

Sinusitis

What Is Sinusitis?

The paranasal sinuses are air-filled cavities inside the facial bones that open into the nasal cavity (see CT scan below). Sinusitis is an inflammation of the mucous membranes (or lining) of one or more of the paranasal sinuses.

Acute sinusitis is common in the community, and is often associated with viral or bacterial nasal infections that spread to the sinuses. When the normal sinus openings become blocked, the cavities fill with infection often producing pain and a feeling of pressure over the affected sinuses. Other symptoms of acute sinusitis are fever, fatigue and nasal drainage.

Chronic sinusitis is a sinus problem that usually follows a single attack or repeated attacks of acute sinusitis. Postnasal, or nasal drainage, and nasal congestion are the most common symptoms of chronic sinusitis. Nasal polyps are associated with chronic sinusitis.

Most patients, who suffer an acute attack of sinusitis, generally get better by themselves without antibiotics, and if they do take antibiotics the majority of patients may have no further problems. The treatment of acute sinusitis is designed to prevent complications and to keep the acute process from becoming chronic. Oral antibiotics, oral or topical nasal decongestants and analgesics are frequently prescribed. Many patients with chronic sinusitis can be treated successfully medically. A short course of Prednisone and a prolonged antibiotic course is frequently useful. Treatment may also include treatment for environmental allergies or environmental control (stopping smoking).

Is Your Condition Sinusitis?

One difficulty in treating sinusitis is an accurate diagnosis. Many nasal symptoms are rightly or wrongly attributed to the sinuses. A third of the population may have abnormalities on their sinus CT scans, and yet have no major symptoms. Many patients, who have facial pain particularly over the frontal and maxillary sinuses in the absence of other sinus symptoms, do not in fact have sinusitis. Some people can have significant sinus disease, and yet report no pain or fullness over their sinuses. Logically when you have had sinusitis then you should have other infective sinus symptoms apart from facial pain, such as infected nasal discharge or nasal congestion and there should be evidence of significant sinus disease on your CT scan. The other puzzle is that some patients with relatively normal sinus CT scans get an improvement in pain symptoms after they have had sinus surgery for about three months and then the pain comes back.

There are a large number of other causes of facial pain, apart from sinusitis. Many of these may need to be considered before proceeding to surgery. These may include

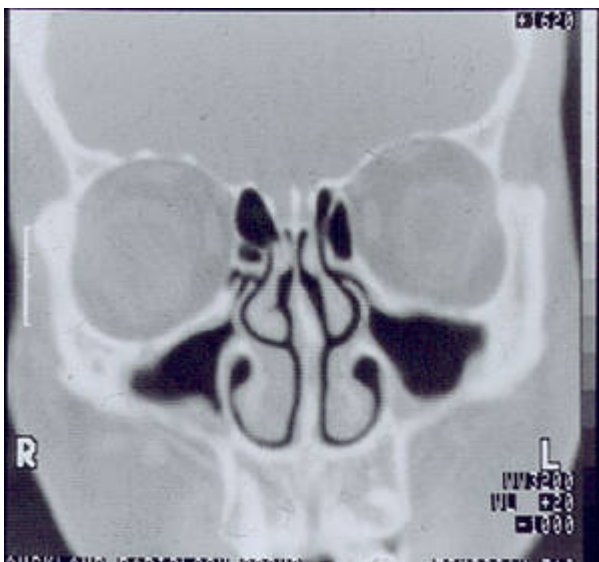
- neck and shoulder problems
- nutritional issues (some people's sinus symptoms respond to exclusion diets, particularly dairy exclusion)
- vitamin D deficiency
- allergic rhinitis

Allergic symptoms such as a clear nasal discharge and nasal congestion are also often attributed to the sinuses. The situation is complicated by the fact that a patient may have more than one problem. For example, patients with allergic rhinitis are more likely to get sinusitis.

The Consultation

At a consultation, I try to work out based largely on your history and physical examination whether you do have sinusitis or another condition mimicking sinusitis. Unfortunately there is no simple "gold standard" test that can tell whether sinusitis is contributing to your symptoms. A simple sinus CT scan can be helpful. Important guides in your history are the pain distribution if pain is present, whether you can blow infected mucus from your nose, whether you have a sore throat prior to an attack of sinusitis and whether your problems get better with antibiotics.

Patients with neck problems mimicking sinus disease usually have pain at the base of their skull as well as in their shoulders, referred pain to the ears and the CT scan is often normal. The pain may be made worse with exposure to cold wind and made better with heat. They may also have low back pain.



At the consultation, I will probably pass a small telescope into your nose. This is usually not uncomfortable. I will also palpate your neck and shoulder muscles looking for tender muscles. These tender muscles can cause a referred pain over the sinuses, which can easily mimic the pain of sinusitis. I may palpate other muscles in your body looking for evidence of muscle tenderness elsewhere.

