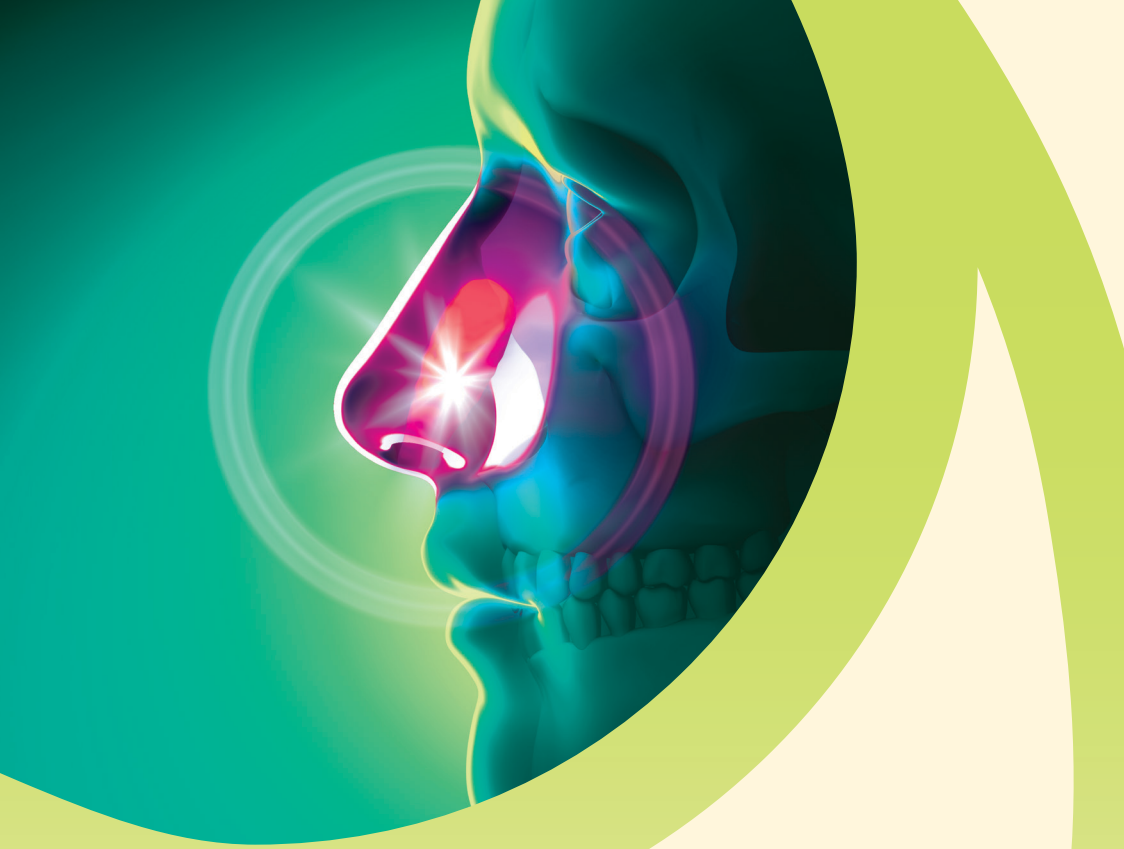

Inferior Turbinate Reduction Surgery

Changi General Hospital
SingHealth

What is inferior turbinate?

The inferior turbinate is a sausage-like bony structure that lies along the sidewall of the nose (one on each side of the nasal cavity) (Fig 1). The human nose has three pairs of turbinates (superior, middle and inferior turbinates). The turbinates humidify, warm and direct the air through the nasal cavity. It also produces mucous that traps dirt and bacteria in the air. The inferior turbinate is the lowest most turbinate and is also the turbinate that can cause significant nasal blockage when enlarged. The size of the turbinates varies with time and temperature. In patients with sensitive nose (allergic or non-allergic rhinitis), the turbinates can be constantly enlarged.

