Main Article

Ambulatory ENT Surgery: Eight Years of Experience in A Tropical Environment

https://doi.org/10.47210/bjohns.2022.v30i1.618

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ABSTRACT

Introduction

Ambulatory surgery allows minimizing the time spent in the hospital, which could reduce the transmission of nosocomial pathologies and the occupation of hospital resources and infrastructures. The objective of the study was to assess the ambulatory activity of the ENT department of Military Teaching Hospital of Cotonou since its creation.

Materials and Methods

The study was monocentric retrospective covering an eight-year period from January 1, 2013, to January 1, 2021. It concerned all ENT surgeries where the patient was discharged on the same day, regardless of the type of anaesthesia used. A pre-established survey form was used to collect data from the medical records. The variables studied were socio-demographic factors, eligibility criteria, indications and conversion to inpatient mode.

Results

Over the study period half of the procedures performed (334 patients) corresponded to indications for outpatient surgery and then were included. Of these, 130 patients (38.9%) were rejected for various contraindications like geographical and financial accessibility and communication difficulties. A total of 204 patients (61.1%) underwent ENT ambulatory surgery. The sex ratio was 3 males to 5 females (0.6). Children under 15 years of age accounted for 43.7% (n=146). Tonsillectomy with or without adenoidectomy was the most frequent surgery accounting for half of the outpatient surgery cases. Pharyngeal surgery was the most performed: (126 patients) followed by cervico-facial surgery (44 patients). Reconversion to inpatient mode occurred in 39 patients (19.12%). No respiratory complications were noted. No deaths were recorded.

Conclusion

Ambulatory care is a mode of management mainly used for pharyngeal surgery, in particular tonsillectomy and adenoidectomy in children. The main contraindications to patient eligibility were geographical and financial accessibility and communication difficulties. This activity would benefit from being better structured with specific staff and premises.

Keywords

Ambulatory Surgical Procedures ; Otorhinolaryngology ; Retrospective Study

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Ambulatory surgery is the set of interventions under the safety conditions of an operating room and allowing the patient to return home the same day of the surgical act. It improves patient and family satisfaction, optimizes the use of hospital infrastructure and reduces the cost of care.[1] According to Michelet in France (2019), the ambulatory mode is a less expensive economic model for the health system and for patients[2]. This author specifies that among all the procedures

performed on an outpatient basis in children, the three main surgeries concerned are Ear Nose Throat (ENT) surgery (55%), followed by urological surgery (17.9%) and orthopaedic surgery (8.5%).[2] It has structural and organizational requirements to limit the risks inherent to the early interruption of medical supervision.

This mode of care is met with reluctance by several factors because ENT procedures are often complicated by bleeding and respiratory difficulties that can be life-threatening. However, when it is well organized, it has multiple advantages. In particular, it reduces the time the patient spends in the hospital, which reduces the risk of nosocomial diseases and the time spent waiting for treatment.[3] This mode of management could reduce the risk of nosocomial diseases including COVID-19. In addition, it allows to compensate for the increasing demand for ENT surgical services and the limited availability of inpatient beds in our practice settings.

The aim of the present study was to report on eight years of experience in outpatient surgery since the creation of the ENT Department of Military Teaching Hospital at Cotonou (MTH).

Materials and Methods

The study was descriptive, monocentric, retrospective and covered an eight-year period from January 1, 2013 to January 1, 2021. It concerned all ENT surgeries with return home of the patient on the same day, whatever the type of anesthesia used. A pre-established survey form was used to collect data from the medical records. These records were indexed using the consultation and ENT surgery records. The variables studied were socio-demographic factors, eligibility criteria, medical indications and conversion to inpatient treatment. Frequencies were calculated using SPSS 13.0 software.

