

How to manage patients with hard-to-recognize postnasal drip?*†

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SUMMARY

Postnasal drip (PND), commonly regarded as a phenomenon wherein nasal fluid drips into the pharynx, is one of the main symptoms of chronic sinusitis and other nasal lesions. This definition is controversial, however, because some patients have PND with no evidence of fluid either in the oropharynx or around the choanae. Among 220 patients in whom PND was diagnosed at the University of Tokyo Hospital between January 1996 and December 1997, 19 (8.6%) had hard-to-recognize PND on routine examination. Through careful observation, responsible lesions could be identified in all patients with hard-to-recognize PND. Seven patients had latent chronic sinusitis, 5 had nasopharyngeal lesions, such as Tornwaldt's cyst and inflammation, 3 had "old man's PND", 2 had "reflux PND", and 2 had polyps around the sphenoid ostium. Five patients received no treatment. In the other patients, medical therapy, mainly long-term treatment with low doses of macrolides, now regarded as a standard regimen for intractable chronic sinusitis in Japan, was effective in alleviating symptoms regardless of the cause.

Key words: airway secretion, fiberoptic, macrolides, postnasal drip, rhinorrhea

INTRODUCTION

Postnasal drip (PND) is one of the main symptoms of chronic sinusitis and other nasal lesions. It has been ignored, however, because it is usually associated with rhinorrhea and is considered a mere manifestation of hypersecretion of nasal fluid. PND is regarded as a phenomenon wherein rhinorrhea drips into the pharynx. This definition is controversial, however, because some patients have PND with no evidence of fluid either in the oropharynx or around the choanae. Thus, it seems more accurate to define PND as a condition wherein a patient feels some fluid in the nasopharynx but cannot remove it voluntarily. Furthermore, PND can be divided into two types: 1) true PND, which can be confirmed objectively, and 2) PND sensation, which has no objective evidence of fluid.

The number of patients who complain of PND yet show no fluid in the nasopharynx during routine work-ups is considerable. This paper aims to clarify the clinical entity of such "hard-to-recognize" PND.

MATERIAL AND METHODS

We prospectively studied patients who complained of PND at the Rhinology Clinic, Department of Otolaryngology-Head and Neck Surgery, the University of Tokyo Hospital from January 1996 through December 1997. After a careful interview of the

patients to confirm the presence and origin of PND, we performed anterior rhinoscopy, posterior rhinoscopy, and endoscopy from the anterior nares with the use of a flexible fiberoptic. If necessary, endoscopy through the oral cavity using a rigid endoscope, or diagnostic imaging was performed. A total of 220 patients had PND. Virtually all of these patients presented with evidence of fluid in the posterior nose, around the choanae, or in the nasopharynx or oropharynx or both. Nineteen patients (8.6%) had no evidence of fluid in the retronasal area on initial examination. They were followed up to identify the causal lesions and were then treated. Objective improvement was evaluated on the basis of the decrease in the amount of PND, if possible, as well as changes in associated conditions, such as crusting and inflammation. Treatment used in this study consisted of low-dose macrolide therapy, mucociliary regulators and mucolytics, and topical steroids, all with local application of the substances to increase the amount of sol layer in the mucous blanket, and polypotomy, if necessary.

RESULTS

Through careful observation, responsible lesions could be identified in all 19 patients with hard-to-recognize PND. Seven patients had latent chronic sinusitis, 5 had nasopharyngeal lesions, such as Tornwaldt's cyst and inflammation, 3 had "old

