DOES CLEFT TYPE PREDICT NEED FOR FUTURE ORTHOGNATHIC SURGERY? A RETROSPETIVE COHORT STUDY

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Introduction

Cleft lip and palate are among the most common congenital craniofacial anomalies, often requiring a series of surgical interventions throughout a patient's life. While initial repairs aim to restore form and function, some individuals may develop significant craniofacial skeletal abnormalities necessitating orthognathic surgery into adolescence and adulthood. This retrospective cohort study examines whether the cleft type serves as a predictive factor for future orthognathic surgery, thereby aiding in early treatment planning and patient counseling.

Methods

The TriNetX LLC. National Health Research database was utilized to identify cleft lip or palate patients who had repair between 2004-2025. The database was further queried using Common Procedural Terminology (CPT) or International Classification of Disease (ICD-10) codes for those who did or did not receive orthognathic surgery within 20 years of their original surgery. The two cohorts were subsequently matched for their comorbidities.

Results

A total of 37,367 patients were identified who underwent a cleft lip and/or palate repair, with 27,281 patients having unilateral cleft lip and palate involvement, and 10,086 having bilateral cleft lip and palate involvement. Of these patients, 615 had subsequent two-jaw (i.e. maxilla and mandible) orthognathic surgery, and 499 had maxilla-only orthognathic surgery. This equates to a risk of patients with a unilateral cleft palate with lip with a 1.613% risk of two-jaw surgery, and a 1.254% risk of maxilla-only surgery. Patients with bilateral involvement had a 1.735% risk and a 1.557% risk of two-jaw and maxilla only surgery, respectively.

Maxilla Only Surgery

Unilateral

	Cohort	Cohort Statistics: Patients in Cohort	Patients with Outcome	Risk
1	Cleft u/l lip	27,281	342	1.254%

Bilateral

	Cohort	Cohort Statistics: Patients in Cohort	Patients with Outcome	Risk
1	Cleft b/l lip	10,086	157	1.557%

Two Jaw Surgery

Unilateral

	Cohort	Cohort Statistics: Patients in Cohort	Patients with Outcome	Risk
1	Cleft u/l lip	27,281	440	1.613%

Bilateral

	Cohort	Cohort Statistics: Patients in Cohort	Patients with Outcome	Risk
1	Cleft b/l lip	10,086	175	1.735%

Conclusions

This retrospective cohort study analyzed a large population of patients with cleft lip and/or palate to determine whether the cleft type predicts the need for future orthognathic surgery. Our findings indicate that while both unilateral and bilateral cleft lip and palate patients undergo orthognathic procedures, the overall risk is slightly higher in bilateral cleft patients when compared to unilateral cleft patients. Furthermore, patients with a bilateral cleft palate with lip involvement had a higher risk of maxilla-only surgery and two jaw surgery when compared to unilateral cleft patients.