

The letter (f) following a page number indicates a figure; the letter (t) following a page number indicates a table.

A

- Airway, compromised, in Treacher Collins syndrome, 40
- Alpert's syndrome
 - cranial dimensions in, 3, 4f-7f, 7
 - craniofacial morphology in, 78, 79f, 85f
 - facial growth with, 78-90
 - postsurgical, 82, 87, 87f-89f
 - presurgical, 81-82, 81f
 - Le Fort III osteotomy in, 69-74
 - long-term follow-up study, 75-77
 - maxillary advancement and rotation in, 82t
 - position of extraocular muscles in, 23, 25f
 - roentgencephalometry in, 2-3, 3f, 79, 80f, 81
 - sex, and age of patients with, 79, 80f
 - stability of maxilla after Le Fort III osteotomy in, 91-94, 99f-100f, 100-101
 - distribution and age of patients, 92t
- Anatomical structures
 - from geometry to algebra, 110-111, 110f-111f
 - peculiar views of, 110-128
 - practical complexities in real anatomies, 114-116, 115f, 117f-119f, 118
 - theoretical complexities, simulated anatomies, 111, 112f-114f, 113-114
- Arch, dental, widening of, 19, 23
- Arch bars, 92, 92f

B

- Bicoronal synostosis, 14, 16f
 - cranial dimensions in, 3, 4f-7f, 7
 - roentgencephalometric evaluation of, 2-3, 3f
 - surgical treatment of, 2, 2f
- Biometrics
 - beyond, 110-128
 - from field view to subtraction, 121, 124, 124f, 124f-127f
 - from measurement to field view, 118-121, 120f-123f
- Bite-block
 - thick registration, 92, 92f
 - thin registration, 93, 93f
- Bonegraft, in mandibular surgery, 58, 59f

C

- Cephalograms. *See also* Roentgencephalometry
 - definitions of landmarks and measurements used, 94t
 - example of cephalometric tracing, 94f
 - findings from cephalometric measurements, 94t
 - protocol for, 93
- Computed tomography (CT) scans
 - of bicoronal synostosis, 16f
 - of metopic synostosis, 12f
 - of multiple synostosis, 17f
 - of normal skull endocranial base, 11f
 - of sagittal synostosis, 13f, 14f
 - of unicoronal synostosis, 15f
- Coronal suture, premature synostosis of, 1-8
- Craniofacial cleft
 - case study, 32, 33f-34f
 - encephalocele and, case study, 32, 38f-39f
- Craniofacial morphology, in Crouzon's, and Alpert's syndromes, 78, 79f, 84f-85f
- Craniosynostosis syndromes. *See also* Alpert's syndrome; Crouzon's syndrome; Pfeiffer's syndrome
 - changes in endocranial base following treatment of, 9-18
 - Le Fort III osteotomy in, 69-74
 - maxillary stability following, 91-101
 - methods, 71-73, 71f-73f
 - skeletal relapse following, 69, 73, 73t

- Cranium, variability of, in craniosynostosis syndromes, 3, 7, 4f-6f
- Crouzon's syndrome, 1
 - cranial dimensions in, 3, 4f-7f, 7
 - craniofacial morphology in, 78, 79f, 84f
 - facial growth with, 78-90
 - postsurgical, 82, 86f-87f, 87
 - presurgical, 81-82
 - Le Fort III osteotomy in, 69-74
 - case studies, 102, 103f-109f, 104
 - long-term follow-up study, 75-77
 - long-term results, 102-109
 - maxillary advancement and rotation in, 82t
 - position of extraocular muscles in, 23, 25f
 - roentgencephalometry in, 2-3, 3f, 79, 80f, 81
 - sex, and age of patients with, 79, 80f
 - stability of maxilla after Le Fort III osteotomy in, 91-94, 95f-98f, 100-101
 - distribution and age of patients, 92t

