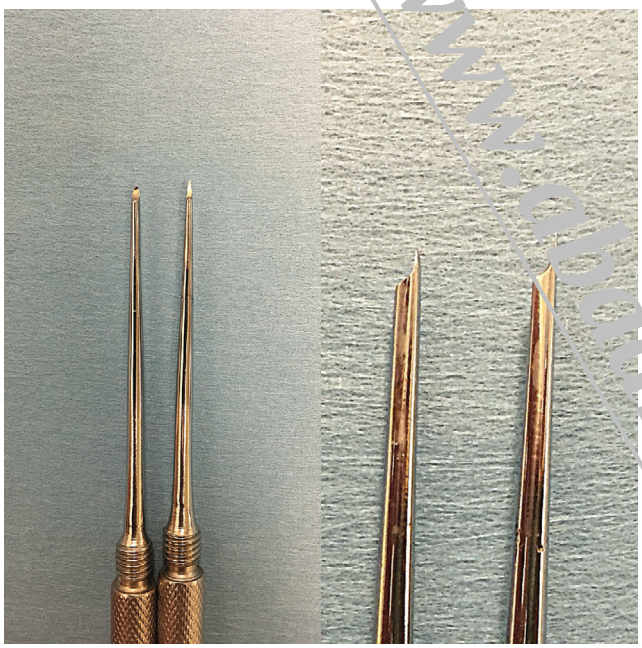
Contents

(a)



(b)

FIGURE 2.14 (a) TAŞ1 and TAŞ2, surgical instruments invented by the author, penetrate into the submembranous surgery plan atraumatically. (b) TAŞ1 has a sharper and more delicate tip and is designed to penetrate under the perichondrium. TAŞ2 has a blunt and hard tip to penetrate under the periosteum. Its L-shaped tip fits into the border of the nasal bone, allowing the surgeon to cut the pyriform ligament and penetrate under the periosteum in one move. In both tools, one side has a cutter and the other side has a blunt surface to continue dissection.

will be prevented during reshaping of the cartilage and bones (**Figure 2.14a–b**). All surgical stages of the submembranous dissection plane are shown in Video 2.2 [10–11].

However, this plane has some limitations in specific conditions. It creates a thick, soft tissue cover, which is an advantage for thin-skinned patients but a challenge for redraping in thick-skinned patients. Therefore, the DUAL dissection plane is preferred for those cases (**Figure 2.15**).

FIGURE 2.15 The DUAL dissection plane described by the author is demonstrated. There is a combined surgical dissection which includes a subperichondrial dissection over the lower lateral cartilage, a subSMAS dissection in the supratip area which has a thick soft tissue envelope, and again a subperichondrial dissection in the keystone area where there is a thin soft tissue envelope. Thus, the redistribution of the soft tissue envelope in a homogeneous manner can be performed to achieve the best redraping effect.

2.2.3.1 Room Concept

There is no continuous plane to follow through the entire nose, as seen in cadaveric dissections. Regardless of the surgical plane chosen, the areas of dissection are interrupted by what resembles a wall-like structure. If the submembranous surgical plane is preferred, these walls will be thicker than the other planes. Those walls need to be transected to continue the dissection. Each wall will be explained for each surgical plane separately.

- For the submembranous dissection plane:
  1. *Scroll ligament:* It exists bilaterally in the lateral borders between the tip and dorsum. This fibrous tissue wall is thicker in the submembranous plane by the perichondrial layer of upper and lower lateral cartilages.
  2. *Pyriform (pyramidal) ligament:* It exists in the border between the cartilaginous and bony dorsum. This fibrous tissue wall is much stronger in the submembranous plane than in the subSMAS plan because of the perichondrium of the upper lateral cartilage. In fact, in the border between the cartilaginous and bony dorsum, the perichondrium of the upper lateral cartilage is divided in two. While the superficial layer merges with the periosteum of the nasal bone, the deep layer attaches under the nasal bone. The anatomic relationship of this "transition zone"

was shown in a clinical study published by the author (**Figures 2.16–2.17**) [10].

