

The Paun Maneuver: An Intraoperative Pull Test to Verify Septal Fixation to the Anterior Nasal Spine

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Abstract

Background: Secure fixation of the caudal septum to the anterior nasal spine (ANS) is critical for stable rhinoplasty outcomes. However, there is no standardized method for intraoperative verification of suture engagement in the ANS periosteum, creating a potential for fixation instability.

Case Presentation: We present a representative surgical case to illustrate the “Paun Maneuver,” a novel intraoperative pull test. During an open rhinoplasty procedure for nasal framework reconstruction, a 3-0 polydioxanone (PDS) cutting suture was passed deep into the periosteum of the ANS. Before securing the suture, the maneuver was performed by applying firm anterior traction to both suture ends. The resulting immobility of the entire head–nose complex provided immediate tactile confirmation of a secure and deep periosteal bite. Following this successful verification, the posterior septal angle was definitively anchored to the ANS using a horizontal mattress configuration. The procedure was completed without complications, ensuring a stable foundation for subsequent tip reconstruction.

Conclusion: The Paun Maneuver is a simple, rapid, and reproducible technique that addresses a critical gap in septal fixation. By providing real-time, tactile verification of secure periosteal anchoring, it ensures confidence in surgery. It reduces the risk of unrecognized fixation failure, thereby contributing to more predictable and durable rhinoplasty outcomes.

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Introduction

Rhinoplasty remains one of the most technically demanding procedures in facial plastic surgery, where even subtle irregularities can influence both function and aesthetics (1). Achieving a stable and well-projected nasal contour requires meticulous adjustment of the osseocartilaginous framework and establishment of a secure foundation that can support subsequent modifications of the nasal tip and grafts (2). Central to this foundation is the caudal septum

and its firm attachment to the anterior nasal spine (ANS), which collectively determine midline alignment, tip projection, and airway patency (3).

Various techniques have been developed to enhance fixation at the junction of the caudal septum and ANS. The traditional approach relies on a horizontal mattress suture through the periosteum of the ANS. Curado et al. described the “riding nasal spine” technique, wherein a notch on the caudal septum interlocks with the ANS for added stability (4).

Bhamra et al. later proposed a figure-of-eight suture passed through a channel created in the ANS (5). Hong et al. conducted a large retrospective series of 207 rhinoplasty patients comparing periosteal and drill-hole fixation, confirming that both methods achieved satisfactory outcomes, but did not include intraoperative verification of periosteal engagement (6). Other reports have focused on anatomic correction of the ANS itself. Ng et al. demonstrated that relocation of a deviated or abnormally positioned ANS in 378 cases improved septal alignment in over 80% of patients (7), while Curado et al. (4) described “sliding spine relocation” for severe caudal septal deviation requiring bony mobilization. Additionally, reshaping or modification of the ANS has been shown to influence both nasal tip projection and symmetry. A cohort of 160 patients highlighted that ANS deformities, such as hyperplasia, hypoplasia, or deviation, significantly affect nasal tip support and must be addressed during rhinoplasty (8). Baser et al. (9) proposed a new classification and management strategy for caudal septal deviation, including fixation to the ANS via drill holes, while Baykal et al. (10) introduced a “caudal septal stabilization suture” in crooked noses using a crossing or “fishing-net” configuration. Despite these refinements, a consistent limitation persists, none of these techniques provides an objective, intraoperative method to confirm that the suture has securely engaged the periosteum of the ANS.

The Paun Maneuver addresses this gap by introducing a simple, reproducible verification step. After placing a 3-0 PDS cutting suture deep into the periosteum of the ANS, the surgeon applies anterior traction to confirm firm tethering before completing fixation with a horizontal mattress suture to the posterior septal angle. If the head-nose unit remains immobile during traction, periosteal engagement is confirmed; if movement is observed, the suture is repositioned.

Case Presentation

The surgical technique was applied in rhinoplasty cases that required secure fixation of the caudal septum. The procedure is illustrated here as performed in a representative surgical case.

Intraoperatively, following standard open rhinoplasty exposure, the periosteum of the anterior nasal spine (ANS) was cleared of soft tissue. The “Paun Maneuver” was then utilized to ensure stable septal anchoring. A 3-0 PDS cutting suture was passed deep into the periosteum of the ANS to achieve a firm bite. Before tying the suture, the surgeon performed the verification step by applying anterior traction on the suture ends. This action tested the fixation stability; the resulting immobility of the head-nose complex confirmed a successful and deep periosteal engagement.

