29. **Examples of Incomplete Clefts of Varying Degrees**

**KEY TO CODE ON CASES**

- **B.D.** birth date
- **F.H.** family history
- **F.T.** first trimester
- **O.C.A.** other congenital anomalies
- **Op** operation
- **Ad** adhesion
- **Adv** advancement
- **Rot** rotation
- **R-A** rotation-advancement
- **H.P.** hard palate
- **S.P.** soft palate
- **B.G.** bone graft
- **b-c** back-cut
- **wr** white roll flap
- **c** flap c
- **col** columella

A cleft is indicated by stippling, a submucous cleft or submucous distortion by horizontal lines.
VERMILION NOTCH (CASE 1)

1. 8 months
2. 8 months
3. 6 weeks postoperative

B.D.: October 16, 1961
F.H.: Unknown
F.T.: Unknown
O.C.A.: Internal strabismus


MINIMAL CLEFT WITH CONGENITAL SCAR (CASE 2)

1. 6 months
2. 6 months
3. 3 years

B.D.: May 15, 1968
F.H.: No clefts
F.T.: Uneventful
O.C.A.: None

R.A. At 6 months

Comment. Congenital scar with vertical shortness of lip and width of nasal floor required scar excision and moderate rotation and advancement to give natural balance.
MINIMAL CLEFT WITH CONGENITAL SCAR (CASE 3)

B.D. March 21, 1964
FH. No clefts
FT. Uneventful
O.C.A. None
RA. At 7½ months
3. Adv with wr. 4. Cleft vermilion edge interdigitation into non-cleft at free border.

Comment. Congenital scar with shortening and vermilion notch required scar excision, moderate rotation and advancement, nasal floor wedge excision, muscle suture and vermilion interdigitation to achieve balance.
MINOR CLEFT WITH CONGENITAL GROOVE (CASE 4)

B.D. September 4, 1964
F.H. No clefts
F.T. Uneventful
O.C.A. None

R.A. At 6 months

Comment. Important to preserve philtrum dimple and cleft side column as much as possible.
MINOR CLEFT WITH CONGENITAL GROOVE (CASE 5)

1. 18 months
B.D. March 1, 1964
E.H. No clefts
F.T. Uneventful
O.C.A. None

2. 18 months
R.A. At 18 months
Op. 1. Rot with b.c. 2. c for col.
Healing. Slight contracture.

3. 8½ years
Comment. Aim to preserve column on cleft side as well as normal side and still rotate dimple and bow into balanced position.

MINOR CLEFT WITH CONGENITAL GROOVE (CASE 6)

1. 5 months
B.D. April 8, 1969
E.H. No anomalies
F.T. Mother had strep throat treated with penicillin and a "mycin" drug.
O.C.A. None

2. 5 months
R.A. At 5 months
Op. 1. Rot with b.c. 2. c for col.

3. 2 years
Comment. Scar balances opposite column maintaining central dimple.
MINOR CLEFT (CASE 7)

B.D. November 2, 1970
F.H. No clefts
E.T. Uneventful
O.C.A. None

R.A. At 3½ months

Comment. More rotation necessary than obvious at first glance.
MINOR CLEFT (CASE 8)

1. 7 months
2. 7 months
3. 9 months
4. 4 years
5. 4 years

B.D. July 29, 1963
F.H. No clefs
F.T. Uneventful
O.C.A. None

R-A. At 7 months

Revisions. At 1 year. 1. Excess vermilion trim. 2. Small scar revision.

Comment. Scar excision with slight rotation and advancement plus the white roll flap achieved balance.
MINOR CLEFT (CASE 9)

B.D. May 3, 1960
E.H. Only one male sibling with congenital lip scar and cleft
F.T. Uneventful
O.C.A. None

R.A. At 4 months

Revision. 14 months postoperative slight upper scar excision, vermilion trim on cleft free border.


Comment. Lateral lip element thicker and longer vertically than non-cleft element. By elevation of advancement into rotation gap this discrepancy was benefited.
MINOR CLEFT (CASE 10)

1. 2 months
2. 2 months

3. 1 month postoperative
4. 4 years

5. 10 years

B.D. February 3, 1962
F.H. No clefts
F.T. One day of nausea, cramps, diarrhea
O.C.A. None

R.A. At 2 months

Revisions. 3 years later. Revision of vermilion vertical and horizontal free border trimming.

