesia and the year. The data were recorded in an Excel spreadsheet and then analyzed using SPSS 13.0 software. A univariate analysis was performed to calculate frequencies, means, standard deviations and percentages.

3. Results

3.1. Type of Oral Surgery Procedures over 6 Years

Dental extractions accounted for 93.9% (n = 14,962) of oral surgery procedures, maxillomandibular blockades (MMB) 2.1% (n = 341) (**Figure 1**) and excisions of benign tumors 1.8% (**Figure 2, Table 1**).

Table 1. Types of oral surgery procedures over 6 years.

Oral Surgery Acts over 6 years	n	%
Dental extractions	14,962	94.5
BMM*	341	2.1
Cyst and benign tumor excision	289	1.8
Incision biopsies	170	1.1
Frenulotomy	66	0.4
Total	15,828	100

BMM*: Maxillomandibular blockade.



Figure 1. Maxillomandibular blockade with Duclos arches in a patient with a fracture of the mandibular corpus.

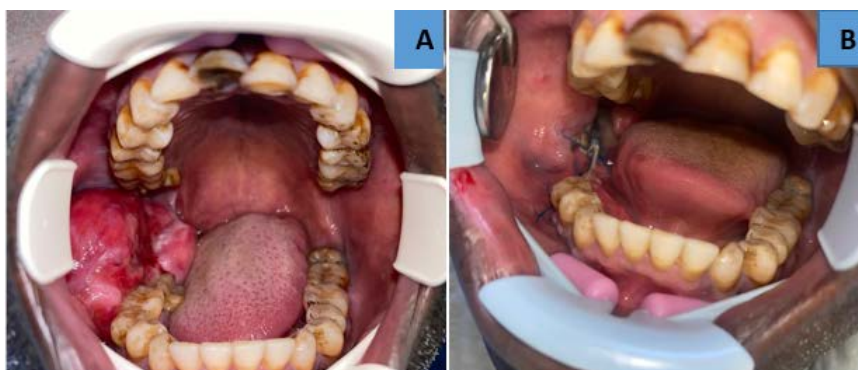


Figure 2. Excision of a mandibular myxoma under general anesthesia. (A) intraoral view of the lesion, (B) intraoral view after excision of the tumor.

3.2. Number of Teeth Avulsed per Year

The number of avulsed teeth was 19.9% (n = 2991) in 2019 and 17.2% (n = 2568) in 2021 (**Table 2**). The mean of avulsed teeth was 2493 and the standard deviation was 267.7.

Table 2. Number of teeth avulsed per year.

Years	n	%
2016	2282	15.2
2017	2404	16.1
2018	2448	16.4
2019	2991	19.9
2020	2269	15.2
2021	2568	17.2
Total	14,962	100

3.3. Number of Cases of Maxillomandibular Blockages (MMB) per Year

BMM was performed in 27.3% (n = 93) of cases in 2019 and in 17.3% (n = 59) of cases in 2021 (**Table 3**).

The annual mean of maxillomandibular blockages was 56.8 with a standard deviation of 20.7.

Table 3. Number of BMM cases per year.

Years	n	%
2016	46	1.5
2017	30	8.8
2018	59	1.3
2019	93	27.3
2020	56	16.4
2021	57	16.7
Total	341	100

3.4. Number of Cases of Benign Tumor Excisions per Year

Benign tumor excision was performed in 32.9% (n = 95) of cases in 2020 and in 21.1% (n = 61) of cases in 2016 (**Table 4**). The annual mean of tumor excision was 48.2 with a standard deviation of 30.

Table 4. Number of cases of excision of benign tumors per year.

Years	n	%
2016	61	21.1
2017	48	16.6
2018	3	1.1
2019	40	13.8
2020	95	32.9
2021	42	14.5
Total	289	100

3.5. Number of Procedures Performed under General Anesthesia per Year

Cases treated in the operating room were performed 21.43% (n = 24) in 2018, 2020 and 2021 and 19.64% (n = 22) in 2019 (Table 5). The annual mean was 18.6 with a standard deviation of 7.6.

Table 5. Number of procedures performed under general anesthesia per year.

