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Structural Rhinoplasty in Northern Morocco: Morphometric Profile, Therapeutic Approach and Clinical Results

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Abstract **Case Report**

Introduction: Cosmetic rhinoplasty is a complex surgical procedure that requires precise mastery of nasal anatomy, an understanding of patients' psychological expectations, and adaptation to ethnic specificities. In the North African context, the morphological particularities of the nose often necessitate specific technical adjustments to balance aesthetics and function. ***Materials and Methods:*** This descriptive, retrospective, and comparative study included 55 patients who underwent surgery between January 2021 and December 2024 at the Plastic and Reconstructive Surgery Department of Mohammed VI University Hospital in Tangier. The analysis included demographic data, morphometric assessments [using ImageJ and Anglemeter Pro software], and a measure of postoperative satisfaction via the SNAP score [0–10]. ***Results:*** A clear female predominance [**80%**] was observed, with a mean age of 30 years. Nearly all patients [98.2%] presented with both aesthetic and functional discomfort. The dominant characteristics included a wide nose [83.6%], dorsum asymmetry [90.9%], and an insufficiently projected tip [60%]. The open approach was preferred in 96.4% of cases. All patients underwent structural rhinoplasty. The most frequent procedures included septoplasty [92.7%], osteotomy [78.2%], and Sheen's line sculpting [83.6%]. Postoperative complications were moderate [edema, ecchymosis] with no cases of infection. The level of satisfaction was very high, with a median SNAP score of 10/10. At one year, 78.2% of the results are considered optimal and natural, and no reintervention was necessary. ***Conclusion:*** Aesthetic rhinoplasty, when approached structurally and individually, proves to be a safe and effective procedure within the Moroccan morphological context. This study underscores the importance of integrating rigorous morphometric analysis and psychological evaluation to achieve a harmonious balance between form and respiratory function.

Keywords: Aesthetic rhinoplasty, Morphometry, Structural rhinoplasty, Surgical anatomy of the nose, Open approach, Moroccan nose.

INTRODUCTION

Rhinoplasty is one of the most common plastic surgery procedures, aiming to harmonize facial proportions while preserving or restoring nasal function [1]. In the Moroccan context, interventions are often motivated by a history of trauma [67.3% in this series], but almost always incorporate an aesthetic desire. The major challenge for the surgeon lies in managing the "Moroccan nose," characterized by thick skin, an often-bulbous tip, and a wide alar base. This study reports the experience of the plastic surgery department in Tangier in applying modern concepts of structural rhinoplasty.

MATERIALS AND METHODS

This is a descriptive and retrospective study of 55 patients operated on between January 1, 2021 and December 31, 2024.

- **Inclusion criteria:** Patients over 18 years of age with an aesthetic indication, with or without a functional component.
- **Morphometric analysis:** The measurements were validated by image processing software [ImageJ for distances and Anglemeter for angles] on standardized photographs.
- **Evaluation:** Satisfaction was measured via the Visual Analog Scale [VAS] and the SNAP [Satisfaction *of Nasal Appearance*] score.

RESULTS

1. Epidemiological Data and Reasons for Consultation

The study sample consisted of 55 patients, with a clear female predominance [80%, or 44 women] and a sex ratio of 4:1. The median age was 30 years, with the majority of patients being young adults [quadrastically between 24 and 36 years]. Almost all subjects [87.3%] were from the Tangier-Tetouan-Al Hoceima region.

From a clinical perspective:

- **Psychological motivations:** 76.4% suffer from body image disorders and 74.5% express stress related to the appearance of their nose. Social influence is significantly more pronounced in women [p = 0.02] and younger patients [p = 0.024].
- **Complaints: 98.2%** of patients present a mixed discomfort [aesthetic and functional], while 1.8% consult for a purely aesthetic reason.
- **History:** Nasal trauma is reported by **67.3%** of patients.

2. Preoperative Morphological and Morphometric Analysis

The thorough clinical examination revealed the dominant characteristics of the regional morphotype:

- **Overall morphology: Wide noses** predominate [83.6**%]**, compared to 16.4% of pinched noses.
- **Dorsum:** asymmetry is almost systematic [90.9**%**] and the appearance is predominantly kyphotic [nasal hump] in 60% of cases.
- **Average angular measurements:**
  - Nasofrontal angle: 147.25°.
  - Nasofacial angle [projection]: 33.16°.
  - Nasolabial angle [rotation]: 106.85°.
- **Tip projection:** According to Goode's method, it is considered insufficient in 60% of patients. This underprojection is statistically linked to advanced age [p = 0.005].
- **Ethnic typology:** the nasal index reveals a dominance of Asian [41.8%] and African [38.2%] types, with Caucasian types representing only 20% of the series.