Description of the ENT ambulatory process at MTH of Cotonou:

Ambulatory surgery is performed in the common operating room of the hospital. Each patient is first seen in ENT consultation where the ambulatory mode is proposed. The surgeon informs the patient about the benefits and risks of the operation, insisting on the postoperative instructions to be followed at home. Particular attention is paid to pain management and the conditions for returning to the hospital. The patient is then referred to a pre-anesthetic consultation, regardless of the type of anesthesia planned (local or general). After the agreement of the anesthesiologist, and the absence of contraindication to the ambulatory mode, an informed consent of the patient is collected. The criteria for the indication of the ambulatory mode are the following :

1. The surgeon and the anaesthetist consider that the postoperative surveillance does not require specific hospital, material and human resources; the patient is informed of the possible reconversions in conventional hospitalization.
2. Medical criteria: the patient is ASA I or II and more than 3 years old; no co-morbidity or medical history that could complicate the postoperative period;
3. Geographical criteria (accessibility to the hospital): the patient lives less than 30 minutes from the hospital; he/she has or can mobilize a vehicle for transportation to the hospital;
4. Communication criteria: patient has a telephone with credit to reach the hospital if needed; patient speaks a language understandable to the nursing staff; patient is literate and can understand and follow medical instructions;
5. Social criteria: the patient designates a caregiver to spend the first few nights with them;
6. Patient consent: Agreement after explanation by the surgeon.

The admission to the hospital is done on the day of the surgery at 7 AM. Immediate postoperative monitoring for at least four hours is observed in all cases. The patient is discharged home when he/she is awake, vital signs are normal, feeding has been resumed, pain is under control and the clinical examination does not reveal any bleeding or other negative signs. The patient is reminded of the surgeon's telephone number and that of the emergency team on call. The emergency team is informed of the surgical procedures performed on an outpatient basis.

The patient is systematically called by telephone the day after the operation to evaluate the postoperative follow-up. The operating rooms of the central block are used simultaneously or successively for outpatients or conventional hospitalization.

Result

Eligibility and socio-demographic parameters:

Over the study period 665 procedures were performed in the ENT department of MTH of Cotonou. Half of these procedures (334 patients) corresponded to indications for outpatient surgery and then were included into the current study. Of these, 130 patients (38.9%) were rejected for various contraindications to the outpatient process like age less than 3 years (5 patients); Presence of co-morbidity in 12 patients [Asthma (3); Coagulation disorder (2); sickle cell disease (7)] or other factors like difficulty of access to the hospital (82); Home located more than 30 minutes from the hospital (45); Lack of personal car transportation (37); difficulty of communication (21); Lack of telephone (6); Analphabetism (12); need for interpretation in 3 patients (foreign and Beninese languages) ; personal preference for hospitalization (4) and some other reason (6)

A total of 204 outpatient surgeries were actually performed, representing 61.1% of the total number of surgeries performed during the study period. Among the patients, there were 127 females (38.0%) and 77 males (23.1%), i.e. a sex ratio of 0.61. Children (patients under 15 years of age) accounted for 43.7 % (n=146). The youngest patient was 3 years old and the oldest was 57 years old.

Indications for surgery:

The various surgical procedures scheduled on an outpatient basis were counted. Tonsillectomy with or without adenoidectomy was the most frequent surgery accounting for half of the ambulatory surgical patients. (Table I)

Table I: Summary of surgical procedures performed on an outpatient basis at the ENT department / MTH-Cotonou, January 1, 2013 to January 1, 2021

PROCEDURES	CHILD	ADULT	TOTAL
Pharyngeal surgery	**115**	**11**	**126 (37.7%)**
Tonsillectomy± adenoidectomy	**94**	**6**	**100**
Adenoidectomy alone	**14**	**0**	**14**
Veloplasty	**7**	**5**	**12**
Head and neck Surgery	**11**	**33**	**44 (13.2%)**
Suturing of cervico-facial wounds	**3**	**20**	**23**
Osteosynthesis of facial fractures	**0**	**4**	**4**
Adenectomy	**3**	**2**	**5**
Tumorectomy (basal cell and squamous cell carcinoma of the skin)	**5**	**7**	**12**

Table I: Contd.

Table I (Contd.): Summary of surgical procedures performed on an outpatient basis at the ENT department / MTH-Cotonou, January 1, 2013 to January 1, 2021

PROCEDURES	CHILD	ADULT	TOTAL
Otologic surgery	**8**	**4**	**12 (3.6%)**
Otoplasty	**1**	**0**	**1**
Lobular plastic surgery	**2**	**4**	**6**
Extraction aural foreign bodies in the OR	**5**	**0**	**5**
Endoscopic surgery	**14**	**8**	**22 (6.6%)**
Extraction of oesophageal foreign bodies	**12**	**2**	**14**
Endonasal surgery (meatotomy, turbinoplasty)	**0**	**2**	**2**
Septal hemangioma(electric cauterization)	**1**	**2**	**3**
Panendoscopy	**1**	**2**	**3**
TOTAL	**148 (72.5%)**	**56 (27.5%)**	**204 (61.1%)**

