

# The role of ENT surgeons in snoring assessment: some prospective preliminary evidence

Robertson, S.,\* Young, D.,<sup>†</sup> McGarry, G.W.\* & MacKenzie, K.\*

\*Department of ENT Head & Neck Surgery, Glasgow Royal Infirmary, Glasgow, and <sup>†</sup>Department of Statistics & Modelling Science, University of Strathclyde, Glasgow, UK

**Objectives:** To determine (i) the prevalence of unsuspected upper aerodigestive tract disease in snorers, (ii) the diagnostic yield of routine flexible endoscopy and (iii) the relationship between symptoms of upper aerodigestive tract disease and examination findings in snorers.

**Design:** Prospective analytical cohort study.

**Setting:** Snoring clinic in Secondary Care Otolaryngology centre.

**Participants:** Ninety-three patients referred with disruptive snoring.

**Main outcome measures:** A structured history of upper aerodigestive tract symptoms was obtained by clinic interview. All patients underwent detailed ENT

examination. Univariate analysis was undertaken on data collected.

**Results:** The prevalence of oropharyngeal and laryngeal pathology in the cohort was 3%. No unsuspected upper aerodigestive tract pathology was found on routine flexible endoscopy. A history of Hard Nasal Symptoms was an accurate predictor of underlying nasal pathology.

**Conclusion:** The authors propose that the detailed examination of snorers by ENT specialists is unnecessary in the absence of Hard Nasal Symptoms, hoarseness or pain. We propose that a system of triage based on patient history could help identify the minority of snorers who require specialist assessment.

The role of ENT surgeons in the first-line management of disruptive snoring appears to be diminishing. Current clinical evidence confirms that surgery is not indicated as first-line treatment for either apnoeic or non-apnoeic snoring.<sup>1,2</sup> Instead, conservative treatments are recommended, specifically Continuous Positive Airway Pressure devices and Mandibular Repositioning Splints.<sup>1</sup> With the demise of routine sleep nasoendoscopy for snorers, the first-line investigative role of the ENT surgeon is also controversial.<sup>3</sup>

A variety of upper aerodigestive tract (UADT) symptoms, in particular nasal symptoms, are commonly described by snorers.<sup>1,4-7</sup> The presumption that these symptoms are indicative of underlying UADT pathology may explain why so many snorers are referred to ENT Departments for specialist assessment. However, while it is possible for snorers to harbour undiagnosed and treatable UADT disease, clinical experience would suggest that this occurs in a minority of patients only.

The purpose of this study was to determine whether, on the basis of history, it is possible to identify which

snorers are likely to have underlying treatable UADT disease requiring specialist ENT assessment. Such a triage system would reduce the number of patients referred to ENT clinics unnecessarily only to be referred on to other specialist clinics for provision of conservative first-line snoring treatment. With the most recent reduction of National Out Patient Waiting Times to 18 weeks, this system of triage would also be advantageous in terms of healthcare provision.<sup>8</sup> Currently, over 150 snorers are referred annually to the Department of Otolaryngology Head & Neck Surgery at Glasgow Royal Infirmary from a catchment of 250 000 patients.

## Aims

The specific aims of this study were the following:

- 1 To determine the prevalence of unsuspected UADT pathology in snorers.
- 2 To determine the diagnostic yield of routine flexible nasoendoscopy.
- 3 To determine the predictive value of specific UADT symptoms including pain, dysphagia and hoarseness.
- 4 To examine the relationship between nasal symptoms in snorers and nasal examination findings.

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Correspondence: S. Robertson, FRCS Glasg (ORL HNS), Department of Otolaryngology Head & Neck Surgery, Glasgow Royal Infirmary, Alexandra Parade, Glasgow G4 0SF, UK. Tel.: +44 141 211 4000; fax: +44 141 211 1659; e mail: stuart@glasgow.org

## Methods

A total of 125 patients referred consecutively to our Department were appointed to attend a dedicated snoring clinic. Of these patients, 102 were referred from Primary Care and 23 from the Department of Respiratory Medicine. All patients were assessed by the principal author between January 2004 and March 2005. Patients who failed to attend were offered a second appointment.

### *Clinical assessment*

A history of nasal symptoms was obtained and symptoms scored according to the Hard/Soft Nasal Symptom Scoring System<sup>9</sup> (Table S1). Patients were also asked about symptoms of pain, dysphagia and hoarseness. Clinical examination included oral examination, nasal examination, cervical examination and endoscopic examination of the nose, oropharynx and larynx. Examination findings were categorised subjectively as positive (abnormal) or negative (normal) by the principal author. The nature of specific abnormalities was recorded and further clinical investigation and treatment commenced as deemed appropriate.

### *Ethical considerations*

The clinical assessment protocol described above is used routinely at our centre. No additional data were collected for the purposes of research. Accordingly, formal ethical approval was not required for this study.

### *Statistical analysis*

Univariate analysis was performed to investigate the relationship between Hard Nasal Symptoms, Soft Nasal Symptoms, absence of nasal symptoms and the presence of nasal pathology on examination.

