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ANALGESIA & CONSCIOUS SEDATION

BASIC

Knowledge

1. Understands the four levels in the continuum of depth of sedation and analgesia.
 - Minimal sedation (anxiolysis)
 - Moderate sedation/analgesia (conscious sedation)
 - Deep sedation/analgesia
 - General Anesthesia
2. Understands and can describe the parameters of responsiveness, airway, spontaneous ventilation and cardiovascular function as **they** relate to each of the four levels of sedation and analgesia.
3. Understands the basic guidelines for sedation and analgesia for non-anesthesiologist as recommended by the American Society of Anesthesiology (**ASA**).
4. Understands the important elements of the pre-procedure evaluation. This includes elements of the history, **a** focused physical examination and laboratory assessment **and how these findings** will affect patient management.
5. Understands ASA guidelines for preoperative fasting.
6. Understands the essential components and parameters for patient monitoring in conscious sedation and deep sedation procedures.
7. Understands the indications for appropriately trained ancillary designated operating room personnel for assistance in monitoring the level of sedation and analgesia.
8. Understands and can describe the basic emergency equipment required for sedation and analgesia procedures.
9. Understands the indications for supplemental oxygen.
10. Understands and can describe the appropriate recovery process and discharge criteria following **cases performed under** sedation and analgesia.
11. **Is** Familiar with the ASA Physical Status Classification of anesthetic risks for procedures performed under sedation/**analgesia** and general anesthesia (levels 1 through IV).
12. Understands the diagnosis and treatment of malignant hyper**thermia**.

13. Understands the advantages and disadvantages of local anesthesia, including risks unique to both amide and ester anesthetics.

14. Understands the variables affecting depth of sedation including gender, age, status of alcohol and drug use and medical co-morbidities such as renal or hepatic dysfunction.

Skills

1. Can perform the appropriate history and physical examination and airway assessment commensurate with the required depth of sedation and anesthesia.
2. Can select an appropriate level of anesthesia and sedation for a desired procedure.
3. Can demonstrate an understanding of the parameters used in patient monitoring during sedation and anesthesia.
4. Can demonstrate basic life support skills.
5. Can demonstrate operational knowledge of basic emergency equipment and supplemental oxygen for sedation and anesthesia cases.
6. Can identify basic sedative, hypnotic and analgesic agents used in sedation/analgesia cases.
7. Can identify appropriate reversal agents.
8. Can identify appropriate recovery parameters and discharge criteria following sedation/analgesia.
9. Can identify risk factors and understands the necessary steps to minimize the risk of OR Fires in procedures performed under sedation and local anesthesia.
10. Can safely administer local anesthesia in pediatric and adult patients and has thorough knowledge of the maximal dosages that can be safely injected or applied topically.

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ADVANCED

Knowledge

1. Understands the classification, pharmacology and pharmacokinetics of agents commonly used for sedation and anesthesia (see appendix).
2. Understands and possesses advanced life support skills (Examples: airway, cardiovascular, arrhythmia, blood pressure, etc.).
3. Understands the use of reversal agents (Naloxone and Flumazenil).
4. Understands the use of anesthetic induction agents used in deep sedation (Examples: Methohexital, Propofol, Fentanyl) and their reversal.
5. Understands the continuum of anesthesia between deep sedation and general anesthesia with appropriate reversal measures.
6. Understands and recognizes special situations or medical conditions requiring preoperative consultation with appropriate specialists or an anesthesiologist preoperatively.
7. Understands the challenges and differences in administering sedation to the pediatric patient.

Skills

1. Can perform both basic and advanced life support skills.
2. Can operate all basic emergency equipment including an AED.

3. Possesses adequate knowledge and skills to supervise the administration of certain anesthetic agents for sedation and anesthesia.
4. Possesses adequate knowledge and skill to supervise reversal of basic anesthetic agents for sedation/analgesia.
5. Possesses adequate knowledge to supervise the recovery of patients from sedation/analgesia using appropriate discharge criteria and an adequate recovery period to minimize risk of postoperative complications following discharge.
6. Appreciates the need for appropriate patient monitoring for different levels of anesthesia.
7. Appreciates the need for appropriately trained ancillary personnel in the operating room for monitoring level of sedation and for assistance with life support measures.
8. Appreciates the need for appropriate emergency equipment, supplemental oxygen, intravenous access and selection of appropriate reversal agents for sedation analgesia.
9. Appreciates the need for effective dose titration for maximally effective sedation/analgesia.
10. Appreciates the need for selective consultation with specialists preoperatively for preexisting comorbidities or medical conditions.
11. Appreciates the need to maintain an operative environment that conforms to accepted standard of care for maximum patient comfort and safety. (Examples: AAAHC, American College of Surgeons; Guidelines for Office-Based Surgery, ASA Guidelines for Office-Based Anesthesia).

