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Evaluation of the Management of Chronic Rhinosinusitis at the National University Hospital Center of Fann 5-Year Review

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Abstract

Introduction: Chronic rhinosinusitis (CRS) is a persistent inflammation of the sinus cavities lasting more than 12 weeks. It is a frequent reason for consultation in ENT (Ear, Nose, and Throat) and a significant public health problem. It considerably impairs quality of life and requires a rigorous diagnostic and therapeutic approach. In a context where African data remain limited, evaluating local management practices appears essential for improving healthcare. The objective of this study was to analyze the management of CRS at the Fann National University Hospital Center. **Methodology:** A retrospective descriptive study was conducted, including all patients treated for CRS between January 1, 2020, and December 31, 2024. The variables studied included sociodemographic characteristics, medical history, clinical manifestations, paraclinical data, treatment modalities, and outcome. **Results:** 54 cases of chronic rhinosinusitis (CRS) were identified over five years, with a male predominance (57.4%) and a mean age of 29 years. Atopy was the main risk factor (24.1%). The predominant symptoms were nasal obstruction (77.8%) and rhinorrhea (70.4%). Computed tomography (CT) scans were performed in all patients, revealing pansinusitis in 53.7% of cases. The most frequently used treatments were antibiotics (85.2%), nasal irrigation (83.3%), and topical corticosteroids (72.2%). Functional endoscopic sinus surgery (FESS) was the standard procedure, with a mid-meatotomy in 87.7% of cases. The outcome was favorable in 96.3% of patients. **Conclusion:** This study highlights the significant prevalence of chronic rhinosinusitis (CRS) and the effectiveness of the medical and surgical management implemented at the Fann University Hospital, while also emphasizing the need to strengthen diagnostic and therapeutic capabilities.

Keywords

Chronic Rhinosinusitis, FESS, Sinus CT Scan, Management

1. Introduction

Chronic rhinosinusitis (CRS) is defined by persistent symptoms lasting ≥12 weeks associated with objective signs of sinus inflammation (endoscopy, imaging). Modern classification distinguishes between CRS with nasal polyps (CRSwNP) and without polyps (CRSsNP), and EPOS2020 also recommends a classification into primary vs. secondary CRS and according to distribution (localized vs. diffuse) to guide management. This classification facilitates the identification of phenotypes (type-2 vs. non-type-2) and guides therapeutic options [1].

Estimates of the prevalence of chronic rhinosinusitis (CRS) vary by region but especially by the methodology used. In Europe, a large multicenter study, GA^{2}LEN (applying the EPOS criteria), estimated a prevalence of approximately 10.9% in adults aged 15 - 75 years according to the symptomatic criteria used in the study [2]. In the United States, estimates vary depending on the methodological source: analyses of national surveys reported that approximately 2.1% of adults met at least two cardinal symptoms consistent with a possible diagnosis of chronic rhinosinusitis (CRS) at some point (strict symptomatic estimate), while epidemiological reviews and syntheses suggest wider ranges (typically between 2% and 5% in epidemiological studies, depending on the criteria used) [3]. In Africa, population-based data are much more limited and heterogeneous. Hospital series and local studies report highly variable prevalence rates. These differences are mainly explained by the variability of diagnostic criteria (symptomatic vs. objective), the type of study (population-based survey vs. hospital-based series), and the scarcity of large-scale population studies. Chronic rhinosinusitis is therefore a common upper respiratory tract condition. Its etiopathogenesis is multifactorial, involving infectious, allergic, anatomical, immunological, and environmental factors [4]. Diagnosis relies on a combination of clinical data, nasal endoscopy, and imaging, particularly sinus computed tomography (CT scan). Treatment most often combines medical management (local or systemic corticosteroids, nasal irrigation, antibiotic therapy) and, if this fails, functional endoscopic sinus surgery (FESS) [5].

Our study aims to provide updated data on the management of chronic rhinosinusitis at the Fann University Hospital Center (CHNU) in Senegal.

2. Methodology

All patients treated for chronic sinusitis, defined as persistent symptoms lasting more than 12 weeks and associated with endoscopic and/or radiological abnormalities, were included. Patients with isolated acute sinusitis, fungal sinusitis, sinusitis secondary to a malignant tumor, or with incomplete medical records were excluded from the study. The mean duration and extent of follow-up were 39

months and 17 days.

Information collected via a Google Forms electronic form included sociodemographic data, medical history, symptoms, physical signs, paraclinical findings, treatment, and outcome.

3. Results

3.1. Epidemiological Data

The mean age of the patients was 29 years, with a range from 5 to 70 years. There was a male predominance (57.41% men versus 42.59% women). The male-to-female ratio was 1.3.

3.2. Clinical Data

Regarding risk factors, atopy was found in 24.1% of cases (n = 13), followed by asthma in 7.4% (n = 4). 7.4% (n = 4) of patients had a history of endonasal surgery (Figure 1).

