



# Management of patients with rhinitis

Having a blocked, stuffy or runny nose can cause much discomfort and frustration. GPs are well placed to help patients with these symptoms, both in identifying their causes and in determining their appropriate treatment.

## GILLIAN DUNLOP

MB BS, BSc(Med), FRACS

Dr Dunlop is an ENT and facial cosmetic surgeon in private practice in Wahroonga and Eastwood, NSW.

'My nose is blocked' may seem a trivial complaint but to a patient means discomfort and frustration. Relief of the patient's symptoms by analysing and treating the underlying cause is rewarding for both the patient and the doctor. This article is a commonsense approach to the treatment of rhinitis, the inflammation of the nasal mucosa that leads to symptoms such as nasal obstruction, discharge and, sometimes, sinus pain.

### Causes of rhinitis

Rhinitis may be classified by its causative agents, which include:

- allergy
- infection
- structural entities
- other (including temperature or humidity changes, sensitivity to irritants, anxiety, endocrine causes, excessive use of vasodilators and more)
- a combination of the above (infection is more common in those with allergy).

### Allergy

Specific causes of allergic rhinitis are divided into seasonal and perennial. Seasonal causes, such as

grasses and pollens, are usually problematic from August to February. Conjunctivitis is seen more frequently in those with seasonal rhinitis than in those with perennial rhinitis.

Patients with allergic rhinitis generally present with:

- a watery discharge
- sneezing
- nasal obstruction alternating from side to side
- a heightened sensitivity to irritants such as cigarette smoke and strong perfumes.

They may also have other atopic manifestations, such as eczema, dermatitis or asthma.

### Physical examination

Examination may reveal:

- 'allergic shiners' – periorbital oedema and discolouration due to lymphatic and venous stasis
- the 'allergic nasal crease' – a nasal crease from frequent nose rubbing (the 'allergic salute')
- engorged nasal turbinates with clear discharge throughout the nose (Figures 1a and 1b).

There may also be retracted tympanic membranes because of eustachian tube dysfunction.

## IN SUMMARY

- Rhinitis may seem a trivial entity but it results in frustration and discomfort.
- Rhinitis may be classified as allergic, infective, structural or mixed.
- Seasonal allergic rhinitis is best treated by oral antihistamines or nasal corticosteroid sprays.
- Perennial rhinitis is best treated by nasal corticosteroid sprays.
- Chronic infective rhinosinusitis is best treated by clindamycin, prednisone and saline douching. Surgery for this condition is reserved for those failing maximal medical therapy.

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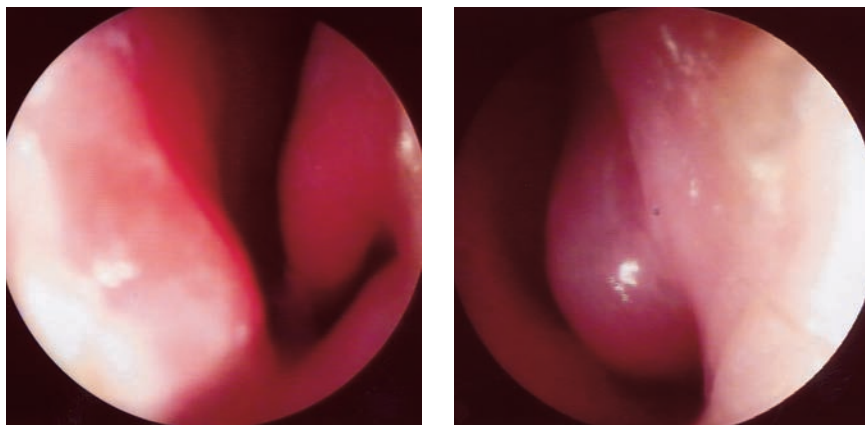


Figure 1a and b. a (left). Normal inferior turbinate, left side of nose. b (right). Inferior turbinate in a patient with allergic rhinitis. Note the pale and swollen appearance.

### Investigations

Skin prick testing will demonstrate allergen-specific IgE, the basis of the diagnosis of allergic rhinitis. (This investigation should be postponed if the patient has taken antihistamines within the past 48 hours.) Radioallergosorbent (RAST) testing (5 mL of clotted blood) is a convenient alternative. Skin prick testing, however, is more impressive and educational for the patient as they can see the redness and swelling on their arm and extrapolate this to what is happening in their nose.