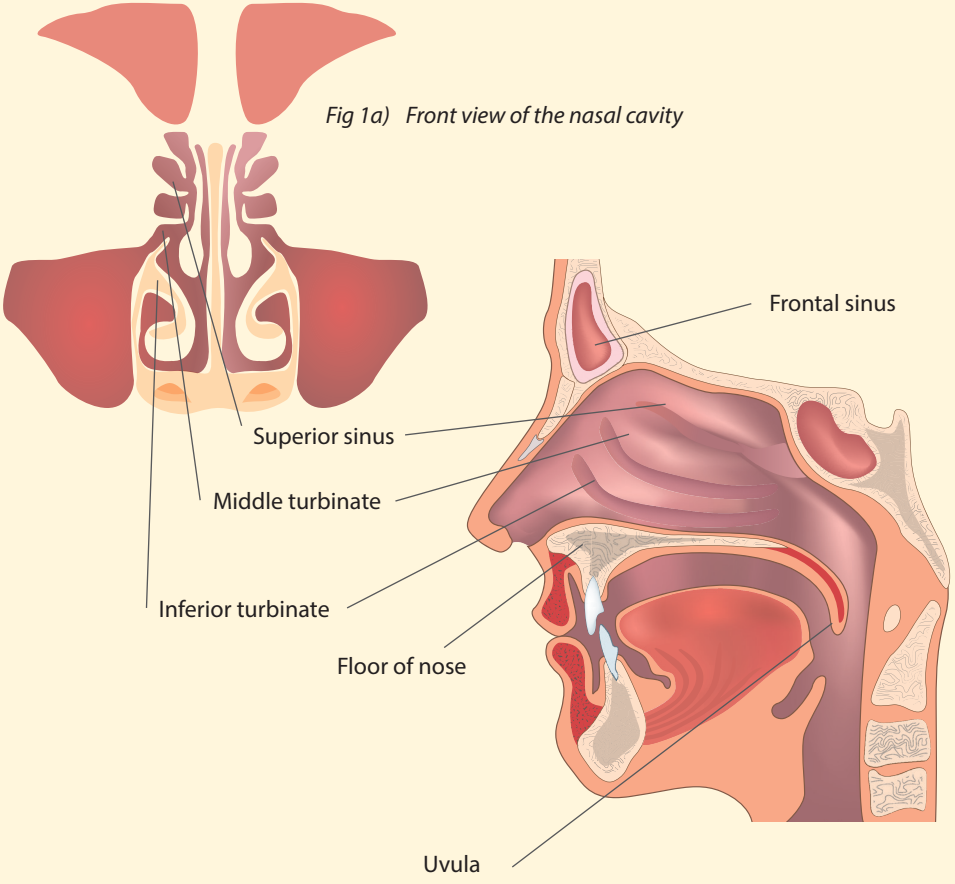

Fig 1a) Front view of the nasal cavity

Fig 1b) Side view of the nasal cavity

Why do I need inferior turbinate reduction surgery?

These procedures will be recommended by your Otorhinolaryngology/ENT (ear, nose, throat) surgeon if you have persistent blocked nose from inferior turbinate hypertrophy (enlarged inferior turbinates – Fig 2) and have not responded adequately to nasal steroid sprays and medications.

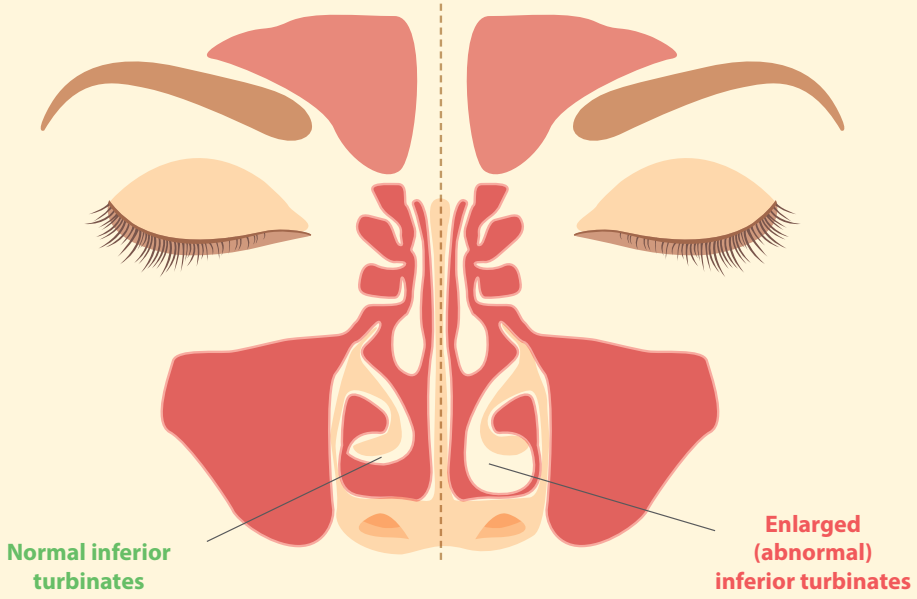

Fig 2) Front view of the nasal cavity illustrating the difference between a normal and abnormal (enlarged) inferior turbinate

What is inferior turbinate reduction surgery?

