

Okanagan's Dental Cone Beam CT Specialists

CBCT & Sinus

Presented By: Dr. Jack DeGruchy, DDS, FAGD

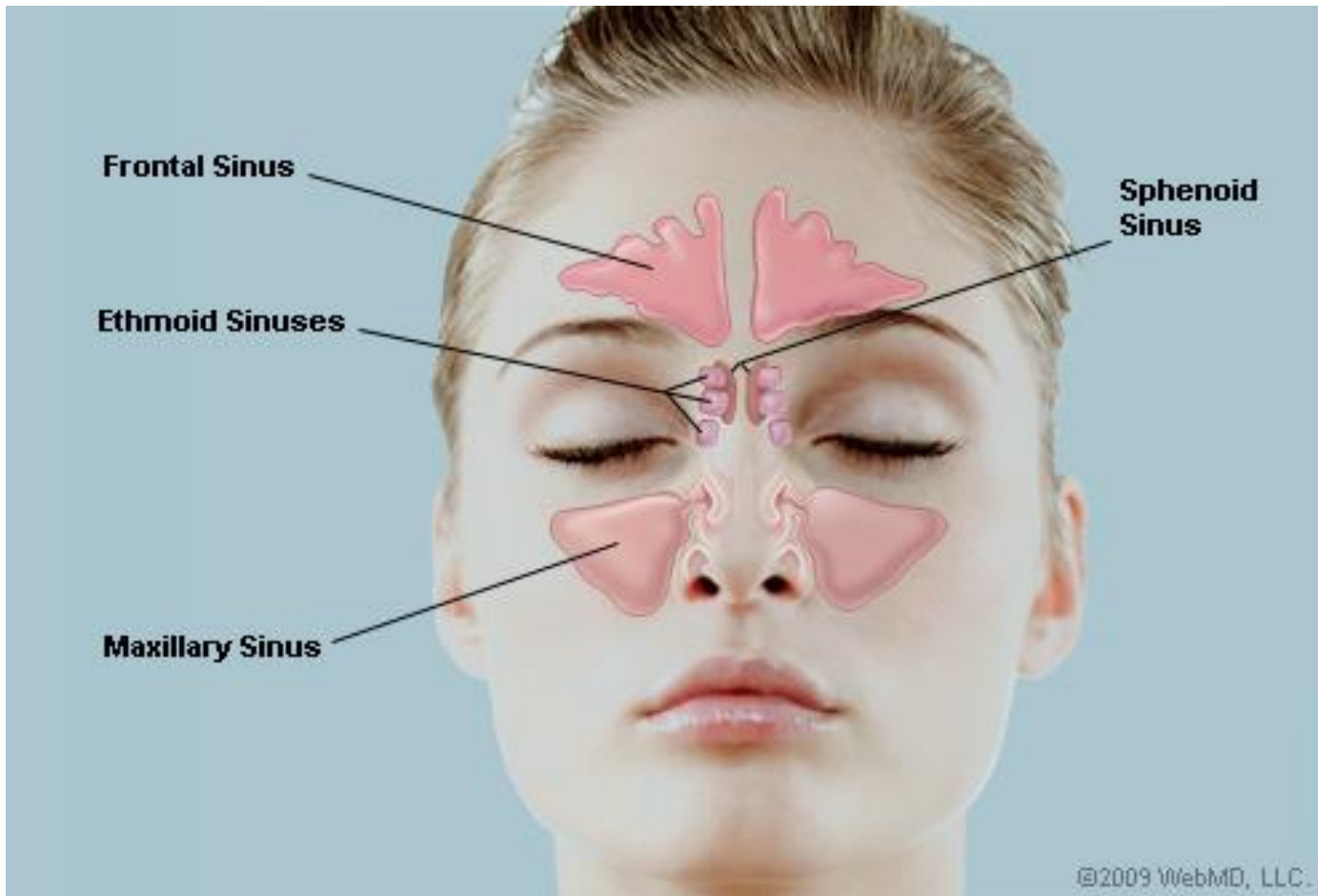


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What are the sinuses?

The [sinuses](#) are a connected system of hollow cavities in the skull. The largest sinus cavities are about an inch across. Others are much smaller



Your cheekbones hold your maxillary [sinuses](#) (the largest). The low-center of your forehead is where your frontal sinuses are located.

Between your [eyes](#) are your [ethmoid sinuses](#).

In bones behind your nose are your [sphenoid sinuses](#). They're lined with soft, pink tissue called mucosa. Normally, the sinuses are empty except for a thin layer of mucus.

