**Why do we prefer the external approach?**

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**Key-words.** Open structure; rhinoplasty; columellar incision; external approach

**Abstract.** Open structure rhinoplasty (OSR) is an old technique that has gained in popularity amongst plastic surgeons and otolaryngologists over the past twenty years. Opponents of the external approach cite potential problems such as unnecessary scarring, reduction of tip support, extended operative time and excessive post-operative tip swelling. However, even relatively inexperienced rhinoplastic surgeons embrace this approach, especially in cases with more complex tip deformities and skeletal abnormalities.

Concerns about scarring and post-operative tissue reaction due to the more “aggressive” external approach make it necessary to consider the indications for the open approach carefully. Various incisions have been described for open rhinoplasty to reduce scarring, such as the Z, V, reverse V, and W incisions.

There should be a strong emphasis on post-operative care in open approach rhinoplasty since open structure rhinoplasty is generally considered to be a more traumatic technique than the endonasal approach. Careful incision and dissection of the skin flap in the right surgical plane and proper suturing are essential to avoid short- and long-term complications.

In conclusion, the external approach is preferable in selected cases where extended exposure (asymmetry cases, for example), per-operative assessment (revision cases), grafting and suturing are required. It allows the surgeon to work bimanually during reconstruction and the better per-operative evaluation reduces the revision rate.

**1. Introduction**

Open structure rhinoplasty (OSR) is an old technique that has gained in popularity amongst plastic surgeons and otolaryngologists over the past twenty years. The external or open approach was first described in the European literature by Rheti (1934) and Sercer (1958). In the 1970s, Goodman also promoted the open approach.

Opponents of the external approach cite potential problems such as unnecessary scarring, reduction of tip support, extended operative time and excessive post-operative tip swelling. However, the endonasal approach may not provide the exposure needed for complete grafting. The external approach provides not only maximum exposure of nasal structures like the bony vault, septum and the alar cartilages with their medial and lateral crura and the domes, it also provides a global view of the proportion and interrelation of the bony and cartilaginous structures.

Adamson showed that 53% of surgeons use OSR. Younger surgeons in particular prefer open structure rhinoplasty; surgeons with more experience tend to use a closed approach more often.

There are four main reasons for the increased popularity of the open approach, all related to increased exposure.

1. The technique allows the surgeon to inspect the osseocartilaginous framework in its natural position (without tension or distortion), and to make a more accurate diagnosis of the cause of the external deformity, especially asymmetry. This is true in both primary and secondary cases.

2. The increased exposure makes it easier to perform some technical manoeuvres (e.g. suturing and grafting) because of binocular vision, bimanual manipulation, and easier control of bleeding.

3. The surgeon has more options for altering (positioning) the osseocartilaginous framework, with the possibility of ad hoc evaluation and higher result predictability.

4. Direct visualisation is suitable for teaching and learning operating techniques.

**2. Indications**

Concerns about scarring and post-operative tissue reaction due to the more “aggressive” external approach make it necessary to consider the indications for the open approach carefully.
Generally, a closed procedure should always be considered first and must be rejected when this approach prevents the surgeon from obtaining an optimal result. This is why less experienced surgeons with less confidence in an endonasal approach will opt for the “open view” approach more often.

An open approach is particularly suitable for the severely over-/under-projected nose, the malproportioned/deformed nose, after severe nasal trauma and after extensive prior surgery (Table 1). Extensive deformities or asymmetry require more exposure for intra-operative diagnosis and the use of more complex surgical techniques (suturing, grafting). In summary, if only reduction or resection are the main operative goal, the endonasal approach is often adequate, while the external approach is preferable for reconstruction, augmentation, and re-orientation/re-alignment. Better exposure and the easier approach are not the only factors underlying the improved outcome: the per-operative evaluation of the results also enhances predictability.

3. Contra-indications

There are no absolute contra-indications for the external approach. A relative contra-indication is the presence of severely damaged or thinned skin, especially after multiple revision surgery. Furthermore, acquired cutaneous telangiectasias, purple or blue discoloration of the nasal skin due to cold temperature, and visible irregularities should warn the surgeon against an extensive invasive rhinoplasty procedure: the “cost” after surgery may be greater than the aesthetic “gain”. These days, patients’ informed consent to the surgical approach must be a priority during the pre-operative consultation.

