



NASAL ANATOMY

EXTERNAL NASAL ANATOMY

The external anatomy is what is seen from the outside. The first layer of the nose is the skin. Below the skin are muscles, nasal bones and cartilages. This layer provides the framework and shape of the nose. The upper part of the nose is firm due to the underlying nasal bones. The lower part is softer and more collapsible because it is supported by cartilage instead of bone. These cartilage structures are called the upper and lower lateral cartilages. When looking at the nose from below, both nostrils (nasal openings) can be seen. The structure in the middle that separates the two nostrils is called the columella.

INTERNAL NASAL ANATOMY

The inner portion of the nose (or nasal cavity) extends deep into the facial bones. The boundaries of the nasal cavity include the sinuses (see sinus anatomy) and orbits (the eye sockets) to the sides, nasopharynx (where the nose meets the throat) to the back, skull base (where the nose meets the brain) above, and palate (roof of the mouth) below. The nasal septum is the structure that separates the two sides of the nose. If the septum is deviated (crooked), it can block one or both nasal passages, making it difficult to breathe through the nose. The front of the septum is made of cartilage and the back is made of bone. The septum extends up to the skull base and back to the nasopharynx. In the center of the skull base there is an area of thin bone called the cribriform plate. The nerve that controls smell (olfactory nerve) enters the nose through the cribriform plate to detect odors. Along the sides of the nasal cavity there are shelves of bone called turbinates. The turbinates, which are covered by the lining of the nose (mucosa), help humidify the air that your breath. There are generally three turbinates (inferior, middle, and superior) on each side. Occasionally there can be an extra turbinate (supreme turbinate). If the inferior (lower) turbinates are too large it may be difficult to breathe through the nose. Figure 1 is a photo of the right nasal cavity taken with an endoscope (See Nasal Endoscopy). The inferior turbinate, middle turbinate, and nasal septum are seen in this image.

MUCOSA

The lining of the inside of the nose is not skin, but is called mucosa. Mucosa contains mucus-producing glands and cilia, which are small hair-like structures. Cilia beat continuously to help move the mucus out of the nose and into the throat. The mucus produced by these glands helps trap harmful particles such as dust, allergens, and bacteria. The mucosa has a rich blood supply, which helps warm and humidify the air that we breathe. Along the front of the septum there is a collection of blood vessels, called Kiesselbach's plexus. This is the site where most nosebleeds occur (See Epistaxis). The sensation of the nose is provided by a nerve called the trigeminal nerve. However, the functions of the mucosa (ie. making mucous, swelling of the mucosa, and beating of the cilia) are controlled by autonomic nerve fibers. Infections, allergies, medications, emotions, and old age can cause imbalance of the autonomic nerve signals, resulting in a runny nose and nasal congestion (stuffy nose).

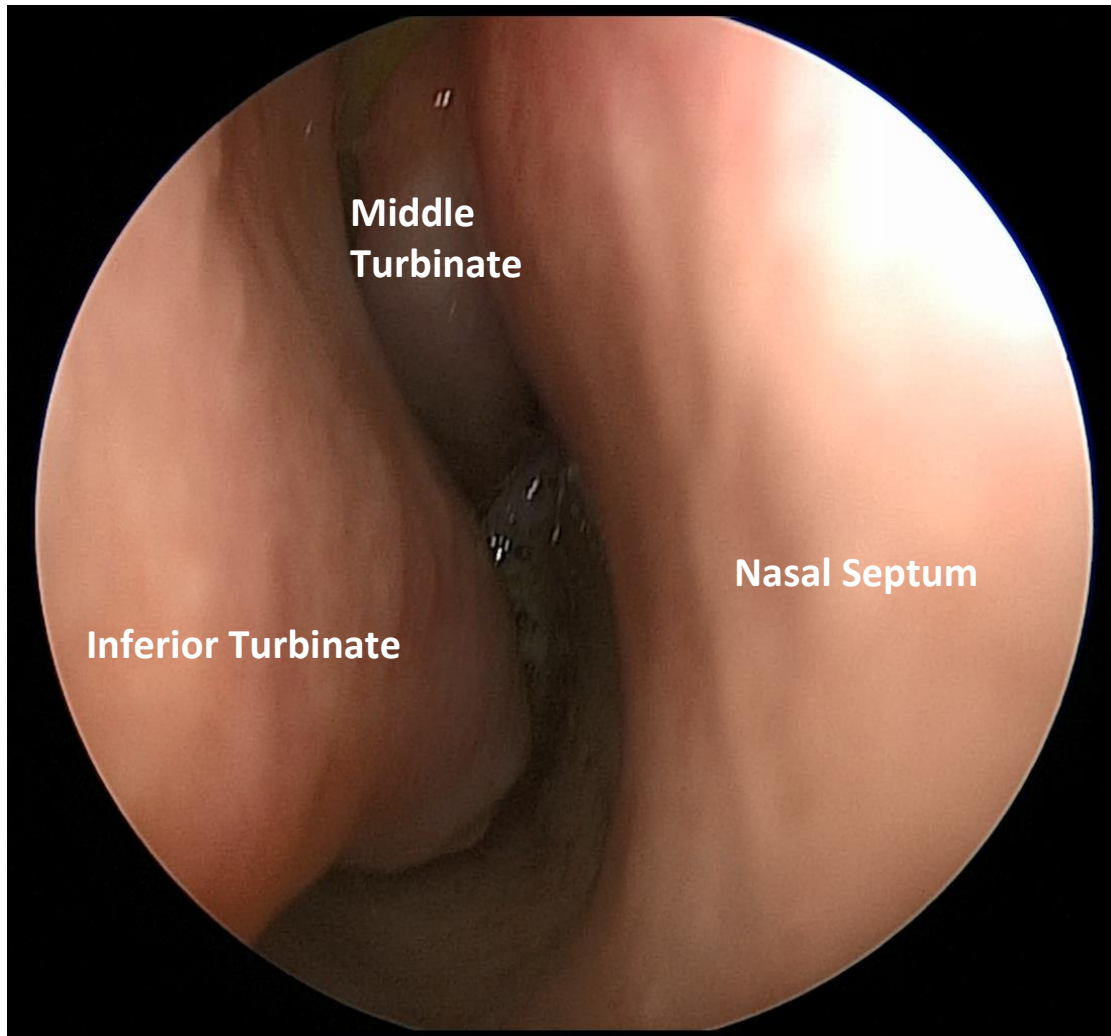


Figure 1. An image of the right nasal cavity seen with an endoscope

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