Comment. This was almost a bilateral cleft but effectively corrected with a unilateral rotation-advancement and a white roll flap.
HALFWAY CLEFT (CASE 11)

B.D. May 29, 1957
F.H. No clefts
E.T. Uneventful
O.C.A. None

R.A. At 3 months
H.P., S.P. V-Y pushback at 11 months.

Revision at 11 months. Cleft side vermillion trimmed.

Comment. A well-balanced result even though white roll flap not being used yet. Here muscle tissue from the cleft edge would be used to fill out the depression in the upper portion of the lateral lip element primarily now.
HALFWAY CLEFT (CASE 12)

B.D. October 5, 1959
F.H. Mother has cleft nose deformity without cleft lip. Half-brother on maternal side has cleft lip with nasal deformity and alveolar defect.

F.T. Uneventful
O.C.A. None

1. 3 months
2. 3 months
3. 4 months
4. 5 years
5. 10 years
6. 13½ years

R.A. At 3 months

Revision. At 1½ years. Mucocutaneous white roll created by tiny skin graft from arm.


Comment. White roll continuity achieved by 1 mm. skin graft from the arm as primary white roll flap was not being used in 1959. Patient does not know he had a cleft.
HALFWAY CLEFT (CASE 13)

1. 4½ months
B.D.  May 22, 1962
F.H.  No clefts
F.T.  Uneventful
O.C.A. None

2. 4½ months
R.A.  At 4½ months

3. 2 weeks postoperative

Comment. The muscle deficiency in the upper portion of the lateral lip element is not evident in early postoperative photo. Muscle flap from medial element would be inserted into this deficiency during the primary procedure if done today.

2/3 WAY CLEFT (CASE 14)

1. 4½ months
B.D.  April 30, 1968
F.H.  No clefts
F.T.  Medication to prevent miscarriage
O.C.A. None

2. 4½ months
R.A.  At 4½ months
   3. Adv with wr.

3. 1 year

Comment. Upper portion of lateral lip element thin and deficient in muscle. Muscle flap from edge of medial element would have filled out the contour.
HALFWAY CLEFT (CASE 15)

B.D. November 20, 1964
F.H. No clefts
F.T. Uneventful
O.C.A. None

R-A. At 3 months
Op. 1. Rot with b.c. 2. c for col.

Revisions. 1 year later. 1. Elliptical excision from free border of cleft.
2. V-Y advancement of alar base.

Comment. Mucocutaneous ridge on the lateral lip element flattened out too soon in the original deformity so that getting a strong ridge in continuity across the cleft was difficult.
Twins and Clefts

If any trait is solely genetically determined, there should be 100 percent similarity in monozygotic twins. This degree of concordance, however, is not found. As pointed out by Fogh-Andersen in 1942, any physical difference in monozygotic twins may be attributed to exogenous factors influencing the affected twin or to an arrest of manifestation in the apparently normal twin.

Metrakos, Metrakos and Baxter in 1958 reported a pair of monozygotic twins, one with CL(P) and the other normal. Ramsey and Wynn-Williams in 1960 reported a pair of monozygotic twins, one with left unilateral CL(P) and the other with bilateral CL(P). In 1966 Boo-Chai reported two pairs of monozygotic twins; one pair had a CL(P) and a normal male while the other pair had a right CL(P) and the opposite twin had a left microform CL. In 1972 Blake and Wreeakes reported five pairs of monozygotic twins; one pair had clefts of unequal degree while the other four pairs had one cleft and one normal each. Fogh-Andersen in 1971 published an account of a pair of monozygotic twins, one with unilateral CL(P) and the other with bilateral CL(P), and cited it as another example to support his theory that CP is genetically distinct from CL(P). He noted:

Twin studies in Denmark and other countries are the same; no single example of one twin partner having CL(P) and the other CP has yet been described.

Since then he has had further confirmation with another pair of monozygotic twins, one unilateral and one bilateral, and also a pair with an isolated cleft palate in one and a bifid uvula in the other.