Had any movement been observed, it would have indicated a superficial bite, necessitating the replacement of the suture to achieve proper anchoring. Once the verification was successful, the posterior septal angle was formally anchored to the ANS using a horizontal mattress configuration. This maneuver provided immediate tactile feedback and confirmed the stability of the nasal framework's foundation before proceeding with the subsequent steps of nasal tip reconstruction. No complications or adverse outcomes were associated with the application of this technique.

The Paun Maneuver has been incorporated into routine rhinoplasty practice by the authors and is easily reproducible and highly effective in confirming secure fixation. The technique provides immediate tactile feedback, ensuring that the caudal septum is firmly anchored to the ANS periosteum. It adds minimal operative time, requires no additional instruments, and increases surgeon confidence in the stability of the nasal framework. In complex reconstructive cases requiring multiple grafts or tip refinements, the maneuver proved particularly valuable in

verifying the strength of the foundational fixation before further manipulation. No complications or adverse outcomes were associated with its use.

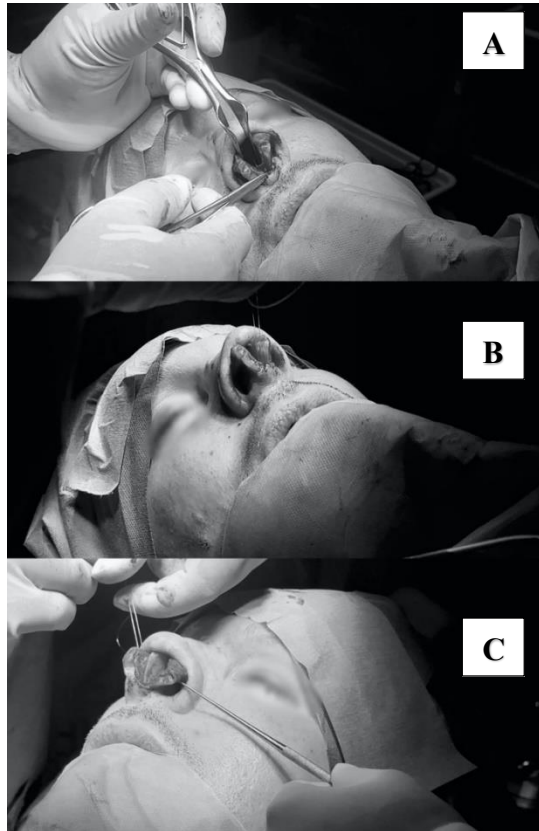


Figure 1. showing (A) Deep bite into ANS periosteum, (B) Paun Maneuver: Pull test demonstrating immobility, and (C) final horizontal mattress fixation to the posterior septal angle.

Discussion

Stable fixation of the caudal septum to the anterior nasal spine (ANS) is vital for durable rhinoplasty outcomes. Several methods, such as the *riding nasal spine* technique, the figure-of-eight channel method (4), and drill-hole or periosteal suture fixation (6), have demonstrated satisfactory results but provide no intraoperative verification of engagement. More invasive procedures, including ANS relocation (7) and sliding spine fixation (4), address structural deformities but require bone mobilization and extended operative time. Baykal et al. (10) proposed a “fishing-net” style stabilization suture between the caudal septum

and ANS, particularly effective in crooked noses, yet this also lacks tactile feedback. The Paun Maneuver uniquely fills this gap by offering a quick, reproducible verification step. By applying tension to the suture after periosteal engagement, the surgeon can immediately determine fixation strength, immobility confirming secure anchoring, and movement indicating correction is needed.

This maneuver’s primary advantages are simplicity, reproducibility, and universality. It adds negligible operative time, requires no additional tools, and can be adopted in both primary and revision settings. Because the periosteum of the ANS provides a strong fibrous base (11), confirming its engagement improves structural reliability, reduces risks of tip ptosis, deviation, or graft migration, and enhances overall surgical confidence.

The Paun Maneuver complements rather than replaces existing fixation methods. Unlike the more invasive relocation or bony reshaping techniques (7), it achieves stability without altering anatomy. The tactile verification it offers makes it particularly useful in cases with limited visibility or compromised septal integrity.

The maneuver has been routinely implemented by the senior author (S.P.) for over two decades, having been applied in more than a thousand rhinoplasty procedures encompassing both primary and revision cases. One limitation of this paper is the lack of statistical analysis directly comparing the Paun Maneuver to other existing fixation techniques, as its scope is primarily descriptive and focused on technical presentation. As an integrated intraoperative step within standard septal fixation, this technique did not necessitate separate ethical approval. Across this extensive clinical experience, no maneuver-specific complications, adverse outcomes, or fixation failures have been observed. Its reproducibility, long-term use, and consistent safety profile further support its reliability as a dependable adjunct in achieving stable septal support.