There are numerous methods to reduce the size of the inferior turbinates. They range from the least invasive procedure such as radiofrequency ablation of the turbinate, to the most aggressive procedure such as total turbinectomy (complete removal of the inferior turbinate). Quite often, an inferior turbinate reduction procedure is performed via Septoplasty (refer to "Septoplasty" brochure) to correct any concurrent deviated (bent or crooked) nasal septum.

Based on the surgeon and patient's preference, the following types of inferior turbinate reduction surgery can be considered. Your surgeon will discuss the pros and cons of each procedure.

1) Radiofrequency (RF) or coblation ablation of the inferior turbinate (*Fig 3*)

This method is performed under local anaesthesia (patient is awake). It involves anaesthetising (numbing) the inferior turbinate with local anesthetic agents (both topical and injections). A probe (either radiofrequency or coblation) is inserted into the inferior turbinate, and the heat and energy from these probes will induce shrinkage of the soft tissue of the inferior turbinate. After the procedure, patties (small gauze strips soaked in numbing and decongesting medications) will be placed directly over the insertion point of the probe to help stop the bleeding. The patties will be removed before the patient goes home. The procedure takes less than 10 minutes, and patients can go home after a short observation period. Turbinate reduction can take up to a month.

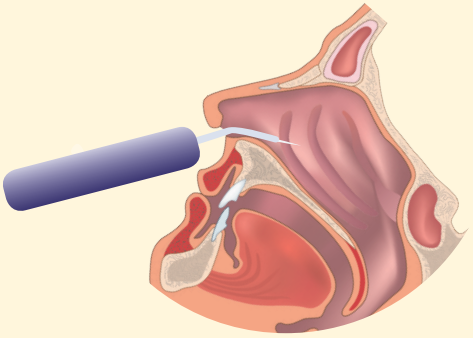

Fig 3) A radiofrequency or coblation probe is inserted into the inferior turbinate to induce shrinkage of the soft tissue

2) Microdebrider assisted inferior turbinoplasty (MAIT)

This method is performed under local (patient awake), or general anaesthesia (patient is completely asleep). Local anaesthesia involves anaesthetising (numbing) the inferior turbinate with local anesthetic agents (both topical and injections). A small cut is then made on the front part of the inferior turbinate and a small tunnel is created to allow the insertion of a small microdebrider (shaving instrument) (Fig 4a). The microdebrider is then inserted into the inferior turbinate and the soft tissue; sometimes part of the inferior turbinate bone is shaved off (Fig 4b). If the procedure is done under general anaesthesia, the surgeon may decide to outfracture the turbinate bone (fracture and push the turbinate bone to the sidewall of the nose) to increase the breathing

passage in the nose. The procedure takes about 15 - 20 minutes. After the procedure, patties (small packings soaked in numbing and decongesting medications) will be placed directly over the insertion point of the microdebrider to help stop the bleeding. The patties will be removed before the patient goes home. Turbinate reduction is more immediate compared to radiofrequency or coblation but there is also a slightly higher chance of bleeding. Patients can go home after a short observation period.

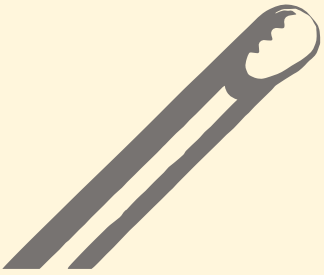

Fig 4a) The tip of the microdebrider has an oscillating blade with suction that will remove the inferior turbinate soft tissue during the procedure

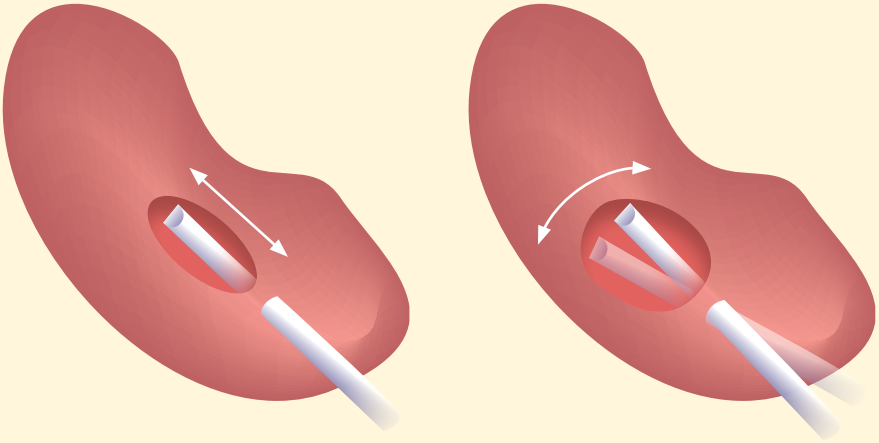

Fig 4b) The microdebrider is inserted into a "tunnel" created within the inferior turbinate to remove the soft tissue

3) Inferior turbinoplasty or submucous resection of the inferior turbinate

This method is performed under general anaesthesia (patient is completely asleep). It involves anaesthetising (numbing) the inferior turbinate with local anaesthetic agent (both topical and local injections). A cut is made on the front part of the inferior turbinate (*Fig 5a*) and a soft tissue flap of the turbinate is created (*Fig 5b*). The underlying bone is then removed. At the end of the procedure, the flap is repositioned to its usual place (*Fig 5c*).

