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WARM-E-TAJAWEEF ANAF (SINUSITIS): A CONTEMPORARY REVIEW

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ABSTRACT

Sinusitis, more appropriately called as rhinosinusitis, is characterized by inflammation of the nasal mucosa and paranasal sinuses. Chronic Rhinosinusitis (CRS) is one of the more prevalent chronic illnesses worldwide, affecting individuals of all ages. On epidemiological grounds, some association has been found between CRS prevalence and air pollution, active cigarette smoking, second hand smoke exposure, perennial allergic rhinitis and gastroesophageal reflux. In Unani literature, sinusitis is not described as such but when we go through the definitions of Nazla wa Zukam these seem to be quite similar to the clinical features of sinusitis. Most of the Unani physicians say that the phlegm or the morbid material dripping into the throat from the brain is known as Nazla and to the nose is known as Zukam. Several Unani physicians have described Nazla in lieu of the signs and symptoms of Warm Tajaweef-e-Anaf (sinusitis), with its type haad and muzmin. In the paper, an attempt has been made to present the review of sinusitis in context of Unani literature and Western Medicine.

INTRODUCTION

Sinusitis, more appropriately called as rhinosinusitis, is characterized by inflammation of the nasal mucosa and paranasal sinuses.[1] Inflammation can be restricted to a single sinus or can be present in several (multisinusitis or pansinusitis) and can be unilateral or bilateral.[2]

Chronic Rhinosinusitis (CRS) is defined as more than 12 weeks of symptoms without complete resolution of symptoms and can be subdivided into chronic sinusitis with nasal polyp and without nasal polyp.[3] It is a specific clinical symptom complex. The nasal and sinus lining is dependent on optimal humidity and ventilation and is sensitive to environmental temperature changes and irritant exposures, chronic rhinosinusitis can result when there is a breakdown among these required factors.[2]

Rhinosinusitis is one of the more prevalent chronic illnesses worldwide, affecting individuals of all ages[4]. Recent data have demonstrated that CRS affects approximately 5-15% of the general population. The prevalence of doctor diagnosed CRS was found to be 2-4%[6]. On epidemiological grounds, some association has been found between CRS prevalence and air pollution, active cigarette smoking, second hand smoke exposure, perennial allergic rhinitis and gastroesophageal reflux[5]. Many patients report higher impacts of CRS on Quality of Life dimensions like bodily pain or social functioning compared with other diseases like angina pectoris, pulmonary emphysema or chronic bronchitis.[6]

In Unani literature, sinusitis is not described as such but when we go through the definitions of Nazla wa Zukam these seem to be quite similar to the clinical features of sinusitis. Most of the Unani physicians say that the phlegm or the morbid material dripping into the throat from the brain is known as Nazla and to the nose is known as Zukam.[7, 8, 9, 10, 11, 12]

Hakeem Kabeeruddin has quoted Buqrat's definition in his book Tarjuma e Kabeer "Zukam is the Nazla of nasal mucosa while Nazla itself is the inflammation of mucosa in which there is excessive production of mucous"[13]. Several Unani physicians have described Nazla in lieu of the signs and symptoms of Warm Tajaweef-e-Anaf (sinusitis), with its types haad and muzmin.[14]

Historical Aspect

Shaikhurrais Abu Ali Ibn Sina was view of that hot temperament people are much more prone to develop Nazla due to variation in environmental conditions and other extrinsic factors in comparison to the cold temperament people, who are more likely to develop Nazla due to intrinsic changes inside the body. According to him some extrinsic factors may also produce local change in temperament of nasal cavity (nasal irritants like pollens, cotton, fur, feathers dust, grit and soil of different temperament from other countries). He has also stated that when the

cause lies inside the body and Nazla is not due to the effect of extrinsic factors, then the phlegmatic population is more prone to develop the disease.[7, 9, 15]

Ibn Sina also stated that weak digestive power of stomach and intestine may also lead to the same changes which occur in case of changing temperamental and geographical extrinsic factors.[9]

Aboobakar Mohammad Bin Zakariya Razi had also put stress on extrinsic factors after Ibn Sina in Kitab-ul-Mansoori and stated in the text of Hammam, that if the head remains uncovered just after completion of exercise and Hammam it may cause irritation in nose and may also leads to sneezing, for this very reason, he prescribed khurfa to attain sukhoonat.[16]

