Introduction

The scientific research programme of the Dutch Association of Otorhinolaryngology and Head & Neck Surgery claims that there is a knowledge gap with regard to the efficacy of septoplasty for a blocked nose. This assertion is based on a restrictive approach to evidence-based medicine that could result in unnecessary trials and the abolition or rationing of sound treatment options.

Methodology: The arguments in favour of the effectiveness of septoplasty are based on the total spectrum of evidence from research, clinical experience and basic science.

Results: The best available evidence shows that this form of treatment is satisfactory for more than two thirds of all patients.

Conclusion: If all levels of evidence are taken into account, it becomes clear that there is no knowledge gap with regard to the efficacy of septoplasty for blocked nose.
Outpatient procedures provide us with adequate resources to ascertain whether the valve area is indeed the weakest link. Various forms of deviated anatomy, pathology or pathophysiology may cause problems in this area. The nasal alar cartilage may be too weak, the head of the nasal concha may be enlarged, and the septum may be deviated in this area. Obviously, these are only a few possible causes: space is lacking here to present an exhaustive list of all the possible causes.

If we want to know whether a septum correction is a sensible surgical procedure, we can start by assuming that a well-executed operation for a correctly diagnosed condition resolves the obstruction of the airway and that, logically, this will improve or fully restore the physiology; expert opinion will verify this.

We can also look at how much improvement a septum correction produces, and what the success rate actually implies. Answering these questions brings other factors into play such as:

- a) How skewed or deviated is the septum? If a completely transverse septum that obstructs the passage of air on either side can be straightened sufficiently, this will produce major benefits. However, the problem is that the cause of a deviated septum is also often the reason for a less than optimal result. It can be difficult to repair long-term damage to cartilage, as when fractures have been sustained quite some time in the past. In these cases, I often opt for an ‘open approach’ rhinoplasty so that I have a better view of the structures to be corrected.

- b) How experienced and/or competent is the surgeon? The results of an experienced surgeon are more likely to be better than those of a surgeon who has not performed this type of surgery as often, not only because of the surgeon’s surgical and diagnostic skills, but also because of his or her assessment of the chances of success.

- c) What other pathology is present? Alar insufficiency, allergic complaints, does the patient suffer from epistaxis or sinusitis, is the patient satisfied with the appearance of the nose, or olfactory dysfunction are just a few possible accompanying factors.

- d) How much cartilage is still available for reconstruction and what is the quality of this cartilage?

- e) How and when should one take a look at the final results? We often look at the final results in the

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Non-restrictive approach to septoplasty, clinical review

The human body needs oxygen. A healthy and unobstructed airway is essential for survival. There are good reasons why the trauma ABC used to start with the A for Airway. The starting point of that respiratory system is the nose. The nose moistens and warms the air before it reaches the lungs. Filtering air is another process that takes place within the nose and so a healthy nasal passage is essential in the normal physiology of human beings. The nose consists of two parallel ‘tubes’ for airflow. These tubes alternate the airflow in timed cycles. For a period of time one side is used optimally, and there is then a switch to the contralateral side. Obstruction in one or both tubes can disturb this regular pattern. The narrowest part of the tubes is the valve area. It is highly likely that a septum deviation in this area – the weakest link – constitutes a more serious problem than a posterior deviation. The most important reasons for performing a septum correction would therefore have to be: anterior deviation causing obstructed nasal respiration.
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short or medium terms. I believe this is the correct approach. Nevertheless, it has been argued that this leads to distortion and that one should evaluate after 5 or 10 years.

However, aging could lead to the weakening of the cartilage in the valve region, the olfactory sense degrades with age, and there is also the possibility of a subsequent trauma. I am uncertain how effective evaluations after such periods of time have been in previous research. Is one then still measuring the effect of the septum correction or does the effect of other nasal issues prevail?

That leads us to the question of how we actually measure the effect of an operation. Should we do this subjectively using scoring lists? Or subjectively from the clinical perspective of a physician? Or should we adopt an objective approach using rhinomanometry?

Standard questionnaires are often used. Medical articles often state that these questionnaires have been validated.