The aim of allergen identification is avoidance of the allergen. Time should be spent educating the patient in specific avoidance measures.<sup>1</sup>

### Treatment

#### Drug therapies

The most effective treatment of seasonal rhinitis involves systemic therapy with oral nonsedating antihistamines (fexofenadine [Telfast]; loratadine [Claratyne]; cetirizine [Zyrtec]). Oral antihistamine therapy also allows for treatment on an as-needed basis as long as the tablet is taken before exposure to the allergen. Antihistamine sprays are also available (levocabastine [Livostin]) but may only be used for eight weeks' duration.

Corticosteroid nasal sprays (budesonide [Rhinocort]; mometasone fluroate

[Nasonex] are useful for patients with more severe and continuous seasonal allergy, but they must be taken daily on a regular basis. Oral antihistamines can be used in addition to corticosteroid sprays during times of increased allergen exposure – when patients with severe grass allergies are taking part in outdoor sport activities, for example.

In contrast to seasonal rhinitis, perennial rhinitis is most effectively treated by allergen avoidance and nasal corticosteroid sprays. However, compliance must be stressed. Patients should understand the following points:

- they will not be cured by one bottle of corticosteroid spray, and must continue to fill repeat prescriptions
- although the spray is a corticosteroid, the dose is restricted to the nose and does not escape in harmful amounts into the rest of the body
- the dose of corticosteroid per application is well below the amount of steroid made by the body each day
- budesonide and mometasone furoate are not harmful to the lining of the nose – occasional bleeding (<3%) is usually due to direct trauma on application of the spray, and vaseline can be used after each spray instillation to protect and heal the anterior septal lining.

The cost of corticosteroid spray therapy may be an issue for some patients. A unilateral, and yet to be explained, decision by health authorities led to the removal of Rhinocort and Nasonex from the Pharmaceutical Benefits Schedule register in November 2000. Patients with health insurance that covers pharmaceutical costs can claim some of the cost of their therapy, but other patients may be faced with the alternative of cheaper products such as beclomethasone (Aldecin, Beconase). However, the efficacy and safety of beclomethasone are less than for budesonide and mometasone furoate. Treatment with beclomethasone is often suboptimal unless sprays are used three times a day, compliance is less likely and bleeding is more common.

Patients who present with such severe obstruction that corticosteroid sprays cannot be instilled will benefit from a vasoconstrictor spray (oxymetazoline [Dimetapp 12 Hour Nasal Decongestant Spray, Drixine Nasal, Logicin Rapid Relief Nasal Spray, Vicks Sinex]; xylo-metazoline [Otrivin]) 10 minutes before the instillation of the nasal corticosteroid spray. Vasoconstrictor sprays should be used for no more than seven days because of the danger of rhinitis medicamentosa. Patients should be warned of this, lest they perceive these sprays as the most effective source of relief of their nasal obstruction.

#### Immunotherapy

Immunotherapy is worth considering for allergic rhinitis, particularly in those patients who dislike taking medications. However, these patients must be sufficiently motivated and reliable to complete the program.

#### Surgery

Surgical treatment such as partial inferior turbinectomy frequently fails due to tissue regrowth. A complete turbinectomy may lead to drying and crusting of the nose because the excessive removal of nasal

mucosa means there is inadequate humidification within the nose. Interestingly, this is more of a problem in the warmer climates such as Sydney, compared to Melbourne.

Newer procedures such as radio-frequency ablation and microdebridement of the inferior turbinates are currently being developed and may be of benefit.

## Infection

Patients with rhinitis due to infection present quite differently to those with rhinitis due to allergy. Infectious rhinitis sufferers complain of:

- purulent discharge – both anterior and posterior
- constant nasal obstruction, often associated with facial pain (rhinosinusitis)
- fatigue and malaise.

Patients should be asked about their general immune status, such as diabetes, HIV and immunosuppression. (Patients with these conditions should be referred to an ENT surgeon or a clinical immunologist.) Patients with chest infections frequently suffer recurrent rhinosinusitis because nose and chest infections tend to seed each other. Sinus surgery for these patients helps establish better aeration and drainage to the sinuses, reducing rates of infection and improving overall wellbeing.

