



A Retrospective Review of Ambulatory Oral and Maxillofacial Surgery in a Suburban Tertiary Hospital in Nigeria

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Abstract

Background Ambulatory surgical procedures are integral aspects of oral and maxillofacial surgical (OMS) practice.

Objective The aim of this study is to report the scope of ambulatory OMS procedures in a Nigerian suburban teaching hospital.

Method A retrospective review of ambulatory OMS procedures performed at Obafemi Awolowo University Teaching Hospitals Complex, Ile-Ife, Nigeria, between March 2021 and February 2022 was conducted. Sociodemographic data, diagnoses, procedures, type of anesthesia, and immediate postoperative complications were retrieved from patients' records. Data were analyzed using the Statistical Package of Social Sciences (SPSS) version 22.

Results Two hundred and fifty-two ambulatory OMS procedures were performed during the 12-month study period. This accounted for 80.3% (252/314) of elective surgeries. The patients' mean (standard deviation [SD]) age was 32.2 (10.4) years, while a slight male preponderance (51.6%) was recorded. Third molar surgery was the commonest (48.0%) procedure undertaken in ambulatory setting. Most (90.9%) of them were performed under local anesthesia. Satisfactory postoperative pain control was achieved with the use of oral nonsteroidal anti-inflammatory analgesics in most patients (81.7%). However, owing to a failed ambulatory session, there was an eventual admission rate of 0.4% (1/252).

Conclusion Ambulatory surgical procedures constitute the majority of the OMS elective cases, with third molar surgery being the commonest procedure. Judicious prescription and administration of oral analgesics were effective in managing postoperative pain in our day case OMS patients. We recommend a prospective study to determine an intermediate/long-term outcome of care in ambulatory settings.

Keywords

- ▶ day case surgery
- ▶ local anesthesia
- ▶ oral and maxillofacial day surgery
- ▶ outpatient surgery

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ملخص المقال باللغة العربية

مراجعة بأثر رجعي لجراحة الفم والوجه والفكين الخارجية في مستشفى جامعي في ضواحي نيجيريا

المؤلفون:

Bamidele A. Famurewa,^{1,2} Taoheed A. Jimoh,² Ikechukwu E. Ugwu,² Fadekemi O. Oginni,^{1,2}¹Department of Oral and Maxillofacial Surgery, Obafemi Awolowo University, Ile-Ife, Osun State, Nigeria.²Department of Oral and Maxillofacial Surgery, Obafemi Awolowo University Teaching Hospitals Complex, Ile-Ife, Osun State, Nigeria.Corresponding author: Dr. Bamidele A. Famurewa E-mail address: murewadele83@gmail.com**الخلفية:** تُعتبر العمليات الجراحية الخارجية جزءًا أساسيًا من ممارسة جراحة الفم والوجه والفكين.**الهدف:** تهدف هذه الدراسة إلى توثيق نطاق عمليات جراحة الفم والوجه والفكين الخارجية في مستشفى تعليمي في ضواحي نيجيريا.**الطريقة:** أُجريت مراجعة بأثر رجعي للعمليات الجراحية الخارجية التي تمت في مجمع مستشفيات جامعة أوبافيمي أوولوو التعليمية، إيلي إيفي، نيجيريا، خلال الفترة من مارس 2021 إلى فبراير 2022. تم جمع البيانات الاجتماعية والديموغرافية، بالإضافة إلى التشخيصات، العمليات، نوع التخدير، والمضاعفات بعد الجراحة مباشرة من سجلات المرضى. وتم تحليل البيانات باستخدام الحزمة الإحصائية للعلوم الاجتماعية (SPSS) الإصدار 22.**النتائج:** تم تنفيذ 252 عملية لجراحة الفم والوجه والفكين الخارجية خلال فترة الدراسة التي استمرت 12 شهرًا، مما يمثل 80.3% (252/314) من الجراحات الاختيارية. كان متوسط أعمار المرضى 32.2 (±10.4) سنة، مع تسجيل غلبة طفيفة للذكور (51.6%). كانت جراحة إزالة الضرس الثالث هي الإجراء الأكثر شيوعًا (48.0%) وتمت في بيئة العيادات الخارجية، حيث أُجري 90.9% منها تحت تأثير التخدير الموضعي. وقد تحققت السيطرة المرضية على الألم بعد الجراحة باستخدام مسكنات الألم المضادة للالتهابات غير الستيرويدية عن طريق الفم في 81.7% من المرضى. ومع ذلك، بسبب فشل جلسة العيادات الخارجية، كان معدل القبول النهائي 0.4% (1/252).**الاستنتاج:** تُشكل العمليات الجراحية الخارجية غالبية حالات جراحة العيادات الخارجية الاختيارية، حيث تعد جراحة إزالة الضرس الثالث الإجراء الأكثر شيوعًا. كان الاستخدام الحكيم للمسكنات عن طريق الفم فعالة في إدارة الألم بعد الجراحة في مرضى جراحة العيادات الخارجية. نوصي بإجراء دراسة مستقبلية لتحديد نتائج الرعاية على المدى المتوسط والطويل في البيئات الخارجية.**الكلمات المفتاحية:** جراحة اليوم الواحد؛ التخدير الموضعي؛ جراحة الفم والوجه والفكين النهارية؛ جراحة العيادات الخارجية.