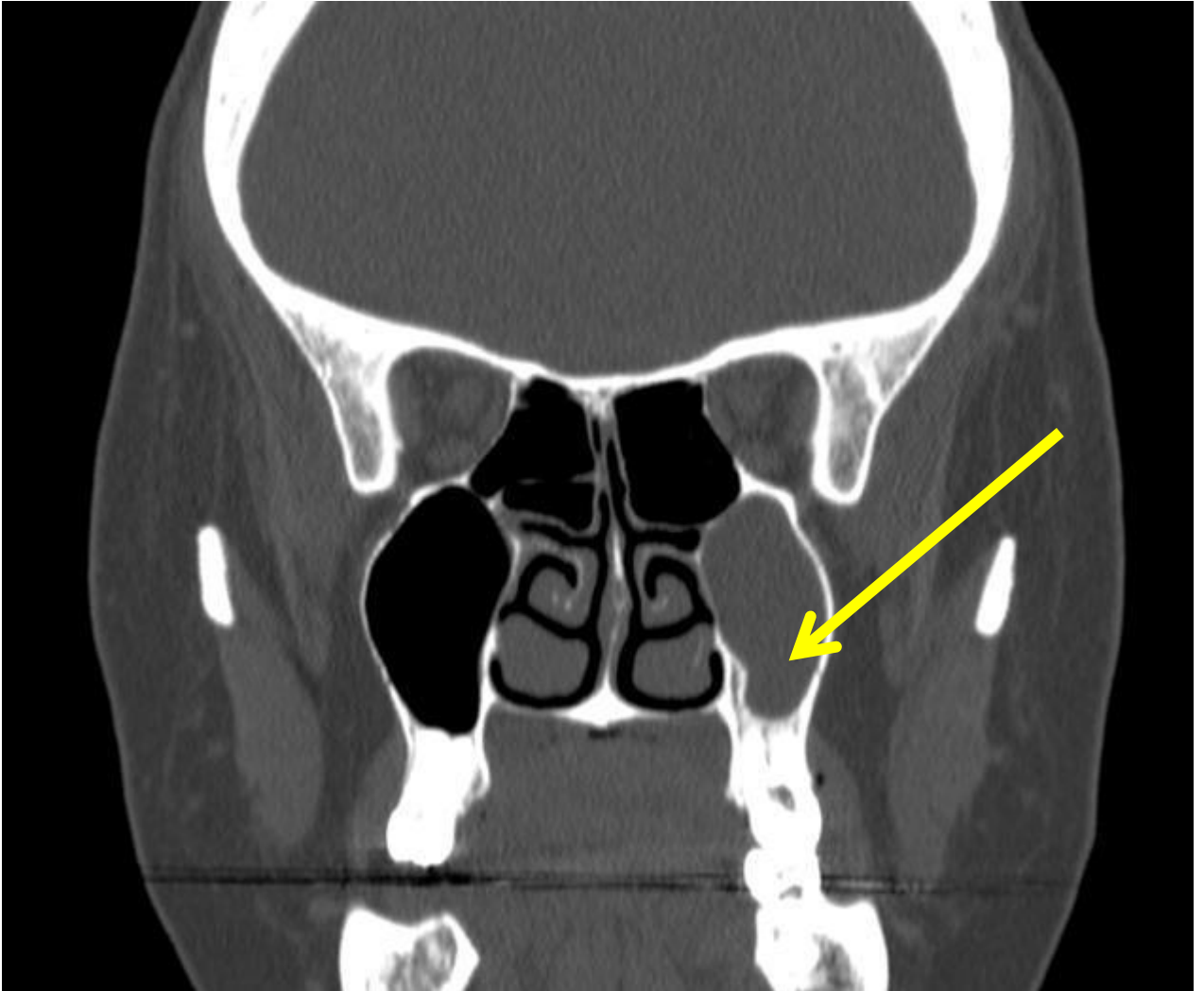
The inside of the nose has ridges called [turbinates](#). Normally these structures **help humidify and filter air**.

A thin wall, called the [septum](#), divides the nose.

Most of the sinuses drain into the nose through a small channel or drainage pathway that doctors call the "[middle meatus](#)."

Why do we have sinuses? Experts don't know. One theory is that they help humidify the air we breathe in. Another is that they enhance our voices

Acute Sinusitis



Chronic sinusitis refers to ongoing long term sinus infection-inflammation that often develops secondary to prolonged to refractory acute sinus infection. The presence of radiographic signs are ominous and should either be known to the patient or should be investigated.

Notice the thickened walls!



