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Sinusitis

Sinusitis is inflammation of the lining of the sinuses. The sinuses are small air-filled cavities in the skull. They are located behind the cheekbones and forehead. Sinusitis can be caused by a viral or bacterial infection, but is most often due to a virus. It is a common condition and can affect people of any age. Most cases resolve within 10 days.

Symptoms of sinusitis include a blocked or runny nose, high temperature, pain and tenderness in the face.

The sinuses

There are four pairs of sinuses in the skull:

- Two sinuses behind the forehead are called frontal sinuses.
- Two at either side of the bridge of the nose are smaller and are called ethmoid sinuses.
- Two behind the eyes in the deeper recesses of the skull are called sphenoid sinuses
- Two behind the cheekbones are called maxillary sinuses. These are the largest sinuses.

The role of the sinuses is to control the temperature and add moisture to the air reaching the lungs. They help filter the air inhaled thus reducing the inhalation of unwanted particles. The sinuses help voice resonance, creating tone and pitch to our voices thus making our voices clearer. Because the sinuses are cavities, they lighten the overall weight of the skull, thus allowing the neck muscles hold the head upright with ease. This is why the head can feel heavy and a person can feel tired and sleepy during a bout of sinusitis.

Symptoms of sinusitis

The mucus naturally produced by the sinuses drains into the nose through small channels. When the sinuses are infected and inflamed, these channels become blocked. The sinuses behind the cheekbones are the largest and are the most common area for sinus trouble. The most common symptoms of sinusitis include:

- Blocked or runny nose.
- Green mucus which usually indicates a bacterial infection or yellow mucus which usually indicates a viral infection.
- Mucus running down the back of the throat can cause an irritating cough or sore throat.
- Pain and tenderness in the face. This often manifests itself as a throbbing pain that is worse when the person moves their head. Sufferers often experience toothache or pain in jaw while eating.
- High temperature

The pain you have will depend on which of your sinuses are affected.

- Frontal sinusitis can cause pain just above the eyebrows and the forehead may be tender to touch.
- Ethmoid sinusitis can cause pain around the eyes and the sides of the nose.
- Sphenoid sinusitis can cause pain around the eyes, at the top of the head or temples. An earache and neck pain can also occur.

- Maxillary sinusitis can cause the upper jaw, teeth and cheeks to ache and may be mistaken for toothache

Other less common symptoms can include:

- tiredness
- a sinus headache
- a cough
- bad breath
- feeling of pressure or fullness in the ears
- loss of taste and smell
- a feeling of being generally unwell
- Pain on flying (especially on landing)

Symptoms of sinusitis can be slightly different in children than in adults. Children with sinusitis may be irritable, have a stuffy nose, breathe through their mouth and have difficulty feeding. Children with these symptoms should be brought to see their GP.

Causes of sinusitis

The most common cause of sinusitis is viral infection. However, there are a number of other reasons sinuses can become inflamed and blocked.

Infections

The most common cause of sinusitis is the common cold or influenza virus. The cold or flu virus spreads to the sinuses from the upper airways. According to a 2012 report by the Infectious Diseases Society of America, between 90 to 98% of sinus infections are caused by viruses; antibiotics are of no use in these situations. Occasionally a secondary bacterial infection can develop, leading to swelling inside the sinuses. A bacterial sinus infection is more serious as it can lead to changes in the lining of the sinuses if not treated. An infected tooth can also spread to the sinuses causing sinusitis; dental infections are most likely to cause infection in the sinuses behind the cheekbone.

Substances that may irritate the sinuses

Some substances can irritate the sinuses and lead to infection. Examples include air pollution, smoke, grass and tree pollen, chemicals (such as pesticides or aerosols), disinfectants and household detergents.

Allergies

Allergic rhinitis, asthma and hayfever can make a person more prone to sinusitis infection. This is because allergies like hayfever cause swelling of the tissues inside the nose leading to blockage in the sinus drainage channels.

Narrowing of the nasal passages

Narrowing can be caused by facial injuries or nasal polyps (growths) inside the nose. Mucus can build up behind the narrowed areas, leading to sinus infection.

Cystic fibrosis

This is a genetic condition that causes thick, sticky mucus to build up within the body. Ireland has the highest rate of cystic fibrosis in the world. Cystic fibrosis sufferers are very prone to infections including recurrent sinusitis.

A poor immune system
This includes people with HIV or those on chemotherapy, etc. A poor immune system makes a person more prone to any infection. Fungal infections are rare causes of sinusitis and occur most commonly in people with a poor immune system.

