



# Rhinosinusitis



Changi  
General Hospital  

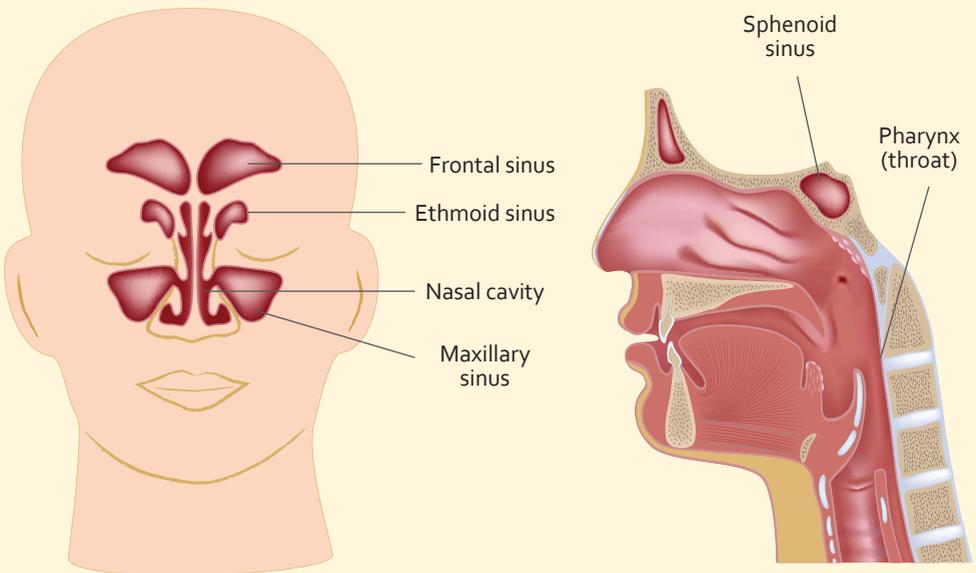
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## What are sinuses?

The precise medical term is paranasal sinuses. They are air-filled cavities surrounding the nasal cavity. Humans have four groups of sinuses within their face, on each side of their nasal cavity (*Fig 1*). They are located:

1. Above the eyes (frontal sinus)
2. In between the eyes (ethmoid sinus)
3. Below the eyes (maxillary sinus)
4. Behind the eyes (sphenoid sinus)



*Fig 1*

The lining of the nose (mucosa) produces mucous. The mucosa has very small hair-like structures that help move the mucous from the sinuses into the nose. The mucous in the nose can then be blown out, swallowed into the stomach or coughed out as part of the phlegm.

## What are the functions of the sinuses?

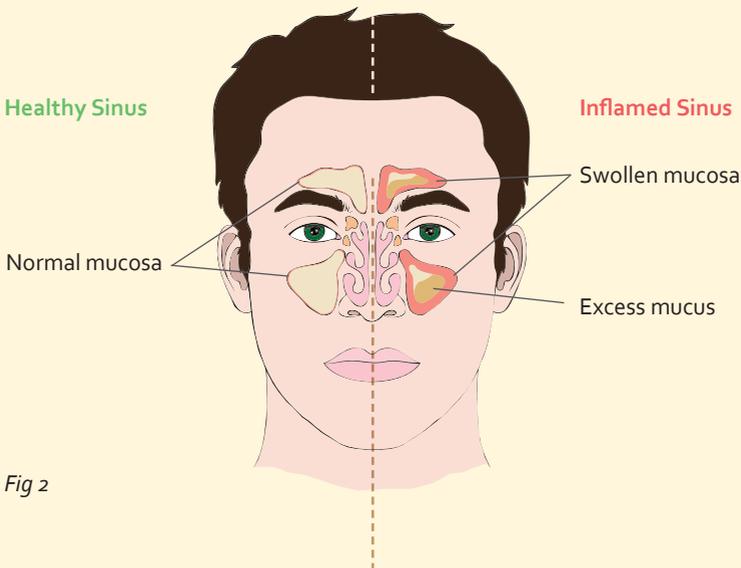
Why sinuses exist is largely unknown. However, as they are air-filled, they are thought to reduce the weight of the human head. Sinuses also produce mucous that traps inhaled bacteria and foreign objects, change the temperature of inhaled air and enhance the resonance of human voice.