Paranasal sinuses were first identified inside the bones of the skull by ancient Egyptians. Medical writings dating back from 3700 to 1500 BC provide evidence that Egyptians were familiar with the structure of the maxillary bones, which means that they might also have been aware of the maxillary sinuses.[17,18]

One of the greatest figure of Italian renaissance Leonardo De Vinci was the first to prepare detailed anatomical drawings of paranasal sinuses which is still considered to be accurate till date. These drawings became accessible to the scientific community only as late as 1901 in Milan. He studied maxillary and frontal sinuses after injecting wax and described maxillary sinus as the cavity within the bone that supports the cheek.[18, 19, 20]

The first clear indication of the existence of the paranasal sinuses was provided by Berenger del Carpi, anatomist and surgeon at Bologna in the early 16th century.[21, 22] Spanish physician Sansovino, in 16th century, gave the name “la cloaca del cerebro” to the paranasal sinuses as he thought that the paranasal sinuses are the drainage space for malignant spirits in the brain.[17, 20]

In 1600, Fallopius referred to the maxillary sinus and suggested that the sinuses were absent in children until they reached maturity.[21] Following Highmore’s anatomical description of the sinus, Antonio Mollinetti in 1675 incised and trephined the maxillary sinus rather than going through the tooth socket.[19]

In 1660, Schneider, in the city of Wittenberg Germany, was one of the first to imagine that the mucus present in the paranasal sinuses was not a product of the brain, but rather it came from the very paranasal structures.[20] For the first time the method of opening maxillary sinus through alveola, preceded by tooth extraction, was described by William Cowper in the book of James Drake “Antropologia Nova”. He advocated regular sinus washouts following trephination in 1717.[21, 19, 20, 22]

In 1743, Louis Lamorier described external approach to the infected maxillary sinus and presented his technique at the Royal Academy meeting in Paris. He only published descriptions of his work in 1768. Lamorier's method of opening the maxillary sinus through the tooth socket remained the standard procedure for a long time.[19, 20] Jourdainin in 1765 and Bordenave in 1768 promoted Lamorier's technique respectively.[22]

In1771, in his work "Treatise on the Natural History of Human Teeth" John Hunter published the method of antrum penetration from the nasal site. Jaques Lois Deschamps suggested in his work (published in 1804) the maxillary sinus drainage by extraction of a painful tooth, with extension of the opening to the extent of a finger size.[22]

Zuckerkandl in 1882 and Onodi in 1902 along with Siebenmann and Killian in 1900 advocated middle meatal antrostomy but did not practiced due to poor visualization and fear of orbital complications. Working on the infected maxillary sinus, Johan von Mikulicz-Radecki and Herman Krause invented in 1886 and 1887 a fairly thick trocar for antrum puncture through the middle meatus.[19, 20, 22]

A new radical operation of the maxillary sinus was introduced by three authors quiet independently; George Walter Caldwell from New York published this method in 1893, Robert Henry Scanes Spicer from London published it in 1894, while Henry Paul Luc from Paris, not knowing for two previous authors, published his work in 1897.[19, 20, 22]The technique was composed of opening maxillary sinus through fossa canina because of revision and removal of complete sinus mucosa and making of intranasal antrostoma in the lower and middle meatus. Today, this procedure is often called Caldwell-Luc's operation. At the beginning of 20th century, this operation was almost the only treatment of the chronic sinusitis. In the twenties of the previous century, the attitude toward Caldwell-Luc's operation was shifted towards more conservative treatment. They noticed that great percentage of patients after this procedure had marked post-operative complaints (anesthesia, parasthesia, pains in form of neuralgias, appearance of scar tissue in area of antrostoma etc.), sometimes even more serious than before the intervention. [22]

In Berlin 1896, Boenninghaus was one of the first European physicians to follow Caldwell's technique; however, he modified it by placing a mucosal flap covering the opening.[19] In 1912, Harvey Cushing started the transsphenoidal approach in neurosurgery.[20]

With better visualization of the nasal cavity Parson-Schaefer in 1912-1923 described intricate anatomy of the lateral wall of the nose and ethmoid sinuses.[19] Surgeries to access the frontal and

ethmoid sinuses were described by Lynch in New Orleans, in 1921.[20] Speilberg in 1922 was the first to introduce an endoscope into the maxillary sinus via the inferior meatus.[21]