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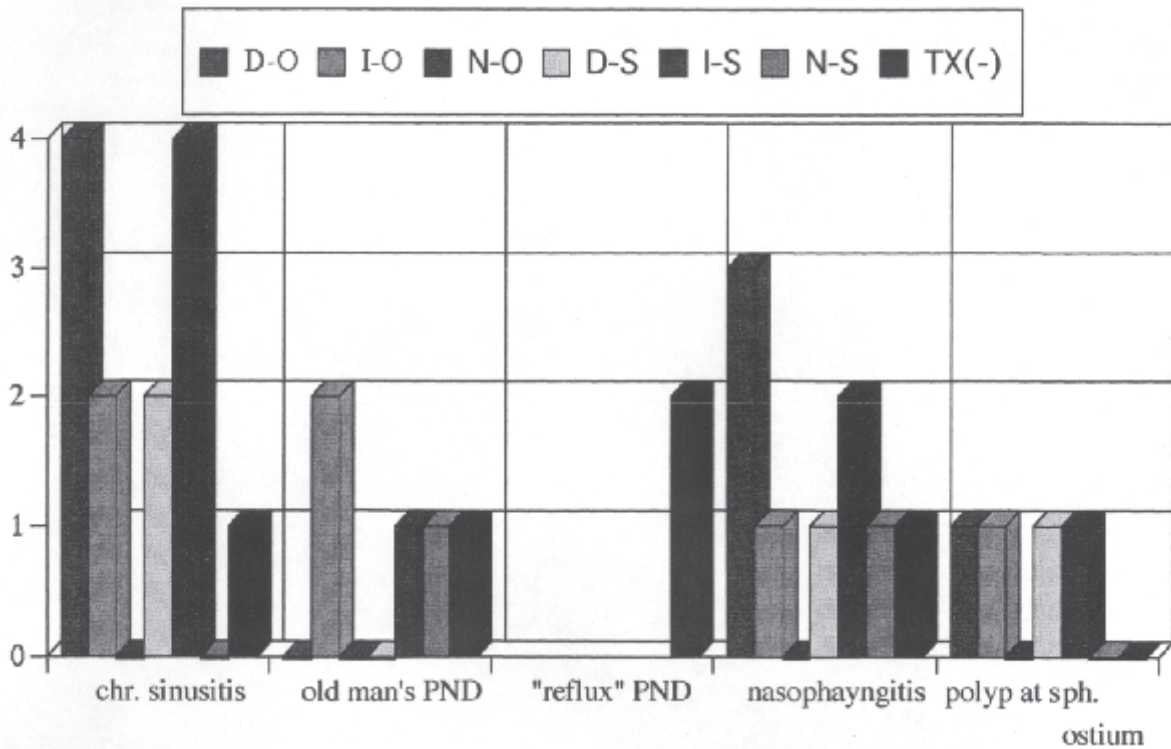


Figure 1. Treatment response

In each section, the first 3 columns show the response to treatment (disappearance, improvement, or no change), evaluated on the basis of objective findings. The next 3 show the symptomatic response to treatment. The last column indicates patients who received no treatment.

D-O: disappearance of objective findings, I-O: improvement in objective findings, N-O: no change in objective findings, D-S: disappearance of symptoms, I-S: improvement in symptoms, N-S: no change in symptoms, TX(-): no treatment.

man's PND", 2 had "reflux PND", and 2 had polyps around the sphenoid ostium. Five of these patients received no treatment. Figure 1 shows the response to treatment. Regardless of the cause, most patients improved either subjectively or objectively.

DISCUSSION

Although PND is a common symptom in nasal diseases and can cause persistent cough (Phelan, 1978; Irwin & Pratter, 1980; Irwin et al., 1984), it has not been fully studied. Only a few articles have dealt with this problem. PND can be associated with the following conditions:

- 1) increased secretion from hyperfunctioning secreting cells, i.e., glands and goblet cells,
- 2) fluid retention due to decreased mucociliary function,
- 3) changes in fluid quality caused by the production of highly viscous and elastic fluid with high viscosity and elasticity,
- 4) sensory disturbances of the nasopharyngeal mucosa.