Reconversion to in-patient mode:

Among the 204 patients operated on as outpatients, the occurrence of an early postoperative complication led to a reconversion to conventional hospitalization in 19.12% of cases (39 patients). They had undergone pharyngeal surgery (28 patients) or cervico-facial surgery (11 patients). The main reason for hospitalization was pain (17 patients), hyperthermia above 38°C (9 patients), asthenia with feeding difficulties (8 patients), bleeding risk (3 patients), nausea and vomiting (2 patients). No respiratory complications were noted. No deaths were recorded.

Discussion

Socio-demographic Data:

The majority of the sample studied was composed of children. Indeed, tonsillectomy in children was the main surgical procedure in our series. Other African series also show a predominance of children.[4] All ages are involved in outpatient surgery, with the frequency of age groups depending on the conditions. However, the minimum age of children to be operated on as an outpatient depends on the availability of a specialized pediatric surgical unit[5]. In our hospital there was no pediatric surgical unit or pediatric intensive care unit.

Eligibility Criteria:

Patients with a high American Society of Anaesthesiology (ASA) comorbidity score of III and IV (or higher) are not considered eligible for day surgery.[6] Recommendations are unanimous to avoid any outpatient surgery in subjects with comorbidities. Ambulatory tonsillectomy is possible in children in the absence of co-morbidity

increasing the respiratory risk, abnormalities of hemostasis, severe obstructive sleep apnea syndrome and if the usual criteria of proximity and family environment are met, subject to a consensus between surgeon, anesthetist and parents. In our context, asthma was a contraindication to outpatient surgery because of the high risk of perioperative morbidity and mortality due to bronchospasm and hypoxemia. These cases were therefore managed in conventional hospitalization.

The patient's place of residence is also considered because it determines the time needed to get to the hospital in case of a problem. This criterion of geographical accessibility is major in our context because it represents the main reason for exclusion from the ambulatory mode: 82 patients out of 130 i.e. 63.1% of the exclusions. It is either the geographical distance from the hospital or the unavailability of a car to secure the patient's transport. Motorcycle cabs, called locally « Zémidjan », were not accepted as a mode of transport. The lack of health insurance and the low level of income of the average Beninese form the bedrock of this lack of financial accessibility to care. This lack of insurance is a serious obstacle to the growth of ambulatory care in developing countries. The state of deterioration of the roads worsens this situation by further lengthening the duration of transport. The implementation of a system of hospital hotels or care hotels near the hospital could be a solution. This structure could receive patients and their companions before and after the hospital stay, thus reducing the number of people in the hospital. This type of out-of-hospital accommodation could stimulate the care of isolated populations. In addition to outpatient care, the hospital hotel will reduce the time spent in hospital during conventional hospitalizations. In France, a comparative study has shown that the restructuring of a predominantly ambulatory unit with this type of accommodation has allowed a reduction in the average length of stay from 3.8 to 0.4 nights.[7] This issue could be addressed by the creation of a care hotel located near the hospital that would be an intermediary between the patient's home and the hospital. This type of facility could reduce the cost of thyroidectomy by a factor of three.[8]

Indications for Surgery:

The medical indications for outpatient surgery depend of course on the available infrastructure, the organization and the expertise of the surgical team. The development of outpatient activity is therefore mainly based on these three points.

Infrastructure:

Assigning specific premises and personnel to the outpatient activity will allow better organization and optimal use of the infrastructure[9]. The site will include operating theatres, the recovery room and a reception area for exchanges with the parents who have brought the patient or who come to collect him at the end of the day. The material, human and infrastructural resources can be shared with several other surgical specialties, but within the framework of the outpatient department. The use of outpatient care is becoming more and more common in practice, although its implementation poses problems of lack of equipment, human resources and compliance with strict regulations.

