

RHINOSINUSITIS IN ADULT PATIENTS: ANALYSIS OF CLINICAL PATTERN AND OUTCOME OF MANAGEMENT

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ABSTRACT

BACKGROUND:

Rhinosinusitis is among the commonest rhinologic disorders seen in most otolaryngology clinics worldwide. This study evaluates the clinical pattern and highlights the outcome of management of rhinosinusitis in adult patients as seen in Port Harcourt, Nigeria.

PATIENTS AND METHODS:

All new patients with the clinical diagnosis of rhinosinusitis in both the University of Port Harcourt Teaching Hospital and Kinx Medical Consultant clinic in Port Harcourt over a two-year period from January 2012 to December 2013 were recruited for this study. Patients' data were documented in a proforma and analyzed for clinical features, radiological findings, complications, treatment modalities and management outcomes. The data was entered into SPSS version 16 computer software and analyzed descriptively.

RESULTS:

There were 264 (17.5%) cases of rhinosinusitis out of a total number of 1522 patients seen over the study period. There were 120 males and 144 females with M:F ratio of 1:1.2. Their ages ranged from 18-90 years with a mean of 39.5 years (SD \pm 10.46 years). The main clinical features were rhinorrhea in 240 (90.9%) patients, followed by nasal obstruction in 180 (68.2%) patients. The duration of symptoms ranged from 1 week to 20 years with 55 (20.8%) cases being acute and 209 cases (79.2%) were chronic. The maxillary sinuses were the commonest sinuses involved with 200 (75.76%) patients being affected. Allergic causes accounted for 198 (75.0%) of cases followed by infective causes (n=66, 25.0%). There were complications in 15 (5.7%) cases with nasal polyps being the commonest complication as observed in 10 (3.8%) cases. Mode of treatment was predominantly medical in 206 (78.0%) cases and surgery was only carried out in 58 (22.0%) cases. Facial paraesthesia and pain (n=15, 5.7%) around the operation sites were the commonest surgical complications encountered while recurrence of disease ranked highest (n=100, 37.9%) in the patients with background allergy.

CONCLUSION:

Allergic chronic rhinosinusitis was the commonest type of rhinosinusitis found among adult patients in our environment. The predominant mode of treatment was conservative medical treatment.

KEY WORDS: Rhinosinusitis, clinical pattern, conservative medical treatment, surgical treatment, complications of rhinosinusitis.

INTRODUCTION

It is common knowledge that rhinosinusitis is one of the most common reasons for an individual seeking medical care in most parts of the World¹. The term, 'sinusitis', is defined as an inflammatory process of the paranasal sinuses, which can be infectious or non-infectious². It refers to a group of disorders characterized by inflammation of the mucoperiosteal lining of the paranasal sinuses. Because this inflammation nearly always involves the nose, it is now generally accepted that 'rhinosinusitis' is a preferred term^{1,2}.

Clinically, the paranasal sinuses have been divided into two groups. The anterior group being the

maxillary, frontal and anterior ethmoidal sinuses which open into the middle meatus; while the posterior group consists of the posterior ethmoidal and sphenoidal sinuses which drain into the superior meatus and sphenoidal recess respectively^{2,3}.

Physiologically, the ventilation of the sinuses are paradoxical (they are emptied of air during inspiration, and filled with air during expiration). During inspiration, the air current causes a negative pressure in the nose about 6mm to 200mm of water, which empties the sinuses of air, while on expiration, a positive pressure is created in the nose and this sets up eddies which ventilate the sinuses.

The mucus secreted in the paranasal sinuses travel to the ostium in a spiral manner. The cilia are active, and propel mucus into the meatuses where it is carried to the pharynx along the respective pharyngeal gutter which is spread over the posterior pharyngeal wall to finally be swallowed⁴.

There are various predisposing factors to rhinosinusitis, which may be host-related or due to environmental factors. Host factors may be genetic such as Kartegener's syndrome and cystic fibrosis, anatomic deformities such as septal spur, paradoxical turbinate, systemic diseases, or allergies predisposing an individual to infections⁵. Rhinosinusitis can be categorized into allergic, infective or non-allergic non infective groups^{1, 2}. Some clinicians consider patients with symptoms less than eight weeks as acute rhinosinusitis and those with symptoms lasting greater than eight weeks to have chronic rhinosinusitis⁵.