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APPENDIX

Pharmacologic Agents for Sedation & Analgesia

- I. Clinical Strategies-Achieving the Fine Balance in Patient Comfort
 - A. Analgesia
 - B. Sedation
 1. Amnesia
 2. Hypnosis
 3. Anxiolysis
- II. Problem Areas
 - A. Under-sedation
 1. Anxiety
 2. Agitation
 3. Hypertension
 4. Tachycardia
 5. Patient discomfort
 - B. Over-sedation
 1. Respiratory
 2. Hypotension
 3. Bradycardia
 4. Gastrointestinal (nausea and vomiting)
- III. Strategy-Using The Correct Agents
 - A. Single drug versus drug combinations
 - B. Bolus versus infusion
 - C. Cost effectiveness/efficacy
- IV. Classification of Agents
 - A. Benzodiazepine (BZD) sedatives (Diazepam/Valium Midazolam/Versed, Lorazepam/Ativan)
 1. Advantages
 - a. Amnesia
 - b. Anxiolysis
 - c. Sedation
 2. Disadvantages

- a. Lack of analgesia
 - b. Respiratory depression
 - c. Over-sedation
 - d. Occasional paradoxical agitation
 - 3. Appropriate reversal agent-Flumazenil
- B. Barbiturates (Methohexital/Brevital)
- 1. Advantages
 - a. Relatively short-acting sedative
 - b. Infrequent nausea/vomiting
 - 2. Disadvantages
 - a. Respiratory depression
 - b. Hypotension
 - c. Pain on injection
 - d. Lack of reversal agent
- C. Narcotics/Opioids (Morphine, Dilaudid, Demerol, Fentanyl/Sublimaze, Remifentanyl/Ultiva)
- 1. Advantages
 - a. Potent analgesia
 - b. Some sedation
 - 2. Disadvantages
 - a. Respiratory depression
 - b. Hypotension
 - c. Bradycardia
 - d. Gastrointestinal (nausea and vomiting)
 - 3. Reversal agent-Naloxone/Narcan
- D. Other intravenous Sedation Agents
- 1. Propofol/Diprivan
 - a. Advantages
 - 1. Sedation
 - 2. Hypnosis
 - 3. Anxiolysis
 - 4. Rapid onset
 - 5. Short half life
 - b. Disadvantages
 - 1. Respiratory depression (enhanced by Opioids)
 - 2. Hypotension
 - 3. Lack of analgesia
 - 4. Hypertriglyceridemia
 - 5. No reversal agent
 - 2. Ketamine
 - a. Advantages
 - 1. Rapid onset
 - 2. Dissociative state

3. Sedation
4. Amnesia
5. Analgesia
6. Minimal respiratory depression
- b. Disadvantages
 1. Extrapiramidal side effects
 2. Hypertension
 3. Tachycardia
 4. Increased intracranial and intraocular pressures.
 5. Emergence reactions
 6. Increased risk of laryngospasm

V. Frequent Drug Combinations

A. Clinical Strategy-Combining sedation, anxiolysis, amnesia and analgesia

I. Opioid + Sedative

- a. Fentanyl or Alfentanil + Midazolam
- b. Fentanyl or Alfentanil + Propofol
 1. Advantages
 - a. Decreased cost of both drugs
 - b. Decreased individual side effects
 2. Disadvantages
 - a. Increased risk of combined side effects (Examples: respiratory depression, hypotension, and prolonged sedation)

II. Sedative Combinations

- a. Midazolam + Propofol
 1. Advantages
 - a. Rapid onset
 - b. Short duration
 - c. Decreased nausea/vomiting
 - d. Decreased respiratory depression
 2. Disadvantages
 - a. Lack of analgesia

B. Midazolam + Propofol + Ketamine

1. Advantages
 - a. Adds dissociative effects
 - b. Adds some analgesia
 - c. Decreased hypotension
2. Disadvantages
 - a. Adds potential side effects of Ketamine (extrapyramidal, emergence reactions, etc.)