In 1922 A. D. Davis noted a case of twins reported by W. L. Shearer in which there were

a boy and girl, one of whom had a cleft of the soft palate; the other a cleft of the hard palate and a single harelip.

Identical Concordance in Monozygotic Twins

In 1942 in Denmark, Fogh-Andersen reported out of a total of 867 clefts 26 twins, a twinning rate of 1:33. At the International Cleft Palate Congress in 1973 in Copenhagen, he reported 100 pairs of twins in over 5,000 clefts including 17 pairs of monozygotic twins. Among these were two pairs of identical concordant monozygotic twins. One pair had unilateral, left, complete CL(P); the other pair had unilateral, left, incomplete CL. There was also a pair with symmetrical or mirror type, right and left, complete CL.

In 1972, for England and Wales, Blake recorded for the year 1968, 819,272 live births, 8,697 twin pregnancies (twinning rate of 1:94) with 1,175 clefts. He extrapolated: expected number of monozygotic twins: 2,609 (30 percent of twins being monozygotic); expected number of clefts in twins: \[
\frac{8,697 \times 2}{697} = 25.
\]

One-third of this (8) should be monozygotic twins with clefts. If 50 to 40 percent of monozygotic twins with clefts are concordant (Fogh-Andersen, 1967), there should have been three concordant monozygotic twins in England and Wales in 1968.

In the U.S.A., with a 4,000,000 yearly birth rate and 47,500 twin live births (1:86), using the cleft rate of 1:750 one can extrapolate the number of twins with clefts: \[
\frac{47,500 \times 2}{750} = 128.
\]

That is, 128 twins would be born with clefts yearly. One-third of them, or 42, would be monozygotic. Around 14 of these would be concordant. How many of the 14 would be symmetrically concordant is uncertain. Yet it seems quite unusual that there are only three examples of identical concordant cleft lips in monozygotic twins reported in the world literature (A. D. Davis, 1922; Fogh-Andersen, 1942, 1973).

What is more, Davis in 1922 wrote many of his friends in large cleft surgery clinics, like Blair, Ivy, Federspiel, Gilmer and New, and asked if they had any such cases. They did not. Two instances of exact mirror image complete unilateral cleft lips have been reported (Shearer, 1921; Fogh-Andersen, 1962). Stell and Frenkel in 1970 reported six twins with mirror image unilateral cl.

There have been no reports on concordant twins with mirror image unilateral clefts. If we add the number of twins and the number of clefts, the number of pairs of twins and the number of clefts, we are for your study. According Colin Condron, once Medical Director of the University of Miami Mailman Center for Child Development, there is compelling evidence that these boys monozygotic twins with a single twin in a monochorionic and monamnion, sharing most common b group antigens (W. Bias), not refuted by lymphocyte cultures (R. War) and having remarkably similar dem Glycides and ridge counts.

Diamond Flaps for Twin Tubercles

Each identical twin with his symmetrical cleft not only had oral advancement but received a “t” shaped posterior mucosal flap to bolster his “c” tubercle. No matter how carefully Nature duplicates or how diligently the sur, attempts to assist her, identical nduction does not occur. Not only has twin a difference in visual acuity requ glasses, but the two lips show slight ations in their healing, growth and opment. They are both, however, adjusted little gentlemen.
HALFWAY CLEFTS (CASE 16, 17)

1. 4½ months
B.D. October 5, 1969 (1st twin)
F.H. No clefts
F.T. Uneventful
O.C.A. None

R.A. At 4½ months

2. 4½ months
5. Posterior mucosal flap from cleft element cut as to create tubercle of cupid's bow. 6. Alar rim excision.

3. 16 months

Comment. Monozygotic twins with twin diamond posterior mucosal flaps.

4. 3 years

1. 4½ months
B.D. October 5, 1969 (2nd twin)
F.H. No clefts
F.T. Uneventful
O.C.A. None

2. 4½ months

3. 16 months

4. 3 years
HALFWAY CLEFT (CASE 18)

B.D. August 4, 1960
F.H. No clefts
F.T. Threatened miscarriage at 2 months
O.C.A. None

R-A. At 4 months


Comment. My cover puzzle boy.
HALFWAY CLEFT (CASE 19)

1. 2½ months
2. 2½ months
3. 9 months
4. 5 years

B.D. October 7, 1963
F.H. No clefts
F.T. Uneventful
O.C.A. None

R.A. At 2½ months
H.P. At 7 months, vomer flap closure of H.P.
S.P. At 18 months, island flap pushback.