Years	n	%
2016	11	9.82
2017	7	6.25
2018	24	21.43
2019	22	19.64
2020	24	21.43
2021	24	21.43
Total	112	100

3.6. Number of Incisional Biopsy Cases per Year

In 2016, 27.6% (n = 47) of incisional biopsy cases were performed and in 2021, 25.59% (n = 44) of cases (Table 6). The annual mean was 28.3 with a standard deviation of 15.1.

Table 6. Number of incisional biopsies per year.

Years	n	%
2016	47	27.6
2017	10	5.9
2018	14	8.2
2019	27	15.9
2020	28	16.5
2021	44	25.9
Total	170	100

3.7. Number of Frenectomy Cases per Year

Frenectomy was performed in 30.3% (n = 20) of cases in 2019 and in 27.3% (n = 18) of cases in 2018 (Table 7). The annual mean was 11 with a standard deviation of 7.

Table 7. Number of frenectomy cases per year.

Years	n	%
2016	3	4.5
2017	6	9.1
2018	18	27.3
2019	20	30.3
2020	6	9.1
2021	13	19.7
Total	66	100

4. Discussion

Oral surgery acts occupy an important part in the oral care activities of the HOGIP odontostomatology department. This is explained by the fact that it is a department that brings together specialists in oral surgery including university teachers involved in the training of students in specialization.

The limitations of this study are on the one hand the fact that some oral surgery procedures were not recorded in the patients' files and on the other hand the fact that this is a reference service in oral surgery where only complex surgery cases are referred. Indeed, difficult and complex cases are generally sent to a specialized center that is at a higher level of the health pyramid like this odontostomatology service. This organization of health care makes it possible to obtain quality health services and efficient use of human resources, beneficial for patients. Furthermore, oral surgery procedures are not only a representation of the prevalence of procedures implemented for patients, but an important indicator of the quality and organization of health care as a whole [6].

In the majority of cases, oral surgery procedures were increasing from 2016 to 2019, before experiencing a drop in 2020 and 2021. Indeed, the year 2020 had seen the advent of the Covid-19 pandemic which led to the drastic reduction of care activities in oral and dental services in Africa [7] [8]. In Senegal, health authorities had recommended prescribing painkillers and postponing treatment until things calmed down [9]. Teleconsultation and teleassistance were used as means of teledentistry to reduce patient-practitioner or practitioner-patient contamination and the spread of the virus. However, with the implementation of screening tests and the provision of personal protective equipment (PPE) to staff, care activities in dental departments have gradually resumed [10].

Oral surgery procedures are diverse with a predominance of dental avulsions (93.9%), the number of which is higher in 2019 compared to 2020 and 2021. These results are in perfect agreement with the data in the literature with a high number of cases of dental avulsion reported [6] [11]. These high numbers of cases of dental avulsion could be explained by several factors including poor oral hygiene, poverty, ignorance, delays in consultation, lack of infrastructure and the difficulty of accessing care for all (Inadequacies of Universal Health Coverage) in our low-income countries [12]. These factors will promote the development of carious lesions and periodontal pathologies, the complications of which can lead to dental avulsions [13]. Although dental caries and periodontal diseases are considered the main causes of tooth avulsion [13], other indications have also been reported such as orthodontics, dental prosthetics, dental impaction, rhizolysis and trauma [14].

The frequency of dental avulsion of 16.7% in the present study was within the range of 12.3% to 33.4% reported by studies done in Rio de Janeiro [15] and Syria [16] respectively. Furthermore, the reduction in the number of cases of dental avulsion in 2020 and 2021 could be explained by the advent of Covid-19 which led to a disruption of care activities in health structures in general and in dental practices in particular [7].

In addition, other oral surgery procedures such as maxillomandibular blockages (MMB), benign tumor excisions and frenectomies with 57, 48 and 11 cases per year respectively. Apart from dental extractions, MMBs are most often performed as part of the treatment of mandibulo-mandibular fractures. According to Dia Tine, the use of maxillomandibular blockages is due on the one hand to consultation delays and on the other hand to the weakness of the technical platform associated with a low socio-economic level of the majority of the population in our context [17].