PND is usually associated with acute rhino-sinusitis, allergic rhinitis, and chronic sinusitis. Vasomotor rhinitis, antrochoanal polyps, nodular hypertrophy of the septum, and a hypertrophic posterior tip of the inferior turbinate can also cause PND, but are less frequently encountered. However, these conditions are likely to produce true PND. No evidence of fluid in the nasopharynx on routine examination of patients who complain of PND may be caused by 1) abnormal sensation alone, 2) lack of fluid at the time of examination, or 3) examiners failure to identify fluid. Because of the difficulty in identifying responsible

lesions, hard-to-recognize PND is often considered psychogenic. In our experience, however, psychogenic reactions *per se* are unlikely to produce a sensation of PND.

Through careful observation, we found the following conditions in patients with "hard-to-recognize" PND:

- 1) latent chronic sinusitis
- 2) so-called "old man's PND"
- 3) "reflux PND"
- 4) nasopharyngeal lesions, including inflammation and Tornwaldt's cyst
- 5) polyps localized around the sphenoid ostium

We derived the term "old mans PND" from "old man's drop" (Watson-Williams, 1952). This phenomenon is related to senile changes in the airway mucous membrane. There is a generalized decrease of 7% in body water resulting in dryness of the nasal mucosa and increased viscosity of mucus secretions (Janzen, 1986). Decreased warming and humidifying ability causes expiratory air to condense into water droplets in the nasopharynx and nasal cavity. Impaired mucociliary transport promotes stagnation of secreted fluids. Because atrophy of mucosa increases nasal patency, the mucosal surface becomes dry. Dry mucus consequently sticks to the surface of the nasopharyngeal membrane, causing a sensation of PND. Dry mucus or crust is not always present on examination, which makes diagnosis difficult. Reflux PND was first reported by Iinuma (1995). If mucus remains in the pharynx concomitant with velopharyngeal incompetence, mucus is refluxed from the pharynx to the cho-

anae on soft palate elevation (Figure 2). As the mucus contains bubbles, its mainsource seems to be saliva. This phenomenon cannot be observed unless the patient swallows. Thus, it can only be recognized by fiberoptic rhinoscopy. Patients with polyps near the sphenoid ostium occasionally complain of PND. There may be some secretion from polyp tissue, but in

amounts too low to detect. Patients often try to expel the fluid, but elimination is difficult until a certain amount of fluid accumulates in the nasopharynx. Frequent vain efforts at swallowing may irritate the nasopharyngeal mucosa, causing inflammation. A schematic representation of the relations among lesions responsible for PND is shown in Figure 3.