Rarefying Osteitis or Periapical Cysts

22



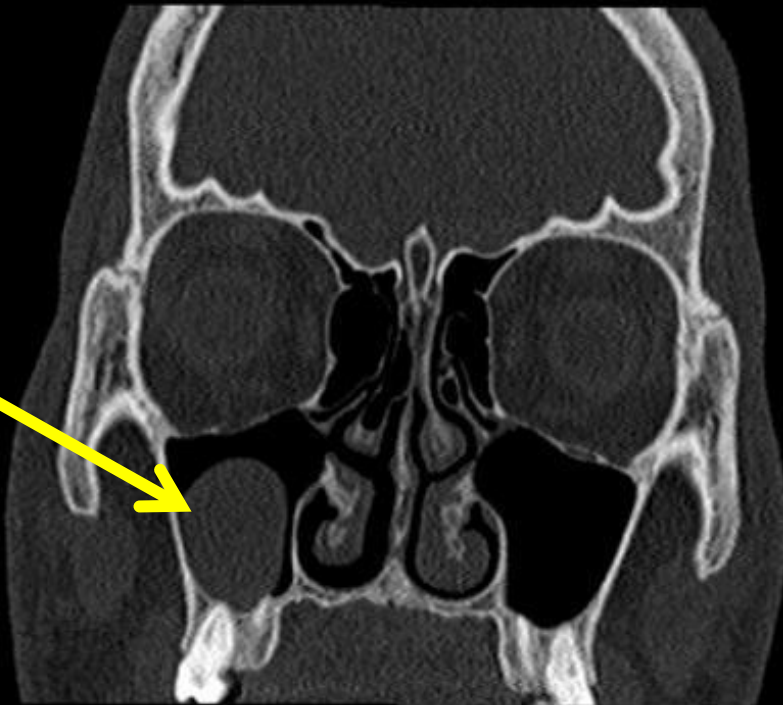
Periapical cyst



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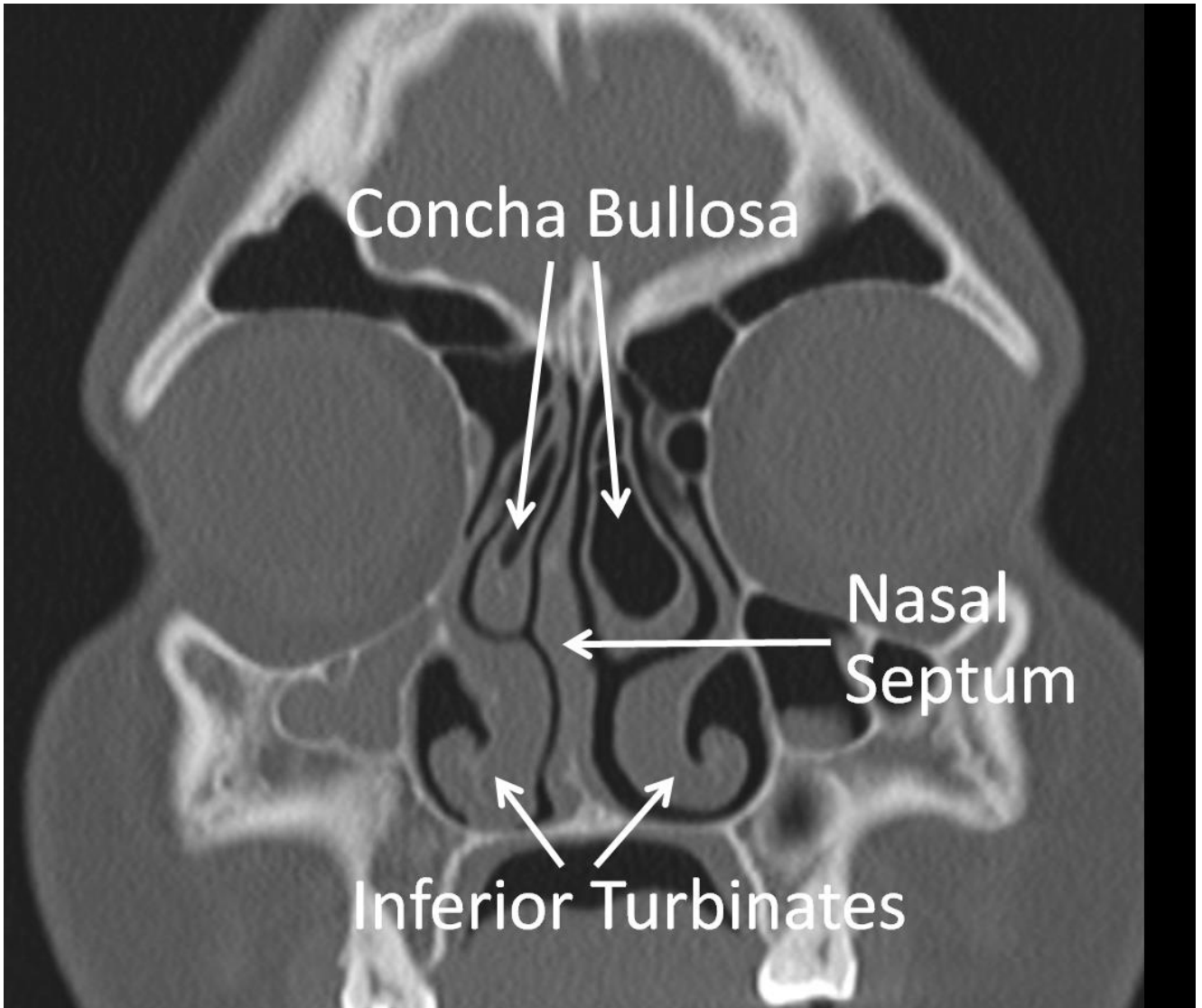
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Mucous retention cyst



A

Concha Bullosa



Bone augmentation and implant placement in the maxillary sinus requires a thorough understanding of maxillary sinus anatomy at a macroscopic and microscopic level. The maxillary sinus (Figures 1, 2, 3), located beneath the orbit bilaterally, has six bony walls. The inferior wall is directly above the premolar and molar region. The medial wall is opposite the lateral wall of the nasal cavity