However, the question is what validation addresses. The SNOT, Glasgow Benefit Inventory (GBI), Fairley nasal symptom score and other questionnaires have often not been validated specifically for septum issues, but for general quality of life, rhinoplasty, and for chronic rhinosinusitis or polyps. Using these lists to measure the efficacy of septum correction is often a matter of measuring ‘apples’ with a questionnaire that has been validated specifically for ‘oranges’.

I believe that the simple Numerical Rating Scale (NRS) or the Visual Analogue Scale (VAS) score for the nasal passage provides an adequate measurement of the effect of a surgical procedure in daily practice. I can combine the visual effects revealed by a physical examination with these scores to complete the picture for each individual patient.

It will be clear that, for research purposes, the use of the specific Nasal Obstruction Symptom Evaluation (NOSE) questionnaire makes perfect sense. Here too, it appears to be the case that a limited number of questions suffices to measure the effect of well performed, correctly indicated surgery.

Most other questionnaires are too long, and include too many questions that are irrelevant to a measurement of the efficacy of septum correction. For example, the GBI includes no more than 5 out of 18 questions at best with any relevance to the outcome of a septum deviation procedure. Questionnaires of this kind may be important for insurance companies and government agencies to establish indicators. Even so, they do not serve individual patients and they will most definitely not be used in daily practice.

Moreover, satisfaction is linked to expectations. An improvement from an NRS 5 to a NRS 6 score, or from an NRS 4 to an NRS 7 score, as a result of the operation does not mean that the patient will have the best (NRS 10) respiratory organ in the world. Does this mean that surgery is useless? Or is the improvement the difference – as it used to be in the old school days – between a pass and a fail? If an improvement by one mark is the predicted, realistically expected, rate of improvement, 7 is generally a fine result. Or, as our patients have said: ‘You promised me one grade up, doc, but I’d say I’ve moved up three.’

Another example can be seen in Jessen et al., who found that only 26% of patients were free of complaints after nine years. This result has been used to show that septum surgery is a questionable procedure.

However, complaint-free is not the same thing as being satisfied with the results. Jessen et al. found a 74% positive effect initially and this positive effect was still at 69% after nine years.

Objective measurements of rhinomanometry do not always consistently correlate with patients’ reports of nasal obstruction. This may be due to the fact that the methods used to make these measurements previously kept the valve area open a little more. As a result, alar insufficiency and/or an overly-narrow internal valve were not always properly diagnosed. Nevertheless, a meta-analysis of objective evidence for an improved nasal airflow showed a significant improvement.

What other best available evidence for the effect of septum surgery (with concha reduction) do we have? Arunachanalam showed that 74% of patients who underwent septoplasty improved by one point. Higher resistance with rhinomanometry clearly indicates that there is an increased chance of success, as Sipila found an 85% improvement in the group that objectively scored higher for resistance and Bohlin found 84%. Patients who completed the NOSE questionnaire reported a subjective improvement.

Konstantinidis et al. showed in particular – as was theoretically expected – that patients with an
anterior deviation improved more than those with a posterior deviation.17 Their patient population was too diverse for further analysis. It included surgical procedures for sore throat, headache and olfactory dysfunction and, moreover, their approach was limited to the unilateral preparation of the tunnel.

Their own line of thought: ‘a poor rating of a surgical result may indicate either poor surgical technique or inappropriate surgical procedure selection’ would indeed seem to be applicable to their own study and of course, generally speaking, that is the crucial issue.17

Other results: septoplasty was successful in 70.5%,14 82% of the candidates reported better aeration of the nose after surgery, 71% reported that they had benefited from the operation,19 six months after the operation, 69% of the patients were satisfied with the results and, after ten years, this rose to 83%.20

In line with the consistency criterion for causation, as mentioned by Sir Austin Bradford Hill, we could ask ‘has the outcome been observed repeatedly by different persons, in different places, circumstances and at different times?’ He, the eminent Professor Emeritus of Medical Statistics, also stated: ‘I would myself put a good deal of weight upon similar results reached in quite different ways, e.g. prospectively and retrospectively’.21

The lesson with septoplasty is that broadly the same answer has been given for quite a wide variety of situations and techniques. In other words, we can justifiably infer that the effect is not due to some constant error.21