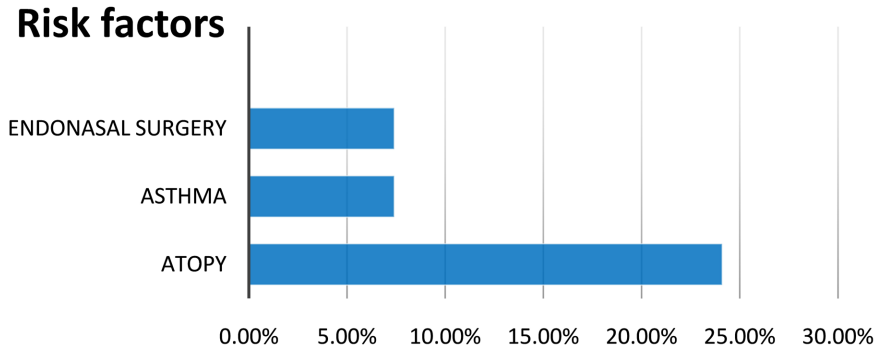

Figure 1. Distribution of patients according to risk factor.

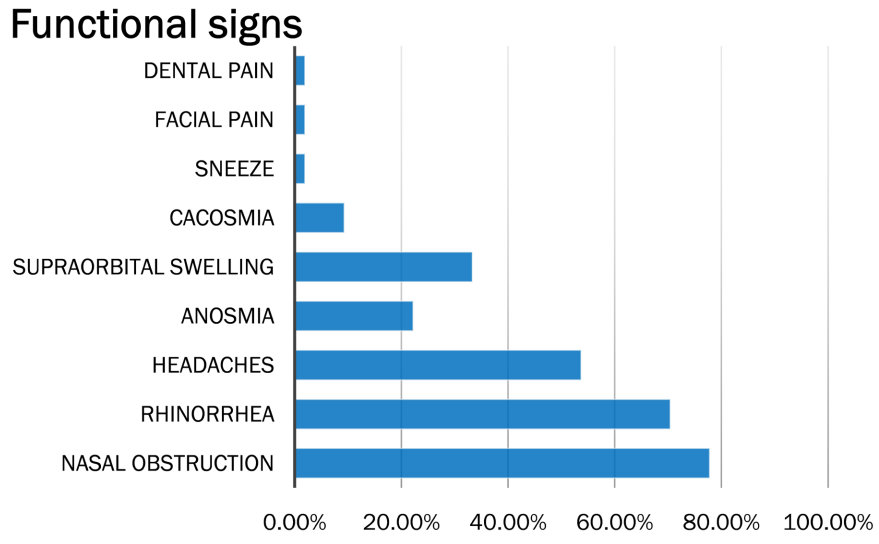

Figure 2. Distribution of patients according to functional signs.

The main symptoms were nasal obstruction (77.8%), rhinorrhea (70.4%), head-

aches (53.7%), anosmia (22.2%), periorbital swelling (33.3%), epistaxis (11.1%), cacosmia (9.3%), and, less frequently, sneezing, facial pain, and dental pain (1.9% each) (Figure 2).

3.3. Radiological Data

Paraclinical investigations included sinus CT scans in all patients (100%), while MRI was requested in only 1.9% of cases.

Topographically, pansinusitis, meaning involvement of all facial sinuses, was the most common finding in our series (53.7%, n = 29), followed by ethmoid-maxillary sinusitis (18.5%, n = 10) and maxillary sinusitis (14.8%, n = 8). Sphenoid-ethmoidal sinusitis was found in 5.5% (n = 3), while sphenoid and ethmoid sinus involvement were rare (3.7% each, n = 2) (Figure 3).