Understanding a CT scan:

To understand a sinus CT scan one has to think that your head has been put through a bread slicer and that one scan represents one slice. By looking at the slices, one can then build up a three dimensional picture as to what is happening. White represents bone and grey represents soft tissue. R on the CT scan represents the right side and L represents the left side. This CT scan is a slice through the eyes and maxillary sinuses. The grey at the top represents the brain. The eyes are below on either side. The black under the eyes is air in the maxillary sinuses.

Are There Any Other Treatments Apart From Surgery And Antibiotics?



The treatment of sinusitis is difficult to evaluate because of difficulties in diagnosis (the patient may not have had sinusitis in the first place) and patients may get better themselves regardless of treatment. There is still considerable debate about the role of antibiotic treatment in chronic sinusitis.

Saline and the Nose:

There is good evidence that a saline nasal spray or saline irrigation is useful in controlling allergic and sinusitis symptoms. The exact recipe for the salt water varies, but I recommend half a teaspoon of salt and half a teaspoon of baking soda in a pint (600mls) of water. Many people are now recommending adding steroid medication to salt water as well.

Some authorities recommend using rock salt saying that iodised salt is more likely to sting. www.ent-consult.com is a useful website.

Other authorities recommend using a teaspoon of salt to a pint of water, and increasing it by half a teaspoon of salt each week up to three teaspoons of salt to a pint of water.

Vitamin D

Vitamin D helps make a powerful natural antibiotic in the body, which helps fight infection. To prevent respiratory infections, a small vitamin D dose (2,000IU per day) should be taken on a regular basis.

Martineau AR, Jolliffe DA, Hooper RL, Greenberg L, Aloia JF, Bergman P, et al. Vitamin D supplementation to prevent acute respiratory tract infections: systematic review and meta-analysis of individual participant data. *BMJ* 2017; 356: i6583.

Ultrasound

Bacteria are now recognised as existing in two forms – free floating (planktonic) or in sophisticated communities called biofilms. Bacteria within biofilms are difficult to culture and highly refractory to antibiotic treatment.

In the laboratory setting ultrasound enhances the killing of bacteria in biofilms both *in vitro* and in animal models. Ultrasound appears able to do this also in humans and can be a useful adjunctive treatment in sinusitis.

Bartley J, Young D. Ultrasound as a treatment for chronic rhinosinusitis. *Medical Hypotheses* 2009; 73(1): 15-7. [Abstract]

Young D, Morton RP, Bartley J. Therapeutic ultrasound for the treatment of chronic rhinosinusitis – preliminary observations *JLO* 2010 [Epub ahead of print] [Abstract]

Is Surgery Necessary?

Any decision to have surgery is a quality of life issue. One has to weigh up the misery and risks of surgery versus the misery of sinusitis. Sinusitis sufferers will tell you that having recurrent/ chronic sinusitis can be a miserable experience. Surgery is only recommended in a small percentage of patients.

The goal of surgical treatment is to return the nose and sinuses to normal function. In some patients

with extensive disease this can be difficult. Surgery is now usually done with small telescopes and long instruments. This surgery differs somewhat the older surgery in trying to identify the underlying cause of the problem. This is frequently in the anterior ethmoid sinuses. This location is in the area of the openings of the maxillary or frontal sinuses. The principle is that if the underlying cause of the disease is identified and corrected, secondary disease in the maxillary and frontal sinuses will be improved spontaneously. There is often less removal of normal tissues and the surgery can be performed on an outpatient basis, without the need for nasal packing. In patients with extensive disease the role of surgery is to open up the sinuses as much as possible in order to allow the topical application of drugs, particularly topical steroids, that will keep the inflammation under control.

Surgery

The operation can be performed under general anaesthetic or local anaesthetic with an anaesthetist providing monitored sedation. Usually there is minimal pain in the postoperative period. Although there are potentially very serious risks from the surgery in this area, the incidence is low.

Risks of Surgery:

Complications are rare with endoscopic sinus surgery but they do occur.

Bleeding:

Although the risk of bleeding is reduced on rare occasions significant bleeding may require stopping of the procedure and the placement of packing. This occurs in 1% of patients.

Spinal fluid leak:

All operations carry a rare chance of creating a spinal fluid leak (the fluid that surrounds the brain). Should this rare complication occur, it would extend your hospitalisation and it might require further surgery for its closure. This complication is rare (less than 0.1%).

Damage to the tear duct:

This complication too is extremely rare; if it happens then it can be corrected with further surgery.

Damage to the eye:

This complication too is extremely rare.

Anaesthetic risks:

The endoscopic techniques can be performed under local anaesthetic with intravenous sedation. If general anaesthetic is required, you are subject to the usual risks of general anaesthetic.

Is The Surgery Effective?

The reality is that sinusitis is a multifactorial disease. Surgery is only able to effect structural changes and removes critical areas of disease improving drainage and aeration of the sinuses allowing them to return to normal. In some patients there may be persisting ongoing medical management for symptoms such as nasal allergy. In general terms surgery offers only a 30% chance of total cure but a 95% chance of a significant improvement in symptoms.