Introduction

Ambulatory surgery (synonyms: day case surgery, outpatient surgery) was introduced in the United Kingdom by James Nicoll in the early 20th century at the Glasgow Royal Hospital for Sick Children.¹ In the United States, it was popularized by Ralph Waters who established Down-Town Anesthesia Clinic in Sioux City, Iowa, in 1916. His practice focused on administration of inhalational anesthetics (ether and nitrous oxide) for dental and minor surgical procedures.² The shift from inpatient surgery to ambulatory setting was driven mainly by patients' preference and the more entrepreneurial surgeons.³

In contemporary times, ambulatory surgical procedures are performed in dedicated facilities within and outside hospital settings. These facilities are called "day surgery units" and "outpatient clinic ambulatory facilities," which are typically situated in the hospitals. Others are freestanding ambulatory surgical centers (or surgicenters) and office-based ambulatory settings outside the hospital premises.³⁻⁵ Ambulatory oral and maxillofacial surgical procedures are mostly performed in office-based ambulatory setting and outpatient clinic ambulatory facility with dedicated operating space.⁵ The surgical goals of patient care in the ambulatory setting include adequate hemostasis, satisfactory pain control with oral analgesics, adequate oral intake, and sufficient recovery that permits self-care and support in the immediate postoperative period. The treatment outcome involves the ability to achieve desired surgical result without the need for reoperation.⁶

The universal acceptability of ambulatory surgery in almost all surgical specialties is due to safer and improved anesthetic techniques, better pain control, advent of minimal access surgery, and faster recovery from anesthesia after

surgery.⁴ This method of surgical care is beneficial to both patients and the health care system. Some documented advantages are reduction in treatment costs, reduction in morbidity owing to early ambulation, reduced risk of nosocomial infections, less interference with daily activities of living, and reduction in surgical waiting lists.^{4,7,8}

Ambulatory surgical procedures are integral aspects of oral and maxillofacial surgery in Nigeria and elsewhere.^{7,8} However, published data to support this claim are outdated in most instances or even lacking as it is in our hospital. Therefore, this study aimed to report the scope of ambulatory oral and maxillofacial surgical procedures in a suburban teaching hospital over a 12-month period.

Methods

Ethics approval for this study was received from the Health Research Ethics Committee, Institute of Public Health, Obafemi Awolowo University, Ile-Ife, with protocol number IPH/OAU/12/1924. The study was a retrospective review of all ambulatory oral and maxillofacial surgeries performed at the outpatient clinic of Oral and Maxillofacial Surgery Department and day case theater of the Obafemi Awolowo University Teaching Hospital Complex, Ile-Ife, between March 2021 and February 2022. Patients who had routine intra-alveolar extractions on the dental chairs and those with incomplete records were excluded from the study.