## Results

Of the 125 patients referred with a snoring complaint, 30 patients failed to attend two consecutive clinic appointments. A failure to attend rate of 24% is typical of snoring clinics in the West of Scotland.<sup>10</sup> Complete data were collected on 93 of 95 attending patients. Sixty-eight patients were men and 25 women (ratio 2.7 : 1) with age ranging from 23 to 82 years (median 42).

### *History and examination findings*

The prevalence of symptoms described by patients is detailed in Table 1. Forty-eight of 93 (52%) patients had

**Table 1.** Symptoms described by snorers

Symptoms	Number of patients
Asymptomatic (snoring complaint only)	48
Hard Nasal Symptoms only	31
Soft Nasal Symptoms only	6
Hard and Soft Nasal Symptoms	5
Hoarseness	2
Pain and/or dysphagia	1

**Table 2.** Examination findings ( $n = 93$ )

Examination findings	$n$
Entirely normal examination	69
Rhinitis	5
Nasal septal deviation	11
Nasal septal deviation & rhinitis	3
Enlarged palatine tonsils	2
Lingual carcinoma	1
Laryngeal pathology	2

no specific ENT symptoms and only complained of disruptive snoring. All of these patients had normal examination findings and no unsuspected or treatable UADT disease was found. Forty-five of 93 patients had specific UADT symptoms (see Table 2). Only 24 of these patients had demonstrable abnormalities on UADT examination to explain their symptoms.

The patients with rhinitis were managed using topical corticosteroids and referred to the general ENT clinic for assessment. On the basis of history and nasoendoscopy findings, seven patients were placed on the waiting list for septoplasty surgery.

Two patients had positive findings on flexible laryngoscopy (asymmetrical glottic mucosal inflammation and Reinke's oedema respectively). The former patient proceeded to microlaryngoscopy and biopsy. The latter patient had a past history of Reinke's oedema and had been discharged from the Department previously after assessment and treatment. Both of these patients complained of hoarseness. No other patients in the cohort complained of hoarseness or had positive findings on flexible laryngoscopy.

One patient gave a 4-week history of progressive oropharyngeal pain on a background of chronic snoring, having been referred with snoring many months previously. This patient had an obvious diagnosis of lingual cancer and his care was transferred immediately to the Head and Neck Multidisciplinary Team. One patient gave an incidental history of recurrent bacterial tonsillitis and was placed on the waiting list for tonsillectomy. Two patients had large palatine tonsils on oral examination (Table 2). Both patients declined tonsillectomy.

Symptoms	Nasoendoscopy findings	P value	Odds ratio	95% confidence interval
Hard Nasal Symptoms	Positive (pathology)	0.001	6.07	2.07, 17.78
Soft Nasal Symptoms	Positive (pathology)	0.149	2.50	0.72, 8.68
Hard and Soft Nasal Symptoms	Positive (pathology)	0.117	3.83	0.71, 20.62
Asymptomatic	Negative (no pathology)	0.001	0.13	0.04, 0.44

**Table 3.** Univariate analysis of nasal symptoms

### Relationship between nasal symptoms and examination findings

The results of univariate analysis are shown in Table 3. There was a significant association between the presence of Hard Nasal Symptoms alone and positive findings on nasoendoscopy ( $P = 0.001$ ). There was a significant association between the absence of nasal symptoms and negative findings on nasoendoscopy ( $P = 0.001$ ).

## Discussion

### Synopsis of key findings

The prevalence of oropharyngeal and laryngeal pathology in this cohort was very low (3 of 93 patients, 3%). Laryngeal disease was found exclusively in patients complaining of hoarseness. Flexible laryngoscopy was entirely normal in all other patients and therefore the diagnostic yield of routine flexible endoscopy was very poor. Accordingly, the authors propose that flexible endoscopy is an unnecessary first-line investigation in snorers without symptoms of oropharyngeal pain or hoarseness.

Forty-two of 93 (45%) patients complained of nasal symptoms, yet, only 19 (20%) had demonstrable abnormalities on nasoendoscopy. This study has shown that the Hard/Soft Nasal Symptom Scoring System is a useful predictor of nasal pathology in snorers. Perhaps the most valuable finding was that an 'asymptomatic' status conferred a negative predictive value of 92%, i.e. 92% of asymptomatic patients had normal findings on nasoendoscopy. We therefore propose that routine nasal examination of snorers in the absence of Hard Nasal Symptoms is unnecessary.

### Clinical applicability of study

The majority of snorers referred to our clinics have no abnormalities to find on detailed ENT examination and are simply referred on to other specialists for provision of conservative first-line snoring treatment. We propose that a triage system based on history could identify the minority of snorers likely to have underlying UADT

disease and therefore likely to benefit from specialist ENT review. We are currently piloting a nurse-led snoring clinic in an attempt to reduce the number of snorers seen unnecessarily at our ENT clinics. Recent evidence suggests that the majority of snorers can be managed effectively with conservative first-line treatment.<sup>10</sup> We acknowledge that a minority of snorers will not respond to such treatment and referral to specialist ENT centres for consideration of surgical intervention may be indicated.

### Conflict of interest

None to declare.

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## Supporting information

Additional supporting information may be found in the online version of this article.

**Table S1.** Hard/Soft Nasal Symptom Scoring System<sup>9</sup>