Organization:

Organization is the basis of outpatient care. Its objective is to eliminate any additional risk linked to the patient's early return home. It can provide for the management of surgical emergencies compatible with the outpatient mode. This implies additional modalities due to the non-programming of the patient.[10] As things stand at present, the importance of outpatient care in the management of patients in Benin is not well known. Despite the increasing number of surgical procedures that can be performed on an outpatient basis, its proper organization does not lead to an increase in the incidence of complications or a reduction in the level of patient safety;[11] on the other hand, it is beneficial both economically and in terms of comfort. In principle, the organization allows a flow of activities to be carried out successively or simultaneously in order to take care of a maximum number of patients under optimal conditions. The day ends with the patient being accompanied home and the certainty that a responsible person will assist the patient at home for the first night at least.[12] The patient is

then discharged home in the absence of any other negative clinical sign.

Surgical Expertise:

Tonsillectomy with or without adenoidectomy accounted for almost half of the outpatient ENT surgery performed during the period under review. It is indeed the most frequent surgery in the department.[13] The immediate postoperative complications are mainly pain and bleeding. These risks are controlled by intraoperative hemostasis controls, analgesic treatments and systematic monitoring instructions. Postoperative nausea and vomiting may be related to gastrointestinal irritation caused by intraoperative swallowed blood. In the Democratic Republic of Congo in 2016 tonsillectomy represented 81% of ENT surgical activities and was performed as an outpatient procedure in one out of two children.[4] Tonsillectomy is undoubtedly the most frequent ENT surgery in sub-Saharan Africa.

In cervicofacial surgery, the procedures were mainly performed under local anesthesia and their management in ambulatory care did not pose any particular problem: trimming and suturing of traumatic wounds, cervical adenectomy, removal of cervicofacial skin tumors. Some other cervicofacial surgical procedures such as total thyroidectomy are increasingly performed on an outpatient basis in the United States of America with complete safety for the patient.[14,15] In France in 2017, a retrospective multicenter analytical study of 294 hemi-thyroidectomies, 130 of which were performed as outpatient procedures, concluded that outpatient hemi-thyroidectomy is a reliable and safe procedure[16]. In sub-Saharan Africa, on the other hand, thyroid surgery is performed in a conventional hospital and several studies emphasize the potential complications.[17,18] Many other cervicofacial surgeries are feasible on an outpatient basis provided that the surgical procedure is well controlled and the patients are well selected. According to Benito et al. in 2021 in the United States of America, the level of safety of parotidectomy is the same in outpatient surgery as in conventional hospitalization.[19] In our working conditions in Cotonou, these procedures are performed as conventional surgery in order to be more reactive in case of complications.

Most surgical procedures on the external or middle ear are compatible with outpatient care. This does not, of course, derogate from the requirements of patient selection and the strict procedures foreseen by the ambulatory activity. Our experience in otologic surgery has been limited to minor procedures. Several cases of tympanoplasty performed during the same period were done in conventional hospitalization because these procedures are rarely performed and less mastered by our team. As a result, the postoperative follow-up becomes less predictable. Indeed, the lack of equipment for otologic microscopic surgery limits the treatment of patients. Also, the lack of practice in Otology reduces the expertise of ENT doctors who practice more pharyngeal and cervico-facial surgery. A retrospective study in France has shown that middle ear surgery, even major operations, are performed in ambulatory care under satisfactory safety conditions.[20] The procedures performed in ambulatory care are very varied, including myringoplasty, ossiculoplasty, cholesteatoma surgery, and all procedures that can be performed under local anesthesia. Inner ear surgery, on the other hand, is more secure in a conventional hospital setting. Otologic surgery is generally not very painful and a systematic intake of Paracetamol is more than enough to control the postoperative pain. Overall, otologic surgery lends itself well to outpatient care because of the rapidity of the operative gestures and the control of pain. This mode of management has become the reference in otologic surgery in France because of the numerous advantages for the patient, the surgeon and the entire health system.[21] The ambulatory mode does not increase the risk for either the patient or the surgeon when the eligibility criteria have been respected.[22] The explorations as well as certain nasosinus endoscopic procedures can be performed in ambulatory mode.[23] Contrary to septoplasty, several endoscopic sinus surgery procedures can generate epistaxis and hematoma to the point of requiring a blood transfusion.[1] It is therefore reasonable not to offer them as outpatient procedures for better patient safety. In 2015, the French ENT Society drafted a formalized consensus on four outpatient surgical procedures in Rhinology, namely: endoscopic middle meatotomy (CCAM code