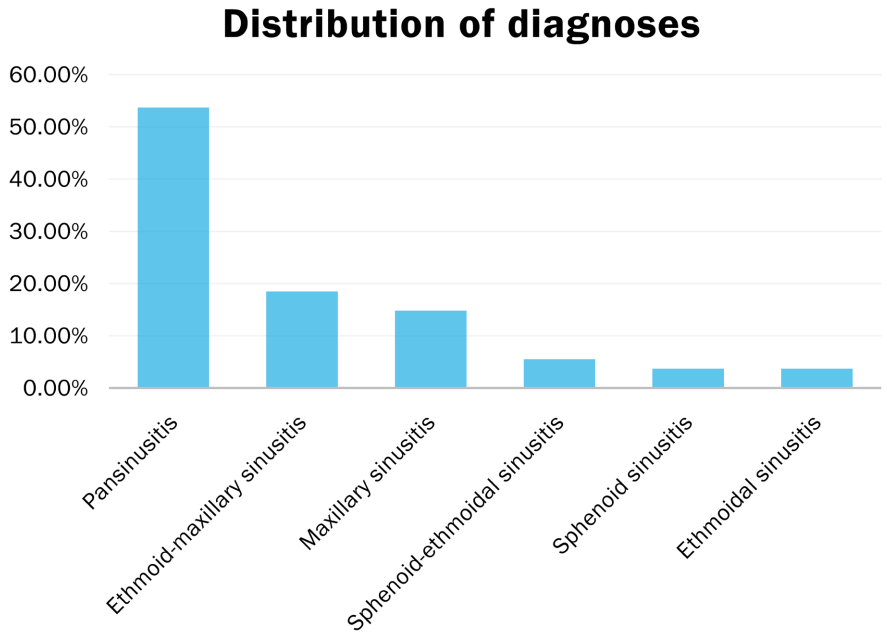

Figure 3. Distribution of patients according to the topography of sinus involvement.

3.4. Therapeutic Data

Of the 54 patients, antibiotic therapy was used in 85.2% of cases (n = 46), nasal irrigation in 83.3% (n = 45), and topical corticosteroid therapy in 72.2% (n = 39). Systemic corticosteroid therapy was administered to 33.3% of patients (n = 18). In addition, 37% of patients (n = 20) received antihistamine treatment and 11.1% (n = 6) received analgesic treatment (Figure 4).

Five patients received exclusive medical treatment. Three of them had a favorable outcome, allowing them to be discharged from the hospital; however, two patients were transferred to the neurosurgery department for specialized management of intracranial complications such as cerebral abscesses, present upon admission and confirmed by radiological examination.

From a surgical standpoint, 91% of patients (n = 49) underwent functional en-

doscopic sinus surgery (FESS). Middle meatal antrostomy was the most frequently performed surgical procedure, in 87.7% of cases (n = 43), and was combined with external frontal sinus trephination in 12.2% of cases (n = 6). Functional endoscopic sinus surgery resulted in improved quality of life for 79.6% of patients (n = 39), while 20.4% of patients (n = 10) experienced a recurrence.

No immediate or late postoperative complications were recorded in our series.

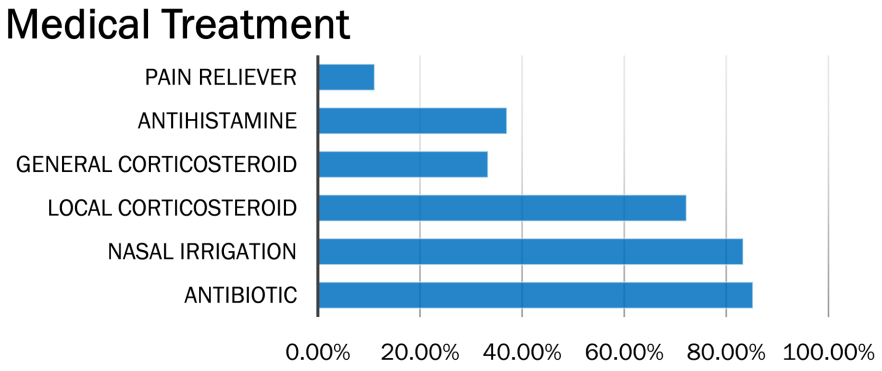

Figure 4. Distribution of patients according to therapeutic data.

4. Discussion

Chronic rhinosinusitis is a multifactorial condition whose management remains complex. Treatment most often relies on a graded approach combining medical management and, in case of failure, functional endoscopic sinus surgery (FESS).

In our series of 54 patients with chronic rhinosinusitis, the mean age was 29 years (range 5 - 70 years), with a slight male predominance (57.4%, M/F ratio = 1.3). This age and sex profile is broadly comparable to the data reported by an African study conducted at the Gabriel Touré University Hospital (Bamako, Mali), in which the authors found a mean age of 30.9 years (range 8 - 69 years) and a sex ratio of 1.1 [6]. Thus, our results support the idea that CRS predominantly affects young adults in our sub-Saharan context, with a slight male predominance, which could reflect similar demographic, environmental, or consultation characteristics in this population.

Clinically, the main symptoms in our patients—nasal obstruction (77.8%), rhinorrhea (70.4%), headaches (53.7%), and anosmia (22.2%)—are consistent with the usual clinical definition of CRS (nasal obstruction, runny nose, facial pain/headache, and olfactory disturbances) [7].

The systematic use of sinus CT imaging in 100% of patients is justified: several authors recommend performing a CT scan of the facial bones with axial and coronal slices in cases of CRS to accurately characterize the anatomical extent of the disease [8].

Topographically, the predominance of pansinusitis (53.7%) in our series aligns with observations from other teams, often illustrating the diffuse nature of the disease in chronic forms [9].