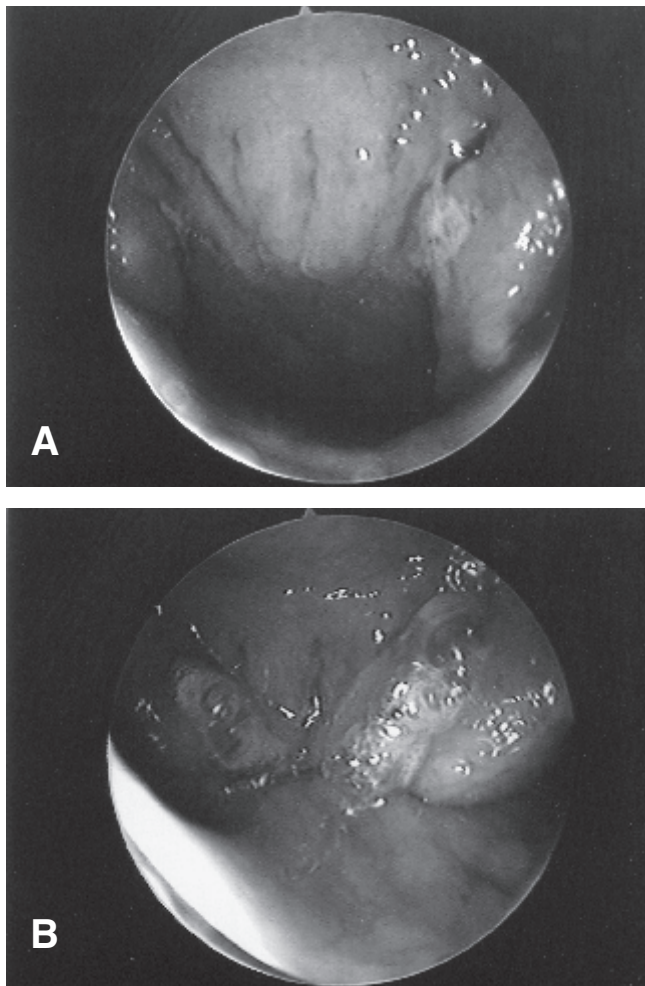


Figure 2. Reflux PND
 a) In resting condition, no fluid was recognized in the nasopharynx.
 b) Refluxed mucus from the oropharynx to the choanae is observed on soft palate elevation. The mucus contains bubbles.

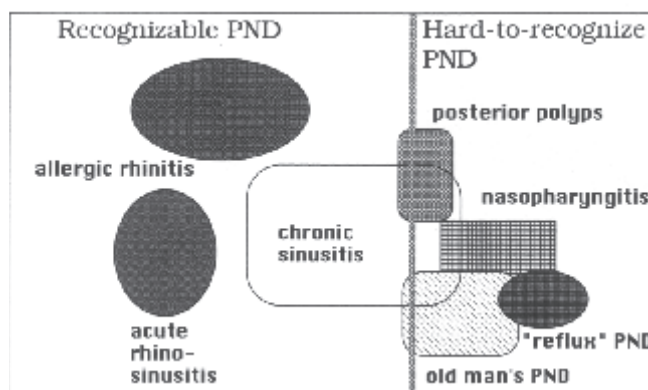


Figure 3. Lesions responsible for PND and their relationship.

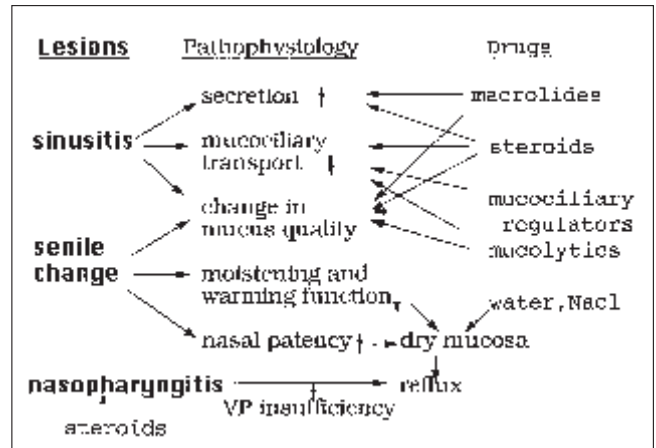


Figure 4. Selection of treatment

Treatment should be given in a stepwise fashion, depending on the diagnosis (Figure 4). When nasal mucus is abnormally viscous and elastic, medication should be prescribed to normalize it. Such medications include mucolytics, such as proteolytic enzymes and cysteine, which break down mucoprotein molecules. Patients with viscous, elastic mucus may also be given mucociliary regulators, such as S-carboxymethylcysteine, bromhexine, and ambroxol. These drugs can cause mucous-secreting glands to produce more sialomucins, which have a low viscosity, and less neutral glycoproteins, which have a high viscosity (Majima et al., 1990). Dehydration can sometimes be reversed by local application of substances that increase the amount of sol layer of the mucus blanket, which include water, sodium, potassium, and ammonium salts. Low-dose, long-term macrolide therapy is now accepted as a first-choice treatment for intractable chronic sinusitis in Japan (Ichimura et al., 1996). It is especially effective in decreasing nasal secretion. This treatment is also effective in alleviating symptoms of PND (Takeuchi & Ichimura, 1997). Topical steroids are also effective and act by normalizing mucociliary function and alleviating inflammation. Polyps around the sphenoidal ostium are satisfactorily managed by resection, using a power system.

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