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Current update on office-based procedures in rhinology

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The current health care climate has prompted a rise in certain procedures moving from the operating room to the office-based setting. Along with increased interest in office-based rhinologic procedures, there has been an expansion of devices, indications, and techniques. Many sinonasal conditions can now be safely and successfully treated in the clinic. Clinic procedures have potential advantages in comparison with surgery, such as faster scheduling, shorter procedure duration, quicker patient recovery, and reduced anesthetic morbidity. These advantages can translate to better satisfaction, cost, and time saving for both the patient and surgeon. This article seeks to review the office-based rhinology procedures, with a focus on those commonly performed in our practice.
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Patient selection

Appropriate patient selection is crucial to the safety and success of any procedure; therefore, a detailed history and physical examination should be performed to assess the suitability of each patient for an office-based intervention. Patients should also be counseled on the risks, benefits, and alternatives of each procedure so as to be an active participant in the decision-making process. Including the patient in the decision process with informed consent improves the physician-patient relationship, minimizes liability, and ultimately improves patient safety.[12]

Relative contraindications to office-based surgery include increased risk of bleeding (eg, history of bleeding disorder and vascular tumor) and intolerance to endoscopic procedures (eg, history of anxiety disorder and pediatric patients). Patients with medical issues warranting close cardiovascular control, such as advanced coronary artery disease, may benefit from more precise monitoring under anesthesia in the operating room and may not be suitable candidates for office surgery. However, some of these very sick patients can have such high perioperative risk that clinic-based procedures provide a safer alternative for needed procedures.

Additional cost and time savings occurs when combining multiple procedures in the same office visit. Typical examples include multiple balloon sinusotomies with bilateral inferior turbinate reductions. Also, polypectomy can be combined with placement of steroid impregnated material.

Equipment

The equipment necessary for any given procedure will vary according to the procedure, and is generally similar to the instruments used in the operating room. Commonly used instruments include grasping and thru-cutting forceps (both straight and upbiting), backbiting forceps, giraffe

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forceps, Freer or Cottle elevators, straight and curved suctions, and sinus ostium seekers. Additional equipment that may be needed include a suction cautery, coblator, silver nitrate, microdebrider, and balloon sinus devices.

Most of our sinonasal procedures in both the operating room and the clinic involve the use of nasal endoscopes, with the 30° (4 mm) endoscope being the most commonly utilized. Procedures requiring more precise visualization of structures such as the frontal sinus, sphenoid floor, maxillary floor or anterior maxillary wall may be performed with 70° endoscopes. Although infrequently used in our practice, 0° endoscopes are preferred by some surgeons.

Anesthesia and decongestion

Topical application via atomized spray of decongestant (oxymetazoline) and anesthetic (ponticaine or lidocaine) should be applied several minutes before any office-based sinonasal procedure. These medications are usually sprayed intranasal, but some procedures benefit from additional anesthesia from medicine-soaked cotton pledgets or local injection. Injection or medicine-soaked pledgets or both can be endoscopically guided to targeted regions depending on the location and extent of the procedure. Possible exceptions to preprocedure medicine may include simple endoscopy, minimal debridement or culture, or rare patient conditions (medication allergy or intolerance).

Local injection consists of 1% lidocaine with or without 1:100,000 epinephrine, which provides anesthesia and vasoconstriction, respectively. Targeted sensory nerves include branches of the anterior and posterior ethmoid (superiorly), sphenopalatine (posteriorly), and nasopalatine (septum). The vascular targets, also addressed during operating room procedures, include the sphenopalatine artery located near the tail of the middle turbinate.

The turbinates and septum can be injected just below their mucosa. The frontal area benefits from injection in the middle turbinate attachment and lateral wall anteriorly; however, this wall is shared with the orbit and only superficial injections should be given. Similarly, the maxillary ostium region can be injected at the uncinate and surrounding lateral wall (also shared by the orbit). Slow injection minimizes discomfort. Also sodium bicarbonate added to the injection can adjust the pH and reduce discomfort (Figure).

Transoral injection of the pterygopalatine fossa can be done via the greater palatine foramen. The foramen is noted as a hard palate depression posterior and medial to the second maxillary molar. To perform this injection, a 25-gauge, 1.5-in needle should be bent at 25 mm from the tip at an angle of 45°.[4] One should draw back before injection to avoid inadvertent intravascular delivery.

Inferior turbinate reduction

There are numerous techniques available for inferior turbinate reduction. Intraoperatively, submucosal reduction

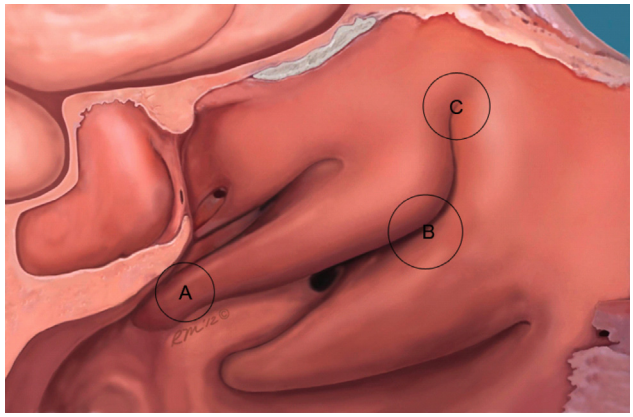

Figure Local anesthetic injection sites for office-based sinonasal procedures. The inferior turbinates, middle turbinates, and septum (not labeled) can be injected directly. (A) Injection of the sphenopalatine region is performed near the tail of the middle turbinate. (B) Injection of the maxillary ostium region is performed at the uncinate and lateral wall. (C) Injection of the frontal area is performed near the middle turbinate attachment (axilla) and lateral wall. (Color version of figure is available online.)

is the traditional technique, which has shown to provide good long-term results.[10] A submucosal dissection is performed by dissecting below the inferior turbinate mucosa and resecting the underlying conchal tissue, including bone and excessive soft tissue. The submucosal soft tissue and bone is removed with forceps (microdebrider or coblation can remove only soft tissue). Ultimately, the goal is to reduce the turbinate volume, but preserve overlying functional epithelium.

Postoperative nasal obstruction is often from residual hypertrophy of turbinate tail (posterior) or turbinate head (anterior). These regions are predominately soft tissue and can be reduced by several in-office techniques, such as coblation, cutting forcep, or microdebrider.

Radiofrequency reduction of the inferior turbinates is an ideal procedure for the office-based setting with good outcomes, patient tolerance, and low complications.[11] Turbinate reduction with needle-shaped coblation is performed using the ReFlex Ultra PTR or 45 Plasma Wand (Arthrocare, Austin, TX). The turbinates are first infiltrated with local anesthesia; 2-4 mL of 1% lidocaine with or without epinephrine 1:100,000 to hydrodissect and swell the turbinate soft tissue. The coblation wand tip is placed in a saline gel to serve as a conductive media. The wand tip is advanced submucosally to the final marker. Coblation is activated for 10 seconds to create the first lesion. The wand is withdrawn to the distal marker and then activated for another 10 seconds to create a second lesion. The process may be repeated to create multiple channels to decrease the size of the inferior turbinate (ReFlex Ultra PTR and 45 Plasma Wand).[2] The new turbinator wands are much wider than the needle-tip wands and need precise placement into a submucosal pocket in the inferior turbinate. Once in the correct position, the device tip has saline delivery and suction, which allows for rapid and greater soft tissue ablation. This results in immediate volumetric reduction of hypertrophic

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