Regarding therapeutic management, the majority of patients received medical

treatment combining antibiotics, nasal irrigation, topical ± systemic corticosteroids, and antihistamines depending on the patient's atopic predisposition. This protocol is consistent with current recommendations for managing chronic sinus retinopathy (CSR) before or after surgery, including regular nasal irrigation, topical corticosteroids, and possibly a short course of oral corticosteroids if needed [7].

In our series, 91% of patients underwent functional endoscopic sinus surgery (FESS), with middle meatal antrostomy being the most frequently performed procedure. This high proportion of surgical indications reflects a marked therapeutic orientation towards minimally invasive treatment after failure or insufficient response to medical therapy, and is consistent with the practice reported in many tertiary centers where FESS is the procedure of choice for refractory CSFs to optimized medical measures. Recent reviews confirm that FESS is the standard intervention for patients who do not respond to medical treatment, with a significant improvement in quality-of-life scores after surgery [10].

The quality-of-life improvement rate observed in our study (79.6%) is consistent with data from the international literature. Indeed, several studies report success rates (improvement in symptoms and quality of life) ranging from 76% to 97.5% after FESS [11]. A recent systematic review and meta-analysis showed a significant improvement in post-FESS quality of life ($p < 0.001$), with recurrence rates varying across studies, sometimes low (~6%), but with significant heterogeneity between studies [10].

In the longer term, a cohort that followed patients for approximately 11 years after FESS showed that the improvement in quality of life persists, with a reintervention (revision surgery) rate of approximately 17% [12]. In patients with nasal polyposis, surgical revision was more frequent (25%). These results confirm the long-term sustainability of the benefits of surgery, while highlighting the significant risk of reoperation, particularly in severe cases.

The recurrence rate observed in our series was 20.4%. This recurrence was clinically characterized by a return of the initial symptoms and confirmed by a follow-up CT scan. It was observed on average 16 months and 7 days after surgery. This result is comparable to many contemporary series (reported rates vary: from low (~6%) to relatively high depending on the study, due to methodological heterogeneity). Several studies identify risk factors for recurrence: nasal polyposis, asthma, atopy, aspirin intolerance (Samter's triad), initial severity (pansinusitis), repeated infections, non-adherence to postoperative treatment (topical corticosteroids, lavage), and technical factors (insufficient extent of surgical debridement) [11]. In our series, 24.1% of patients had atopic predisposition and 7.4% had associated asthma; these comorbidities may predict a higher risk of long-term recurrence. Other authors emphasize the importance of adherence to postoperative treatment (irrigations, topical corticosteroids), as well as the quality of the surgery (extent of sinus opening, complete sinus drainage) to improve lasting results [13].

In our series, intracranial complications in 2 patients were present upon admission, suggesting a pre-hospital diagnostic delay rather than a complication related

to ENT management.

The good tolerance without postoperative complications recorded in our cohort is encouraging, although the sample size is a limitation, and this is comparable to the safety data usually reported (low rate of major complications when surgery is performed by experienced surgeons) [14].

5. Conclusion

In summary, our study provides important data on the management of chronic rhinosinusitis (CRS) in Senegal: young age, male predominance, frequent pansinusitis, widespread use of endoscopic sphincterotomy (ESWL), high success rate, but with a notable recurrence rate. These results are generally consistent with international literature and support the effectiveness of medical and surgical management. However, the variability in prognoses argues for careful monitoring and individualization of treatment strategies, and even the development of appropriate local guidelines.

6. Limitations and Reflections of the Study

Few recent studies published in sub-Saharan Africa describe the medical and surgical management of CRS over several years. The study from the Gabriel Touré University Hospital (Mali) was one of the few available series, but it included 70 cases (acute and chronic) and described a lower proportion of surgical procedures (58.6%) [6].

In this context, our series (54 cases, 91% operated on) illustrates the growing interest in and feasibility of FESS in an African tertiary care center. Furthermore, the similar age and clinical profile suggest a homogeneity of the epidemiological characteristics of CRS in the West African region.

The good tolerance without postoperative complications recorded in our series is encouraging and comparable to the safety data usually reported (low rate of major complications when surgery is performed by experienced surgeons) [14].

Our results confirm that, in an African context like Dakar, combined management—optimizing medical treatment and using endoscopic surgery—is effective and appropriate for the majority of patients with chronic rhinosinusitis (CRS), including those with extensive pansinusitis. However, the significant recurrence rate (20.4%) underscores the importance of rigorous postoperative follow-up and good adherence to treatment (nasal irrigation, topical corticosteroids).

In the future, prospective studies, ideally multicenter and conducted in the region, with long-term follow-up and standardized assessment tools (quality of life scores, postoperative endoscopy, clear recurrence criteria), would be very useful to better define the determinants of success or failure and to adapt treatment protocols to local realities.

Conflicts of Interest

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

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