Figure 1: Correction of specific nasal defects: isolated dorsal hump in a patient undergoing rhinoplasty

Figure 2: Correction of specific nasal defects: wide tip associated with a dorsal hump in a patient who underwent rhinoplasty

Figure 3: Patient with a wide nose

Figure 4: Dorsal asymmetry in two patients operated on in the plastic and reconstructive surgery department at CHU MED VI

Figure 5: A: Kyphotic Dorsum B: Normal Dorsum

Figure 6: Projection insufficient of nasal tip at a elderly patient

Figure 7: Depressed supralobular notch in a patient

Figure 8: Asymmetrical nostrils in a patient who underwent rhinoplasty

Figure 9: Correction of nasal asymmetry in a patient after structural rhinoseptoplasty

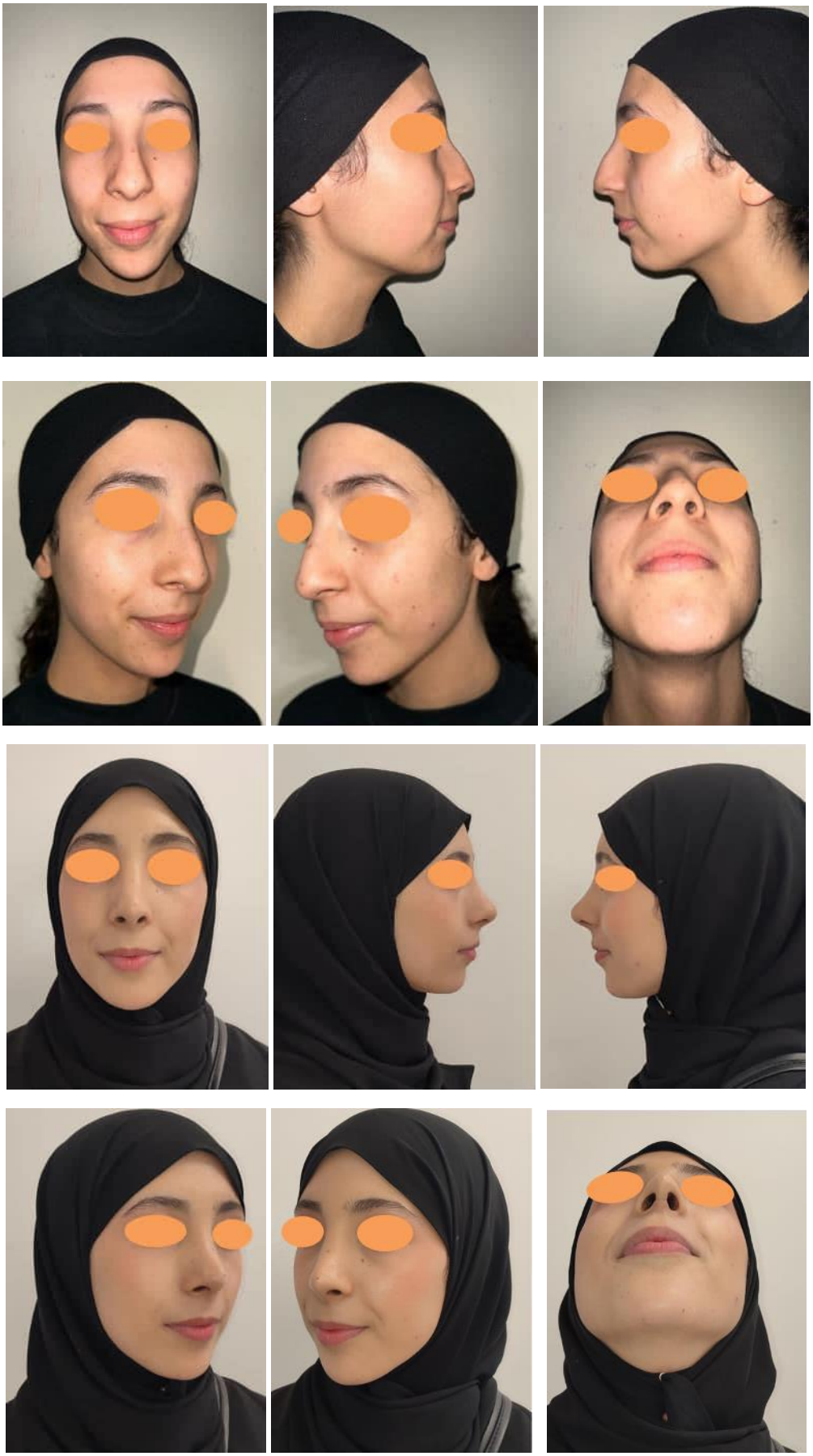

Figure 10: Preoperative and postoperative photographic record of a patient who underwent rhinoseptoplasty