Details on patients' sociodemographic characteristics (age, sex, and residential location), surgical procedures, type of anesthesia, and immediate postoperative complications were retrieved from departmental records. Data were collected in a proforma and analyzed using the Statistical Package of Social Sciences (SPSS) version 22.

Results

A total of 314 surgical operations were performed during the 12-month study period. Ambulatory surgery accounted for 80.3% (252/314) of them. The mean age (standard deviation [SD]) of the patients managed in the ambulatory setting was 32.2 (SD = 10.4) years. The largest proportion of the surgical patients were in their third decade of life (►Table 1). A slight male preponderance (130 males [51.6%]) was observed among the patients who were treated in the ambulatory setting.

Most (91.3%) of the patients were living in Osun state. Of these, 75.3% were domiciled in Ile-Ife where the teaching hospital is located (►Fig. 1).

►Table 2 shows different surgical procedures performed as ambulatory cases. Third molar surgery (surgical extraction of impacted third molar) was the commonest (48.0%) ambulatory oral and maxillofacial surgical procedure. Trans-alveolar exodontia of retained roots and impacted non-third-molar teeth constituted 28.6% of the surgical procedures performed as day case procedures.

Two hundred and twenty-nine (90.87%) patients had their surgical procedures under local anesthesia. Only six (2.38%) cases were done under general anesthesia. Local anesthesia was supplemented with sedation in 17 (6.75%) patients (►Table 3). Procedures performed under general anesthesia are highlighted in ►Table 4. Oral nonsteroidal anti-inflammatory analgesics (ibuprofen and diclofenac) were the medications of choice for most of the patients (81.7%) after ambulatory oral and maxillofacial surgical procedures (►Table 5).

Of the 252 patients who underwent ambulatory oral and maxillofacial surgical procedures, there was a case (0.4%) of

admission for overnight observation after control of protracted hemorrhage. Other patients were discharged home after both verbal and written postoperative instructions and subsequently reviewed at the oral and maxillofacial surgery outpatient clinic (►Table 5).

Discussion

The 2019 guidelines of the Association of Anesthetists of Great Britain and Ireland and the British Association of Day Surgery (BADS) recommended that at least 75% of electives surgeries be performed as day surgery.⁹ Patients' fitness and duration and invasiveness of surgery are some determinants of volumes of day case surgery.⁹ Most minor and intermediate oral and maxillofacial surgical procedures could be performed as day case procedures in carefully selected patients because of their relatively short duration.⁸ In this study, 80.3% of the oral and maxillofacial surgical procedures were performed as day surgery during the study period. This value is more than the 65% ambulatory oral and maxillofacial surgical procedures reported by Arole⁷ in Southwest Nigeria in 1998. Besides the aforementioned factors, affordability and availability of theater space were other reasons for high volume of ambulatory oral and maxillofacial surgical procedures in our hospital.

Almost half of the patients in this study were young adults between 21 and 30 years. This is similar to the study of Çankaya et al⁸ in which approximately 50% of operated patients for oral day surgery were aged between 21 and 30 years. Overall, there were fewer females in this study than males. This is contrary to most studies conducted outside Nigeria on ambulatory oral and maxillofacial surgery that reported higher proportion of females than males.^{8,10,11} The gender distribution is, however, somewhat comparable with a study in Nigeria that reported a more marked male predominance of 63%.¹²

Another eligibility criterion for the use of ambulatory surgery is a patient domiciled close to the treatment facility. Jokić et al¹³ reviewed ambulatory oral surgical procedures performed in a teaching hospital in Zagreb, Croatia. More than half (56.5%) of the operated patients were domiciled in Zagreb. Most of the patients in the current study were residing in the same city as the hospital. Similarly, Legbo and Opara¹⁴ reported that the majority of the ambulatory