3. *Pitanguy ligament:* It exists in the central border between the tip and dorsum. This fibrous tissue wall is thicker in the submembranous plane than in the subSMAS plane because of the perichondrial layer of lower lateral cartilages. Unlike other walls, this wall is perpendicular to the dissection plane.

- For subSMAS dissection plane:

The same anatomic structures (scroll ligament, Pitanguy ligament, and pyriform ligament) form the nasal walls, but compared to the submembranous plane these fibrous walls in the SMAS plane are thinner; it requires pushing only to complete the dissection (rather than additionally using incisions, as in the submembranous plane).

The subSMAS plane is the generally accepted routine surgical plane in which it is easier to pass over the nasal bone from the upper cartilage. But since it meets the supra-perichondrial surgical plane on the nasal bones, an additional incision should be made to get through the subperiosteal plane, which is more bloodless (**Figures 2.18–2.23**).

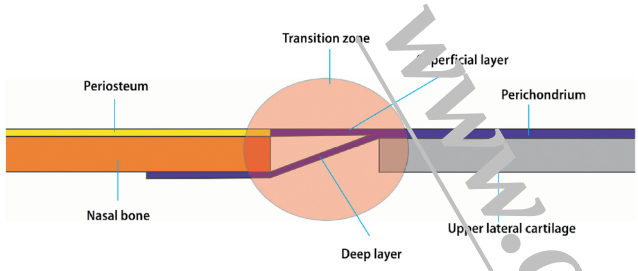


FIGURE 2.16 The transition zone described by the author is schematized. In the keystone area, the perichondrium is divided into two; the superficial layer joins with the periosteum of the nasal bone, and the deep layer goes under the nasal bone and covers the upper lateral cartilage which overlap. Thus, if one prefers the subperichondrial plane, when the dissection comes to that point, the superficial perichondrial layer should be dissected to go under the periosteum. On the other hand, if one prefers the subSMAS plane, when the dissection passes the upper lateral cartilage, the periosteum of the nasal bone must also be incised and switched to the subperiosteal plane. The author termed this region the "transition zone" due to its clinical and anatomic importance.

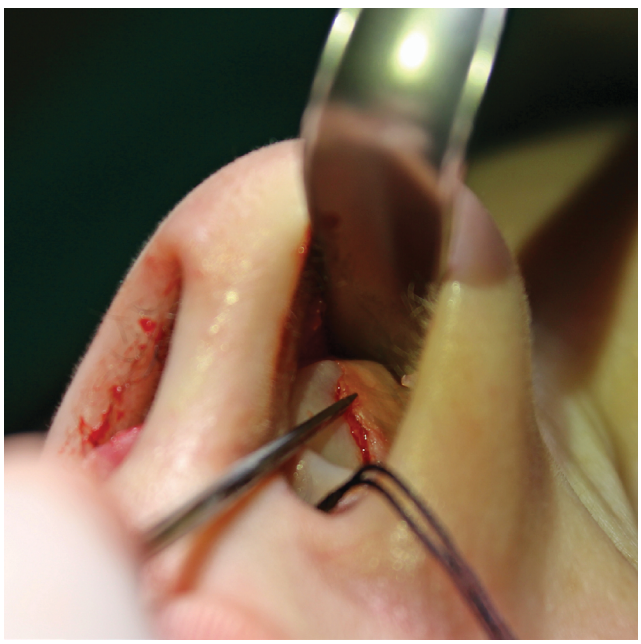


FIGURE 2.17 A clean upper lateral cartilage-nasal bone passage can be achieved with atraumatic dissection performed by TAŞ 2.