Pregnancy
While pregnancy is not a cause of sinusitis, it can make a woman more prone to rhinitis (nasal inflammation) which can lead to infection.

Other Factors
Other factors that can make a person more prone to sinusitis include smoking, diabetes, injury to the nose or cheeks, asthma, build up of too much pressure during scuba diving, sniffing substances such as glue, aerosols and illegal drugs such a cocaine.

Acute and chronic sinusitis

The medical terms acute and chronic describe how long the condition lasts rather than how severe it is.

Sinusitis is described as either:

- **Acute**, when it develops quickly over a few days following a cold or flu and clears up within 12 weeks.
- **Chronic** is persistent sinusitis with symptoms lasting for more than 12 weeks.

Most people only have one or two bouts of acute sinusitis in their life. On average, acute sinusitis takes about two-and-a-half weeks to clear. Sinusitis often clears up by itself, and about two thirds of those who get sinusitis do not need to see their GP.

Chronic sinusitis is less common than acute sinusitis however it does appear to be getting more common. Chronic sinusitis can sometimes last for many months.
If a person develops chronic sinusitis after an acute sinus infection, they may continue to get symptoms even though the infection has gone. Therefore treating chronic sinusitis with a normal course of antibiotics often does not work. After being initially triggered by an infection, the persisting symptoms may be due to a combination of factors.
For example:

- Poor drainage of the affected sinus leading the sinus drainage channel to become fully or partially blocked.
- A build-up of mucus in the sinus.
- Inflammatory changes to the lining of the sinus that results from infection.
- A flare-up of infection from time to time as a result of these changes.

Sometimes, a persisting allergy can cause inflammation in a sinus and swelling or blockage of the drainage channel.

Diagnosing sinusitis

Doctors generally diagnose sinusitis based on symptoms.
Sinusitis is diagnosed based on the presence of a nasal blockage or runny nose with facial pain, and/or a reduction or loss of sense of smell. Loss of smell is more common and facial pain less common in chronic (persistent) sinusitis.

If sinusitis is severe or keeps coming back, the GP may refer the patient to an ear, nose and throat (ENT) specialist who can diagnose the underlying cause. An X-ray or CT scan can determine the cause of sinusitis. The specialist may recommend a nasal endoscopy, where he or she will insert a small, flexible tube with a light and a camera lens at the end (endoscope) into the nostril to view the inside of the sinuses.

Treatment

About two thirds of people with a bout sinusitis will recover without needing a doctor's intervention. As most cases are caused by a viral infection, antibiotics are of no benefit and the infection generally clears up itself.
Sinusitis generally takes longer to clear up than a common cold. For mild sinusitis, over-the-counter painkillers and decongestants are safe, will relieve symptoms and are generally sufficient to clear it up. Over-the-counter painkillers such as paracetamol or ibuprofen can be used to relieve headaches, high temperature, facial pain or tenderness. Ibuprofen should not be used in asthmatics or patients with stomach ulcers.
Decongestant nasal sprays or drops are available over the counter from pharmacies. They may be useful for relieving a blocked nose and for helping the patient to breathe more easily. However, decongestants do not speed up recovery from sinusitis. Decongestant sprays and drops should not be used for more than a week at a time as they cause a "rebound" effect after this time which worsens the problem.

Salt therapy

A saline nasal solution or irrigation may help relieve congestion and blockage within the nose (eg) Sterimer® nasal spray. There is some evidence that saline nasal sprays have a slight anti-inflammatory effect which can help relieve symptoms. A new electronic salt therapy device called Salin Plus® is showing good results for those suffering from sinusitis. Salt therapy has been shown in trials to help clear mucus and reduce inflammation of the sinuses. The Salin Plus® device works by air being forced through the filter which contains a micro-crystallised deposit of salts, primarily sodium chloride. This creates a fine, constant spray of sodium chloride in the surrounding area.

The sodium ions that are released from Salin Plus® activate the cilia in the lungs allowing them to excrete mucus more efficiently as well as release mucus and reduce inflammation in the sinuses. Salts have been shown to provide renewed permeability and sinus drainage in the nasal passages. It is a device that is best left on in your bedroom while you sleep. In Whelehans we find that many using Salin Plus® find easier breathing and relief of sinus symptoms after only a few days of use. Salin plus® can benefit those suffering from asthma, bronchitis, cystic fibrosis, hay fever and snoring as well as sinusitis. However, I would advise never to reduce medication for conditions like asthma and sinusitis until getting assessed by your doctor. In Whelehans, we are so confident it will work, we offer a money back guarantee if you don't notice a benefit. A big advantage of it is that it is a natural therapy that does not cause side effects associated with conventional medicines. But like any natural therapy, it should not be seen as an alternative to proper clinical assessment by a healthcare professional.