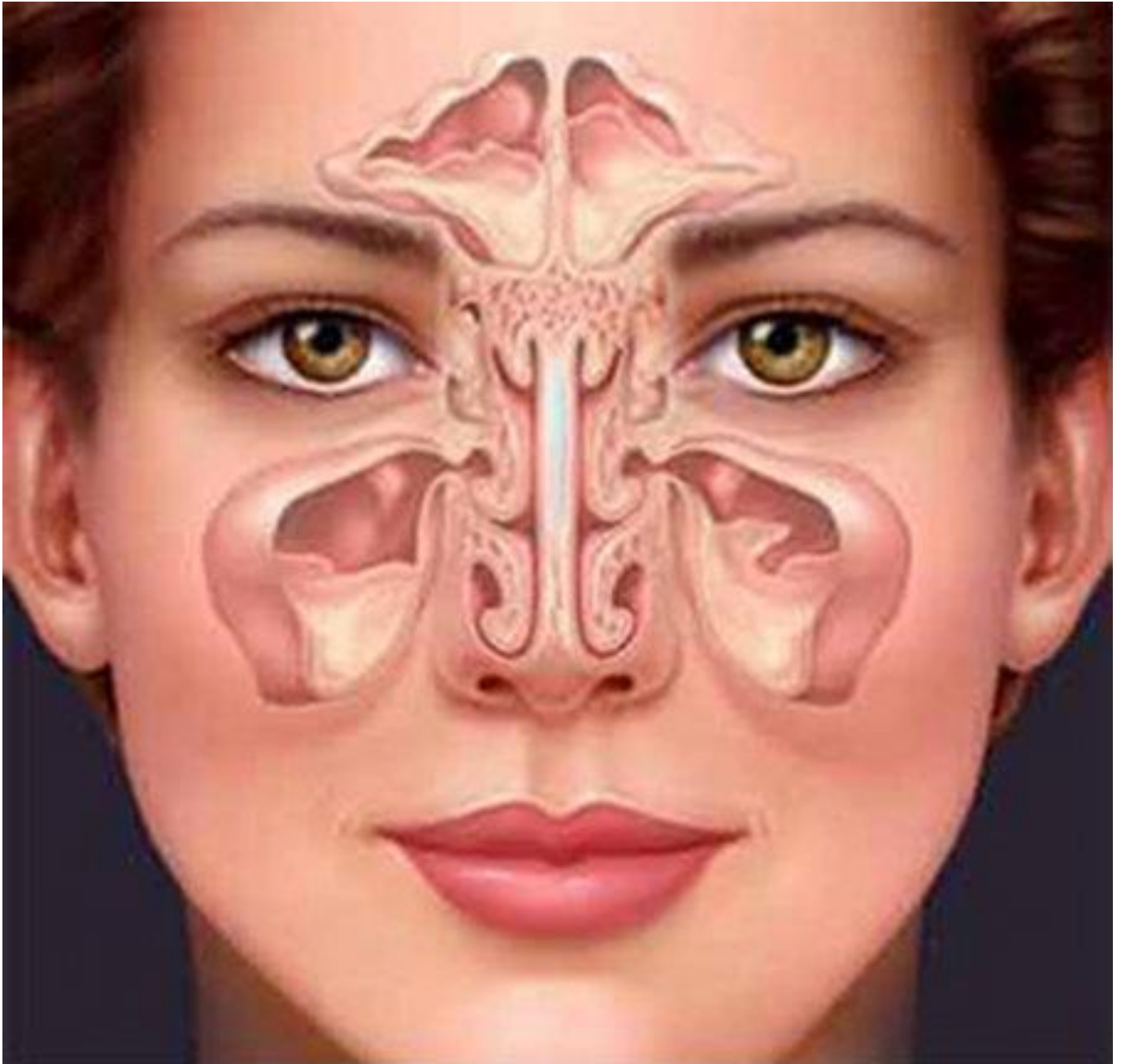
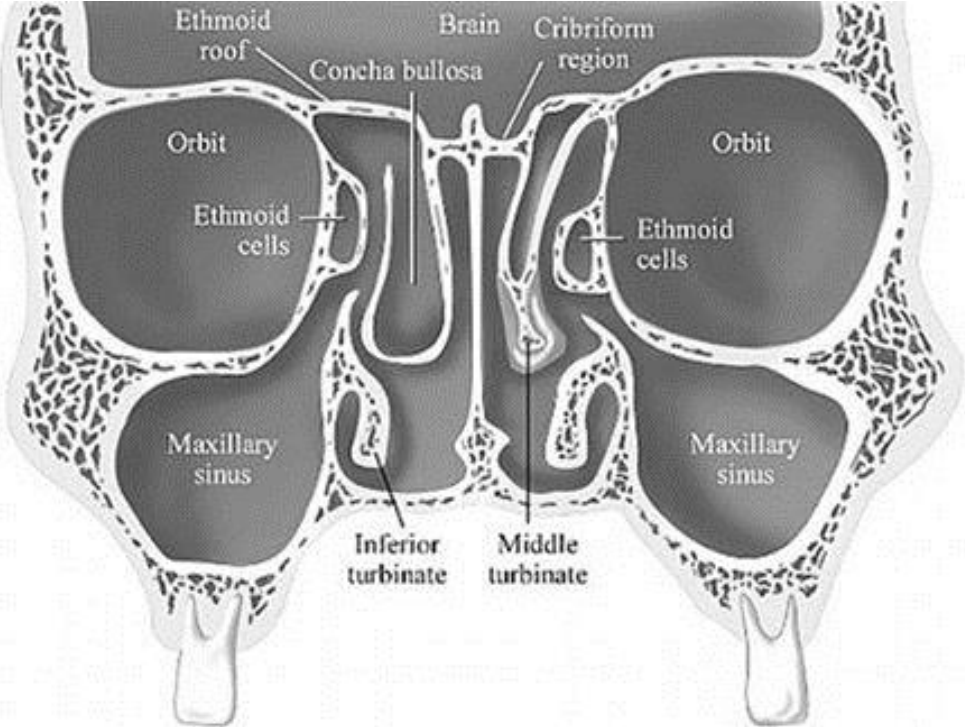
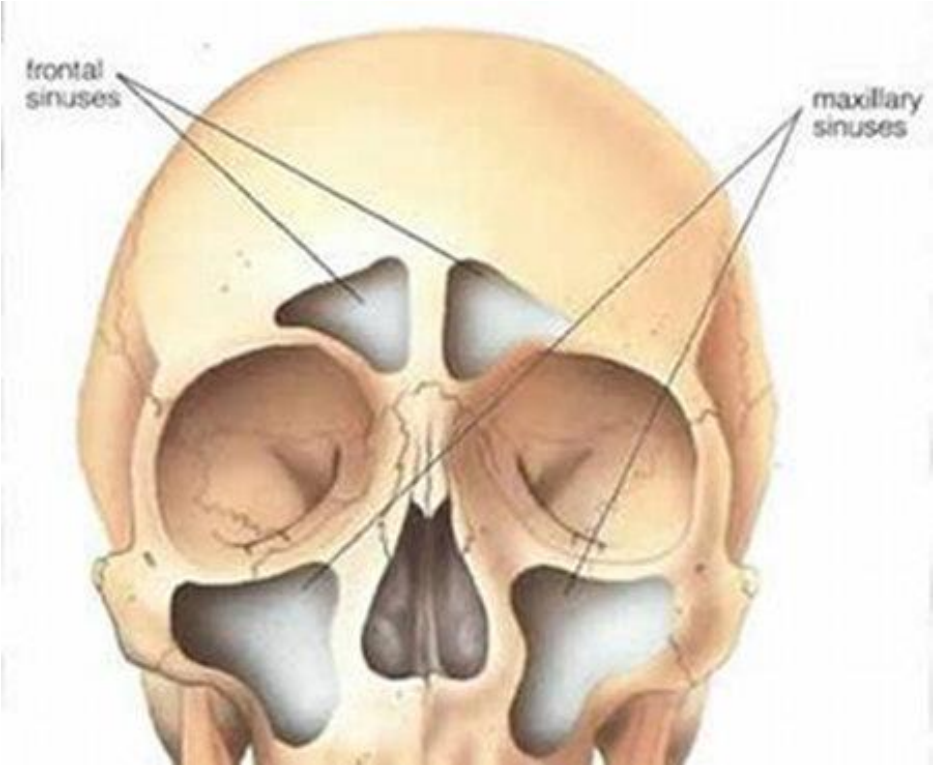
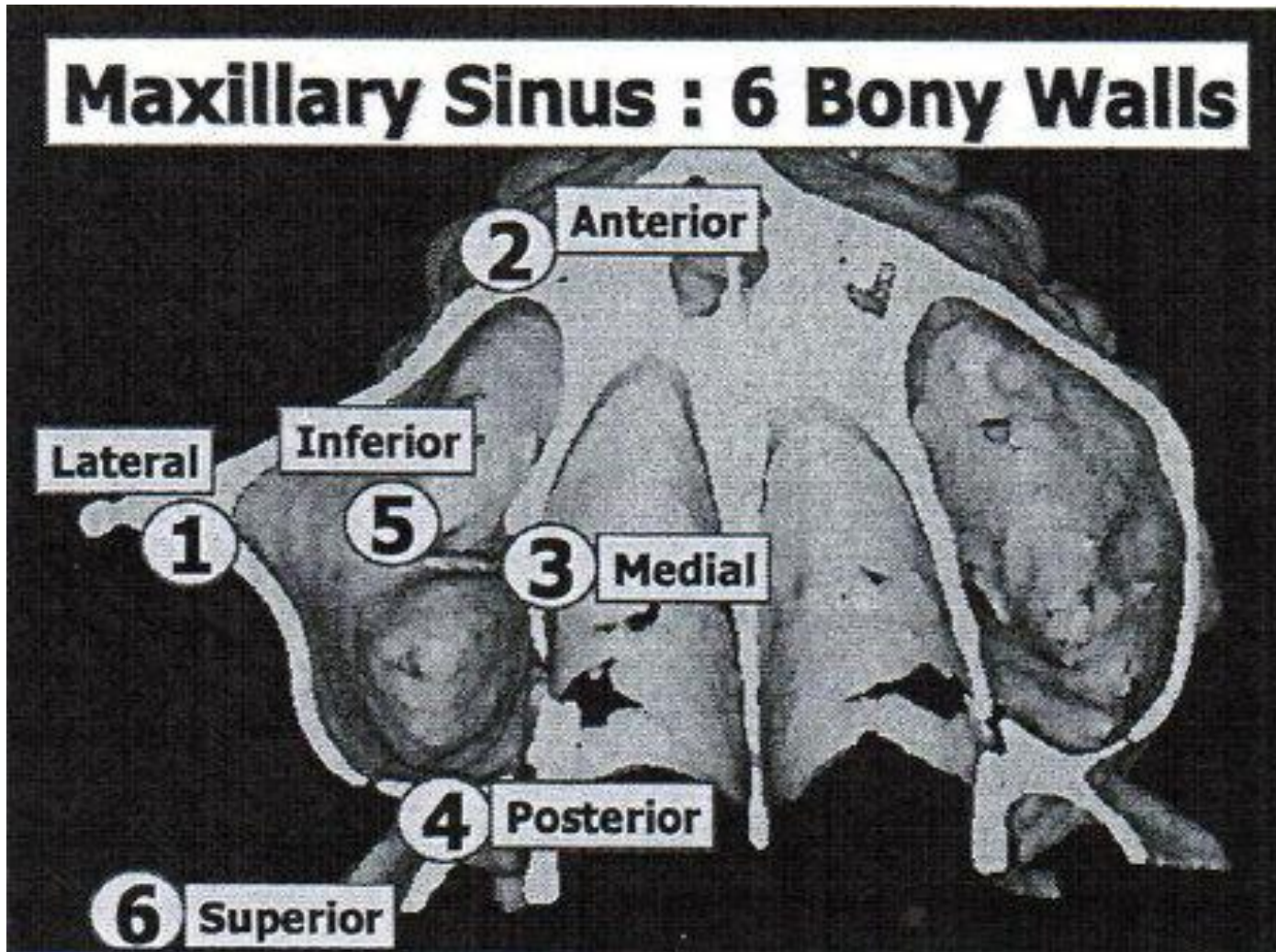