In addition, oral surgery procedures in this dental stomatology department also include excisions of benign tumors. Indeed, being a reference center in the management of oral cavity diseases, excisions of benign tumors are often performed [7]. Excisions of benign tumors have also been reported in dental care departments in Africa [18]. In addition to the use of local anesthesia, oral surgery procedures can be performed under general anesthesia, especially for the patient's comfort and in patients living with certain disabilities [18] [19]. In the present study, an increase in procedures performed under general anesthesia in the operating room was noted from 2017 to 2021 with 11 cases and 24 cases respectively for an annual average of 19 cases per year over the six years of the study. This increase could be explained on the one hand by the higher frequency of reference cases of patients whose state of consciousness does not allow for outpatient care and on the other hand for comfort needs during the surgical procedure [6] [19].

In addition, in the context of screening and early diagnosis of malignant tumors of the oral cavity as well as certain general pathologies (dry syndromes, acute articular rheumatism, etc.), incisional biopsies are most often performed [20]. In the present study, an annual average of 28 cases of incisional biopsies were performed. After a high number of cases of incisional biopsies noted in 2016, a decrease in cases was reported until 2020 which saw an increase in cases that continued until 2021. This could be explained on the one hand by the increase in the number of cases of accessory salivary gland biopsies and on the other hand by the increase in cases of malignant tumors of the cavity observed since the advent of Covid-19 which is a virus with a high concentration in saliva and whose receptors are found in the oral mucosa [7] [20]. Other oral surgery procedures are also noted in the odontostomatology department [21]. This is the frenectomy which is a surgical procedure consisting of cutting a short and/or thick lingual or labial frenum to facilitate the movements of displacements of the tongue or lip facilitating certain functions of the oral cavity [22]. Dioguardi *et al.* in 2023, reports 43% of cases of frenectomy [21]. This is in perfect agreement with the results of the present study with 30% of cases of frenectomy reported in 2019.

Oral surgery activities in a health facility, such as a hospital or dental clinic, have several policies and practical implications, as was the case in our study conducted in a level III hospital. According to the health pyramid, level III hospitals are reference structures for level II hospitals [23]:

Policy implications:

Surgical activities are often subject to strict laws and regulations. Public health

policies can influence the way these services are provided, particularly in terms of safety, hygiene, and informed consent.

Policy decisions can also affect access to oral surgery, particularly with regard to health care financing, health insurance, and aid programs. Geographic and socioeconomic inequalities can also play a role, especially in developing countries where resources are limited.

Training requirements for oral surgeons and other health professionals can be influenced by educational policies and professional standards [23]. Governments may choose to prioritize certain surgical procedures based on the health needs of the population, thereby influencing the resources allocated to oral surgery.

Practical implications:

The availability of equipment needed for oral surgery (such as instruments, anesthetics) is essential. Facilities must ensure that they have adequate resources to provide quality care.

Surgical practices carry risks, and it is crucial to have protocols in place to manage potential complications and ensure patient safety.

However, oral surgery may require collaboration between several medical specialties, including dentists, general practitioners, anesthesiologists, and even mental health specialists to manage patient anxiety.

After surgery, follow-up is crucial to assess recovery and prevent complications. This requires well-established postoperative care practices.

Informing patients about procedures, risks, and postoperative care is essential to ensure their understanding and satisfaction. In summary, oral surgery activities have implications that go beyond the simple intervention, touching on political, regulatory and practical areas that require effective coordination to ensure the well-being of patients [23].

The study highlights the diversity of oral surgery procedures performed, despite limited resources, and discusses the impact of the Covid-19 pandemic on the number of procedures. The authors advocate for improved resources to expand the range and complexity of oral surgery services offered.

5. Conclusion

Oral surgery procedures at the odontostomatology department of the Idrissa Pouye General Hospital in Dakar are diverse and varied. Over a period of 6 years, they are dominated by dental extractions, maxillomandibular blockages and excisions of benign tumors. Despite this fairly dense and varied activity report, it would be interesting to determine the relative contributions of each surgical pathology to the burden of oral diseases, as well as a more detailed description of the type of intervention performed. The improvement of the technical platform would allow an increase and multiplication of oral surgery procedures with the integration of other more complex activities in oral surgery for the well-being of patients.

Ethical Considerations

Informed consent was obtained from participants regarding participation, data storage and processing. This program was reviewed and supported by the hospital and professional ethics of Cheikh Anta DIOP University Dakar. Patient records were kept by the secretariat and would only be available upon request approved by the head of department. Patient confidentiality is maintained.

Conflicts of Interest

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

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