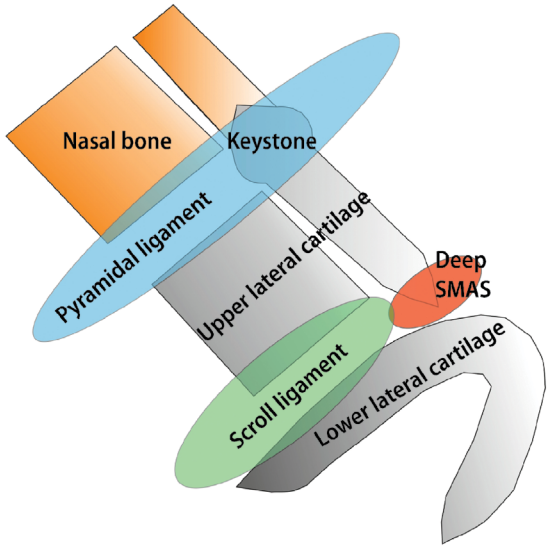


FIGURE 2.18 Room Concept: The nasal framework is divided into three different rooms by the soft tissue envelope: *orange*, nasal bones; *gray*, upper and lower lateral cartilages; *blue*, pyramidal ligament; *green*, scroll ligament; *red*, deep SMAS attachments.

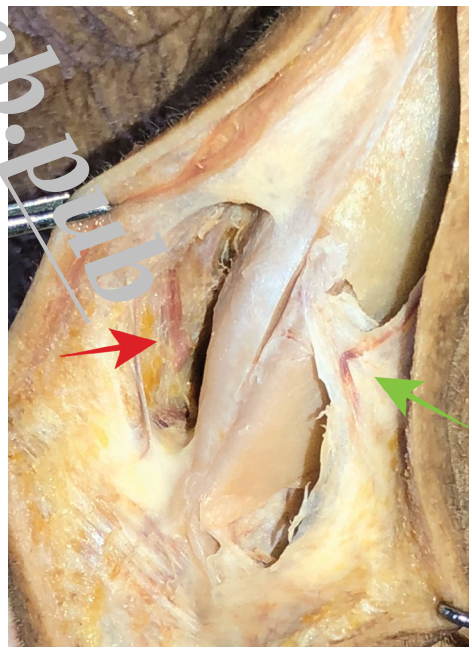


FIGURE 2.19 The nose of the cadaver was dissected through the submembranous plane on the left side and the subSMAS plane on the right side. While subSMAS dissection exposed the branches of the angular artery (*red arrow*) on the right side, the vessel network (*green arrow*) was totally preserved by the submembranous plane on the left side.

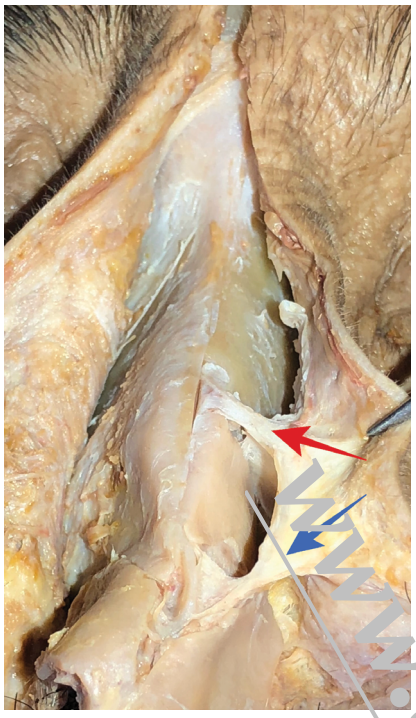


FIGURE 2.20 The right side of the nose received subSMAS dissection and the left side received submembranous dissection. While the scroll ligament (*blue arrow*) and transition zone (*red arrow*) are clearly observed on the left side, there is no true ligament to pause the dissection in subSMAS plane, although the author noted the dissection was harder in those areas.