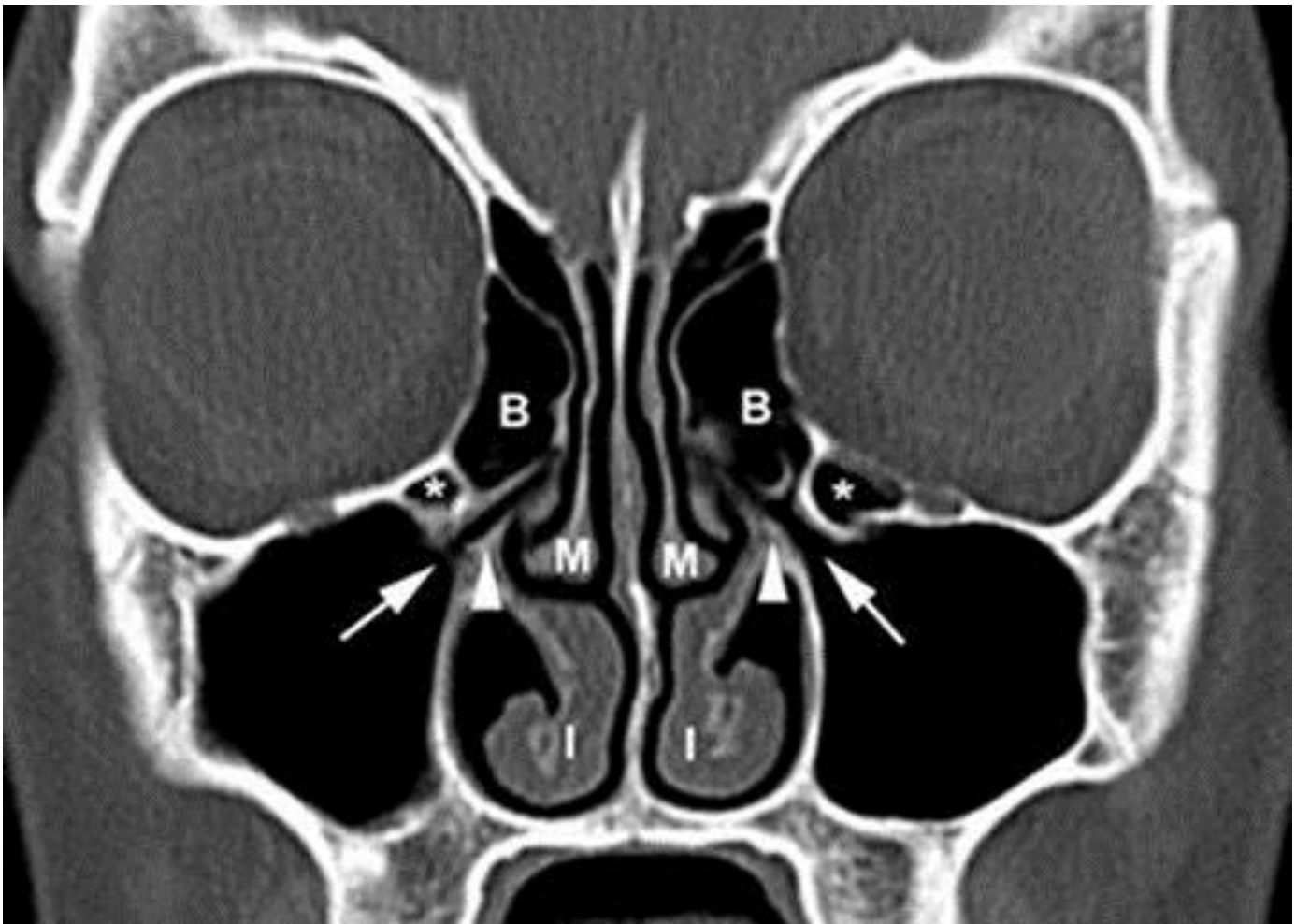
Figure 2, 3: Maxillary sinuses are located bilaterally below the orbit. Images from Google internet search.



