



Chin Dysmorphology in the Rhinoplasty Population: Incidence, Objective Analysis, & Implications

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Purpose

- Chin flaws are far more common than recognized.
- Discussing correction could pose a challenge with adolescent patients.
- Denial of genioplasty by parents or adult patients can present a surgical planning enigma, especially in patients with microgenia and chin deviation.
- The prevalence of chin dysmorphology is not well-reported in this population
- Goal → investigate the frequency of chin imperfections in patients seeking rhinoplasty, review the conundrum they generate, and offer management suggestions based upon over 40 years of the senior author's experience.

Methods

- This review included 108 consecutive patients presenting for primary rhinoplasty.
- Demographics, soft tissue cephalometrics, and surgical details were recorded.
 - Tr-G-Sn-Me, Sn-St-Me, Me deviation, & Pg-Riedel's line
- Exclusion criteria included prior orthognathic or isolated chin surgery, mandibular trauma, congenital craniofacial differences, & documented malocclusion.
- Dysmorphology was practically classified as reported previously (Table 1).

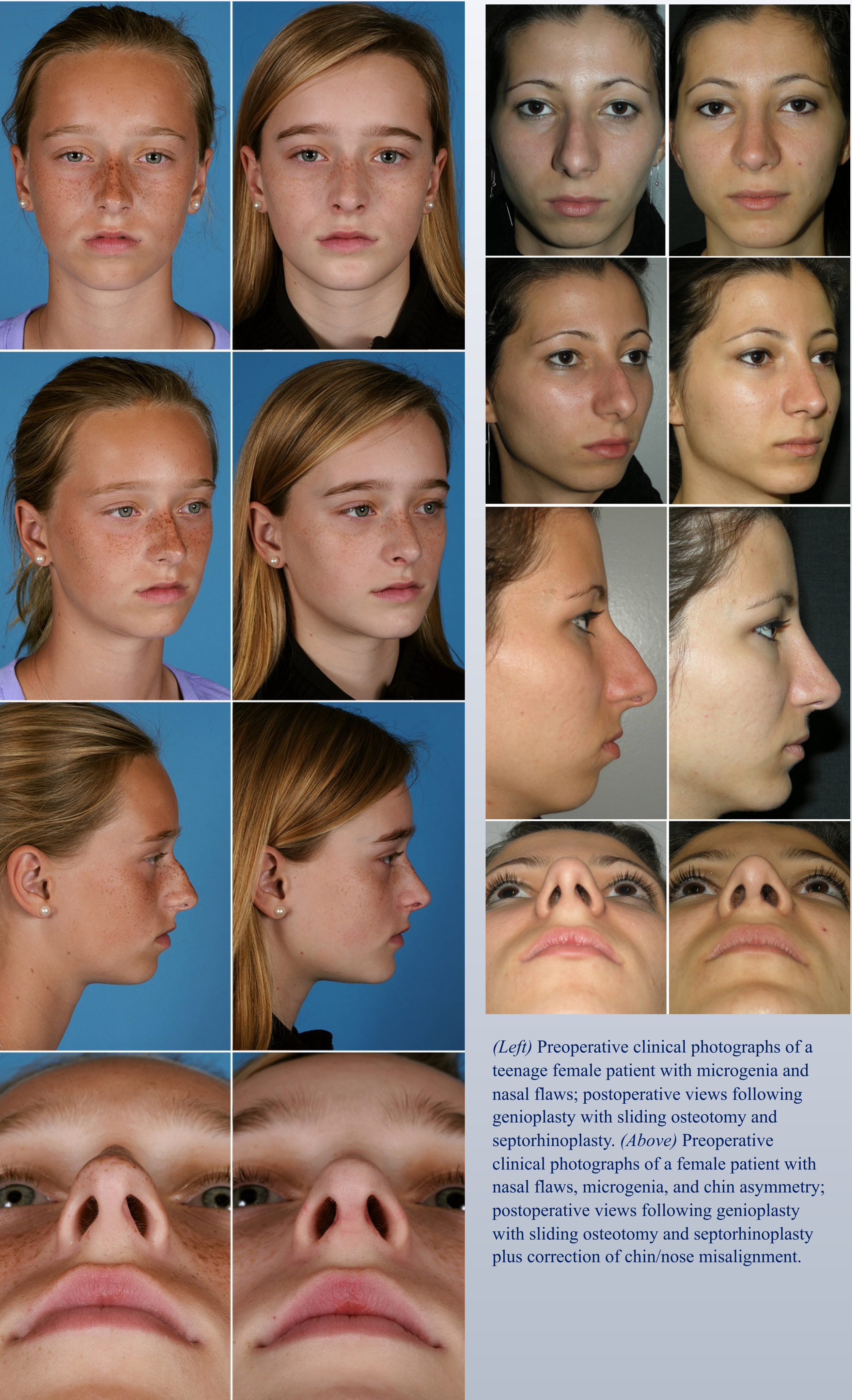
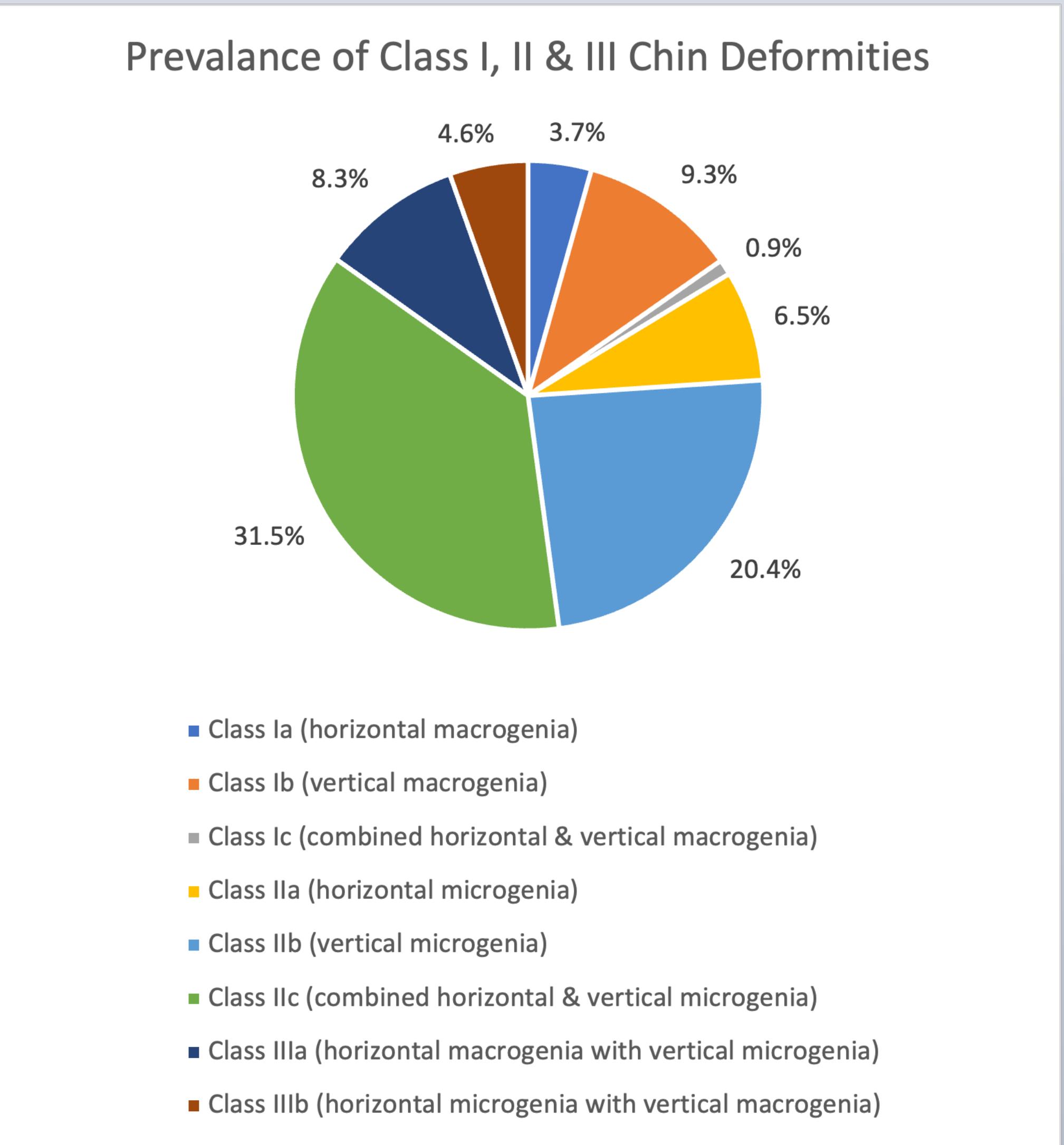
Results

