



Original Research

Sinusitis, and What is the Reason That Made 70% Or More of the Population of Nasiriyah City Suffer from This Disease, According to A Survey of a Number of Them?

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Abstract:

Sinusitis from common diseases, which afflicts humanities at different ages, more than those who have recovered after providing the treatment of appropriate sinusitis, but few of them show serious complications. Surrounded by many nasal and task in the head, such as brain, eyes, and skull, so that the sinusitis can be prevented from or chronic to cause serious complications within these tissues, especially at Patients with chronic diseases such as diabetes, or weak immune system. These complications may include in rare cases such as meningitis, such as brain, bone and pure inflammation, pulmonary inflammation, surrounding tissue inflammation, blood vessels in the blood vessels. Fortunately, such problems are rare, however, we always remind us that sinusitis is not transient to nose nose, and patients with impairment, undergo greater medical care when treating their sinusitis. However, understanding of these vowels will be one of reducing the emergence of the disease, even if they are subjected to sinusitis, it will be aware of how to heal and reduce the dangers of complications. We will also discuss what is the reason that made a large part of the city of Nasiriyah, who are infected with this disease, and we try to find root solutions to avoid potential danger to some people.

Keywords: Sinusitis, types of sinusitis, treatment, runny nose, nasiriyah city, reconnaissance, Diagnosis, causes

Introduction:

Sinusitis is categorized by inflammation of the lining of the paranasal sinuses. Since the nasal mucosa is instantaneously included and as sinusitis infrequently occurs without concurrent

rhinitis, rhinosinusitis is currently the preferred term for this condition (American Academy of Pediatrics 2001, Lanza DC and Kennedy DW 1997). Numerous classifications, both clinical and

radiological, have been proposed in the literature to define acute sinusitis. Even though no consensus on the precise definition presently exists subacute sinusitis represents a temporal progression of symptoms for 4-12 weeks. Frequent acute

sinusitis is diagnosed when 2-4 episodes of infection happen per year with no less than 8 weeks between episodes and, as in acute sinusitis, the sinus mucosa completely normalizes between attacks. Chronic sinusitis is the perseverance of deceptive symptomatology beyond 12 weeks, with or without acute intensifications (Meltzer EO, Hamilos DL, Hadley JA et al.2004). Acute sinusitis is a clinical finding; along these lines, a comprehension of its presentation is of vital significance in separating this substance from allergic or vasomotor rhinitis and common upper respiratory contaminations. No particular clinical indication or sign is sensitive or particular for acute sinusitis, so the general clinical impression ought to be utilized to guide management. To accurately diagnose and treat contagious disorders of the paranasal sinuses, the clinician must have awareness of the developmental milestones. The improvement of the paranasal sinuses arises in the third week of gestation and remains until early adulthood. The literature has reinforced that chronic sinusitis is quite often joined by simultaneous nasal airway inflammation and is frequently preceded by rhinitis symptoms; as a result, the term chronic rhinosinusitis (CRS) has developed to all the more precisely depict this condition. CRS may manifest as one of the three major clinical syndromes: CRS without nasal polyps, CRS with nasal polyps, or allergic fungal rhinosinusitis. These orders have a lot of remedial importance. Most cases of chronic sinusitis are extensions of unresolved acute sinusitis; nevertheless, chronic sinusitis typically demonstrates inversely from acute sinusitis. Symptoms of chronic sinusitis include nasal stuffiness, postnasal drip, facial fullness, and malaise. Chronic sinusitis can be non-infectious and associated to allergy, cystic fibrosis, gastrointestinal reflux, or exposure to environmental pollutants (Slavin RG, Spector SL,

Bernstein IL et al.2005, American Academy of Pediatrics - Subcommittee on Management of Sinusitis and Committee on Quality Management 2001). Allergic rhinitis, nonallergic rhinitis, anatomic obstruction in the ostiomeatal complex, and immunologic ailments are identified hazard factors for chronic sinusitis. Medical treatment is focused toward controlling predisposing factors, treating concomitant infections, decreasing edema of sinus tissues, and easing the drainage of sinus secretions. The objective in surgical treatment is to re-establish sinus ventilation and to redress mucosal in mind the end goal to re-establish the mucociliary clearance system. Surgery strives to re-establish the functional integrity of the aggravated mucosal lining.