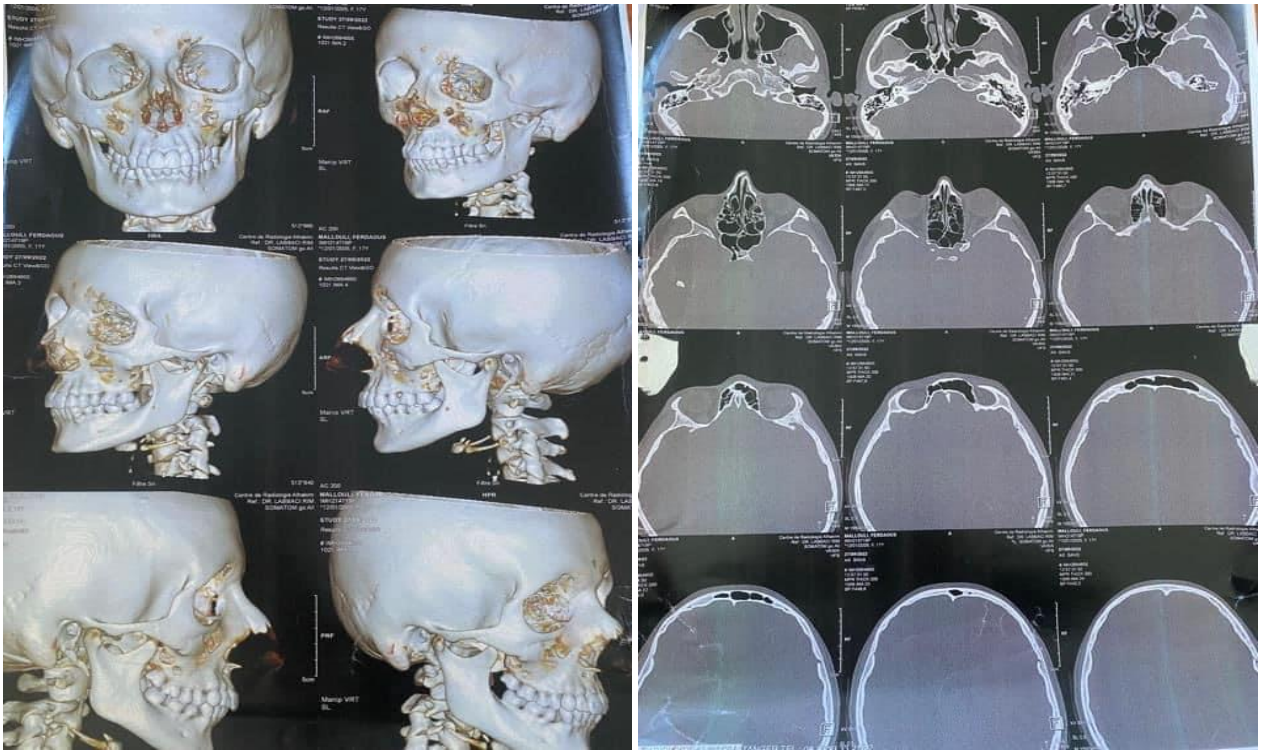

Figure 11: Facial CT scan in 3D reconstruction and axial sections: evidence of a saddle nose due to collapse of the nasal septum and dorsum

3. Therapeutic Data and Surgical Techniques

The structural approach was applied in 100% of cases, mainly via open surgery [96.4%].

The actions performed include:

- **Septoplasty:** Performed in 92.7% of patients to correct obstructive deviations.
- **Osteotomy and Rasping:** Dorsal reduction by osteotomy was required for 78.2% of subjects, supplemented by rasping of the nasal dorsum in 60% of cases.
- **Use of grafts:** Grafts are at the heart of the structural strategy:
  - **Camouflage grafts:** 94.5%.
  - **Septal grafts:** 90.9%.
  - **Tip grafts:** 40%.
  - **Support grafts [Columellar Strut, Spreader]:** 23.6% and 20% respectively.
- **Tip reconstruction:** Performed in 60% of patients.
- **Operating time:** The average is 154.15 minutes.