Demographics & Surgical Details:

- 108 patients included; 92 (85.2%) female.
- Mean age 30.8 years (SD±13, range 14-72); 15 (13.9%) younger than 18.
- 5 (4.6%) → simultaneous osseous genioplasty (mean advancement 7.8mm, range 5-9mm)
 - None returned for delayed genioplasty
- 7 (6.5%) → simultaneous fat grafting to the chin (mean volume 4.4cc, range 1-9cc)
 - One patient (0.9%) returned for additional fat grafting to the chin

Table 1.	Classification of Chin Deformities & Algorithm for Surgical Correction
Class	Correction
I. Macrogenia	Ia) Horizontal: Osteotomy with setback or ostectomy
	Ib) Vertical: Osteotomy & resection
	Ic) Both horizontal & vertical: Osteotomy, resection, & setback
II. Microgenia	IIa) Horizontal: Osteotomy with advancement, autogenous or alloplastic augmentation
	IIb) Vertical: Osteotomy & lengthening, with or without graft
	IIc) Both horizontal & vertical: Osteotomy, lengthening & advancement, with or without graft
III. Combined	IIIa) Horizontal macrogenia with vertical microgenia: Osteotomy with lengthening & setback
	IIIb) Horizontal microgenia with vertical macrogenia: Osteotomy with resection of a horizontal segment & advancement
IV. Asymmetric	IVa) Short anterior lower face: Add wedge of bone to the short side
	IVb) Normal lower facial height: Remove a wedge of bone from the long side, add to the short side
	IVc) Long anterior facial height: Removal of a wedge of bone based on the long side
V. Witch's chin	Soft tissue correction
VI. Pseudomacrogenia	Soft tissue adjustment (not predictable and extremely rare)
VII. Pseudomicrogenia	Soft tissue augmentation

Guyuron B, Michelow BJ, Willis L. Practical classification of chin deformities. *Aesthetic Plast Surg.* 1995;19(3):257-264.



Soft Tissue Cephalometrics:

- 97 (89.8%%) patients → *some degree of objective chin dysmorphology beyond 3mm*
- Severity of dysmorphologies measured was diverse (range 3mm-18mm)
- 15 (13.9%) Class I (macrogenia)
- 63 (58.3%) Class II (microgenia)
- 14 (12.9%) Class III (combined micro- & macrogenia in horizontal & vertical directions)
- 41 (38%) Class IV (chin asymmetry)
- Lower facial measurements (Sn-Me, S-St, & St-Me) were significantly different when partitioned by age (greater or less than 18 years) ($p = 0.01-0.05$)
- No significant differences when partitioned by gender

Conclusions

- A considerable proportion of primary rhinoplasty patients demonstrate quantifiable chin dysmorphology, across a varied spectrum, on high-resolution imaging.
- Most frequent flaws → isolated vertical microgenia, combined horizontal & vertical microgenia, and chin asymmetry.
- Literature review suggests 31-81% prevalence, while 13-25% pursue simultaneous genioplasty.
 - Heterogeneous, varied/limited methods
- This study supports a standardized analysis of chin morphology during consultation and an algorithmic approach to surgical correction.
 - Cephalometrics + Riedel's line → *clinical simplicity*
 - Classification scheme → *practical guide*
- Only a small number seek genioplasty or fat grafting to improve facial harmony.
- Potential reasons for aversion:
 - Fear of side effects, care burden, reluctance in general
 - Financial limitations, recovery
- Mitigation strategies:
 - Patient education & counseling
 - Review options → fat injection vs. alloplastic vs. osseous