The less than optimal results found in the available literature are still positive in most cases. Fjermedal found a 66% success rate, and this in a study where the surgeons admitted that they were still on a learning curve. The results – considering the fairly high percentage of iatrogenic septum perforations – lead one to suspect that these surgeons had not yet reached their ‘best performance’ level.22 Dommerby reported a 35% rate of dissatisfied patients.21

It is striking that the general ‘quality of life’, as measured by the GBI score for example, often shows little effect,17 even though positive results have also been reported.16,23 In my military population, patients do not appear to have many problems with their ‘quality of life’. They only lack the ability to breathe through their nose properly.

This concurs with the physical benefit score, which turns out to be highest when bad nasal function is the reason for surgery.6 (The fact that patients presenting with nasal obstruction benefit physically when the obstruction is removed, of course, is not surprising. In other words, the study results are consistent with what we might intuitively expect.)

In short, the most important points for consideration in the treatment of the patient are the request for help and the needs assessment. When the request for help concerns a nasal breathing impediment it is important to take a closer look at the valve area. Which factors are responsible for a deficient valve? These factors need to be evaluated separately. Many patients with septum deviation require concurrent turbinate reduction and/or nasal valve surgery (possibly with open rhinoplasty). But, if indeed only the septum is deviated in this area, a correction will most often produce a positive effect.

Patients have complex perceptions of nasal obstruction which may be affected by multiple pathological, physical and psychological factors. Patients may have a variety of nasal and sinus complaints and may even attribute them to a nose-breathing impediment. When an individual patient has other nasal complaints, this does not automatically mean that a septum correction is no longer useful. However, it will be particularly important to make a correct assessment of what is probably a more limited role played by the deviation. Inappropriate indication for septal surgery has been found to be a major cause of patient dissatisfaction.15

Complaints of epistaxis, rhinorrhoea, sinusitis, impaired sense of smell, sneezing and headache are regularly linked to the nasal passage. And these complaints could, in some cases, actually be related to, or be a consequence of, septum issues. Nevertheless, that is most certainly not always the case. One cannot easily find a pathophysiological explanation in which a deviated septum causes these complaints. Recurring epistaxis may be related to a deviation but a trichloride acid etching of the problematic vasculature generally suffices. Headaches may sometimes be related to a less than optimal airflow, but the cause is usually to be found elsewhere. Migraine and mid-facial segment pain probably occur more frequently than pain due to a septum deviation. Triptans and amitriptyline are advisable as trial treatment before proceeding...
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surgically. Olfactory dysfunction may result from rhinosinusitis or polyps, but it is generally not caused by a septum deviation. In theory, the effective surgical treatment of allergy is highly unlikely. Prior to surgical intervention, medicinal trial treatment consisting of nasal steroids, antihistamines or decongestants is an excellent option.\textsuperscript{15}

Moreover, a critical evaluation of one’s surgical skills and previous results continues to be necessary. The assessment of results is one of the most important steps in EBM and so a widely-oriented form of EBM is undeniably important.\textsuperscript{25}

Conclusion

Like the authors of the UK position paper, I am alarmed – on behalf of my patients – to find that primary care trusts should suggest that this successful, permanent and cost-effective operation should be abolished or severely rationed in an arbitrary and indiscriminate way.

If, in line with the Dutch scientific research agenda, the results of septum correction surgery were to be investigated, I would advise the researchers to bear the considerations listed here firmly in mind. A research topic must be based on sound prior knowledge of both the basic science and of our own professional area of expertise in clinical practice. Disregarding this vast reservoir of existing knowledge could result in a distorted research question and, in turn, to anomalous results.

In my view, septoplasty by experienced surgeons is a very effective form of treatment. Both in theory and practice, it has been found that an improvement of at least one grade can be attained in two thirds of all cases. This concurs with the UK position paper, which concluded that the evidence consistently supports the view that nasal septal surgery is highly effective in improving symptoms of nasal obstruction. The outcomes of septal surgery are therefore well founded when, after careful verification of the pre-existing conditions, surgery is indicated.

References


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