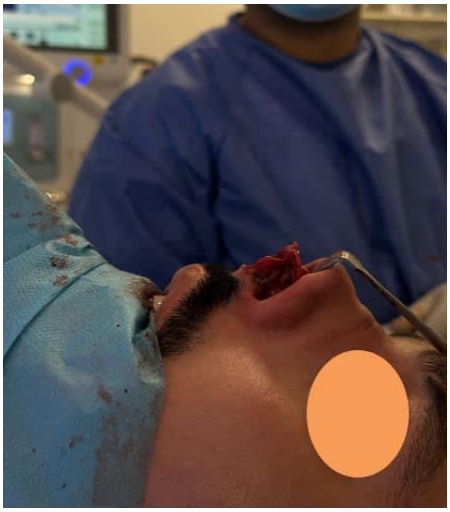

Figure 12: Intraoperative view of a structural rhinoplasty: exposure of the nasal septum via an open approach in the plastic and reconstructive surgery department at the MED VI University Hospital

Figure 13: Correction of a dorsal hump by shaving after osteotomy in a patient in our series

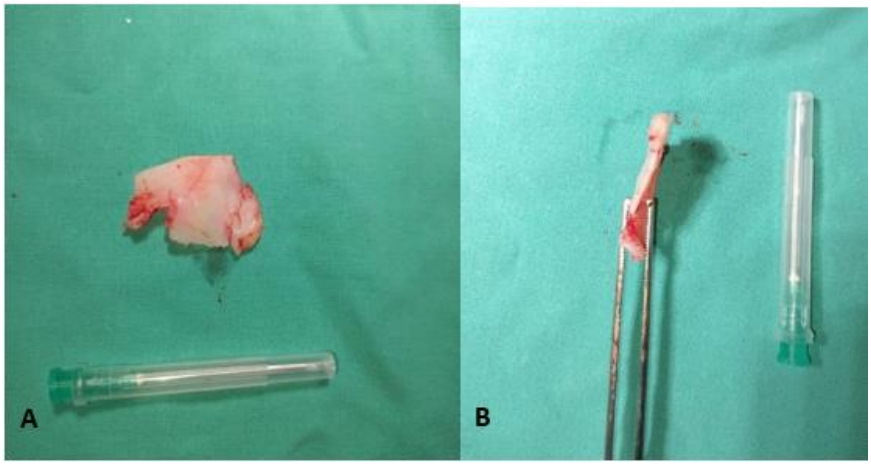

Figure 14: Intraoperative preparation of a septal cartilage graft: A: Initial appearance of the harvested cartilage, B: Cartilage trimmed and ready for implantation

Figure 15: Intraoperative exposure of the nasal septum during structural rhinoplasty with associated septoplasty

Figure 16: Preoperative and postoperative results of a structural rhinoplasty with redefinition and reconstruction of the nasal tip performed on a patient in our series

Figure 17: Sculpting of Sheen lines and correction of their symmetry

4. Postoperative Follow-up, Complications and Satisfaction

The standard postoperative protocol included removal of packing on day 2 [60%] and removal of nasal packing at a median time of 11 days.

- **Complications:** These were exclusively early and minor: edema [70.9%], bruising [45.5%], and epistaxis [12.7%]. The study noted a correlation between a high BMI and the risk of early bleeding [p = 0.021].
- **Safety:** No cases of infection, necrosis or medium/long-term complications have been recorded.
- **Patient satisfaction:** The median satisfaction score [SNAP] is 10/10. Overall, 83.6% of patients express high satisfaction.
- **One-year result:** the aesthetic appearance is judged optimal and natural in 78.2% of cases.
- **Re-interventions:** The re-intervention rate is 0% across the entire series.

Figure 18: Immediate postoperative result of rhinoplasties performed on two patient's placements of nasal splints and supportive dressings

Figure 19: Clinical appearance in the immediate period following rhinoplasty: diffuse facial edema and lower eyelid ecchymosis

Figure 20: Surgical setup of a patient prior to cosmetic rhinoplasty, performed at the MED VI University Hospital. Eye protection, oral preparation, and preoperative anatomical marking

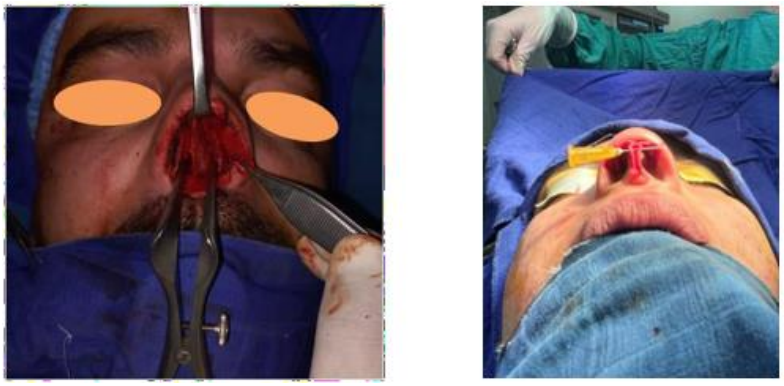

Figure 21: Patients operated on via an open approach with a columellar incision allowing complete exposure of the nasal septum and alar cartilages for structural reconstruction

Figure 22: Correction of nasal deviation in a patient from our series at CHU MED VI after rhinoseptoplasty.