Maltz and Wolf in 1925 make a dedicated endoscope and introduced the term sinoscopy.[21]

Harris Mosher from MI, Boston, in 1929 described ethmoid sinuses and their relations to the skull base and orbit. He stated that the operation of intra nasal ethmoidectomy was the "easiest way to kill a patient".[19]

In 1933, Kartagener described a syndrome consisting of bronchiectasis, sinusitis and situs inversus.[21] King in 1935 demonstrated that cilia of in the maxillary sinus drain the mucus towards the natural ostium in spite of a large dependent opening being present in the sinus.[19]

The visualization of the nose and sinuses with the fibre optics and the use of conventional telescopes which contained single lenses inside a solid metal tube were replaced by a splendid invention of solid rod lens by Prof. Hopkins which heralded a new era in the field of Endoscopy in 1954.[19]

On the basis of their researches, Obwegezer and Tschamer (1957) recommended that in Caldwell Luc surgery radical mucosa removal should be limited. Reed who also assumes this attitude thinks that polyploid and inflammatory tissue should be removed.[22]

In the late 20th century, improved understanding of the mucociliary mechanism described by Prof. Messerklinger and Nasal Endoscopy described by Prof. Draf with the development of fibre optics and CT imaging, heralded a new era, which evolved in functional endoscopic sinus surgery.[19]

CT scan developed in 1969 by Geoffrey Hounsfield made it possible to have a detailed analysis of the nasal cavity; especially the lateral wall and the ostiomeatal complex.[20] Mackay et al established the role of allergy in 2/3rd of patients with chronic rhinosinusitis.[21]

In 1983, Katzenstein et al described allergic Aspergillus sinusitis as a newly recognized form of sinusitis.[23] Scott in 1984 showed that the viruses causing sinusitis produce mucus degrading enzymes, neuraminidases, which loosens the mucus and promote rapid virus diffusion through the sol layer of the mucociliary blanket.[21]

Wilson et al in 1985 demonstrated that certain bacteria associated with chronic sinus and bronchial sepsis have been shown to release factors slowing and disrupting cilia and in the case of P.aureginosa these factors have been characterized as the low molecular weight pigment pyocyanin and 1-hydroxyphenazine.[21]

In 1989, Robson et al introduced the term allergic fungal sinusitis (AFS) because they identified a number of fungi thought to cause the same disorder. In 1990, Ence et al identified 5 different

organisms responsible for AFS.[23] Godofsky et al in 1992 stated that sinusitis in HIV infected patients is common, severe and difficult to treat. The majority of HIV infected patients with advanced immunodeficiency develops posterior sinus disease.[21]

The International Conference on Sinus Disease in 1993 proposed the criteria for chronic sinusitis in adults as persistent symptoms and signs for eight weeks or four episodes per year of recurrent acute sinusitis, each lasting at least 10 days, in association with persistent changes on the computed tomography (CT) scan four weeks after medical treatment without intervening acute infection.[24]

The International Consensus Meeting on the Management of Rhinosinusitis in Children held in Brussels in 1996 proposed that two aspects should be taken into account when defining chronic rhinosinusitis: the pathology (infection of the sinus) and the clinical symptoms (low grade symptoms and signs persisting for longer than 12 weeks).[22]

Birdi et al in 1998 concluded in one of his studies that significant change in mucociliary clearance occurs in chronic sinusitis. It is enhanced in the early stages and is significantly slowed down in late stage.[25] Chopra et al in 2006 showed that Functional endoscopic sinus surgery brings about restoration of natural mucociliary clearance mechanism, drainage and aeration of sinuses, and resolution of apparently irreversible polypoidal mucosa without interfering with the normal mucosa of the sinuses.[26]

In the year 2011 Ortiz et al established that immunosuppressed patients may acquire bacterial or fungal rhinosinusitis, while immunocompetent patients have only bacterial rhinosinusitis.[27] Naik and Naik in their study on endoscopic sinus surgery in 2011 found that the orbital complications are the commonest major complications seen in endoscopic endonasal surgeries apart from other minor common complications.[28]

Fadda et al in one of his studies (2012) proved that some anatomical variations of the paranasal sinus can play an important role in the pathogenesis of chronic rhinosinusitis and thus may increase the risk of sinus mucosal disease.[29]

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