## Physical examination

Examination of the patient with an infective cause of rhinitis reveals:

- engorged nasal mucosa
- a purulent discharge
- middle ear effusions – these are more common at the extremes of age
- inflammation in the lateral bands of the posterior pharyngeal wall – due to the constant passage of infected mucus postnasally.

## Investigations

Investigations are best avoided in the early stages of infection unless there are complications such as:

- high temperature
- swelling above the eye (pre-septal cellulitis)
- a decreased level of consciousness (frontal brain abscess)
- extreme pain.

Patients with these complications should be referred for specialist review urgently.

At this early stage, nasal swabs produce cultures that are unlikely to correlate with the causative organism in the ethmoidal sinuses, and are therefore of not much use. CT scans are not particularly helpful in early rhinitis because every upper respiratory tract infection with rhinitis appears to have changes of ‘pansinusitis’ if scanned. Also, the anatomical detail required for possible surgery is better seen after clearance of most of the mucus and swelling (which shows on a scan as opacification). As scans are more relevant after at least two to three weeks of maximal medical treatment (see below and Table 1), they are recommended at that stage.

Patients with rhinosinusitis should be referred if there are:

- any of the complications mentioned above
- no signs of improvement
- any evidence of fungal disease on the

paranasal sinus CT scan, such as unilateral sinus opacification, thickening of bony sinus walls or heterogeneity of sinus contents (indicating magnesium salts deposited in fungal infections)

- ethmoidal sinus polyps despite treatment with prednisone
- anatomical abnormalities on paranasal sinus CT scan, such as severe septal deviation or large concha bullosa malformation of middle turbinate, as these are structural causes of nasal obstruction.

## Treatment

### Drug therapies

Treatment of infective rhinitis is dictated by the duration of the symptoms.

Early on, rhinitis is largely viral in origin. This is treated, if necessary, with decongestant–analgesic combination therapies.

Infection in the nose quickly spreads to the sinuses (rhinosinusitis). If symptoms do not settle within seven to 10 days, treatment of bacterial superinfection should be considered. Acute bacterial rhinosinusitis involves organisms such as *Streptococcus pneumoniae*, *Haemophilus influenzae* and *Moraxella catarrhalis*. Most patients will improve on amoxicillin–clavulanate (Augmentin), cephalexin (Keflex), roxithromycin (Rulide) or amoxicillin (Amoxil) taken for one to two weeks. However, *Staphylococcus aureus* superinfection is common in very young patients and immunocompromised patients, and *Pseudomonas* can be problematic in HIV and cystic fibrosis patients. Staphylococcal infections may be treated with amoxicillin–clavulanate, cephalexin (Ceflin, Cilin, Ibilex, Keflex) or dicloxacillin (Diclocil, Dicloxsig, Distaph) and *Pseudomonas* infections with ciprofloxacin (Ciproxin).

Chronic rhinosinusitis is considered to exist after symptoms have persisted for eight weeks. Microbiological changes occur during this time. After eight weeks

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### Table 1. Chronic rhinosinusitis therapy

- At least two weeks of clindamycin, or cephalexin plus metronidazole
- A reducing dose of oral prednisone (50 mg daily for three days, then 25 mg daily for three days, then 12.5 mg daily for three days)
- Saline bicarbonate douches – six times daily

### Table 2. Saline bicarbonate douche

#### To prepare

Mix together:

500 mL tap water

1 heaped teaspoon of table salt

Half a teaspoon of bicarbonate of soda (baking powder)

