Comparative and correlative study of computerized tomographic scan findings and intropearative findings in patients with inflammatory sinonasal diseases

Ritesh Nandwani
Department of ENT, JSS Medical College, Mysore

Dr. Sandhya D.
Department of ENT, JSS Medical College, Mysore

Dr. Basavaraj S.
Department of ENT, JSS Medical College, Mysore

Abstract---Inflammatory sinonasal diseases (ISD) refer to a group of disorders characterized by inflammation of the mucosa of the PNS. Acute ISD are defined as sudden in onset and duration less than 3 weeks. Recurrent acute infections are defined as four or more attacks per year lasting greater than 7-10 days. Chronic is defined as duration of symptoms more than 12 weeks Materials and methods: The present prospective study was conducted in the department of ENT JSS medical college and hospital. The study was conducted from a period of Nov 2012 to June 2014. The study included a total of 50 patients with clinically proven inflammatory sinonasal diseases not responding to medical line of treatment. A complete detail about their signs and symptoms was also recorded in a tabulated form. Data was expressed as percentage of the total information and analysis was done using SPSS software. Results: CT is effective in demonstrating predisposing cause of Inflammatory Sinonasal diseases (eg. Anatomical variants) and provides guidance for therapeutic endoscopic instrumentation. CT with its excellent capability for displaying bone and soft tissue is the current diagnostic modality of choice for evaluation of osteomeatal complex. CT scan has to be done, to know sinonasal anatomy and anatomical variations and to plan for FESS.CT scan provides findings which helps in management and acts as Road Map to the surgeons if FESS is indicated.

Keywords---computerized tomographic scan, inflammatory sinonasal diseases, patients.

Introduction

Sinusitis is defined as inflammation of one or more paranasal sinuses. Based on the causative organism it can be bacterial or viral. Viral sinusitis takes around 7-10 days to resolve6 whereas bacterial sinusitis is generally persistent (Piccirillo, 2004). The various bacterial pathogens responsible for causing bacterial sinusitis include haemophilus influenza, streptococcus pneumonia and moraxella catarrhalis (Anon, 2004). In cases of chronic sinusitis there is variation of anaerobic species from 80% to 100% in case of children (Brook, 2000), to only 0 to 25% in case of adults (Rontal, 1999 and Klossek, 1998). Chronic headache is one of the most common symptoms which are distressing to both patients and physicians. Due to the nagging nature of patients and inability of the physician to diagnose and problems of self-medications, nature of headache remains undiagnosed in spite of many elaborated battery of tests. The major symptoms include facial pressure or pain, nasal obstruction, discharge or purulence, and hyposmia or anosmia. The minor symptoms include fever, halitosis, fatigue, and dental pain. Microorganisms play a significant role in the persistence and origination of the inflammatory process, although the exact role of these organisms in the pathogenesis of inflammatory sino nasal diseases is unclear. The diagnosis relies on clinical judgment based on a number of subjective symptoms and few findings in physical examination. Surgical clearance of these chronically infected sinuses while maintaining their ventilation and drainage is the treatment of choice. To achieve this goal there should be some diagnostic modality which guide as towards exact diagnosis and safe intervention. Over the past decade, both CT and nasal endoscopy have been used successfully as diagnostic modalityin sinus disease. The aim of the present study is to determine the most commonly associated clinical features of sinusitis.

Materials and Methods

The present prospective study was conducted in the department of ENT JSS medical college and hospital. The study was conducted from a period of Nov 2012 to June 2014. The study included a total of 50 patients with clinically proven inflammatory sinonasal diseases not responding to medical line of treatment. Both males and females aged between 18- 60 years were included in the study. Patients with acute attack of ISD, malignancies, any previous paranasal surgery or granulomatous disease of nose and paranasal sinus were excluded from the study. All the subjects were informed about the study and a written consent was obtained from all. The study was approved by the institutional ethical board. A detailed history and demographic details of all the subjects was obtained and a complete blood analysis of all the patients was performed. It included estimation of haemoglobin method, total and differential leukocyte count, platelet count and bleeding and clotting time. All the patients were prescribed a suitable course of antibiotics, nasal decongestants and anti histaminics. A complete detail about their signs and symptoms was also recorded in a tabulated form. Data was expressed as percentage of the total information and analysis was done using SPSS software.

Results

The present study enrolled 50 subjects, out of these there were 21 females and 29 males. Middle meatalantrostomy, infundibulectomy along with anterior ethmoidectomy done in all the cases while septoplasty, posterior ethmoidectomy and spenoidectomywas done in some cases. 56% were diagnosed as with chronic sinusitis, 30% with ethmoid polyposis and 14% with antrochonal polyp in this study.

Diagnosis	No. of the patients	Percentage
Chronic sinusitis	28	56
Sinonasal polyposis		
Ethmoidal polyp	15	30
Antrochonal polyp	7	14
Total	50	100

The various parameters were correlated in our study were inferior meatus, inferior turbinate, middle maetus, middle turbinate, infundibulum, uncinate process, maxillary sinus, hiatus semilunaris, bulla ethmoidalis, anterior ethmoids, posterior ethmoids, sphenoethmoid recess and frontal recess. The sensitivity and specificity of CT as compared to OT were calculated for each parameter. CT showed highest sensitivity for anterior ethmoid, posterior ethmoids, uncinate process, sphenoethmoid recess, inferior turbinate was 92 %, 95%, 94.5%, 96 % and 94% respectively. CT was found less sensitive for parameter like infundibulum, maxillary sinus, and middle meatus. The values were 76.5 %, 73%, 88% respectively

The specificity of CT was found to be best for posterior ethmoid, hiatus semilunaris, sphenoethmoid recess, uncinate process, frontal recess, inferior turbinate. The values were 97 %, 89 %, 95 %, 93.5 %, 89.5% and 88.5% respectively. CT was relatively less sensitive for anterior ethmoid, infundibulum, bulla ethmoidalisad maxillary sinus. The values were 86%, 85 %, 71%, 66%.

Discussion

CT is effective in demonstrating predisposing cause of Inflammatory Sinonasal diseases (eg. Anatomical variants) and provides guidance for therapeutic endoscopic instrumentation. CT with its excellent capability for displaying bone and soft tissue is the current diagnostic modality of choice for evaluation of osteomeatal complex.

Conclusion

In the overall assessment, following conclusions can be drawn: Chronic sinusitis was the common malady. Majority of the patients were in the third decade with male predominance. Commonest symptoms were nasal obstruction and headache along with nasal discharge. Middle meatus discharge, an edematous mucosa and polyps were the commonest signs encountered. Maxillary sinus was most frequently diseased sinus in our study. Anatomical variants were very well

recognized on CT scan. Nasal endoscopy can prove to be a better diagnostic modality compared to CT scan when conditions like middle meatal secretions, condition of mucosa, polyps were looked for. The evaluation ISD should be done after maximum medical therapy. Conventional Skiagrams have no role in evaluation. The study stresses that in all patients with Inflammatory sinonasal diseases, CT scan has to be done, to know sino nasal anatomy and anatomical variations and to plan for FESS.CT scan provides findings which helps in management and acts as Road Map to the surgeons if FESS is indicated.

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