Figure 23: Correction of an osteocartilaginous hump in a patient after rhinoplasty in the plastic and reconstructive surgery department of the CHU MED VI

Figure 24: Correction of insufficient tip projection associated with kyphosis correction by rhinoplasty in a patient from our series at the CHU MED VI

Figure 25: Patients undergoing rhinoplasty at the Department of Plastic and Reconstructive Surgery, Mohammed VI University Hospital: dressing and external immobilization after structural rhinoplasty

Figure 26: Closed nasolabial angle [drooping tip] in two patients who underwent rhinoplasty

Figure 27: Nasal base of medium width with oval nostrils in a patient from our series

DISCUSSION

The face is central to human identity, and the nose, by virtue of its midline position, plays a crucial role in facial harmony and psychological well-being. Historically associated with the repair of mutilations, modern rhinoplasty was transformed in the 20th century, notably under the impetus of Jacques Joseph, to incorporate purely aesthetic objectives. Today, the challenge lies in reconciling surface aesthetics with functional respiratory performance.

Embryological and Anatomical Foundations

1.1. Embryology and the Evo-Devo Approach

Facial development begins as early as the 28th day of gestation, starting from five processes: the frontonasal, the two maxillae, and the two mandibular. The Evo-Devo [evolutionary development] approach distinguishes the olfactory nose, whose growth precedes that of the respiratory nose. The olfactory placodes give rise to the mucosa, the septo-lateral and alar cartilages, and the olfactory fascia [2].

1.2 Osteo-cartilaginous skeleton

The nasal frame is divided into two parts:

- **The bony nose:** composed of the nasal bones, the ascending rami of the maxillae and the perpendicular plate of the ethmoid.
- **The cartilaginous nose:** its main pillar is the cartilaginous septum [quadrangular cartilage], complemented by the superior lateral [triangular] cartilages and the alar [horseshoe] cartilages which define the nasal tip [3].

1.3 Vascularization and Innervation

Arterial vascularization depends on the internal [ophthalmic artery] and external [facial artery] carotid arteries. Kiesselbach's area, located on the anterior septum, is the main site of epistaxis. Sensory innervation is provided by the trigeminal nerve [V], while motor function depends on the facial nerve [VII] [3] [4].

Artistic Anatomy and Anthropometry

Modern aesthetic analysis relies on concepts such as Sheen's dorsal lines, which must be concave and divergent when viewed from the front. Toriumi emphasized the importance of light reflections and shadows in defining the contour of the tip [5].

Several reference angles are used on the profile:

- **Nasofrontal angle:** ideally between 115° and 135°.
- **Nasolabial angle:** between 95° and 110° in women and 90° and 95° in men.
- **Nasal index:** allows you to classify noses into leptorrhines [thin], mesorhines [intermediate] or platyrrhines [wide].

Epidemiological Profile

The median age of patients is 30 years. There is a strong female predominance [80%], consistent with international trends in cosmetic rhinoplasty. The motivations are predominantly mixed [98.2%], combining aesthetic concerns with respiratory obstruction.