Type of sinusitis:

Sinusitis can be divided according to the duration of the infection or according to the cause of infection. Types of sinusitis include:

Acute sinusitis Symptoms of acute sinusitis usually appear suddenly as a result of a respiratory viral infection or seasonal allergies. Usually its symptoms last for a period ranging between 7-10 days, and they are cured after providing an appropriate medication from the medicines used to treat sinusitis (Adam Felman 2022, Valencia Higuera 2022). However, sometimes acute sinusitis can last for 2-4 weeks. (Adam Felman 2022,). **Sub-acute sinusitis** Sub-acute sinusitis occurs as a result of bacterial infection or allergy, especially if acute sinusitis is not fully treated. Symptoms of subacute sinusitis usually last 1-3 months. (Charles Patrick Davis 2022). **Chronic sinusitis** Chronic sinusitis is defined as sinusitis that lasts for more than three months, and sinusitis can be considered chronic if sinus symptoms recur three or more times a year. (Adam Felman 2022 , Valencia Higuera 2022). The most common cause of chronic sinusitis is a bacterial infection, although it can be caused by chronic allergies and asthma, or the presence of abnormalities in the nose, or nasal polyps (Adam Felman 2022, Valencia Higuera 2022). **Recurrent sinusitis** Recurrent sinusitis occurs as a result of 4 attacks of acute sinusitis per year, each lasting 7 days or

more. (WebMD 2022). **viral sinusitis** Viral sinusitis causes cold-like symptoms, such as a runny nose, sneezing, nasal congestion, and coughing. This type of sinusitis usually goes away on its own within a maximum of 10 days. (Charles Patrick Davis 2022) **Bacterial sinusitis** which is characterized by causing thick green or yellow nasal secretions, in addition to pain and pressure in the face area. Bacterial sinusitis requires treatment with antibiotics and will not go away on its own. (Kathleen Davis 2022) Among the types of bacteria that can be the cause of bacterial sinusitis: Streptococcus pneumoniae is a type of streptococcus bacteria such as Streptococcus pyogenes, Haemophilus influenzae Moraxella catarrhalis (Charles Patrick Davis 2022), **Allergic sinusitis** allergic sinusitis is also known as allergic sinusitis, and its symptoms can occur either suddenly during a specific season of the year or may persist chronically throughout the year, depending on which of the allergens Or irritants caused it to happen. (Kathleen Davis 2022, Kathleen Davis) It is characterized by sneezing, itchy nose, throat, or eyes, and nasal congestion (Kathleen Davis 2022).

Causes of sinusitis:

It is believed that sinusitis is often caused by a bacterial infection. However, what is true is that these bacteria do not usually cause any problems, unless they are trapped in the nose and multiply in the sinus area.

Therefore, blockage of the fine drainage ducts of the sinuses is the main cause of sinusitis, and reopening the drainage passages is the key to treatment. (Charles Patrick Davis 2022, Charles Patrick Davis 2022). It should also be noted that most cases of sinusitis are caused by a viral infection, not a bacterial infection. (Adam Felman 2022).

Factors that increase the risk of sinusitis:

Anyone can develop sinusitis, but certain factors can increase the risk of infection and the development of sinus symptoms. These factors include:

- Deviated nasal septum, also known as

septal deviation.

- Nasal polyps or tumor growth inside the nose.
- The growth of a bony appendage inside the nose.
- Having previously had an allergy to pollen, dust, or other allergens.
- Exposure to mold.
- Weakened immune system, as a result of diseases such as AIDS or as a result of treatment with immunosuppressive drugs.
- Exposure to upper respiratory infections, especially viral colds.
- Tooth infection.
- Use of antihistamines.
- Air dryness;
- Smoking or inhaling narcotics such as cocaine.
- Cystic fibrosis.
- Air travel that may expose a person to a high concentration of germs. (Adam Felman 2022, Charles Patrick Davis 2022, Valencia Higuera 2022).