Table 1 Sociodemographic characteristics of study participants

Variables	Frequency	Percentage
Age (y)		
≤20	27	10.7
21–30	120	47.6
31–40	53	21.0
41–50	26	10.3
51+	26	10.3
Sex		
Male	130	51.6
Female	122	48.4
State of residence		
Ekiti	1	0.4
Ogun	4	1.6
Osun	230	91.3
Oyo	3	1.2
Ondo	9	3.6
Lagos	5	2.0

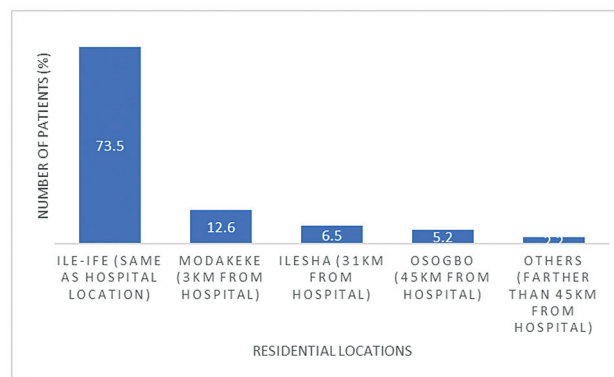


Fig. 1 Residential locations of ambulatory oral and maxillofacial surgical patients.

Table 2 Scope of ambulatory oral and maxillofacial surgical procedures

Surgical procedures	Frequency	Percentage
Dentoalveolar splinting	1	0.40
Excisional biopsy	6	2.38
Hematoma evacuation	2	0.79
Incision and drainage/decompression	7	2.78
Incisional biopsy	11	4.37
Transalveolar extraction (roots and other impacted teeth)	72	28.57
Closed reduction and MMF	9	3.57
Reconstruction plate removal	1	0.40
Sinus tract excision and wound debridement	1	0.40
Third molar surgery (disimpaction)	121	48.01
Wound debridement and primary closure	21	8.33
Total	252	100.00

Abbreviation: MMF, maxillomandibular fixation.

Table 3 Type of anesthesia used in ambulatory oral and maxillofacial surgical cases

Type of anesthesia	Frequency	Percentage
General anesthesia	6	2.38
Local anesthesia with sedation	17	6.75
Local anesthesia (LA)	229	90.87
Total	252	100.00
Type/route of sedation		
Intramuscular (IM)	16	94.10
Intravenous (IV)	1	5.90
Total	17	100.00
Medication used for sedation		
Pentazocine	17	100.0

Table 4 Surgical procedures performed under general anesthesia

Age (y)	Sex	Diagnosis	Procedure
35	M	Surgical site infection	Wound debridement and repair
1	F	Submandibular space abscess	Incision and drainage
4	M	Severe early childhood caries	Intra-alveolar extraction
27	M	Reconstruction plate exposure	Reconstruction plate removal
35	M	Chronic orofacial sinus tract	Extraction with sinus tract excision

Abbreviations: F, Female; M, Male.

plastic surgery patients at Usmanu Danfodiyo University Teaching Hospital, Sotoko, Nigeria, were domiciled in Sokoto and its environs. Patients who live at a distant location from the hospital are typically not suitable for day surgery as they may not be fit for long-distance travel after their procedures.¹⁴ Furthermore, they are less likely to access emergency intervention promptly should the need arise.