Table 1: Comparative Age Table

Study [City / Country]	Type Study	age AVERAGE / median	Detail / Interval
OUR study [Tangier] / Morocco]	Retrospective descriptive	Median: 30 years	Q1: 24 – Q3: 36
Chhihab [Marrakech / Morocco [6]	Future prospects observational	Average: 30 years	No specified
Lahmiti [Marrakech / Morocco [7]	Future prospects	Median: 27.5 years	No specified
Marzak [Marrakech / Morocco [8]	Future prospects longitudinal	Average: 26.5 years	No specified
Kotzampasakis [Greece] [9]	Future prospects observational	Average: 34.8 years	23-57 years old
Dziewulski [Poland] [10]	Retrospective	Average: 28.6 years	No specified
Stundžaitė-Baršauskienė [Vilnius / Lithuania [11]	Multicentric analytical, forward	No specified	Extent 18 to 70 years old
Abbas [Turkey] [12]	Future prospects	Average: 25.8 ± 6.9 years	No specified
Qaradaxi And Mohammed [Duhok] / Iraq] [13]	Interventional forward	Average: 27.98 ± 11.19 years old	No specified
Naraghi, Aesthetic [Iran] [14]	Case studies forward	Average: 25.6 years	No specified
Naraghi, Functional [Iran][14]	Case studies forward	Average: 27.5 years	No specified
Ponnusamy [New Delhi / India [15]	Interventional forward	Average: 23.3 years	No specified
Kim [Seoul] / Korea of South] [16]	Future prospects comparative	Average: 27.2 ± 6.2 years	No specified
Layliev [United States] [17]	Multicentric [4978 cases], retrospective	Average: 33.5 ± 13.4 years	69.5% < 40 years old
Patel & Daniel [United States] [18]	Description qualitative	No specified	Interval estimated: 23 – 34 years old

Table 2: Comparative table of sex

Study [City / Country]	Kind study	Number of patients	% of women	% and men
OUR study	Retrospective descriptive	55	80 %	20 %
Chhihab [Marrakech / Morocco [6]	Future prospects observational	57	30 %	70 %
Lahmiti [Marrakech / Morocco [7]	Future prospects	31	93.5 %	6.5 %
Marzak [Marrakech / Morocco [8]	Future prospects longitudinal	60	78 %	22 %
Kotzampasakis [Greece] [9]	Future prospects observational	100	66 %	34 %
Dziewulski [Poland] [10]	Retrospective	62	82.3 %	17.7 %
Qaradaxi & Mohammed [Iraq] [13]	Interventional foresight	113	61.1 %	38.9 %
Naraghi, aesthetic [Iran] [14]	Case studies forward	21	76 %	24 %
Naraghi, functional [Iran] [14]	Case studies forward	21	57 %	43 %
Kim [Korea] of South [16]	Future prospects comparative	100	83 %	17 %
Layliev [States - United [17]	Multicentric retrospective	4978	85 %	15 %
Patel & Daniel [States - United [18]	Description qualitative	35	100 %	0 %

Table 3: Type of patient complaints in the different series

Study [City / Country]	Complaints aesthetics	Complaints functional	Complaints mixed
OUR study	1.8 %	0 %	98.2 %
Chhihab [Marrakech] [6]	No specified	No specified	50 %
Kotzampasakis [Greece][9]	80 %	20 %	No specified
Abbas [Turkey] [12]	85 %	15 %	No specified
Naraghi, [aesthetic] [Iran] [14]	100 %	0 %	0 %
Naraghi, [functional] [Iran] [14]	0 %	100 %	0 %
Ponnusamy [India][15]	6.7 %	93.3 %	No specified

Characteristics of the "Moroccan Nose"

The Moroccan nose exhibits marked ethnic characteristics: relatively thick and oily skin, a bridge that is often kyphotic [humped], and a tip that is frequently drooping or poorly projected. The nasal index is predominantly of Asian [41.8%] or African [38.2%] type, requiring significant restructuring techniques.

Table 4: Comparison between the morphometric data of the different studies

Setting	OUR study	Chowdhury Jodhpur [India] [19]	Naraghi [Iran][14]	Chhihab [University Hospital] Marrakech] 6]
Height nasal [cm]	6.04 ± 0.88	No specified	4.405 ± 0.285	No specified
Corner nasofrontal [°]	147.25 ± 8.9	145.6 [F postop.]	147.82 ± 6.12	postop. [−2°]
Corner nasolabial [°]	106.85 ± 10.08	96.2 [F postop.]	100.22 ± 9.32	↑ postop. [+1.11°]
Corner nasofacial [°]	33.16 ± 5.33	30.2 [F postop.]	32.28 ± 3.20	No specified
Length of nose [cm]	6.04 ± 0.88	No specified	4.405 ± 0.285	No specified
Corner of rotation of their point [°]	106.85 ± 10.08	99.6 [F] / 94.0 [H]	No specified	↑ postop. [77% of the case]
Projection nasal [Goode]	60 % insuff / 36.4 % adequate	0.55 → 0.61 [postop.]	No specified	No specified
Index nasal dominant	41.8 % Asian	No specified	No specified	No specified

Surgical Techniques Used

An open approach was preferred in 96.4% of cases to allow for complete exposure of the structures. The approach is primarily structural, aiming to reinforce the framework rather than simply reduce volume. The main actions included:

- **Septoplasty:** performed in 92.7% of cases to correct deviations.
- **Grafts:** massive use of camouflage grafts [94.5%] and septal grafts [90.9%].
- **Tip sutures:** used in 60% of patients to refine and project the lobule.

