Staging in rhinosinusitus*

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SUMMARY

A simple staging system for chronic rhinosinusitis is presented which is intended for use in the assessment of disease extent and clinical management.

Key words: staging, rhinosinusitis

INTRODUCTION

An escalating interest in the surgical treatment of chronic rhinosinusitis – predominantly fuelled by increased visualization of disease by computerized tomography and rigid endoscopy combined with the scientific and financial imperative to audit therapeutic results – has resulted in the need for a staging system of non-neoplastic sinus disease. Several have been proposed (Gaskins, 1992, Kennedy, 1992), but can suffer from a complexity which precludes their entering routine clinical practice. In an attempt to categorize the extent of chronic rhinosinusitis in patients undergoing endoscopic sinus surgery, the following assessment system has been developed. It has been utilized for the last three years and has undergone a number of modifications, most recently following a Consensus Meeting on Rhinosinusitis of an international and multidisciplinary group of clinicians in Princeton (U.S.A.), July 1993.

OUTLINE OF STAGING SYSTEM

All data have been entered in an IBM-compatible computer using a SuperBase 4 for Windows (SB4W) database, but could equally be set upon any database system.

Demographic information is entered as shown in Table 1, including nasal diagnosis which is classified as follows: (1) chronic rhinosinusitis; (2) recurrent acute rhinosinusitis; (3) nasal polyposis; and (4) miscellaneous. This latter group includes fronto-ethmoidal mucoceles, repair of cerebrospinal fluid leaks, orbital decompressions, dacryocystorhinostomy, et cetera. Systemic diagnosis might include asthma (with or without aspirin sensitivity), cystic fibrosis, primary abnormalities of mucociliary clearance, immune deficiency, bronchiectasis, sarcoidosis and other conditions, such as diabetes mellitus or myeloma, which might be relevant to the development of infection. The computer programme employed allows for additional comments on post-operative medication and any surgical complications encountered.

The staging of disease extent relies predominantly upon the *CT scan assessment*. Each sinus group is graded between 0 and 2 (0: no abnormality; 1: partial opacification; 2: total opacification). The ostiomeatal complex is scored as "0" (not obstructed) or "2" (obstructed). A total score of 0–24 is possible, and each side can be considered separately (0–12). The presence of various anatomic variants is also noted as being present ("1") or absent ("0") but do not contribute to the score: absent frontal sinuses, concha bullosa, paradoxical middle turbinates, Haller cells, everted uncinate process or agger nasi pneumatization.

This system has been deliberately reduced to its most simplistic form to minimize individual variation in interpretation of the degrees of opacification. It requires no formal radiological training and can be taught to junior staff in minutes. Indeed, a study of 200 scans scored independently by two individuals (including one of the authors) produced a 98% correlation of scores. We feel that the increased facility of application will outweigh any potential difficulties engendered by combining all degrees of partial opacification (particularly in the maxillary sinus) in one category, although this may be revised in the future.

The *surgical score* (0: not performed; 1: if undertaken) renders a maximum score of 0–14, 0–7 for each side, and allows a quantification of the operation which may, if desired, be correlated with other parameters.

Symptoms are assessed by the patient on a visual analogue score (VAS) of 0–10, where "0" is no symptom present and "10" the most severe for nasal obstruction or congestion, headache, facial pain, sense of smell, nasal discharge and sneezing together with an overall symptomatic assessment. This method is well-established in the evaluation of rhinological patients (Lund et al., 1991), but it is also of interest to ask patients to prioritize their three worst symptoms which can distinguish the relative importance of symptoms given the same scores and does not always equate with the VAS.

Table 1. Staging system.

DEMOGRAPHIC INFORMATION

Last name:	Operation:
First name:	Operation date:
Sex:	Surgeon:
Date of birth:	Nasal diagnosis (0–4):
Age:	Systemic diagnosis:
Hospital no.:	General of local anaesthetic:
	Duration (mins) of surgery:

Postoperative Medication:
Complications:

RADIOLOGICAL GRADING

Sinus systems (0–2)   R   L
Maxillary:
Anterior ethmoids:
Posterior ethmoids:
Sphenoid:
Frontal:
OMC (0 or 2):
TOTAL:

Anatomic variants (0–1)
Absent frontal sinus:
Concha bullosa:
Paradoxical middle turbinate:
Everted uncinate process:
Haller cells:
Agger nasi cells:

SURGICAL SCORE (0–1)
Uncinectomy:
Middle meatal antrostomy:
Anterior ethmoidectomy:
Posterior ethmoidectomy:
Sphenoidotomy:
Frontal recess surgery:
Reduction of middle turbinate:
TOTAL:

Septal surgery   Yes/No
Previous surgery   Yes/No

SYMPTOM SCORE (0–10)

                  Pre-op   3/12   6/12   12/12   24/12
Nasal blockage/congestion/pressure:
Headache:
Facial Pain:
Problems of smell:
Nasal discharge:
Overall:

ENDOSCOPIC APPEARANCES (0–2)

               Pre-op   3/12   6/12   12/12   24/12
               R L   R L R L R L   R L
Polyp:
Discharge:
Oedema:
Scars or adhesions:
Crusting:

The symptoms score is evaluated pre-operatively and at regular intervals post-operatively.

Endoscopic appearances are also quantified on a 0–2 point basis for the presence of polyps (0: none; 1: confined to middle meatus; 2: beyond middle meatus), discharge (0: none; 1: clear and thin; 2: thick and purulent), oedema, scarring or adhesions and crusting. These appearances are again assessed pre-operatively and at regular post-operative visits but they are not included in the staging system.

DISCUSSION

In 1893, Caldwell remarked that a staging system is necessary to have meaningful results in the treatment of sinusitis. However, the development of any staging system must be an evolutionary process and that herein presented had and will undergo further modifications. Its simplicity may be criticized for over-diagnosing disease extent where secretion rather than mucosal disease produces sinus opacification, but it is this simplicity of application which we believe to be its main strength. There is certainly a need for some method of disease assessment in order to compare the results of various therapeutic approaches, be they medical or surgical and for comparison of individual surgeon's results with others. However, to enter routine clinical practice, any system must be extremely "user-friendly". The need for staging is as pertinent to inflammatory and infective disease as it is to malignancy, perhaps more so when the "all-or-none" end-point of death from disease is hopefully absent. Far from being the final word on the subject, we offer this as a starting point for future discussion.

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