Maxillary Sinus has six bony walls (Lateral, anterior, medial, posterior, inferior, superior walls). Image from RR. Resnik Lecture on Radiographic Interpretation of the Maxillary Sinus, Misch International Implant Institute CE Course, March 2010.



The osteomeatal complex is the anatomical region where the frontal and maxillary sinus meets and open to the nasal cavity. Included in this complex is the ostium, which is the pathway that allows sinus secretions to drain out from the maxillary sinus to the nasal cavity (Figure 5).

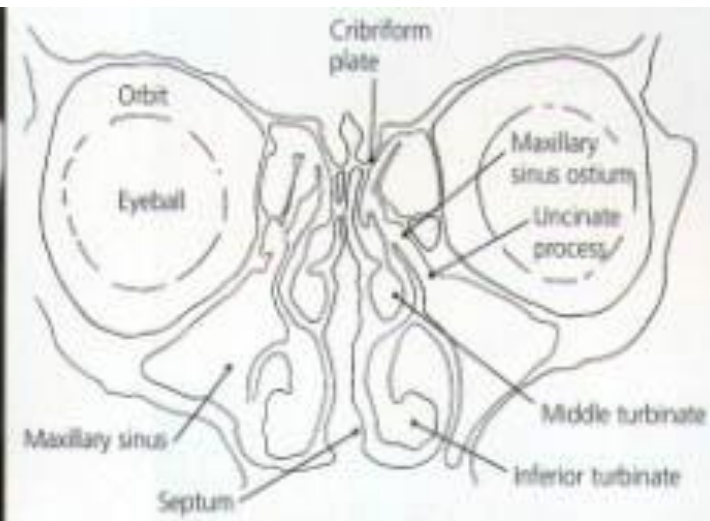
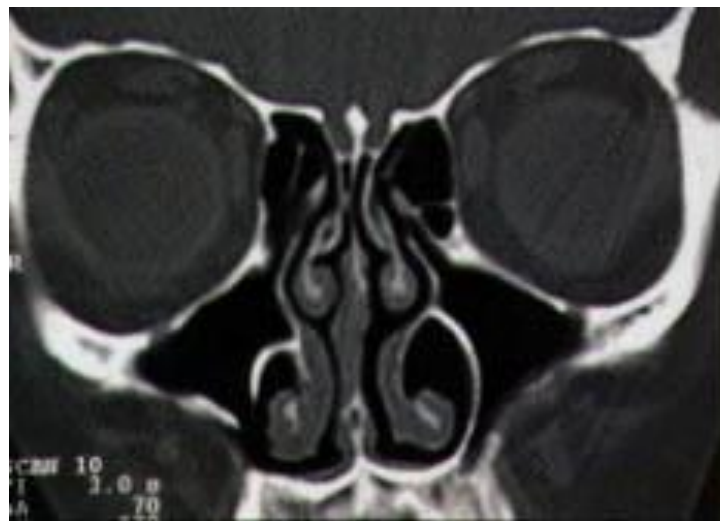