Table 5: Type of rhinoplasty from different studies

Study [City / Country, Date of publication]	Kind of rhinoplasty
OUR study	Structural
Chhihab [University Hospital] Marrakech, 2023 [6]	Functional
Qaradaxi & Mohammed [Iraq, 2023] [13]	Preservation
Ponnusamy [India, 2022] [15]	Structural
Kim [Korea] of South, 2024] [16]	Structural [primary & revision]

Table 6: Percentage of septoplasties in the different studies

Study [City / Country]	Number of patients	Rate of septoplasty [%]
OUR study	55	92.7 %
Chhihab [Marrakech] [6]	90	72 %
Qaradaxi & Mohammed [Iraq][13]	113	100 %
Ponnusamy And al. [India][15]	30	100 %

Complications and Satisfaction

Complications were only minor and early: edema [70.9%] and bruising [45.5%]. No cases of reoperation were recorded [0%]. The satisfaction rate is high, with a median SNAP score of 10/10 for 83.6% of patients.

Rhinoplasty in Morocco benefits from structural techniques that address the challenges posed by thick skin and a lack of cartilage support. A rigorous preoperative analysis, integrating aesthetic and functional dimensions, guarantees natural and long-lasting results.

Table 7: Post-operative complications from different studies

Study [City / Country, date of publication]	N	Edema [%]	Bruises [%]	Bleeding [%]	Infections [%]	Complications late [%]
OUR study	55	70.9	45.5	12.7	0	0
Chhihab [University Hospital] Marrakech, 2023][6]	90	100	NR	NR	0	Not stroke reported
Marzak [University Hospital] Marrakech, 2018[8]	60	Frequents	Frequent	NR	Rare	Not specified
Qaradaxi & Mohammed [Iraq, 2023][13]	113	NR	NR	2.65	0	Indentation dorsal [5.3 %]
Dziewulski and al. [Poland, 1995] [10]	62	3.2	NR	NR	0	0
Layliev and al. [States- United 2017] [17]	4978	NR	NR	0.2	0.2	NR

Table 8: Variation in patient satisfaction across different studies

Study [City/ Country, date of publication]	Score used	Satisfaction high [%]
OUR study	SNAP + VAS	83.6 % [SNAP ≥ 9]
Chhihab [University Hospital] Marrakech, 2023] [6]	Simple evaluation	90 %
Marzak [University Hospital] Marrakech, 2018] [8]	Subjective evaluation	81.6 %
Kotzampasakis [Greece, 2017] [9]	ROE	67% [ROE > 80 %
Abbas [Turkey, 2021] [12]	VAS	88.2 %
Stundžaitė-Baršauskienė [Lithuania, 2020] [10]	Subjective evaluation	4.4 / 5 [group aesthetic]
Qaradaxi & Mohammed [Iraq, 2023] [13]	SCHNOS	95.6 % [aesthetic]
Layliev [States - united, 2017] [17]	ROE	Median ROE 87.5 %
Kim [Korea] of South, 2024] [16]	FACE- Q	70.6% [primary]
Ponnusamy [India, 2022] [15]	ROE + NOSE	96.6 %

CONCLUSION

Cosmetic rhinoplasty, far from being limited to a simple act of superficial modification, is now established as a complex discipline situated at the crossroads of art and science. It requires the surgeon to have a rigorous mastery of anatomy, a nuanced understanding of psychological expectations, and precise adaptation to regional ethnic specificities.

The study precisely defines the regional nasal morphotype, characterized by a wide nose, dorsum asymmetry, and insufficient tip projection. To address these challenges, open structural rhinoplasty emerged as the gold standard technique in the majority of cases in our study. This approach allowed for the long-term stabilization of nasal architecture through the intensive use of grafts, particularly camouflage and septal grafts. The systematic use of septoplasty confirms the importance of an integrated morpho-functional strategy.

Although limited by its size and single-center nature, this study opens up major perspectives: it encourages the digitization of monitoring tools, the integration of Maghreb ethnic criteria into planning frameworks and the creation of a national register of rhinoplasties in Morocco.

Structural rhinoplasty, when based on rigorous evaluation and a humanistic approach, allows for lasting facial harmony while restoring vital function. It fully

embodies Dr. Halsted 's maxim: "Surgery is an art, and art requires practice to be mastered."