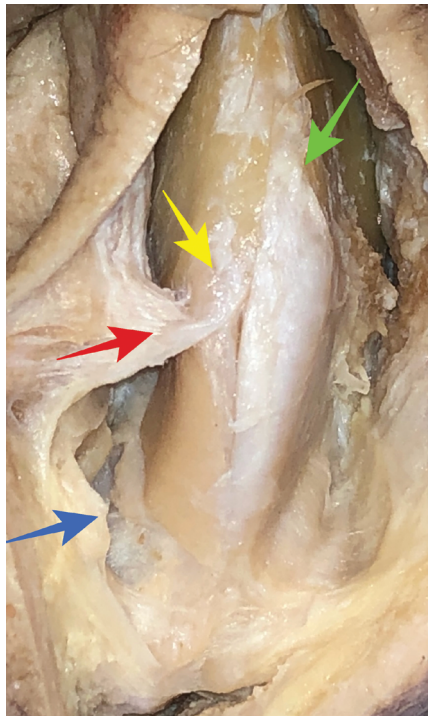


FIGURE 2.22 The right side of the nose received submembranous dissection and the left side received subSMAS dissection. Note how far the perichondrium of the upper lateral cartilage (*green arrow*) keeps its existing relation to the nasal bone, although the upper lateral cartilage itself has ended, in comparison to the other side (*yellow arrow*). This finding again confirms the transition zone (*red arrow*) described by the author. Detached scroll ligament (*blue arrow*).

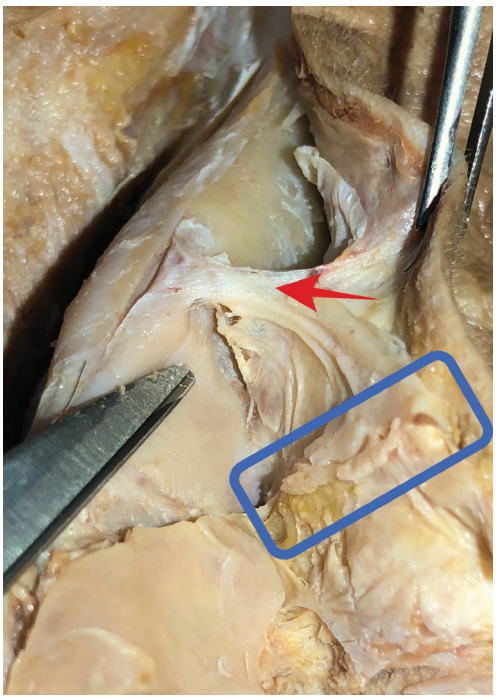


FIGURE 2.21 After dissecting the scroll area (*blue rectangle*) where the scroll ligament attaches, the thickness and route of the scroll ligament can be clearly exposed (*red arrow*, transition zone).

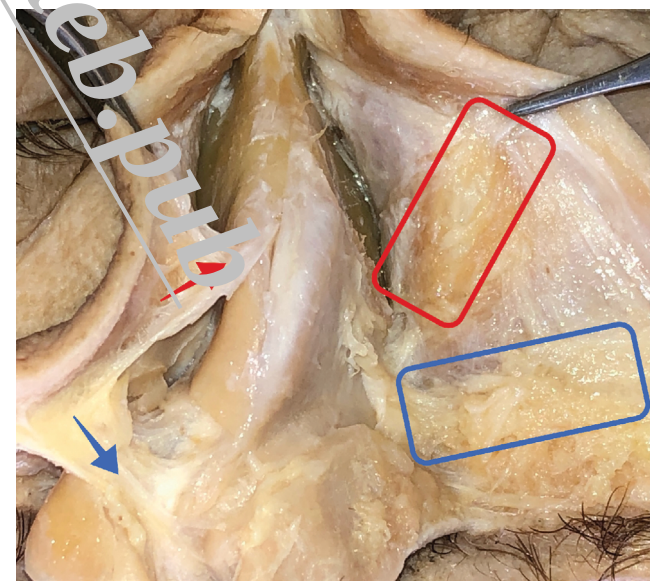


FIGURE 2.23 The footprint of the scroll area (*blue arrow*) in SMAS has ligamentous extensions (*blue rectangle*) as well as the transition zone (*red arrow*). This observation is the same as for the retaining ligaments on the face. Therefore, these ligaments were called by the author retaining ligaments of the nose. The importance of those retaining ligaments in clinical practice is as redraping issue. Ligamentous extension of the transition zone (*red rectangle*).