Arrows depict an open ostium bilaterally. *From American Journal of Roentgenology, Figure 1. December 2007 vol. 189 no. 6 Supplement S35-S45*

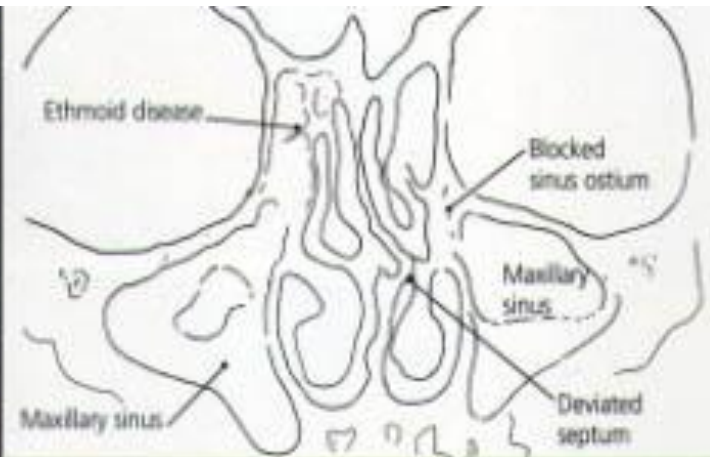
Main functional component of maxillary sinus outflow is the Osteomeatal complex

