INTRODUCTION

Septal deviations in crooked noses are very challenging to correct. They can be congenital or traumatic. It is very difficult to straighten these deviations by traditional submucosal resection or septoplasty. Since the dorsal segment and the caudal segment are both deviated, more advanced techniques are needed to correct the deformity.

I have been using segmental septal reconstruction techniques for more than two decades to correct the septal deviations in crooked noses successfully [1]. In this technique, if the dorsal segment is deviated, it is splinted with splinting spreader grafts which are thick enough to overcome the bending forces of the dorsal segment of the septal cartilage. When the caudal segment is deviated, it is splinted either by a batten graft or caudal septal extension graft. If the deformity is very bad, then it is removed and a caudal septal replacement graft is used. At times when both segments and their junction are crooked, after cross-hatching the concave portion, I have been using L-strut grafts for 2 decades as well [2].

In the recent 5 years, while making revisions on these cases, I realized that the recurrence of deviation was usually coming from the junction of the dorsal and caudal segments. While reviewing revision cases of mine through video recordings and pictures, I observed the same problem. The majority of the crooked noses I operated is C-shaped deviations and in this kind of noses and deviations, cross hatching the concave side and straightening with a splinting method was not always successful because of the unpredictable forces holding the septal cartilage in place.

Besides, when the dorsal and caudal segments are forced to bring them to the midline as a straight piece, the result is a big dog ear at the junction of the dorsal and caudal cartilages (Figure 1). So it is not possible to end up with a straight L-strut framework unless the surgeon gets rid of this dog ear (Figure 2,3). In my experience there are 2 methods to get rid of this dog ear:

1. Simply resect the dog ear by leaving 2-3 mm cartilage between the dorsal and caudal segments (Figure 4-A). This is...
sufficient when the dog ear is not reaching to the dorsal margin. Resect the dog ear and the cartilage superior to it, so the junction between dorsal and caudal segments is totally removed leaving these two fragments with free ends. Then these segments are joined together with the help of splinting spreader grafts or L-strut grafts [2] (Figure 4-B)

The first approach is much more preferable because even though there is a very thin connection, the integrity of the L-strut framework is preserved. Although the second approach seems more aggressive, surprisingly it is more effective. Because when the junction is transected, the loose dorsal and caudal segments become like free grafts and it is easy to manipulate these two segments in this way. Besides the memory of the concave junction is totally destroyed so there is no way of recurrence of the deviation. However, splinting these two segments closer to original situation is more difficult. I have a small trick to prevent this problem. Before resecting the dog ear and the connection, it is marked with a drawing pen, and then a splinting spreader graft is inserted to the contralateral side and sutured to the dorsal and caudal segment without passing any sutures through the planned resection area. When that area is resected after this step, the positions of both segments do not change, an additional ipsilateral spreader graft is sutured and the connection between these segments becomes much stronger.

In both approaches, the dorsal segment and the caudal segment is supported by bigger spreader grafts, ie higher than 3 mm, usually 5-6 cm, because these grafts will support the dorsal segment much effectively. In many cases the caudal segment can be preserved as it is. If it is still crooked it can be splinted by a caudal septal extension graft or an L-strut graft can be used to support both the dorsal and caudal segment at the same time. The caudal segment can be replaced by caudal septal replacement graft.

**DISCUSSION**

The most challenging part of the crooked noses is the correction of the deviated septum. Since the traditional submucous resection or septoplasty techniques are not good enough to solve this problem, two approached gained popularity: splinting techniques [3] and extracorporeal [4] techniques. The latter is a more difficult technique because all of the septal cartilage is removed, reconstructed and put back in place. That is why many surgeons tried to modify this technique at least by preserving the cartilage at the key area which acts as an anchoring piece for the inserted septal cartilage construct [5,6]. From my vast experience and knowing all the prominent surgeons work, I can easily say that splinting techniques are much more popular because the original L-strut framework is preserved and splinting grafts are much easier to use.

The techniques presented in this study in a way give the surgeon the best of both worlds, i.e. use the ideas of both extracorporeal and splinting techniques. The surgeon does not need to remove the whole nasal septum as in the extracorporeal techniques which are helpful to reduce complications. In addition, by breaking the memory of the junction between the dorsal and caudal segments, the chance of postoperative recurrences is eliminated. In my experience with these two techniques within the last 5 years, I did not need to revise any recurrent septal deviation. That is why I think that resecting the dog ear for septal reconstruction is a game changer and should be used more extensively to prevent recurrences after the management of septal deviations in crooked noses.

**CONCLUSION**

The management of septal deviations in crooked noses is very challenging. The resection of the dog ear at the junction of...
the dorsal and caudal segments of the septal cartilage followed by splinting techniques such as spreader grafts is a reliable way to prevent recurrent deviations.

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REFERENCES