REFERENCES

1. Goga D. Recommandation pour la pratique clinique : rhinoplastie esthétique et fonctionnelle. Revue de Stomatologie et de Chirurgie Maxillo-faciale. Déc 2007;108[6]:479-81.
2. Jankowski R, Márquez S. Embryology of the nose: The evo-devo concept. WJO. 2016;6[2]:33
3. P Janfaza JBNJ. SURGICAL ANATOMY OF THE HEAD AND NECK. P Janfaza, J B Nadol Jr, R J Galla, R L Fabian, W W Montgomery. Harvard University Press, 2011. ISBN 978 0 67405 803 3 pp. J Laryngol Otol. oct 2012;126[10]:1081-1081
4. Nguyen PS, Bardot J, Duron JB, Jallut Y, Aiach G. Anatomie chirurgicale de la pyramide nasale. Annales de Chirurgie Plastique Esthétique. déc 2014;59[6]:380-6.
5. Toriumi DM. Structure approach in rhinoplasty. Facial Plastic Surgery Clinics of North America. févr 2005;13[1]:93-113.
6. Chhihab MI. Impact de la rhinoplastie sur l'équilibre labial. [Marrakech]: Faculté de médecine et de pharmacie de Marrakech; 2023.
7. Saâd LAHMITI. Rhinoplastie par voie externe : Etude rétrospective de 180 cas. [Marrakech]: Faculté de médecine et de pharmacie de Marakech; 2011.
8. Mouad Marzak. Impact psychologique de la rhinoplastie Enquête de satisfaction sur 60 cas. [Marrakech]: Faculté de médecine et de pharmacie de Marakech; 2017.
9. Kotzampasakis D, Mantalos P, Kotzampasakis S, Danias N, Nikolopoulos T. Assessment of Aesthetic Results of 100 Patients Who Underwent Rhinoplasty— Rhinoplasty Outcome Evaluation. Plastic and Reconstructive Surgery - Global Open. sept 2017;5[9]:e1404.
10. Dziewulski P, Dujon D, Spyriounis P, Griffiths RW, Shaw JD. A retrospective analysis of the results of 218 consecutive rhinoplasties. British Journal of Plastic Surgery. 1995;48[7]:451-4.
11. Stundžaitė Baršauskienė, Giedrė. Multivariate analysis of interrelations between facial anthropometric parameters, self-esteem, psychosocial wellbeing and body image after reconstruction of nasal soft tissue defects and aesthetic surgery. 2020.
12. Abbas OL, Kurkcuoglu A, Aytop CD, Uysal C, Pelin C. Perception of Symmetry in Aesthetic Rhinoplasty Patients: Anthropometric, Demographic, and Psychological Analysis. Perception. oct 2017;46[10]:1151-70.
13. Qaradaxi KA, Mohammed AA, Mohammed HN. The outcome of V vs. S shaped nasal deformity in preservation rhinoplasty; A comparative study. Ann Chir Plast Esthet. sept 2022;67[4]:239-44.
14. Naraghi M, Atari M, Asadollahi H. When Aesthetics, Surgery, and Psychology Meet: Aesthetic Nasal Proportions in Patients Having Rhinoplasty and Normal Adults. Surg J. mars 2016;02[01]:e44-8.
15. Ponnusamy S, Trehan S, Lade H, Bhardwaj R. Assessment of Functional and Esthetic Outcomes of External Approach Septorhinoplasty with Spreader Graft in North India. Saudi Journal of Otorhinolaryngology Head and Neck Surgery. janv 2022;24[1]:12-6.
16. Kim Y, Park JH, Park M, Lee E, Hong SD, Jung YG, et al. Differences in Nasal Shapes and the Degree of Changes Over a Decade or More: A Paired Analysis. Clin Exp Otorhinolaryngol. 29 févr 2024;17[1]:56-63.
17. Layliev J, Gupta V, Kaoutzanis C, Ganesh Kumar N, Winocour J, Grotting JC, et al. Incidence and Preoperative Risk Factors for Major Complications in Aesthetic Rhinoplasty: Analysis of 4978 Patients. Aesthetic Surgery Journal. 1 juill 2017;37[7]:757-67.
18. Patel SM, Daniel RK. Indian American Rhinoplasty: An Emerging Ethnic Group. Plastic and Reconstructive Surgery. mars 2012;129[3]:519e-27e.
19. Abir Chowdhury. COMPARISON OF PRE AND POST OPERATIVE NASAL ANTHROPOMETRIC MEASUREMENTS AND SUBJECTIVE ASSESSMENTS IN ADULT PATIENTS UNDERGOING PRIMARY RHINOPLASTY.pdf. [AIIMS, Jodhpur]: All India Institute of Medical Sciences, Jodhpur; 2022.