The pathophysiology of acute bacterial rhinosinusitis has been postulated. Typically, acute rhinosinusitis develops in conjunction with an acute viral upper respiratory tract infection, which may result in mucosal swelling and occlusion or obstruction of the sinus ostia resulting in reduced oxygen tension, reduced mucocilliary transport and transudation of fluid into the sinuses⁶.

The role of allergies in the development of rhinosinusitis has been strongly suggested but not proven.⁷. There is however growing evidence that individuals with allergies have a higher incidence of developing both acute and chronic rhinosinusitis, and that there is an association of acute bacterial rhinosinusitis with asthma. Allergic rhinitis is an immunological nasal response primarily mediated by IgE⁷. The antigen-antibody reaction results in the release of histamine and other mediators of inflammation. These mediators cause changes in vascular permeability, destabilization of lysosomal membranes, and other reactions that produce inflammation which results in mucosal swelling and ostia obstruction⁷. These patients present with nasal congestion, rhinorrhea, sneezing and itching after exposure to the antigen⁷.

Rhinosinusitis can be diagnosed by clinical features, and confirmed by radiological investigations. Two major symptoms or one major with two minor symptoms may be required. These major symptoms include; facial pain/pressure, facial

congestion/fullness, nasal obstruction/blockage, nasal discharge/ purulent or discolored post nasal drips, hyposmia/anosmia, purulence on nasal exam, fever (in acute cases). The minor symptoms include; headaches, fever (in non-acute cases), halitosis, fatigue, dental pain, cough, ear pain/pressure/fullness^{1,5,6,7, 8}. Early diagnosis and appropriate treatment often lead to good outcome, however, late presentation and disease progression is associated with complications⁸.

There is paucity of recent information on rhinosinusitis in our setting. Thus, we decided to carry out this study to evaluate the clinical pattern and highlight the outcome of management in adult patients as seen in Port Harcourt, Nigeria.

MATERIALS AND METHODS

The study was carried out on all adult patients with clinical features suggestive of rhinosinusitis who presented to the University of Port Harcourt Teaching Hospital and Kinx Medical Consultant clinic in Port Harcourt over a 2 year period from January 2012 to December 2013. Symptoms less than lasting less than eight weeks were grouped as acute rhinosinusitis, while those lasting up to eight weeks or more were categorized as chronic rhinosinusitis.

The patients were evaluated, the symptoms and duration were recorded and complications were noted. All patients were asked to do plain radiographs of the paranasal sinuses which were reported by consultant radiologists. The diagnosis of each patient was made from clinical evaluation with help of plain radiographs of the paranasal sinuses.

To access outcome of treatment, patients were reviewed every 2 weeks for a period of 3 months. Patients' data were documented in a proforma and analyzed for clinical features, radiological findings, complications, treatment modalities and management outcomes. The data were entered into SPSS version 16 computer software and analyzed descriptively. Categorical data were expressed as percentages, mean, mode and standard deviation. Simple tables were further used to illustrate the data.

RESULTS

There were 264 new cases of rhinosinusitis out of a total number of 1522 patients (17.3%) seen over the study period. There were 120 males and 144 females with M: F ratio of 1:1.2. Their ages ranged from 18-90 years with a mean of 39.5 years (SD \pm 10.46 years) (Table 1). The main clinical symptoms and signs were rhinorrhea in 240 cases (90.9%) followed by nasal obstruction in 180 cases (68.2%) (Table 2). The duration of symptoms ranged from 1 week to 20 years with 55 cases (20.8%) being cases and 209 cases (79.2%) were chronic. Maxillary sinus n=200 (75.76%), ethmoidal sinuses n=76 (28.79%), frontal sinus n=95 (35.98%), sphenoidal sinus n=20 (7.58%) (Figure 1).

Allergic causes accounted for 198 cases (75.0%),

followed by infective causes in 66 cases (25.0%). There were complications in 15 cases (5.7%) with nasal polyps being the commonest complication noticed as it occurred in 10 cases (3.79%), pharyngotonsillitis in 2 cases (0.76%), and orbital cellulitis in 3 cases (0.01%). Two hundred and forty nine patients had no complications at presentation (Figure 2). Mode of treatment was predominantly medical in 206 (78.03%) cases. We used anti-histamines, antibiotics, haematinics and steroid medications. Surgery was only carried out in 58 (21.97%) cases. Facial paraesthesia and pain around the operation sites were the commonest surgical complications encountered and occurred in 15 cases (5.68%), while recurrence of disease ranked highest in the patients with background allergy with 100 cases (37.88%).