Surgery is done to open an obstruction of the osteomeatal complex

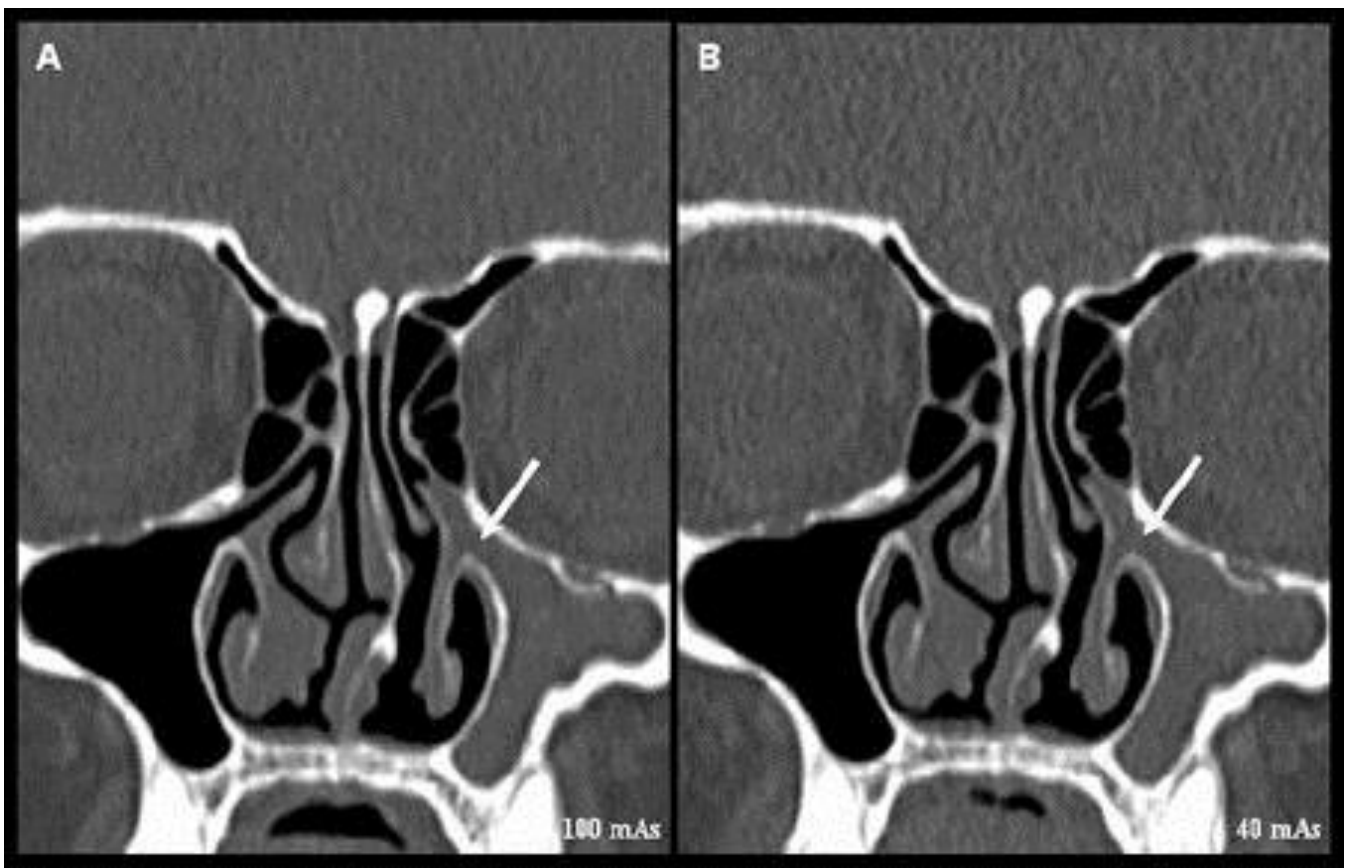
NORMAL



BLOCKED



If the ostium is opaque and therefore obstructed, sinus grafting should be delayed until the sinus pathology is addressed, and referral to the patient's physician or ENT is necessary. If a sinus augmentation is done with an obstructed ostium, moving the sinus membrane with a sinus lift could further alter ciliary function, resulting in acute sinusitis. Most often other pathology will be evident with an occluded ostium, such as build up of fluid in the sinus chamber (Figure 11). When there is fluid or an inflamed sinus membrane with chronic sinusitis or a sinus cyst, there will be varying degrees of gray in the sinus chamber (Figure 12).



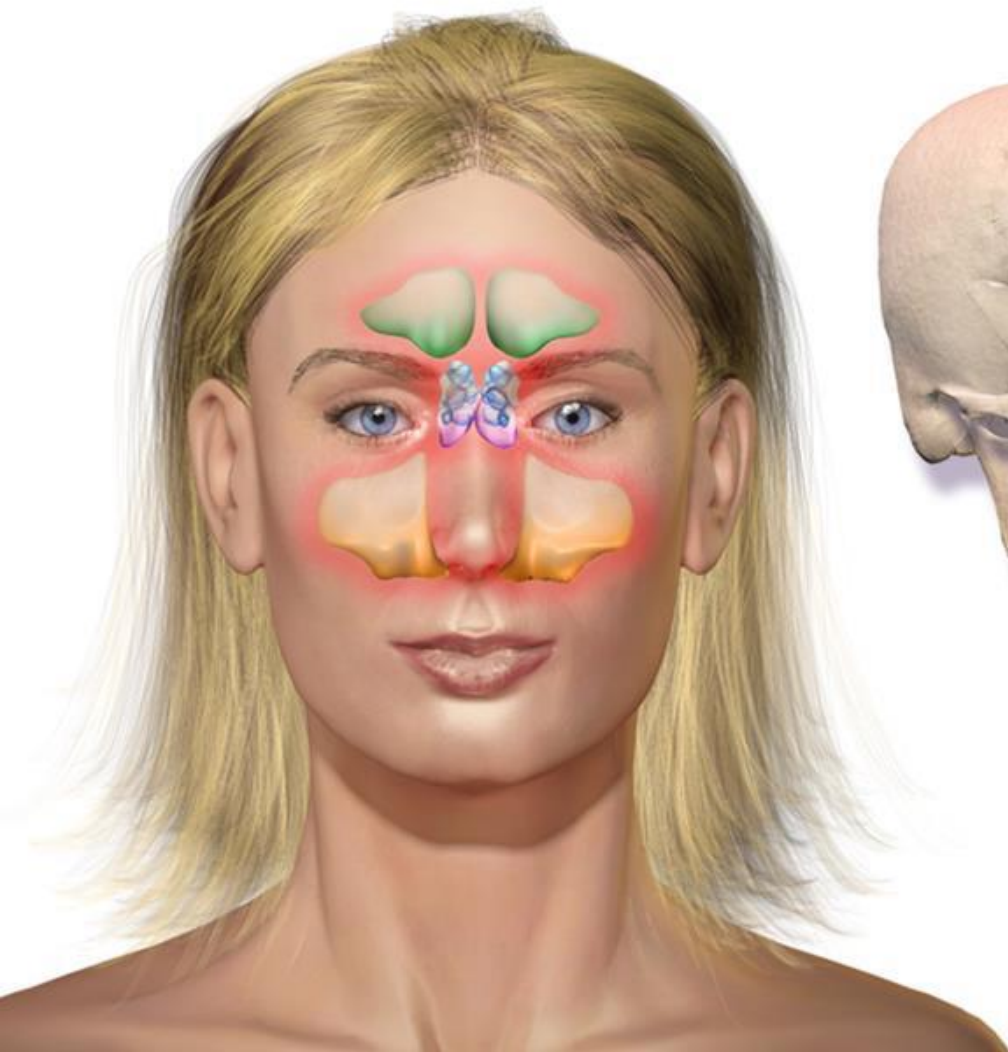
Right maxillary sinus is clear with a patent ostium while the left sinus shows fluid in the sinus chamber and an obstructed ostium (arrow). *From Biomedical Imaging and Intervention Journal 2009.*

Coronal view. Right maxillary sinus mucous retention cyst. Image from Google internet search.



Where maxillary sinus contents egress

Pre-operative antibiotics and steroids if edema or polyps are present





Common Cold and Flu are Viral

Antibiotics DO NOT WORK

Five most common bacteria

Streptococcus Pneumoniae



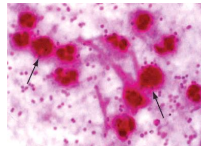
Haemophilus Influenza



Staphylococcus Aureus



Moraxella Catarrhalis



Streptococcus Pyogenes



Common RX for Sinus infection = Amoxicillin

Common Side effects of Amoxicillin

Stomach pain

Nausea

Vomiting

Diarrhea

Vaginal itch/discharge

Headache

Diarrhea may be a sign of a new infection!

Please consider the following high risk if taking antibiotics while:

Breast feeding

On Birth control

Have Jaundice

Kidney Disease

Liver Problems

Please consult your doctor or pharmacist!