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## SINUSITIS

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### ABSTRACT

Sinusitis is Inflammation of the paranasal sinuses. Paranasal sinuses are pair of air spaces that surround the nose in the front of face.

Usually acute sinusitis can last up to 4 weeks. Sub acute sinusitis lasts between one and three months. When breath in air flows through the nostrils & enters the nasal cavity which is lined by goblet cell that release mucus. The mucus is salty sticky & has lysozymes which enzymes are kill bacteria. Nose hairs at the entrance of the nasal cavity get coated with mucus & are able to trap large particles of dust & Pollen as well of bacteria.

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### I. INTRODUCTION

The nasal cavity connected to four Paired Paranasal sinuses. Named according to the bones in which they lie.

The largest are maxillary sinuses (found right below the eye)

The ethmoidal & sphenoidal sinuses (behind the eyes)

The frontal sinuses are in the forehead right above the eye.

The paranasal sinuses act like tiny echo chambers that help amplify the sound of voice.

They also allow the inspired air to circulate for a bit so it has time to get warm & moist.

Like the rest of the respiratory tract the walls of the paranasal sinuses are made up of mucosal epithelium. The mucosal epithelium has goblet cells which produce mucus to trap small foreign particles as well as columnar cells which have cilia, which are tiny little hair like projections that move mucus draining into the nasal passage.

This passage is also called nasal meatus. And there are three:

- superior meatus
- middle meatus
- Inferior meatus

All of which help drain mucus.

The sphenoid sinus drains sphenoidal recess, which is a small space of the nasal cavity right above the superior meatus.

The ethmoid sinus can be divided into posterior which drains the superior meatus. Middle and anterior both draining into the middle meatus. And maxillary & frontal sinuses drain into the middle meatus.

Most cases of sinusitis are acute & the result of viral infection. Most common viruses include:

- Rhino virus
- Para influenza virus (which cause common cold)
- Influenza virus (causes the flu)

Bacterial infections are another cause of acute sinusitis. The most common bacterial strains are:

- Streptococcus pneumoniae.
- Haemophilus influenzae.
- Moraxella catarrhalis.

Some times bacterial sinusitis develop during or after a viral infection. But other times it might develop due to a blockage of the normal flow out of the sinuses like with a deviated septum.

In acute sinusitis an invading pathogen often causes an inflammatory response to invading pathogen.

This causes the goblet cells to over secrete mucus which also leads to congestion. At the same time immune cells & dead tissue.

**Subacute and chronic Sinusitis caused by:**

- Infections

- Environmental allergies. eg: Dust, pollution.
- Fungi. eg: Aspergilles

In response to allergies some Individuals develop chronic hyperplastic sinusitis which where the connective tissue of the sinuses undergo hyperplasia. Meaning It starts proliferating faster than usual.

#### **Symtoms:**

- A blocked and runny nose.
- Redneed of Smell.
- High temperature.
- Yellow or green meus secretion of nose.
- Headache and toothache.
- Bad breath & cough.
- Feel pressure in the ear.
- Sound nasal when speak.
- May also sore at night.
- In young children difficulty feeding and breathing through mouth.

#### **Diagnosis:**

- Based on symtoms.

Sub acute or chronic sinusitis:

- CT scan.
- Rhinoscopy.

#### **Treatment:**

- **Bacterial (antibiotics)**
- **Decongestion**
  - Reduce swelling.
  - Promote drainage.

#### **Allergy & Polyp**

- steroids
- Allergy medication (Antihistamine)

#### **Chronic or Recurrent sinusitis:**

- Surgery.

#### **Prevention**

- Avoiding allergy triggers (dust, pollen or smoke).
- Rinsing nose with saline.
- Using steroid nasal spray.
- Establishing good hand washing.
- Avoiding smoke.

## **II. CONCLUSION**

Sinusitis usually lasts a week to 10 days. It can usually treat with over the counter medicines. If have Chronic Sinusitis or if it coming back there may be underlying causes that need to treat.

## **III. REFERENCES**

- [1] <https://my.clevelandclinic.org/health/diseases/17701-sinusitis#prevention>
- [2] <https://www.nhs.uk/conditions/sinusitis-sinus-infection/>
- [3] <https://www.osmosis.org/learn/Sinusitis>