Maneuver-centric limitations include the subjective nature of tactile assessment and the absence of quantitative outcome data. Prospective studies incorporating objective parameters such as postoperative tip projection, septal alignment, and validated functional scoring (e.g., Nasal Obstruction Septoplasty Evaluation [NOSE] scale) are warranted. Nevertheless, its ease of integration, cost-neutrality, and reproducibility make it a valuable adjunct in contemporary rhinoplasty.

Clinical Implication

In our experience, incorporation of the Paun Maneuver into routine practice has increased intraoperative performance in caudal septal fixation. Particularly in complex rhinoplasty cases requiring multiple tip grafts or major reconstructive work, assurance of a stable foundation is invaluable. The maneuver is a practical surgical pearl that enhances reliability without adding operative time or complexity. No adverse events related to the maneuver were observed, and no additional complications were reported compared with standard septal fixation methods.

Conclusion

Long-term success in rhinoplasty relies on establishing a stable foundation at the nasal base. The Paun Maneuver fills a critical gap in existing fixation techniques by introducing a simple, low-cost intraoperative verification step that confirms periosteal engagement before definitive fixation of the posterior septal angle. This maneuver provides real-time confirmation of anchoring strength, enhances intraoperative confidence, and reduces the likelihood of unrecognized instability. Compared with more invasive strategies such as anterior nasal spine relocation or sliding spine fixation, it is simpler, reproducible, and easily incorporated into the standard rhinoplasty workflow. By ensuring a stable septal base prior to tip reconstruction, the Paun Maneuver strengthens the reliability of nasal framework support and contributes to

more predictable aesthetic and functional outcomes. Although further studies are warranted to validate its long-term results, it represents an elegant, practical, and universally applicable addition to the rhinoplasty surgeon's armamentarium.

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Conflicts of Interest

The authors declare no conflicts of interest.

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References

1. Marianetti TM, Boccieri A, Pascali M. Reshaping of the Anterior Nasal Spine: An Important Step in Rhinoplasty. *Plast Reconstr Surg Glob Open*. 2016 Sept;4(9):e1026.
2. Ceran M, Yenigun A, Polat E, Ozturan O. Enhancing nasal tip projection and stability with a columellar strut graft placed in a mucosal flap pocket. *JPRAS Open*. 2025 Dec;46:139–44.
3. Javed A, Alburaiki A, Kamber Zaidi A, Farooq MU, Limbrick J, Anari S. Caudal septoplasty, a literature review. *Rhinology*. 2025 June 1;63(3):306–15.
4. Fleury Curado T, El Abany A, Most SP. Sliding Spine Relocation Surgery with Anterior Septal Reconstruction. *Craniofac Trauma Reconstr*. 2024 Mar;17(1):56–60.
5. Bhamra N, Darr A, Neamonitou F, Barraclough J. A novel and cost-effective technique for securing the nasal septum to the anterior nasal spine in septoplasty and/or rhinoplasty surgery. *JPRAS Open*. 2019 Sept;21:43–7.
6. Hong EM, Vasudev M, Nguyen C, Goshtasbi K, Torabi SJ, Nguyen TV, et al. Repositioning the Posterior Septal Angle in Rhinoplasty: Methods and Outcomes. *Laryngoscope*. 2025 June;135(6):1975–82.
7. Ng CL, Rival R, Solomon P. Anterior Nasal Spine Relocation for Caudal Septal Deviation: A Case Series and Discussion of Common Scenarios. *Aesthetic Plast Surg*. 2020 Apr;44(2):501–7.

8. Marianetti TM, Boccieri A, Pascali M. Reshaping of the Anterior Nasal Spine: An Important Step in Rhinoplasty. *Plast Reconstr Surg Glob Open*. 2016 Sept;4(9):e1026.
9. Baser B, Surana P, Singh P, Patidar M. Caudal Septal Deviation: New Classification and Management Strategy. *Indian J Otolaryngol Head Neck Surg*. 2021 Dec;73(4):424–30.
10. Baykal B, Erdim I, Guvey A, Oghan F, Kayhan FT. Caudal Septal Stabilization Suturing Technique to Treat Crooked Noses. *J Craniofac Surg*. 2016 Oct;27(7):1830–3.
11. Li C, Fennessy P. The periosteum: a simple tissue with many faces, with special reference to the antler-lineage periosteal. *Biol Direct*. 2021 Oct 18;16(1):17.