The cause of sinusitis must be determined, in order to choose the appropriate sinusitis treatment.

As for the risk factors and causes of rhinitis in children, they include:

Use pacifiers.

Drink the bottle while lying on the back.

Having a smoker around the child.

Getting sick from mixing with other children in the nursery or Helpful.

Allergy. (WebMD 2022).

Symptoms:

The symptoms of sinusitis are similar, whether acute or chronic, and whether it is caused by a viral or bacterial infection, but the duration of these symptoms varies depending on the type and cause of inflammation. Common symptoms of

sinusitis include a stuffy or runny nose, and increased and discolored nasal secretions. There are many other symptoms that patients may experience, some of which may vary according to the age of the patient. (Kathleen Davis 2022, Edo Paz 2022, Johns Hopkins Medicine 2022).

Here are the most common symptoms of sinusitis:

Pain in the sinus area, the sinuses are located in different areas of the face, above and below the eyes, and behind and around the nose in the cheeks, and forehead. Therefore, pain from sinusitis can appear in:

- ☒ The eye, and the area around the eye.
- ☒ The area between the eyes.
- ☒ Front.
- ☒ The nose area, especially the sides of the nose.
- ☒ The upper and lower jaw of the teeth.

Some patients can suffer from pain in the face in general, especially when pressed, as a result of inflammation and swelling of the sinuses and the accumulation of mucus in them. The pain may get worse when bending over or exerting effort. (Kathleen Davis 2022 , Mary Ellen Ellis 2022).



Nasal congestion

Swelling of the sinuses causes a feeling of stuffiness and congestion in the nose, which may cause the following sinus symptoms: (Kathleen Davis 2022, Mary Ellen Ellis 2022).

- ❖ Inability to breathe well.
- ❖ Inability to smell and taste well.

- ❖ The voice has changed, so that it sounds like a hoarse voice.

Runny nose

One of the common symptoms of sinusitis is an increase in nasal secretions, which may be green, yellow, or clear, and some patients may notice that it is mixed with blood or has an unpleasant smell.

As a result of increased sinus secretions, patients may experience a runny nose or feel the need to empty and clean their nose several times a day. (Kathleen Davis 2022 , Mary Ellen Ellis 2022)



Posterior nasal drip

Many sinus patients can experience sinus discharge from the nose and into the throat. This drip may cause the following symptoms of sinusitis: (Kathleen Davis 2022, Mary Ellen Ellis 2022)

Feeling of itching or tickling in the back of the throat.

An unpleasant taste in the mouth. Sore throat, especially when postnasal drip persists for a long time. bad breath. increased coughing, especially at night when lying down and after getting up. a change or hoarseness in the voice after waking up.

headache

A sinus headache can be distinguished by other

symptoms of sinusitis accompanying it, as it rarely occurs without experiencing symptoms of congestion, nasal drip, and pain in the face. (Chris Iliades 2022) In addition, sinus headaches often intensify when moving the head, as well as in the morning after awakening; As a result of the accumulation of nasal fluid and mucus in the nasal passages at night. (Mary Ellen Ellis 2022) It should be noted that despite the common belief by many that headache is a common sinus symptom, it is not, especially in cases of frequent headaches or headaches that affect the performance of daily tasks and are accompanied by symptoms, such as nausea and sensitivity to light . (Chris Iliades, 2022) A study published in 2004 indicated that 88% of the 2,991 patients participating in the study thought they were suffering from sinus headaches, when in fact they were suffering from migraines. (Schreiber, C. P., Hutchinson, S., Webster, C. J., Ames, M., Richardson, M. S., & Powers, C. (2004) In addition to the previous sinus symptoms, some patients may also experience: (Edo Paz 2022) Swelling in the face, especially in the eye area. Fever, and often a high temperature in cases of bacterial sinusitis. Fatigue.