Revisions. At 6 months. 1. Trimming of vermillion free border. 2. Alar base on normal side reduced. 3. Alar rim excision.

Comment. More of a cleft than visible but correctable with rotation and advancement.
HALFWAY CLEFT (CASE 20)

B.D. November 28, 1963
F.H. No known anomalies but mother adopted
E.T. Uneventful
O.C.A. Hemangioma of chest

R.A. At 3½ months

Comment. Balanced lip and nose with continuous mucocutaneous white roll ridge.
ALFWAY CLEFT (CASE 21)

B.D. November 9, 1968
F.H. No clefts
E.T. Uneventful
O.C.A. None

R.A. At 5 months

Qn. 1. Ror with b-c. 2. c for col.


Comment. By keeping the slightly wide nasal floor intact, rotation and advancement was possible without reducing the cleft nostril too much primarily. When seen at age 5, a healed laceration of her right commissure was more noticeable than any residual effects of the cleft and its surgery.
HALFWAY CLEFT (CASE 22)

1. 3 months
2. 3 months
3. 1 year (healthy)

B.D. February 6, 1965
F.H. No clefts
F.T. Uneventful
O.C.A. None
R.A. 1st attempt at 3 months—
cardiac arrest. Completed at 4
months.
3. Adv with wr. 4. Wedge from
nasal floor.
Hard scar at 6 weeks. At 3 months
soft, well-healed.
Comment. A happy ending after a
hazardous beginning.

HALFWAY CLEFT (CASE 23)

1. 8 months
2. 8 months
3. 14 months

B.D. October 20, 1971
F.H. No clefts
F.T. Uneventful
O.C.A. None
R.A. At 8 months
3. Adv with wr. 4. Alar base su-
tured to sepsum with nylon. 5. Post-
terior mucosal interdigitation. 6.
Alar rim excision. 7. Mucosa scrap
to alveolus.
Comment. The difference in the
heights of the peaks of the bow on
the non-cleft element (6 mm.) is
equal to one-half the vertical length
of the upper lip (12 mm.). This
explodes the theory that a limit of
3 to 4 mm. (Randall; Cramer) is all
the lengthening that rotation can
achieve without crossing into the
normal side.
HALFWAY CLEFT (CASE 24)

B.D. August 27, 1971
E.H. No clefts
F.T. Uneventful
O.C.A. None

R.A. At 4 months
3. Adv with wr. 4. Alar base denuded and sutured to septum.
5. Alar rim denuded and transposed as a flap.
S.P. Closure of soft palate and vomer to both sides of mucoperiosteum of hard palate. No lengthening.

Revision. Full-thickness horizontal excision of lip along nasal join to shorten cleft side slightly, a rare necessity.

Comment. Nasal floor denuded as tip of alar base, which was advanced medially and sutured to the septum. Denuded alar rim flap transposed into the nasal tip crease.
HALFWAY CLEFT (CASE 25)

B.D. March 27, 1972
F.H. No clefts
F.T. Uneventful
O.C.A. None

R.A. At 6 months
Op. 1. Mucosal edges of cleft used to line sulcus. 2. Rot with bc. 3.
c for col. 4. Adv with wr. 5. Medial muscle edge flap transposed under
deficient tip of advancement flap. 6. Prolene key suture. 7. Wedge from
nasal floor. 8. Alar rim excision.

Comment. This is the incomplete cleft used for demonstration in Chapter 27.
HALFWAY CLEFT SUBMUCOUS CLEFT ON THE OTHER HALF
(CASE 26)

B.D. May 24, 1972
F.H. No clefts
F.T. Spotting during early weeks
O.C.A. None

R.A. At 5½ months

Comment. Medial muscle flap into pocket under groove to fill out deficient tip of lateral flap, a successful innovation.
WAY CLEFT (CASE 27)

B.D.    July 13, 1957  
F.H.    No clefts  
F.T.    Uneventful  
O.C.A.  None  

R.A.  At 1 month  

Revisions. At 5 years. 1. White roll flap transposed across scar at mucocutaneous junction. 2. Revision of free border vermilion.  