Next Step

If symptoms do not improve after seven days, if they are getting worse or if the sinusitis continually comes back, treatment options are:

- **Antibiotics**
- **Steroid sprays or drops**
- **Surgery** (if other treatments have failed).

These treatments are only used for severe cases of sinusitis. Chronic sinusitis may last for several months. In the case of chronic and severe sinusitis, a GP may refer the patient to an ear, nose and throat (ENT) specialist.

Antibiotics

If symptoms are severe and the sinusitis has not cleared within seven days, a GP may prescribe antibiotics. However, the percentage of sinus infections that are caused by bacteria are low.
Amoxycillin is generally the first choice for bacterial sinus infections. Doxycycline or erythromycin may be prescribed if the person is allergic to penicillin.

Steroid sprays or drops

Steroid sprays, drops or implants are usually prescribed if the patient is diagnosed with chronic sinusitis, as they can help to reduce swelling in the sinuses. The steroid nasal sprays are the most common type of steroid used because of ease of administration. Examples include mometasone (Nasonex®) nasal spray, fluticasone (Nasofan®) nasal spray and beclomethasone (Nasobec®) nasal spray. The different brands are fairly similar in effectiveness.

A long course may be needed, for example for three months to reduce inflammation sufficiently. Steroid nasal sprays and drops should not be used when the sinus is infected as they can make the infection worse. They should only be used in conjunction with a doctor's supervision. Side effects of steroid nasal sprays and drops are generally mild but can include dryness, irritation of the nose and throat and slight temporary disturbance of smell and taste. They should especially be used in caution with children. Over the counter nasal sprays available in pharmacies including Flixonase® and Beconase® are only licensed for hayfever so should not be used for chronic sinusitis.

Oral Steroids

Occasionally, if symptoms are severe, a course of steroid tablets by mouth may be prescribed by the doctor. However, these are more likely to produce side-effects. They are generally only recommended for very severe bouts where other treatments have failed. Side effects are common with oral steroids and can include stomach irritation, fluid retention and weight gain. However side effects are less common for short courses of steroids which have a special coating to help reduce stomach irritation (eg) Deltacortil®

Surgery

If symptoms do not improve after using antibiotics or other treatments, surgery may be required. The main purpose of surgery is to improve drainage of the affected sinuses. The most common operation is called functional endoscopic sinus surgery (FESS) and can be successful in relieving the symptoms. FESS is usually done under general anaesthetic but can also be done under local anaesthetic.

The surgeon will insert an endoscope into the nose. This is a thin tube with a lens that magnifies the inside of the nose so the surgeon can see exactly what the problem is. They will then be able to see the opening of sinus the drainage channels.
The surgeon will either:

- Remove any tissues, such as nasal polyps (growths), which are blocking the affected sinus
- Inflate a tiny balloon inside the nose, to open up the drainage passages from sinuses. This procedure is called balloon catheter dilation. According to NICE (National Institute of Clinical Guidance) which is the main advisory authority of the NHS in the UK, balloon catheter dilation is a very safe and effective therapy.

Either type of operation will improve sinus drainage and will help the sinus to function properly. Either operation is minimally invasive (causes little damage) and usually has a high success rate in relieving symptoms of chronic sinusitis.
To reduce inflammation in the sinuses, the surgeon may also insert a self-dissolving implant into the sinuses. This implant expands to prop the sinuses open and deliver the steroid mometasone directly to the sinus lining. They reduce inflammation and swelling in the sinuses.

Not recommended
The following are *not* recommended as treatments for sinusitis:

- **inhaling steam** due to the danger of burns.
- **antihistamines** as these are only useful where an allergy is the problem.
- **mucolytics** which are drugs that thin the mucus such as carbosisteine (eg) Exputex®
- **complementary or alternative medicine** as the benefits have not been proven.

Complications

When the condition is severe, antibiotics are often able to control the spread of infection to the nearby bone. However, in very rare cases (about one in 10,000); infection can spread to the area surrounding the eye, the bones, the blood or the brain. This requires urgent medical attention.
Complications of sinusitis are more common in children than in adults. If a child has had sinusitis and has swelling around the cheekbone or eyelid, it may be a bacterial infection of the skin and soft tissue or an infection of the tissue surrounding the eye.