Symptoms of sinusitis in children

Here are the most prominent symptoms of sinusitis in children: (Johns Hopkins Medicine 2022) Runny nose and increased secretions, often thick, green or yellow. Recurring coughing at night, and less frequently during the day. swelling around the eye; pain in the ear. Mouth breathing. snoring; Decreased desire to eat. Duration of symptoms of sinusitis Symptoms of viral sinusitis often last for 5-7 days, and may extend to 10 days, with improvement in symptoms. As for the symptoms of bacterial sinusitis, it may last for 10 days or more, and the patient may notice a worsening of symptoms after the fifth or seventh day. (Ada.com 2022) Also, observing how long the symptoms of sinusitis last can be classified into one of the following categories: (Kathleen Davis 2022, Edo Paz 2022)

Acute sinusitis: its symptoms last for a month or less, and it often occurs as a result of a cold or allergies.

Subacute sinusitis: Symptoms persist for 1-3 months.

Chronic sinusitis: its symptoms last for at least 3 months, and may extend for years.

Recurrent sinusitis: its symptoms frequently appear in the form of acute attacks within one year.

Diagnosis of sinusitis

A diagnosis of sinusitis and the cause of its occurrence must be done before a sinus treatment is decided upon. In most cases, the doctor can diagnose sinusitis by asking about the symptoms of the sinuses, and if pressure on the sinuses causes pain, the person is most likely infected with sinusitis. (Valencia Higuera 2022, Adam Felman 2022).

Other tests needed to diagnose sinusitis may include:

- ✓ Computed tomography (CT) scan, as it plays an auxiliary role in the diagnosis if the sinusitis is exceptionally severe, and if the doctor begins to suspect that there are complications for it.
- ✓ Rhinoscopy.
- ✓ Blood tests to look for the presence of other types of infections, such as HIV infection.
- ✓ Taking a biopsy from the nose and cultivating it to find out the cause of sinusitis.
- ✓ Allergy check. (Valencia Higuera 2022, Adam Felman 2022,)

Treatment of sinusitis

Sinusitis is a common health problem that causes many unpleasant symptoms to the patient, the most important of which are headaches and stuffy nose. In most cases, there is no need to treat sinusitis, but a number of home measures and over-the-counter medications are used to relieve symptoms. However, if the symptoms persist for a long period of time or the symptoms are severe, then a doctor should be consulted in order to determine the best treatment for sinusitis that suits the patient's condition. (Rachel Nall 2022, Adam

Felman 2022)

Determining the best treatment for sinusitis depends on the cause of this inflammation and the severity of its symptoms. Often, the goal of treating sinusitis is to get rid of the cause of the inflammation and reduce the inflammation that is causing the blockage of the nasal passages. (Rachel Nall 2022, R. Morgan Griffin 2022)

Ongoing and chronic sinus treatment usually includes several types of medication, as well as a number of home measures that help relieve symptoms. (R. Morgan Griffin 2022)

Here are all the ways to treat sinusitis for children and adults:

Sinusitis home treatment

In many cases, sinusitis can be treated naturally quickly and permanently, without taking antibiotics. A number of home methods are followed that help empty the congested sinuses and reduce symptoms. (Adam Felman 2022).

Here are some useful ways to treat sinusitis at home:

Wash the nose with water and salt.

Use warm water compresses on the face; These compresses help open the sinus passages and reduce swelling in the area.

Use humidifiers in bedrooms to reduce dry air.

drinking large amounts of fluids such as juice and water; The fluids help soften the mucus, making it easier to pass through the sinus passages.

Inhale the steam, by taking a longer shower in a hot shower, or covering the face with a cloth dampened with warm water and inhaling the water vapor emerging from it, or by boiling water in a jug, then pouring it into a pot, and bending over the pot after covering the head with a towel and inhaling the steam.

Sleeping with the head elevated. If the patient has pain on one side only, he must sleep by placing the side of his face that is free of pain on the pillow.