D

- Dental arch, widening of, 19, 23f
- Dynamic analysis, of facial growth, 31

E

- Encephalocele
 - craniofacial clefts and, case study, 32, 38f-39f
 - frontonasal, case study, 32, 36f-37f
- Endocranial base
 - in bicoronal synostosis, 14, 16f
 - changes in, following treatment of craniosynostosis, 9-18
 - in lambdoid synostosis, 14
 - in metopic synostosis, 10, 12f
 - in multiple synostosis, 17, 17f
 - of normal skull, 11f
 - in sagittal synostosis, 10, 13, 13f-14f
 - in unicoronal synostosis, 13-14, 15f
- Exophthalmos, 87, 88f-89f
- Extension bonegraft, in mandibular surgery, 59f

F

- Facial bipartition
 - in hypertelorism, 19-26
 - Tessier's technique of, 19, 23f
- Facial growth
 - in Crouzon's, and Alpert's syndromes, 78-90
 - postsurgical, 82, 86f-89f, 87
 - presurgical, 81-82, 81f
 - dynamic analysis of, 31
 - Ricketts analysis of, 29, 31, 31f
- Frontonasal encephalocele, case study, 32, 36f-37f

G

- Grid axis system, X-Y, 72, 72f-73f
- Growing child, correction of hemifacial microsomia in, 50-52, 51f

H

- Hemifacial microsomia
 - characterization of, 53
 - correction of, in growing child, 50-52
 - factors affecting long-term results in, 53-67
 - mandibular growth in, 55t
 - mandibular surgery in, long-term follow-up, 59-67
 - mandibular types of, 54
 - skeletal type IIA, 50, 51f

treatment phases in, 54–59
 correction of maxillary deficiencies and distortions, 59
 mandibular surgery, 56, 58, 59f
 orthodontic treatment, 59
 postsurgical treatment, 58
 presurgical jaw orthopaedic treatment, 55, 55t, 56f–58f
 presurgical treatment, 56
 soft tissue augmentation, 59

Hypertelorism, orbital
 facial bipartition in, 19–26
 case studies, 19, 20f–22f
 position of extraocular muscles in, 23, 25f
 technique of, 19, 23f
 maxillary growth following septal resection in, 27–39
 case studies, 32, 33f–39f
 radical surgical treatment, 27, 28f–29f
 Tessier's procedure for, 27, 29, 30f

Hypoplasia, mandibular, early correction of, 52
 in hemifacial microsomia, 50
 maxillary, following Le Fort III osteotomy, 69, 70f, 71
 midfacial, Le Fort III osteotomy in, postoperative management
 and findings, 93, 93f, 95f–100f
 surgical procedure, 92–93

I

Interpositional bonegraft, in mandibular surgery, 58, 59f

L

Lambdoid synostosis, 14
 Le Fort II osteotomy, in Treacher Collins syndrome, 40, 41f, 42
 Le Fort III osteotomy
 in Crouzon's syndrome, 102–109
 case studies, 102, 103f–109f, 104
 in craniosynostosis syndromes, 69–74
 maxillary stability after, 91–101
 methods, 71–73, 71f–73f
 skeletal relapse following, 69, 73, 73t
 midface position after, long-term follow-up study, 75–77

M

Malocclusion, following Le Fort III osteotomy, 69, 70f, 71
Mandibular growth, normal, 54
Mandibular hypoplasia
 early correction of, 52
 in hemifacial microsomia, 50
Mandibular prognathism, 87, 89f
Mandibular surgery
 growing subjects at time of, 60t
 for hemifacial microsomia, 56, 58, 59f
 postsurgical treatment, 58
 results of, 60, 60t, 61f–66f, 61t
 long-term follow-up after, 59–67
 nongrowing subjects at time of, 61t
Maxilla, after Le Fort III osteotomy, advancement and relapse of,
 73, 73t
 stability of, 91–101
 vertical repositioning of, 73t
 surgical displacement of, 82, 82t, 83f–85f, 88f
 stability following, 82, 86f
Maxillary deficiency and distortion, correction of, 59
Maxillary growth, total septal resection in orbital hypertelorism
 and, 27–39
Maxillary hypoplasia, following Le Fort III osteotomy, 69, 70f,
 71
Measurement of forms, 110–128
Metallic implants, for Crouzon's, and Alpert's syndromes, 80f, 81
Metopic synostosis, 10, 12f
Microsomia, hemifacial, 50–52, 53–67. See also Hemifacial
microsomia
 Midface position, after Le Fort III osteotomy, long-term follow-
 up study, 75–77
 Midfacial hypoplasia, Le Fort III osteotomy for, postoperative
 management and findings, 93, 93f, 95f–100f
 surgical procedure, 92–93
 Multiple synostosis, 17, 17f