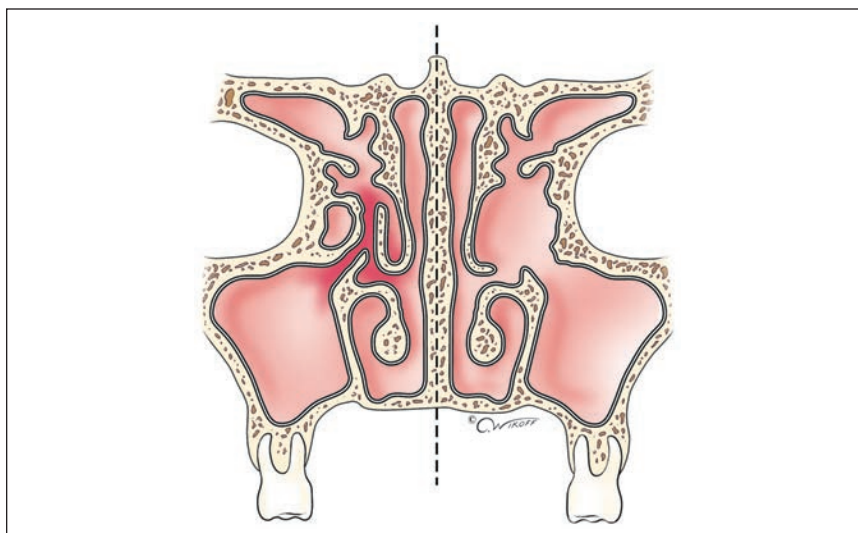
#### To use

Instil two squirts from a 2 mL syringe (or a 60 mL ear bulb syringe) into both nostrils six times daily.

(Note that patients may complain of stinging on application of the solution if the salt content is too high).

of infection the causative organisms are 60% solely anaerobic bacteria, 10% aerobic (the same bacteria as in acute rhinosinusitis) and 30% mixed aerobic and anaerobic bacteria.

The recommended maximal medical treatment for chronic rhinosinusitis involves two to three weeks of clindamycin (Cleocin, Dalacin C) 150 mg qid, but care must be taken to warn the patient to cease clindamycin if diarrhoea develops. An alternative is cephalexin 500 mg qid plus metronidazole (Flagyl, Metrogyl, Metronide) 200 mg tds. Oral corticosteroid and saline bicarbonate douching are important components of maximal



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Figure 2. Coronal section of the paranasal sinuses. The pre-op view is shown on the left-hand side of the diagram. The post-op view on the right-hand side demonstrates the small amount of tissue that is required for optimal drainage.

medical therapy (Table 1). Prednisone (Panafcort, Sone) is used in a reducing dosage (50 mg daily in an adult for three days, then 25 mg daily for three days, and then 12.5 mg daily for three days) for patients with chronic rhinosinusitis unless there are contraindications to corticosteroids. (Prednisone may also be used for acute sinusitis when there is considerable pain.) Saline bicarbonate douches have been shown to increase the mucociliary clearance rate (the presence of infection greatly reduces this rate) – commercial preparations are available (FES Spray, Narium Nasal Mist), but patients can prepare their own (Table 2).

Steam inhalations may also be used to increase mucociliary clearance; additives such as eucalyptus oil are pleasant but not therapeutic.

#### Surgery

The objective of surgical treatment of infective rhinosinusitis is to increase aeration and drainage of the sinuses by the removal of the most anteroinferior aspect of the ethmoid sinus. It is now understood that the larger, more dependent sinuses will settle down once drainage is

established. Surgery, which is performed endoscopically, involves removing less than a total of 1 cm<sup>3</sup> of tissue from the right and left sides of the nose (Figure 2). It takes less than one hour and may be undertaken as a day case procedure. Nasal packing is not necessarily required.

#### Structural entities

Structural causes of rhinitis are different in children and adults.

#### Paediatric patients

##### Bilateral obstruction and discharge

Adenoidal hypertrophy manifests as a constant bilateral nasal obstruction associated with a coloured nasal discharge which clears on antibiotic treatment but rapidly relapses when the antibiotic is stopped. A nocturnal cough may be present, as may middle ear effusions or retracted tympanic membranes consistent with secondary eustachian tube dysfunction. A lateral airways x-ray can be helpful.

The treatment is adenoidectomy, which is performed as a day case procedure and is rarely associated with post-operative bleeding or pain.

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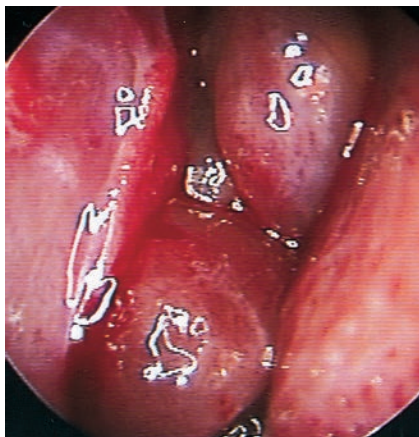


Figure 3. Nasal polyps within the left nasal cavity.