**Table 1: Age range of patients
n=264**

Age range (years)	Number of patients	Percentage (%)
18-28	45	20.8
29-39	75	32.2
40-50	40	18.9
51-61	32	12.3
62-72	25	9.5
73-83	10	3.7
84 AND ABOVE	7	2.6
TOTAL	264	100

Table 2: Clinical features at presentation

Clinical features	Number of patients	Percentage (%)
RHINORRHOEA	240	90.9
NASAL OBSTRUCTION	180	68.2
NASAL ITCHING	157	59.5
FREQUENT SNEEZING	109	41.3
BOUNTS		
POSTNASAL	66	25.0
DRIP/DISCHARGE		
HOARSENESS	26	9.8
ODYNOPHAGIA	10	3.8
ITCHING OF THE EARS	98	37.1
ITCHING OF THE EYES	55	20.8
FACIAL PAIN/HEADACHE	34	12.9

SINUS INVOLVEMENT

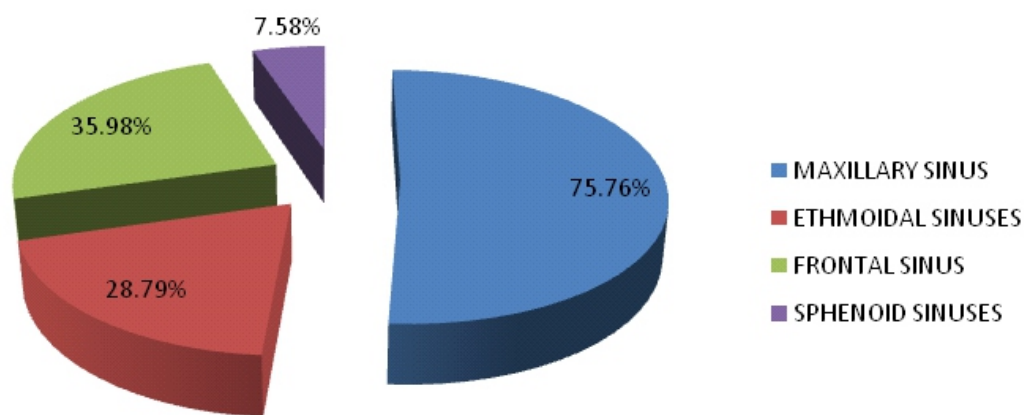


Figure 1: Showing sinus involvement

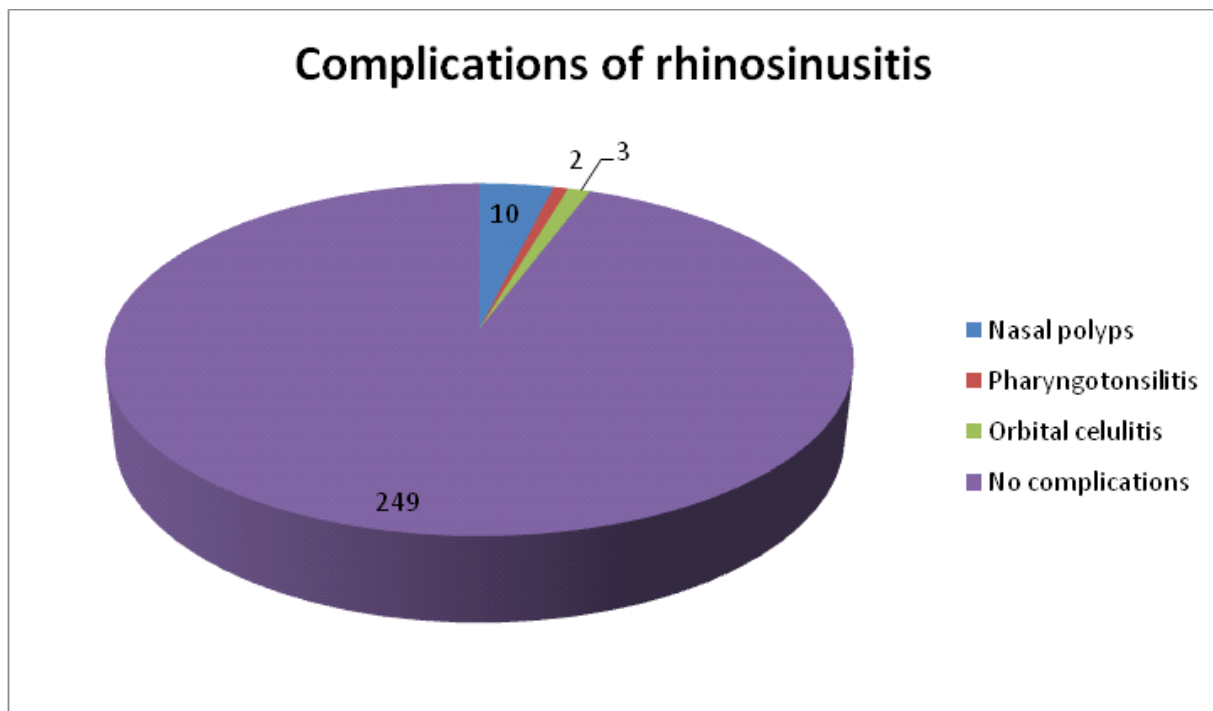


Figure 2: Showing complications at presentation

DISCUSSION

Rhinosinusitis is a common rhinologic disorder seen by otolaryngologists globally. In this study, we had a prevalence of 17.3% which does not differ from the findings of other researchers within our environment⁹. There was no sex predilection which also agrees with the findings of Ogunleye et al in 1999, da Lilly Tariah in 2006 and Kolo in 2012¹⁰⁻¹³. The commonest age group affected in our study was 18-28 years which represents young adults in our population. This finding was similar to the findings of Sogebi and Oyewole in Shagamu and Maduforo et al in Port Harcourt^{8,14}. Young adults less than 40 years form part of a countries active labour force. It could be that the nature of their jobs or the long time they spend outdoors could predispose them more to this disease^{8,14}.

The commonest symptom we encountered in our study was rhinorrhoea followed by nasal obstruction being similar to the findings of Sogebi and Oyewole in Shagamu, Iseh and Makusidi in Sokoto and da Lilly Tariah in Port Harcourt^{8,9,11}.

The duration of patient's symptoms for this study spanned from 1 week to 20 years and majority of them had chronic rhinosinusitis. This agrees with the findings of several researchers as well^{2,4,8,9,11-14}.

However, this finding is not surprising to us since most patients within our region consider rhinorrhoea and blocked nostrils common symptoms from 'catarrh'. Unfortunately, because of this wrong notion most of them tend to present late to hospital after several failed attempts of either self medications at home or poor treatment from quacks.