4. Approach and incisions

Various incisions have been described in open rhinoplasty to reduce scarring, such as the Z, V, reverse V, and W incisions. Although the shape of the incision may vary, geometrical incisions are preferred to prevent long scar segments and to facilitate flap alignment.

For most rhinoplasties, after the limited deposition of local anaesthetic (without distortion of the columella), we use a midcolumnar inverted-V incision with the apex of the V located anteriorly. This incision is best located where the columella is narrowest: this results in a shorter, less visible scar and reduces the risk of linear contracture. The midcolumnellar incision is placed where the underlying cartilage is closest to the skin, minimising the risk of a depressed scar. The incision is therefore best placed just before the feet of the medial crura to provide adequate support for the scar. The apex of the V should form an angle of approximately 90°. Creating a sharper angle increases the risk of skin necrosis. The inverted V incision is best performed with the No 15 blade, at a straight angle to the skin to prevent bevelled edges. Care should be taken not to incise the underlying cartilage of the medial crura of the columella. After incision, we use the tip of curved scissors to obtain a tunnel under the incision. Gently opening the scissors widens the tunnel and the incision is better demarcated. With small spreading motions we remain as close as possible to the cartilage of the columella. We ‘slide’ with the scissors over the medial side of the medial crura and, while we
dissect over the medial and intermediate crura, the skin flap is elevated using small skin hooks to create proper tension in the surgical plane. The dissection is performed in the supraperichondrial plane and a cotton tip may be used for blunt dissection. This approach facilitates the controlling of possible bleeding of the columellar arteries, but bipolar cauterisation is needed only seldom.

The V-incision is continued in paracolumellar incisions and marginal incisions on either side. The bilateral paracolumellar (marginal) incisions should not be placed within 2 mm of the caudal margin of the medial crura in order to prevent “rim” scarring with retraction. This marginal incision is extended bilaterally, following the caudal margin of the intermediate and lateral crura with the angled scissors. With these scissors, it is easy to cut the soft tissue and skin while hugging the caudal end of the lateral crura. The cephalic border of the nasal vibrissae is an inconstant landmark that may facilitate the localisation of the caudal edge of the lateral crura. The dissection should be continued until 25% of the lateral crura has been dissected. This will provide enough exposure for the surgery on the cartilaginous and bony nasal vault.

Over-lateral exposure may result in the loss of lateral liga-
mentous support for the lower lateral crurae.

After the elevation of the skin flap of the columella, the dissec-
tion continues over the midline: the curved scissors are used to identify the septal dorsum and the skin/soft tissue envelop is elevated up to the rhinion. This is done with an incision of the perichon-
drium at the caudal site of the cartilaginous vault straight in the midline, followed by subperichon-
drial resection from medial to lateral and in the cephalic direc-
tion. To prevent prolonged supra-tip oedema and soft-tissue polly beak deformity, it is necessary to dissect below the musculo-
aponeurotic layer of the skin.

The septum can be approached through an intranasal hemi-trans-
fixion incision, a Killian incision or by dissecting between the medial crura. We prefer hemi-
transfixion septal access when no correction is planned of the medial and intermedial crura. The intracrural approach to the septum disrupts minor support structures (septal membrane, attachment of the medial crural footplates to the caudal septum) and often makes a columella strut necessary in order to prevent columellar retraction due to scarring.¹

5. Post-operative care and com-
pli-
cations

There should be a strong emphasis on post-operative care in open approach rhinoplasty. Patients should be told that following post-
operative instructions will result in fewer complications. In most cases, antibiotics are given for at least ten days post-operatively. During the first five days, the patient should sleep with the head and upper body slightly elevated and the nose should not be blown. Physical exercise should be avoided for two to six weeks and glasses should not be worn for at least six weeks. Excessive heat and exposure of the nose to sunlight should also be avoided for three months after surgery. Multiple and long-
term follow-up to detect abnormalities as early as possible, in combination with photographic documentation, are important, even several years after surgery.