GBPE001), septoplasty (GAMA007), nasal bone fracture reduction by direct approach (LAEA007) and closed technique (LAEP002). This consensus recommends respecting patient eligibility criteria, assessing the risk of bleeding, favoring surgical techniques of short duration, and avoiding combinations of procedures (e.g., septoplasty and turbinectomy).[24]

As for laryngeal endoscopic surgery for functional purposes in adults, it seems to be well adapted to outpatient surgery except for patients with high respiratory risks. Indeed, laryngeal immobilities can be managed in ambulatory by laryngoplasty, laryngeal re-innervation or thyroplasty.[25] Complications of a medialization thyroplasty are usually transient dysphonia and hematoma that do not occur in the immediate postoperative period, but rather after a few days. Therefore, it is possible to let the patient go home on the same day and to follow up with outpatient consultations.[26] In outpatient endonasal surgery, bleeding or hematomas usually occur between the third and fourth postoperative day, regardless of the type of procedure.[1]

Conversion to conventional hospitalization:

The selection of a good patient profile for outpatient care is necessary to reduce the risk of acute complications at home. To this end, Briner et al. have conducted an international multicentre study in Rhinology in 2021 to propose a score to select patients suitable for outpatient care. This score takes into account socioeconomic factors and the patient's medical history.[23] According to Morag Tolvi in Finland in 2021, conversion or transition to inpatient mode is not a function of the type of anesthesia.[27] It is rather due to the immediate postoperative risks of each type of operation. In France, the rate of reconversion to conventional hospitalisation was 2.5% in otological surgery[20] and 2.9% in Rhinology,[28] much lower than that found in our series. In outpatient nasosinus surgery, the specific risks of bleeding, orbital and/or neuro-meningeal problems must be clearly mentioned to the patient. Their occurrence may contraindicate the return home. On the other hand, the presence of a uni- or bilateral postoperative nasal packing does not contraindicate an outpatient treatment. The very specific risk of bleeding from the nasal-sinsusal organ must be evaluated on a case by case basis, as it represents a major constraint for this type of management for a significant number of patients.[24] The current study the risk of bleeding motivated a reconversion in only 3 patients. This can be explained by the absence of major intervention in our series. Pain was the most frequent reason and was found especially after tonsillectomy. Indeed, the two most frequent complications of tonsillectomy are pain and bleeding.[13] Its management begins intraoperatively with the administration of analgesics and anti-inflammatory drugs during general anesthesia. More recently, the French Society of Anesthesia and Intensive Care has shown that multimodal analgesia is widely used and effective since postoperative patients present less pain with less opiate consumption.[29] Particularly in case of tonsillectomy, odynophagia can delay feeding in the operated child. This has been a reason for hospital retention and involved 8 in the current sample. Hyperthermia was a frequent reason for reconversion to hospitalization (9 patients). This fever is related to the climate and regresses after administration of antipyretics. In some cases, the fever revealed a genuine malaria attack requiring special management with anti-malarial drugs. The type and duration of anaesthesia are also incriminated as a factor favoring the occurrence of postoperative fever.[30] When the fever is of infectious origin, its manifestation is later. In this case, the management of the fever will be curative antibiotic therapy. In the present study, there were only two cases of vomiting that required conversion to conventional hospitalization. According to Morag et al., this is a frequent reason for recourse to conventional hospitalization.[27] In order to improve patient satisfaction, it is important to identify cases of nausea and vomiting for early management.[31] There have been no reported cases of death directly attributable to the ambulatory mode of management.[32]

Conclusion

Ambulatory care is a mode of surgical management used in ENT at Military Teaching Hospital (MTH) of Cotonou,

particularly for children over 3 years of age. This mode of management was mainly used for pharyngeal surgery, in particular tonsillectomy and adenoidectomy in children. The main contraindications to patient eligibility were geographical and financial accessibility and communication difficulties. The introduction of universal health insurance and the concept of a hospital hotel could be approaches to a solution. The improvement of these different factors will undoubtedly contribute to the development of ambulatory surgery in our country. In this period of shortage of beds and human resources due to the pandemic in COVID, this mode of care is a solution that should be used whenever medical indications and safety requirements allow it. Conversion to inpatient care was secondary to pain, hyperthermia, asthenia, risk of bleeding, nausea and vomiting. This activity would benefit from being better structured with specific personnel and premises.

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