

Accelerated Aging In FGFR2 Syndromes: The Role Of Facial Degloving In Midface Advancement Procedures

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Introduction

Premature aging in patients with FGFR2 mutations may result from their genetic mutation, facial degloving during midface advancement procedures (MAP), or both.

Objective

This study aims to examine the impact of midface degloving after MAP in FGFR2 and nonsyndromic patients to clarify its role in premature aging.

Methods

Retrospective review at a tertiary children's hospital

- Inclusion Criteria: MAP between 2009 and 2013
- Exclusion Criteria: <14 years of age

Outcome Variables: Skin aging was evaluated using validated facial aging scales, scored on a 4-point scale.^{1,2}

Statistical Analysis: Wilcoxon rank-sum, two sample t-test, Fisher's exact, ANOVA

References

1. Flynn TC, Carruthers A, Carruthers J, et al. Validated assessment scales for the upper face. *Dermatol Surg.* 2012;38(2 Spec No.):309-319. doi:10.1111/j.1524-4725.2011.02248.x
2. Narins RS, Carruthers J, Flynn TC, et al. Validated assessment scales for the lower face. *Dermatol Surg.* 2012;38(2 Spec No.):333-342. doi:10.1111/j.1524-4725.2011.02247.x

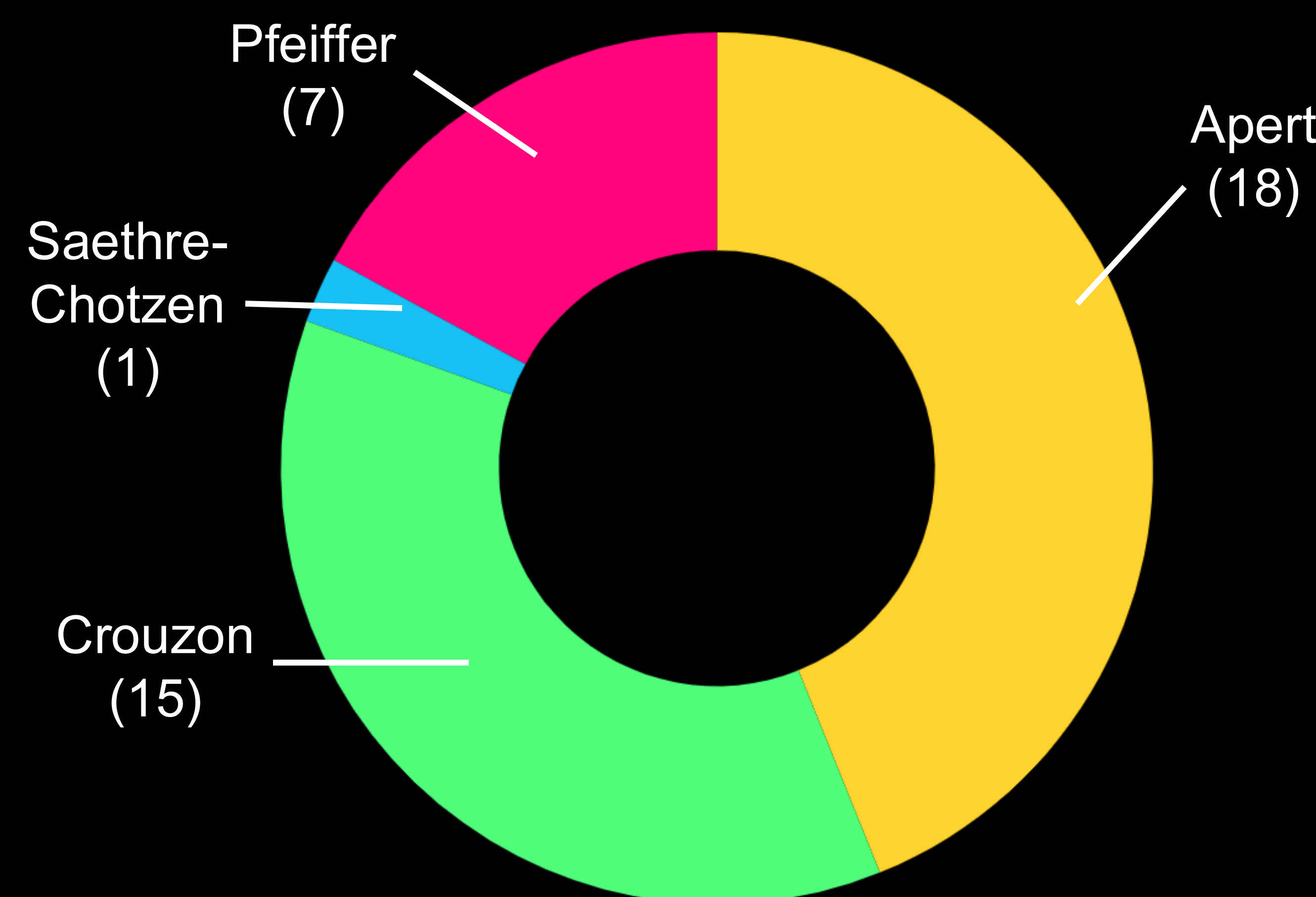


Figure 1. FGFR2 Syndrome Distribution. Most patients were diagnosed with Apert syndrome, followed by Crouzon, Pfeiffer, and Saethre-Chotzen



Figure 2. Skin Aging Scale. Sample images from the scale are shown, illustrating the appearance corresponding to a skin aging score of 4.^{1,2}

Results

- 58 patients met inclusion criteria
 - 41 with FGFR2 Syndromes vs 17 controls
- The FGFR2 cohort was characterized by
 - younger age at last MAP (13.2 vs 18.3 years, $p=0.017$)
 - younger age at time of postoperative photography (17.6 vs 19.4 years, $p=0.030$)
 - greater soft tissue procedures per patient (2 vs 1, $p=0.036$).
- FGFR2 cohort had deeper nasolabial folds (1 vs 0, $p<0.001$), thinner lower lips (2 vs 3, $p=0.020$), and lower-set eyebrows (1 vs 0, $p=0.002$).
- No differences were noted in mentolabial folds, perioral rhytids, or jowling.

Conclusion

Despite younger age and more soft tissue procedures, patients with FGFR2 mutations showed more pronounced signs of premature aging than nonsyndromic patients, suggesting a unique impact of FGFR2 mutation beyond MAP effects.