N

Nasal septum, midface growth and, 27
 Nasopharyngeal airway, compromised, in Treacher Collins
 syndrome, 40

O

Orbital hypertelorism
 facial bipartition in, 19–26
 case studies, 19, 20f–22f
 position of ocular muscles in, 23, 25f
 technique of, 19, 23f
 maxillary growth following septal resection in, 27–39
 case studies, 32, 33f–39f
 radical surgical treatment, 27, 28f–29f
 Tessier's procedure for, 27, 29, 30f
 Orthodontic treatment, for hemifacial microsomia, 59
Osteotomy
 Le Fort II, in Treacher Collins syndrome, 40, 41f, 42
 Le Fort III, in Crouzon's syndrome, 102–109
 case studies, 102, 103f–109f, 104
 in craniosynostosis syndromes, 69–74
 maxillary stability after, 91–101
 methods, 71–73, 71f–73f
 skeletal relapse following, 69, 73, 73t
 midface position after, 75–77

P

Palate, widening of, 19, 23f
 Pfeiffer's syndrome
 Le Fort III osteotomy in, 69–74
 stability of maxilla after, 91, 92t
 Practical complexities, in real anatomies, 114–116, 115f, 117f–119f,
 118
 Premature coronal synostosis (PCS), 1–8
 Presurgical jaw orthopaedic treatment, for hemifacial
 microsomia, 55, 55t, 56f–58f

R

Relapse, skeletal, following Le Fort III osteotomy, 69, 73, 73t
 Ricketts analysis, of facial growth, 29, 31, 31f
 Roentgencephalometry. *See also* Cephalograms
 in craniosynostosis syndromes, 2–3
 in Crouzon's, and Alpert's syndromes, 2–3, 3f, 79, 80f, 81
 in Le Fort III osteotomy, 71–73, 71f–72f, 75–76, 76f
 points and measurements used in, 3f

S

Sagittal synostosis, 10, 13, 13f–14f
 Septum, nasal, midface growth and, 27
 Skeletal relapse, following Le Fort III osteotomy, 69, 73, 73t
Skull
 comparisons of, 110, 110f–111f
 morphology, premature coronal synostosis and, 1–8
 normal, CT scans of, 11f
 Soft tissue augmentation, for hemifacial microsomia, 59
 Sutural synostosis, sequence of 3-D images by, 10t
Synostosis
 bicoronal, 14, 16f
 cranial dimensions in, 3, 4f–7f, 7
 roentgencephalometric evaluation of, 2–3, 3f
 surgical treatment of, 2, 2f
 lambdoid, 14
 metopic, 10, 12f
 multiple, 17, 17f
 sagittal, 10, 13, 13f–14f
 sequence of 3-D images by, 10t
 unicoronal, 13–14, 15f

T

Tessier's procedure
 for facial bipartition, 19, 23f
 for orbital hypertelorism, 27, 29, 30f
 for Treacher Collins syndrome, 40–49

Theoretical complexities, in simulated anatomies, 111, 112f-114f, 113-114

Treacher Collins syndrome
characterization of, 40

Le Fort II osteotomy for, 40, 41f, 42

Tessier integral procedure for, 40-49

case studies, 42, 43f-49f, 46

clinical results of, 42, 42f

U

Unicoronal synostosis, 13-14, 15f

X

X-Y grid axis system, 72, 72f-73f