Add a few drops of menthol or

eucalyptus oil to hot water or a washcloth soaked in hot water and inhale it. (R. Morgan Griffin 2022, Charles Patrick Davis 2022

Also, there are a number of over-the-counter medications that can be used to treat sinusitis at home, including pain relievers that are used to relieve sinus headaches, such as acetaminophen and ibuprofen, decongestants, expectorants, and some types of nasal sprays that contain corticosteroids. (Charles Patrick Davis 2022, Adam Felman 2022) However, in general, you should avoid using antihistamines in order to treat the sinuses, although they are good for allergies and runny nose in colds, but they increase the thickness of mucus that is difficult to empty, and this is the last thing that the patient wants when suffering from sinusitis. (Adam Fellman 2022)

Treatment of sinusitis with medicines The choice of sinusitis treatment depends on causative inflammation. The drugs used include: Antibiotics to treat sinusitis is not placed in the first sinusitis treatments However, with successive television and journalists, the majority of sinus inflammation expect to receive them for antibiotics, while most doctors provide them with them, and already formed a great step antibiotic Forward in the treatment of sinusitis, it does not perform its mission unless the sinusitis is caused by a bacterial infection. (Rachel Nall, R. Morgan Griffin 2022) However, if the sinusitis did not improve within two weeks, or that the inflammation was severely since the beginning, the doctor will describe an antibiotic for the treatment of sinus, Because the resistance bacteria is often living in nasal and sinus pockets, it makes sense to use one of the new antibiotics against these bacteria. (Charles Patrick Davis, Valencia Higuera 2022) usually uses amoxicyclene or amoxicyclene medicine - Clavolanic acid as the first treatment line for the treatment of sinusitis. (Claire Gillespie, Charles Patrick Davis 2022), or in persons with penny sensitivity, or if the patient is not responded to Amoxicillin, or the disease was severe at its inception, it is used The following antibiotics: Claracarbiv Claracarbev Clarcichesin Al-Salvamestoxia Cyprofloxasin.

(Claire Gillespie 2022) Antibiotics must be used by doctor's guidance, and completion of antibiotic treatment courses to avoid turning into infection in the sinus pockets into antibiotic-resistant bacteria. It can cause stubborn infection that is difficult to treat. The treatment of sinuses usually needs antibiotics for 10-14 per day or more. (Charles Patrick Davis, R. Morgan Griffin 2022)

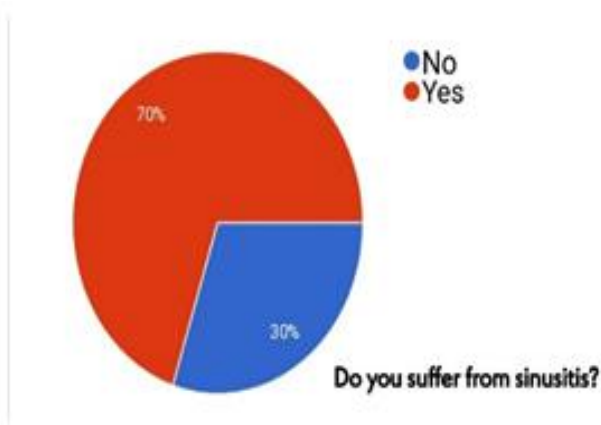
Antivitis for the treatment of sinusitis can be used for sanitary sums for mitigation of congestion such as zipperium and oxy metals for cure sinuses, but should be used for more than three days without Consult your doctor, because they can cause drought of nose membranes and worsen congestion. (Adam Felman, R. Morgan Griffin 2022) and instead of sprays, there are pills with a deteriorating drugs that can be used, such as Sudu. (Charles Patrick Davis, Claire Gillespie 2022) Corticosteroids for the treatment of sinusitis can be killed as corticosteroids in the form of nose or oral sprays for Treatment of sinus sensitivity. The doctor usually describes short-term oral steroids for chronic infections that do not respond to antibiotics; Because oral steroids have more side effects than those spots. (Rachel Nall2022) It is examples of corticosteroids that can be used to treat flute, and molligins. (Rachel Nall2022) Immune therapy for sinusitis can include chronic chronic sinusitis treatment at HIV. Immunotherapy (immunotherapy) such as venous immunoglobulin to promote Body ability to combat infection and inflammation. (Rachel Nall 2022) Scientists have conducted some research to measure the effectiveness of immunotherapy in the treatment of sinusitis, including research conducted in 2004, where 114 patients were selected by sinusitis and confirmed diagnosis through Conduct a nose and sanitary scales for nose and chest; A questionnaire and the symptoms of them and the symptoms of them before and applying immunotherapy. (Nathan Ra, Santilli J, Rockwell W, Glassheim J 2022).