### Unilateral obstruction and discharge

A foreign body or unilateral undiagnosed choanal atresia should be considered when there is unilateral obstruction and discharge. Referral to an ENT surgeon is recommended although removal of a foreign body may be possible in the GP's rooms.<sup>2</sup>

### Nasal polyposis

Nasal polyps are rarely seen in children. Any child presenting with nasal polyposis should be screened for cystic fibrosis.

### Adult patients

#### Nasal polyposis

Patients with moderate to severe nasal polyposis present with nasal obstruction and postnasal discharge, and a poor sense of smell. Pain is rarely a strong feature of presentation (unlike with infective rhinosinusitis). Examination reveals pale midline polyps, not to be confused with the pink turbinates lining the lateral nasal wall (Figure 3).

Treatment involves oral prednisone in a reducing scale – 50 mg daily for three days, then 25 mg daily for three days, and then 12.5 mg daily for three days. A CT scan should be performed at the end of the prednisone therapy for a new patient to exclude other pathology, such as a fungal infection. Maintenance treatment involves daily use of corticosteroid sprays.

Pulse oral corticosteroid therapy every three months is safe unless there are contraindications to corticosteroids or there is patient intolerance, for example, sleeplessness.

Surgery is not curative and is, therefore, reserved for those failing oral corticosteroid pulse therapy. However, surgery is mandatory if there is evidence of fungal infection on CT scanning. Allergic fungal sinusitis (a histopathological diagnosis) may necessitate the use of oral antifungal agents such as itraconazole (Sporanox), in addition to surgery.

### Septal deviation

Septal deviation causes nasal obstruction but rarely a discharge (unless there is impaction in the middle meatal region leading to sinusitis due to poor sinus drainage and aeration).

### Tumours

Nasal and sinus tumours are rare causes, but should be suspected in any adult

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presenting with unilateral symptoms. Tumours are more common in certain occupational groups, such as adenocarcinoma in carpenters. Nasopharyngeal carcinoma is more common in people of Asian origin, particularly those with a family history of this disease.

## Other causes of rhinitis

### Nonallergic causes

Changes in temperature or humidity, sensitivity to irritants such as cigarette smoke or strong odours, and anxiety may trigger nonallergic rhinitis (also known as hyper-reactive or vasomotor rhinitis).

Although this rhinitis is not IgE-mediated, affected patients exhibit similar nasal findings to patients with allergic rhinitis, that is, swollen turbinates and clear discharge. Fortunately their treatment is also similar. Nasal corticosteroid sprays are the first line of therapy, although ipratropium (Atrovent Nasal) is added if discharge is predominant.

### Hormonal causes

Endocrine causes of rhinitis include pregnancy, hypothyroidism and acromegaly. Treatment again involves corticosteroid sprays. Pregnant women need to be reassured that if treatment is necessary, it is quite safe – expectant mothers with asthma take the same medications (often in larger doses) and deliver normal babies. However, pregnant women will often opt for saline bicarbonate douching.

### Drugs

Rhinitis medicamentosa is caused by the excessive use of vasoconstrictor medications. These drugs are powerful relievers of nasal obstruction, but can lead to rebound vasodilatation if used regularly for more than one week. Examination reveals granular inflamed mucosa. The best treatment is to go ‘cold turkey’. The patient should be warned that he or she will have five miserable days and nights of obstruction, and then, like a door opening, he or she will suddenly

be able to breathe as the nasal mucosa normalises.

### Rare other causes

Rare causes of rhinitis include granulomatous diseases such as sarcoid and Wegener’s granulomatosis. Diagnosis is made by serology and biopsy. Treatment is best co-ordinated by a physician with a special interest in this area.

### Conclusion

Rhinitis is a frequent and frustrating problem for the patient. A commonsense classification by cause, such as allergy, infection, structural or other, can help to determine the appropriate treatment. Resolution of symptoms is rewarding for both the patient and the doctor. **MT**

### References

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2. Motbey J. How to remove a foreign body from a child’s nose. *Medicine Today* 2001; 2(4): 106-107.