Comment. This was before white roll flaps were being done primarily.
Comment. The deficiency of muscle in the upper portion of the lateral advancement flap needs a muscle edge flap for extra contour.

2 / 3 WAY CLEFT (CASE 29)

B.D.    February 21, 1958
F.H.    3rd cousin with cleft lip and palate
F.T.    Uneventful
O.C.A.  None

R.A.  At 2½ months

Revisions. At 7 years revision of vermilion. At 14 years V-Y vermilion tubercle, trimming excess cleft vermilion free border, alar rim excision and a chin implant.


Comment. If she looks this nice at 14 years, she will be beautiful at 18.
2/3 WAY CLEFT (CASE 30)

1. 3½ months
2. 3½ months
3. 2½ months postoperative
4. 4 years
5. 13 years

B.D. October 1, 1958
F.H. No clefts
F.T. Mother had leg infection first month
O.C.A. None

R.A. At 3½ months
3. Alar rim excision.


Comment. When patient was recalled at age 13, mother informed me that her daughter did not know she had had a cleft lip.
2/3 WAY CLEFT (CASE 31)

B.D. October 7, 1958
F.H. Paternal cousin bilateral cleft lip and palate
F.T. Uneventful
O.C.A. None

R.A. At 6 weeks
S.P. Island flap pushback at 3 years.

Revision. At 3 years. V-Y roll-down on cleft side vermillion.

Comment. This case did pretty well without a white roll flap.
WAY CLEFT (CASE 32)

B.D. July 21, 1959
E.H. Father, 42; mother, 34; no clefts
F.T. Uneventful
O.C.A. None

R-A. At 3½ months

Comment. Lack of refinements in this early case shows lack of finesse. The vermilion flap from cleft side overlapping the non-cleft side tends to give an asymmetry requiring secondary revision. This is reason for subsequent change to straight closure at this point.
B.D.  July 16, 1961
F.H.  Father had left unilateral cleft lip and palate
F.T.  Uneventful
O.C.A.  None

R.A.  At 2½ months


Comment. Mucocutaneous junction at scar not camouflaged by white roll flap primarily so never natural. Diamond excision in this area was not effective.
B.D. July 24, 1961
F.H. No clefts
P.T. Uneventful
O.C.A. None

R.A. At 2½ months
3. Adv with wr with vermilion, then did non-cleft mucosa to cleft side at free border.
H.P. Vomer flap at 11 months.
S.P. Island flap pushback at 15 months.

4. Normal vermilion reduced.

Comment. Greater deficiency of lip and more distortion of nose than in most incomplete clefts easily corrected with the rotation-advancement action.
2/3 WAY CLEFT (CASE 35)

1. 3½ months
   B.D.  February 15, 1963
   F.H.  Maternal uncle had cleft palate
   F.T.  Uneventful
   O.C.A. None

2. 3½ months
   R.A.  At 3½ months

3. 8 months
   Comment. Suggestion of bilateral cleft necessitated mucosal free border revision as a secondary procedure.

Revisions. At 1 year. Vermilion trim. Alar rim excision

2/3 WAY CLEFT (CASE 36)

1. 4 months
   B.D.  February 3, 1968
   F.H.  No clefts
   F.T.  Uneventful
   O.C.A. None

2. 4 months
   R.A.  At 4 months
   H.P. and S.P. Pushback with island flap at 14 months.

3. 4½ years
   Comment. Use of Simonart's band as the leading point of the advancement flap.
2/3 WAY CLEFT (CASE 37)

1. 3 months
2. 3 months
3. 3 weeks postoperative
4. 4½ years
5. 4½ years

B.D. July 23, 1964
F.H. No clefts
F.T. Uneventful
O.C.A. None

R.A. At 3 months
3. Adv with wr.

Comment. At least the rotation scar does not seem to limit his lip action.
B.D. December 1, 1966
F.H. No clefts
F.T. Uneventful
O.C.A. None

R-A. At 2½ months
H.P. and S.P. At 1 year pushback with island flap.

Revisions. At 6 years. 1. Horizontal full-thickness lip excision to shorten cleft side. 2. Denuded alar base advanced to septum to reduce flare. 3. Alar rim excision.