Rhinosinusitis can affect more than one sinus at a time in which case it is called multi-sinusitis and pan-sinusitis in some cases. The sinuses most commonly affected in this study were the maxillary sinuses. Ogunleye et al in Ibadan reported that majority of the cases they studied involved the maxillary sinuses. Iseh and Makusidi had a similar finding in Sokoto as majority of their cases affected maxillary sinuses, comprising 58.7 % of cases reviewed. Maduforo et al in their study of plain radiographic patterns of chronic sinusitis in Port Harcourt found the maxillary sinuses mostly affected by the disease process^{9,12,13,14}.

The commonest type of rhinosinusitis found in this study was allergic in origin followed by infective cases. This was similar to the finding of Sogebi and Oyewole's work where allergic rhinosinusitis was the commonest finding accounting for majority of

cases followed by infective cases. However, this was different from da Lilly Tariah's work where the infective type ranked highest followed by vasomotor rhinitis with allergic rhinosinusitis being the least in his series. The reason for the difference in the findings could be attributed to our inclusion of all patients with features of rhinosinusitis irrespective of the duration of the symptoms. The study of da Lilly Tariah only considered patients with chronic rhinosinusitis and excluded all those that presented to them with symptoms of less than eight weeks duration.

Nasal polyp was the commonest complication seen in our patients at presentation. This was similar to Sogebi and Oyewole's work but very different from the cases reviewed by Ogunleye et al and Iseh and Makusidi who found majority of their patients with orbital complications^{8,12}.

The predominant mode of treatment in our series was conservative medical treatment using anti-histamines, antibiotics, haematinics and steroid medications. This was similar to the treatment given by several researchers^{8,11,12,13,15} in the past. Only a few of our patients had surgical treatment. Among those patients that had surgery, facial paraesthesia and pain around the operation sites were found to be the commonest surgical complications encountered while recurrence of disease ranked highest in those patients with background allergy. This finding of recurrence of disease was not unexpected since majority of our patients had background allergy which is a well known predisposing factor for recurrence of disease^{1,2,4,8}.

CONCLUSION

Even though, the predominant type of rhinosinusitis may vary depending on the environment, this study found allergic chronic rhinosinusitis to be the commonest type found among adult patients. Meanwhile, conservative medical treatment was mostly used in the management of these patients with good clinical outcome.

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