Other sintrine treatment medications can include cure sinusias use the following medicines: drugs treat sinus headache; Such as acetaminophen), ibuprofen, and oscilin gaysen. Nasal salvation

solutions, to rinse sewer and relieve symptoms and treatment of sinus. Antimicrobias, which can be used in the treatment of sinus sensitivity only, ie cases that are caused by allergic reactions. (Claire Gillespie 2022) When talking quickly or so much and high voice happen to me like a dirty and I want to stop talking because of him and when I stop calm the voice and I have no shame or change in the sound and I got to Dr. Reflection is a woman and I had dry in the throat and disappeared after the treatment of Movigit and Pantoloc, but the turmous remained patient 25 days ago. The treatment of sinus sinusitis The doctors are for surgery to discharge sinus, or to treat nasal barrier deviation, or remove the nasal ures that cause sinusitis, and doctors can resort to surgery For the treatment of sinus in some chronic sinusitis, which are not recovered with drug therapy or constantly repeated. (Rachel Nall 2022, R. Morgan Griffin 2022, Valencia Higuera 2022) The surgery must be prepared by the last and final option in case of treatment of sinusitis in children, where it must be From the experience of treatment for at least one other before asylum for surgery. (Adam Felman 2022) The surgery of sinusitis treatment includes: Sena sinus pockets in the balloon, the surgeon shall enter into a small catheter tool on the balloon in the pockets Nasal. After sure, the catheter is in the right place under the direction of photography, the balloon is slowly blown up. Inflatable balloon is expanding sinus corridors. But if the bags or tumors are hammer, the sinus corridors also claim, the patient is not a good candidate for this process. (Rachel Nall 2022) Laparoscopic sinus surgery is another surgical surgery to treat chronic sinusitis, where ear surgeon, nose and throat is used as a newly illuminated camera To shoot the inner part of the nose. Then, small tools are used to remove excess tissue, or nasal, or nasal bags to expand the sinuses. (Rachel Nall 2022) End, multiple ways of treatment of sinus in children and adults, and the appropriate treatment of the patient must be selected based on causative inflammation, severity of symptoms, and the patient's age. Surgery is the final solution that can be resorted to treat chronic or frequent sinusitis.

What is the reason that made 70% or more of the population of Nasiriyah city suffer from this disease, according to a survey of a number of them?

Nasiriyah is an Iraqi city located in southeastern Iraq on the Euphrates River. It is the center of Dhi Qar Governorate (Al-Muntafiq Brigade) during the royal era. It is one of the largest inhabited cities after Baghdad, Basra and Mosul. It was founded by Sharif Al-Hijazi Nasir Al-Ashqar Pasha Al-Saadoun, and its population in 1987 was about 265,937 people, and its population in 2014 was more than 745,000 people. And I conducted a survey through the cyberspace of a number of people in different areas of the city, and approximately 70% of the population was suffering from chronic sinusitis, and a large part of them suffered from semi-severe symptoms that amount to difficulty breathing, runny nose and severe congestion, and they indicated that their families They are also infected, meaning that the percentage exceeds 70%, and the injury of their families does not mean that this infection is genetic. On the contrary, they indicated by 99% that the real cause is the “environment” because Iraq’s weather is characterized by winds or dust storms, and this dust or dust is the reason behind their suffering and irritation of inflammation The sinuses on them, which disturbs them. The problem is that a large part of them when asked about the best treatment or method to use to get rid of the symptoms of this inflammation in irritating conditions, their answer is “there is no cure,” indicating that the drugs do not work for many people, Which means the severity of the symptoms and this is normal due to the strength of the atria and the dust that spreads seasonally And it is increasing year after year due to the lack of care and attention to the environment and the afforestation of vacant spaces. As a student or researcher, I see that “the unclean environment is the best place for diseases.” Speaking here, of course, about one city, how about other cities? Here, it was necessary to put some recommendations that reduce exposure to this disease, which can lead to undesirable consequences