## What is rhinosinusitis?

Rhinosinusitis, also known as sinusitis, is the inflammation of the lining of the nose and sinuses. This is the condition that most people refer to when they walk into the clinic and say they have “sinus”. Rhinosinusitis is further divided into “acute” and “chronic”, depending on the duration of the symptoms; if the symptoms are less than three months, the condition is medically-defined as “acute”, and if they are more than three months, the condition is “chronic”.

## What causes rhinosinusitis?

The answer to this question is complex. The sinuses become inflamed and infected when the drainage pathway is blocked. The stagnant mucous in the sinuses can get secondarily infected, resulting in the symptoms of rhinosinusitis (*Fig 2*). The drainage pathways of the sinus can be naturally narrow in some patients (i.e. genetic). A deviated nasal septum (the bent central wall of bone and cartilage in the nose that divides the nasal cavity into right and left halves) can also block the sinus passage. This can occur as a result of trauma or is inborn in some patients.



*Fig 2*

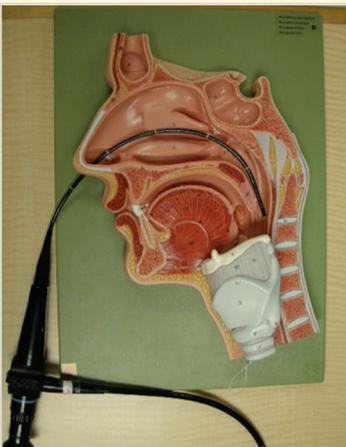
In patients with severe allergic rhinitis (sensitive nose or hay fever), the congestion and swelling in the nose can cause rhinosinusitis. In some patients, rhinosinusitis occurs because the lining of their nose and sinuses is ineffective in moving mucous out of the nose. If the patient has poor immune system, the risk of a persistent sinus infection is also higher.

## What are the symptoms of rhinosinusitis?

Patients with rhinosinusitis usually experience a blocked nose, nasal congestion, coloured (usually yellow, brown or green) mucous which can drip forward (as a coloured nasal discharge) or backwards (as a postnasal drip), facial pain or fullness, and in some cases, a decrease or loss of smell. In acute rhinosinusitis, some patients may experience fever. Other associated symptoms include headache, ear pain and blockage, and fatigue.

## How is rhinosinusitis diagnosed?

Your ENT surgeon will review your symptoms and perform a thorough physical examination which may include a flexible nasoendoscopy. A nasoendoscopy (a flexible lighted tube with a camera attached to one end) is inserted into the nose and throat to look for signs of rhinosinusitis (*Fig 3a & b*). This can be done after the nose is numbed and decongested with a local anaesthetic spray. The process takes less than two minutes and often, only mild discomfort is felt. Some of the clinical findings of rhinosinusitis include pus, swelling of the lining of the nose and polyps.



*Fig 3a*



*Fig 3b*

## How is rhinosinusitis treated?

To treat rhinosinusitis, the following medications may be prescribed:

1. Antibiotics to treat the bacterial infection
2. Nasal irrigation to wash out the mucous and pus
3. Nasal steroid sprays to reduce inflammation of the sinonasal mucosa
4. Decongestants to relieve nasal congestion
5. Pain relievers to reduce headaches and facial pain

In majority of the cases, rhinosinusitis can resolve with medical treatment. However, in some instances, rhinosinusitis may persist or is recurrent despite maximal medical management. In such cases, a functional endoscopic sinus surgery (FESS) may be necessary and offers an excellent chance of improvement in symptoms. The surgery is minimally invasive (done through the nose) and aims to open up the blocked sinuses to facilitate ventilation and drainage of the sinuses.



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