- For the sub-skin dissection plane:

  Cadaveric studies have revealed that these walls are similar to the subSMAS plane.
  The nasal framework is divided into three rooms with these ligaments:

  The upper room containing the nasal bones;
  The middle room including the upper lateral cartilage;
  The lower room including the lower lateral cartilage.

The upper room is separated from the middle room by the pyramidal ligament and the middle room from the lower room by the scroll and Pitanguy ligaments. The lower room is further divided into two separate rooms by the Pitanguy ligament.

So why are these walls, which are critical to preserve the anatomy, dissected during rhinoplasty?

It seems illogical to cut them to complete a dissection as they are responsible for the stabilization of the soft tissue. They are strong or relatively weaker in not only one surgical plane, but throughout them all. Thus, they are not different from the retaining ligaments of the face (**Figure 2.24**). These three ligaments (scroll, Pitanguy, and pyramidal) should also be referred to as the "retaining ligaments of the nose" and as such, directly affect the success of nose surgery.

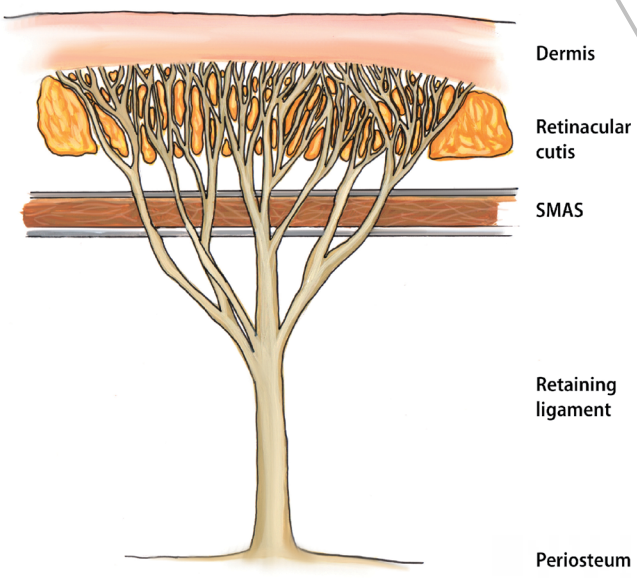


FIGURE 2.24 The retaining ligament has a body which forms a true ligament, above which there are many extensions towards the skin; this resembles a tree and its branches.

There is, however, a difference between face and nose surgery here. In a face-lift, all retaining ligaments are dissected so the face can be effectively lifted. Unlike face-lifts, nose surgery does not allow for the luxury of excessive skin and subcutaneous tissue removal. Therefore, it is mandatory to redrape the excessive skin-subcutaneous tissue in rhinoplasty. To prevent complications such as supratip deformity or postoperative droopy tip, these retaining ligaments should be addressed (**Figures 2.25–2.28**). The surgical technical aspect of the concept will be elaborated in Chapter 4.

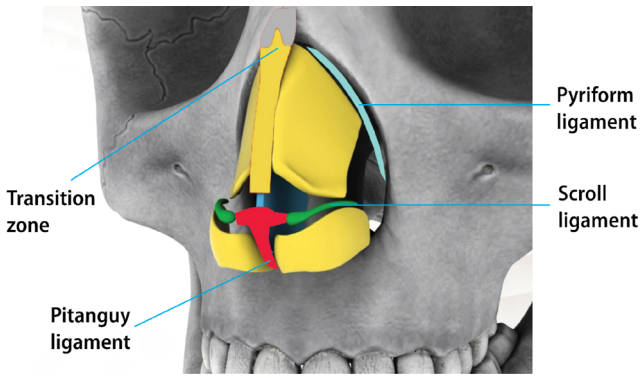


FIGURE 2.25 The retaining ligaments of the nose are demonstrated: Pitanguy, scroll, and pyriform ligaments, respectively (*red*, *green*, and *turquoise*); transition zone (*gray-yellow transition* in keystone area).

FIGURE 2.26 The Room Concept is demonstrated in a patient.