The amount of tissue removal is greater than radiofrequency/coblation and MAIT. Hence, the amount of immediate improvement in nasal symptom may also be higher than methods **1)** and **2)**. The chance of bleeding may also be higher. The surgeon may insert packing materials that are either absorbable (does not require removal) or non-absorbable (usually removed a day or two after the surgery). If the patient's nose is not packed with non-absorbable material, the patient may go home on the same day. If the patient's nose is packed with non-absorbable material, then the patient will have to stay in the hospital until the packs are removed (usually 1 - 2 days).

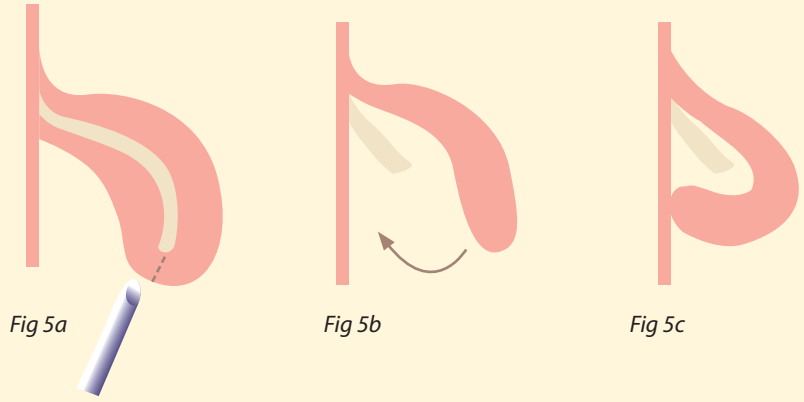

Fig 5a *Fig 5b* *Fig 5c*

4) Partial or total inferior turbinectomy

This method is performed under general anaesthesia (patient is completely asleep). It involves anaesthetising (numbing) the inferior turbinate with local anaesthetic agent (both topical and local injections). The front half of the inferior turbinate (partial inferior turbinectomy) or the entire inferior turbinate (total inferior turbinectomy) is cut with a pair of scissors (*Fig 6*). As this is the most aggressive form of turbinate reduction surgery, the amount of space created in the nose is also the highest. The risk of bleeding and crusting in the nasal cavity is also the highest. There is also a higher risk of a rare complication known as empty nose syndrome (patient paradoxically

feels that their nose is still blocked despite having a large space in the nasal cavity after turbinectomy). Patients usually stay in the hospital after turbinectomy surgery. After turbinectomy, the nose is usually packed with non-absorbable material to stop the bleeding. The packs will be removed 1 - 2 days after surgery.

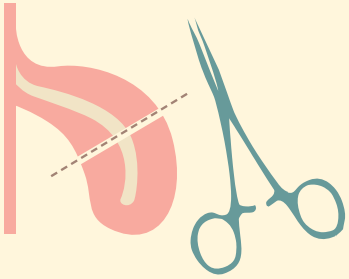

Fig 6a) Scissors is used to cut the front half (partial turbinectomy) or the whole (total turbinectomy) inferior turbinate

Fig 6b) Small remnant turbinate left after turbinectomy

What are the risks of inferior turbinate reduction procedure?

Overall, inferior turbinate reduction procedures are very safe. There are no external cuts or wounds on the face as the surgery is performed through the nose.

The main risks of turbinate reduction procedure are crusting, bleeding and, very rarely, empty nose syndrome. The more aggressive the procedure, the more likely the patient will feel immediate improvement in nasal obstruction. However, the risks of complications are also higher. Patient should have a thorough discussion with their surgeon on the benefits and risks of each procedure before deciding.

Are there any food restrictions after inferior turbinate reduction procedures?

No.

When can I resume heavy physical activity?

It depends on the type of procedure the patient underwent. For radiofrequency or coblation of the inferior turbinate, patient can probably resume normal physical activity after the first postoperative clinic visit. For more aggressive turbinate reduction procedures, it is generally advised that patients should avoid any heavy physical activity (e.g. weight lifting, intense aerobic exercises) for at least a month after the surgery.

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