Comment. This is a rare example of slightly too much rotation which required full-thickness horizontal elliptical excision of lip at its join along the alar base and nostril sill on the cleft side to lift the bow to near symmetry.
WAY CLEFT (CASE 39)

1. 3½ months
2. 3½ months
3. 4 months
4. 5 years

B.D. January 18, 1968
F.H. No clefts
F.T. Uneventful
O.C.A. None

R.A. At 3½ months

Revision. At 4 years. 1. V-Y tubercle vermilion. 2. Denude alar base and advance to septum. 3. Normal alar base reduction.

Comment. Rotation was not carried into the normal side but lip slightly long vertically, which suggests this is natural for this patient.
2/3 WAY CLEFT (CASE 40)

B.D. May 11, 1970
F.H. No clefts
F.T. Uneventful
O.C.A. None

R.A. At 4 months
3. Adv with wr. 4. Wedge from nostril floor. 5. Crescent from alar margin.
H.P. and S.P. At 11 months push-back

Revisions. At 11 months. Mucosa free border trim. Alar rim flap to columella.

Comment. Rotation did not hug columella base quite enough so the upper part of the scar of union is not quite close enough to the nostril sill. Pretty good primary nasal correction with only columella lengthening, alar base positioning and alar rim revisioning.
B.D. March 9, 1960
F.H. Cousin with cleft lip who did not live
F.T. Uneventful
O.C.A. None

R.A. At 3½ months

Revisions. At 9 years. 1. Alar base deepithelialized and advanced.
2. Normal alar base reduced.
2. Anterior septum freed at spine, scored on left side, and moved to midline. 3. Lip muscle approximation. 4. White roll interdigitation. 5. V-Y lip mucosal roll-down.

Comment. A severe incomplete cleft which still requires minor lip and nose revisions.
34 WAY CLEFT (CASE 42)

1. 3 months
2. 3 months
3. 6 months

4. 5 years
B.D. March 21, 1960
F.H. No clefts
F.T. Uneventful
O.C.A. None

5. 12 years

R.A. At 3 months
3. Vestibule included in adv flap.
4. Cleft vermilion overlapping interdigitation on non-cleft side.

Revisions. At 9 years. 1. Scar to make white roll at mucocutaneous junction.

6. 12 years
Comment. Point of lateral advancement flap had to be taken from up in the nasal vestibule.
3/4 WAY CLEFT (CASE 43)

B.D. January 17, 1962
F.H. No clefts
F.T. Uneventful
O.C.A. None

R.A. At 3 months
Op. 1. Rot with b.c. 2. c for col.
H.P. Vomer flap at 10 months.
S.P. Pushback with island flap at 13 months.

Revisions. Slight vermillion trim at 7 months postoperative.


Comment. Another evidence of early contracture at 3 weeks that smoothed out in several months. This is one of the first "white roll" flaps!
WAY CLEFT (CASE 44)

B.D. August 12, 1968
F.H. Father's paternal grandmother had CL(P)
F.T. Uneventful
O.C.A. None

R.A. At 2½ months.
1. Rot with b-c. 2. c for col. 3. Adv with wr. 4. Posterior mucosal flap to cleft side.
S.P. and S.P. Pushback with island flap at 1 year.

Revisions. At 4 years. 1. Reduction of cleft side vermilion. 2. Revision of lateral lip muscle bulge with filling out of the upper groove. 3. Alar rim denuded and transposed as a flap into the weak area of the nasal tip.

Comment. The repeated need for lateral groove bolstering and revision of cleft side vermilion caused change from posterior mucosal flaps to muscle edge flaps in the primary surgery.
B.D. March 3, 1959
F.H. No clefts
F.T. Uneventful
O.C.A. None

R.A. At 6 weeks.

S.P. Closed with Wardill V-Y hemiangular fracture and Limberg osteotomy.
B.G. At 9½ years split rib bone grafts across and in cleft.


Comment. One of the early cases complicated by a groove of muscle deficiency in the lateral element. No refinements, extensions or modern adjuncts were used, and the rotation scar is a little too oblique for a normal philtrum line. No primary nasal tip correction; necessitates revision at 16 years.