Open structure rhinoplasty is generally considered to be a more traumatic technique than the endonasal approach due to the possible risk of post-operative supra-tip oedema and the possi-

bility of compromised scar healing. Irrespective of the type or location of the incision, columellar scar formation or columellar marking can occur in open rhinoplasty. Vuyk published a meta-analysis of reports on columellar scarring after open structure rhinoplasty: it was found in only three patients out of 986.³ The most common cause of columellar scarring is the notching and inversion of the inci-
sion lines as a result of an irregular skewed incision and faulty wound closure. This unsightly complication is quite noticeable and can cause patient dissatisfac-
tion. Scarring will often require a subsequent scar revision operation. Closure of the incision is therefore one of the most important steps in rhinoplasty. The accuracy of closure is one of the few controllable factors that can affect scar contracture subse-
quent.

¹ The closure of the transcolumellar incision should be per-
formed meticulously with Ethilon 6/0 as the preferred suture materi-
al. The wound edges are sutured with “full bites” and slight ever-
sion of the wound edges. Careful adjustment is required, particu-
larly of the corner of the inci-

sion where the transcolumellar scar necrosis resulting in scarring is rare.
Bleeding is the most common post-operative complication. In most cases, soft endonasal packing prevents bleeding and it can be removed after 24 hours.

Post-operative infection is rare and results in increased pain, swelling and erythema; it is largely caused by inappropriate antibiotic use or poor compliance due to nausea or dysphagia. In these cases, the IV administration of anti-emetics may be needed. If there is a progressive infection, broader-spectrum antibiotics are necessary and stubborn swelling may require intranasal incisions to allow drainage.

Another complication encountered after open structure rhinoplasty is swelling and erythema of the tip. This swelling and oedema last longer than in a closed approach. Dissection above the musculo-aponeurotic layer disrupts the venous and lymphatic channels and contributes to prolonged post-operative oedema and so this should be avoided.7 Swelling declines most clearly after the removal of the external dressing and during the first four weeks. In normal circumstances, post-operative swelling will subside over a period of 6-12 months and it resolves in the pyramid region first, followed by the cartilaginous dorsum and finally the nasal tip.10 In cases of unequal oedema resolution, local steroid injections may improve areas of soft tissue fullness that are slow to resolve. These injections may alleviate slight asymmetries that are not fully corrected and expedite the resolution of supratip and tip fullness, especially in thin-skinned patients.6 Several long-term complications are associated with the open approach (Table 2). Although the nasal tip is the major beneficiary of the open approach, tip ptosis may occur in the long term. Tip projection is defined by the tripod theory, which states that the structural framework of the nasal tip is based on the two lateral crura and the medial crura, each forming each a leg of a tripod. Separating the medial crura may result in a loss of tip support and the use of a columella strut can prevent tip ptosis.1 Other long-term complications relate to the collapse of nasal structures and the contracture of the skin/soft-tissue envelope, examples being lateral nasal wall pinching, the collapse of the middle vault and alar retraction.6

### 6. Conclusion

The open approach to rhinoplasty is is preferable in selected cases where extended exposure (asymmetry cases, for example), per-operative assessment (revision cases), grafting and suturing are required. Although this approach requires extra time for exposure, it allows the surgeon to work bimanually during reconstruction and the better per-operative evaluation reduces the revision rate. Even relatively inexperienced rhinoplastic surgeons embrace this approach, particularly in cases with more complex tip deformities and skeletal abnormalities. The careful incision and dissection of the skin flap in the right surgical plane and proper suturing is essential to prevent short- and long-term complications.

### Table 2

Advantages and drawbacks of external approach

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<tr>
<th>Advantages</th>
<th>Drawbacks</th>
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<td>destruction of tip support mechanisms: major tip-supporting mechanisms:</td>
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<tr>
<td>bimanual approach</td>
<td>1. size, shape and resilience of the medial and lateral crura</td>
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<td>binocular three-dimensional view</td>
<td>2. attachment of medial footplates to the caudal border of the septum</td>
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<td>better exposure</td>
<td>3. the scroll region</td>
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<td>evaluation of (a)symmetry</td>
<td>larger grafts can be placed under direct vision and with great precision (placement, suturing)</td>
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<tr>
<td>evaluation of previous surgical shortcomings</td>
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<td>more predictable results</td>
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References


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