Third molar surgery and surgical extraction of impacted teeth (besides third molars) and retained roots accounted

for the majority of the procedures performed in this study. This is similar to the finding of Çankaya et al⁸ in Turkey where approximately 60% of the ambulatory cases were surgical extractions of impacted third molars, canines, and premolars. Conversely, Arole⁷ reported reduction and maxillomandibular fixation of mandibular fractures as the commonest day case procedure in his study. The observed changes in the proportion of surgical procedures in the present study and that of Arole in 1998 (data collected

Table 5 Postoperative analgesia and complications

Variable	Frequency	Percentage
Postoperative analgesics		
Arthrotec	5	2.0
Co-codamol	7	2.8
Co-proxamol	1	0.4
Diclofenac	24	9.5
Ibuprofen	182	72.2
Paracetamol	33	13.1
Postoperative complications		
Hemorrhage	1	0.4
None	251	99.6
Was patient admitted after procedure?		
No	251	99.6
Yes	1	0.4
If yes, what is the indication for admission?		
Overnight observation after control of delayed hemostasis	1	100

between 1987 and 1996) could be attributed to the increasing prevalence of dental impaction because of dietary change and a shift toward open reduction and internal fixation (ORIF) as treatment for facial bone fractures.¹⁵⁻¹⁷ Previously, most simple facial bone fractures were treated by closed reduction in an ambulatory setting. But with increasing availability and affordability of osteosynthesis hardware in Nigeria, coupled with patient's awareness of the benefit of ORIF, the old order is becoming less attractive to both surgeons and patients.^{16,17}

Optimal and judicious anesthesia is a necessity for a successful ambulatory surgical procedure.¹³ Local anesthesia was used for over 90% of the operated cases in this study. This is similar to the reports of Arole⁷ and Omeje et al¹² in Southwest and Northwest Nigeria, respectively, who operated most of their patients under local anesthesia. In this study, all procedures performed under general anesthesia were started early in the morning (09:00 a.m.) and of short duration to allow for full recovery before discharge from day surgery recovery room. This is in line with the surgical goals for ambulatory surgery.^{6,7}

A readmission rate of 0.4% reported in this study is lower than 2.7% reported by Arole⁷ and well below the recommended admission rate of 1% after ambulatory surgical procedures.¹⁸ Conversely, the present unplanned readmission rate is higher than 0.2% reported by Sowande et al¹⁹ who reviewed ambulatory urological cases over a 4-year period at Ile-Ife, Southwest Nigeria.

The common immediate postoperative complications of ambulatory oral and maxillofacial surgery are pain, facial swelling, and rarely hemorrhage from surgical site.^{7,10} The only postoperative morbidity in this study was surgical site bleeding. We attribute the experience of satisfactory pain control in this series to judicious use of oral

analgesics in the immediate postoperative periods. This is consistent with the study of Legbo and Opara,¹⁴ who reported good postoperative pain control in patients who had ambulatory plastic surgical procedures in Northwest Nigeria. The majority of their patients were placed on oral nonsteroidal anti-inflammatory analgesics as in our study.¹⁴

We recommend a future prospective study examining the postoperative morbidities and outcomes of day case oral and maxillofacial surgery. This would take care of the peculiar limitations of retrospective studies, thus including postoperative clinic visits and reviews with a comprehensive analysis of complications and treatment outcomes after ambulatory procedures. This would eventually improve the overall quality of care delivered.

Conclusion

This study demonstrated that ambulatory oral and maxillofacial surgery is an integral part of our departmental service at the teaching hospital, with 80.7% of elective procedures. Most of the patients who underwent day case session were younger than 40 years with a slight male preponderance. Surgical removal of the impacted third molar was the most frequent procedure. The majority of the cases were performed under local anesthesia using 2% lidocaine. All patients, except one, were discharged home after their surgical procedures.

Ethical Approval

The study was performed in accordance with the declaration of Helsinki and was approved by the Ethics Committee of the Institute of Public Health, Obafemi Awolowo University, Ile-Ife, with protocol number IPH/OAU/12/1924.

Authors' Contributions

B.A.F. was responsible for conceptualization, study design, project supervision, and writing of the original draft. T.A.J. was involved in data collection, data analysis, and review of the original draft. E.I.U. was involved in data collection and review of the original draft. F.O.O. was involved with conceptualization, and review and editing of the manuscript.

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Conflict of Interest

None declared.

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