- 1- Cleanliness! Here, my intention is not on a personal level, but on the environmental, air and water level. If it was not of special care, it was a hotbed for various types of deadly and non-lethal pathogens, and this matter is the responsibility of governments in coordination with the Ministry of Environment and the Ministry of Health.
- 2- Cleanliness! Here, my intention is on a personal level. A person should not wait for someone to come to preserve and take care of his health and to plant trees in front of his house or clean the place if it is dirty. In order to reduce its impact on his home, even if it was a small percentage, if everyone did that, we would not have a disease at this level.
- 3- One of the negative phenomena is that some or a large part of those who suffer from sinusitis take treatment without consulting a doctor, and this aggravates the problem and sometimes causes other diseases.
- 4- Conducting awareness programmes.

Reference

1. American Academy of Pediatrics (2001): Subcommittee on Management of Sinusitis and Committee on Quality Management. Clinical practice guideline: management of sinusitis. Pediatrics, 108(3):798-808.
2. Lanza DC and Kennedy DW (1997): Adult rhinosinusitis defined. Otolaryngol Head Neck Surg. 117(3 Pt 2):S1-7.
3. Meltzer EO, Hamilos DL, Hadley JA et al. (2004): Rhinosinusitis: Establishing

- definitions for clinical research and patient care. *Otolaryngol Head Neck Surg.*,131(6):S1-62.
4. Slavin RG, Spector SL, Bernstein IL et al. (2005):The diagnosis and management of sinusitis: a practice parameter update. *J Allergy Clin Immunol.*, 116(6):S13-47.
5. American Academy of Pediatrics - Subcommittee on Management of Sinusitis and Committee on Quality Management(2001): Clinical practice guideline: management of sinusitis. *Pediatrics*, 108(3):798-808.
6. Adam Felman. Everything you need to know about sinusitis. Retrieved on the 21th of August, 2022.
7. Kathleen Davis. Everything you need to know about sinus infection. Retrieved on the 21th of August, 2022.
8. Valencia Higuera. What You Need to Know About Sinusitis. Retrieved on the 21th of August, 2022.
9. WebMD. What Is Sinusitis? Retrieved on the 21th of August, 2022.
10. Charles Patrick Davis. Sinus Infection (Sinusitis). Retrieved on the 21th of August, 2022.
11. Rachel Nall. How to Cure Chronic Sinus Infections Permanently. Retrieved on the 21th of August, 2022.
12. Kathleen Davis. Everything you Need to Know about Sinus Infection. Retrieved on the 2nd of June, 2022.
13. Mary Ellen Ellis. Sinus Infection (Sinusitis): What It Is, Symptoms, and More. Retrieved on the 2nd of June, 2022.
14. Edo Paz. Symptoms and Treatment for Viral vs. Bacterial Sinusitis. Retrieved on the 2nd of June, 2022.
15. Chris Iliades. Understanding Sinus Headaches. Retrieved on the 2nd of June, 2022.
16. Schreiber, C. P., Hutchinson, S., Webster, C. J., Ames, M., Richardson, M. S., & Powers, C. (2004). Prevalence of migraine in patients with a history of self-reported or physician-diagnosed "sinus" headache. *Archives of internal medicine*, 164(16), 1769–1772.
17. Ada.com. Bacterial Sinusitis. Retrieved on the 2nd of June, 2022.
18. Johns Hopkins Medicine. Sinusitis. Retrieved on the 2nd of June, 2022.