BASIC TECHNIQUES

BASIC

Knowledge

1. Understands and has a working knowledge of the gross anatomy of the head and neck.
 - A. Topographical features
 1. Bony (e.g. nasion, mentum, malar eminences)
 2. Cartilaginous (e.g. antitragus, lower lateral cartilages)
 3. Soft tissue (e.g. melolabial fold, philtrum, gray line of the eyelid)
 4. Major aesthetic units of the face including nasal subunits (e.g. tip, lateral sidewall)
 5. Skin tension lines (e.g. relaxed skin tension lines)
 - B. Blood supply of the head and neck, including arteries, veins, and areas of anastomosis (e.g. Little's area; cavernous sinus)
 - C. Autonomic, motor, and sensory nerve supply of the head and neck
 - D. Facial muscles (e.g. levator anguli oris) and superficial musculoaponeurotic system (SMAS)
 - E. Fat compartments of the midface involved in aging (i.e. Ristow's Space)
2. Understands and has a working knowledge of the gross anatomy of the potential flap donor sites adjacent to the head and neck (e.g. pectoralis major, latissimus dorsi).
3. Understands the normal microscopic anatomy of the structures of the head and neck region (e.g. skin, facial nerve).
4. Understands the natural changes in skin and subcutaneous tissues during the aging process.
5. Understands the common pathological histology of the skin (e.g. benign, premalignant, malignant lesions).
6. Understands the physiology of the skin and soft tissues of the head and neck (e.g., metabolism, wound healing).
7. Understands the process and natural history of wound healing and cicatrix (scar) formation.
8. Understands the techniques of determining flap vascularity.
9. Understands the anatomy and use of favorable skin tension lines to conceal surgical incisions.
10. Understands basic surgical techniques employed in plastic and reconstructive surgery of the head and neck.
 - A. Specific Techniques
 1. Describes atraumatic tissue elevation, debridement, and handling, hemostasis, suture technique, dressing.

2. Describes flap design with attention to the appearance and function of adjacent structures (e.g. eyelid, lip).
 3. Describes indications and contraindications, proper timing, and techniques of rotation, advancement, free, local, regional, distant, and micro-vascular flaps.
 4. Describes indications, contraindications, and techniques of scar revision including, z-plasty, w-plasty, geometric broken line closures, dermabrasion, dermaplaning, tattooing, and use of cosmetics.
 5. Describes indications and techniques of split and full thickness grafts for wound closure.
11. Understands the etiology, avoidance, and management of complications of head and neck procedures (e.g., hematoma, wound infection, hypertrophic scarring.)

Skills

1. Able to diagnose and evaluate standard problems appropriately.
2. Understands treatment alternatives and develops appropriate management plan for tissue alteration, reconstruction, or replacement.
3. Exhibits appropriate basic soft tissue surgical skills.
 - A. Employs local anesthesia properly.
 - B. Plans incision so as to attain the most favorable scar orientation.
 - C. Exhibits proper soft tissue technique.
 1. Exhibits atraumatic tissue handling, flap elevation, design, and placement; hemostasis.
 2. Exhibits appropriate suture selection and technique.
 3. Uses flaps and grafts appropriately (e.g. split thickness skin graft, bilobe flap).
 - D. Applies appropriate dressing.
 - E. Oversees meticulous postoperative care.

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ADVANCED

Knowledge

1. Topographical features
 - A. Cutaneous vascular territories
 - B. Regional variation(s) in skin thickness
 - C. Regional variations in skin biomechanical properties
2. In-depth knowledge of orbital, eyelid, and nasal anatomy (e.g. anterior lamellae, middle lamellae).
3. Knows of facial 'ligaments' important to facial dissection (e.g. zygomatic-cutaneous ligament).
4. Knows the pathway and anatomic levels of the frontal and marginal mandibular branches of the facial nerve.
5. Understands the pathological alterations of the anatomy associated with congenital deformities (e.g. 'cleft lip' nasal deformity).

Skills

1. Able to diagnose and evaluate complex problems appropriately.
2. Able to take advantage of combinations of reconstructive techniques in developing alternative management plan(s) for tissue alteration, reconstruction, or replacement.
3. Demonstrates comprehensive knowledge of soft tissue surgery skills.
 - A. Demonstrates extensive knowledge of regional neural anatomy and is able to effectively perform loco-regional sensory nerve blocks.
 - B. Knows surgical needle anatomy and strength / absorption characteristics of suture.
 - C. Understands properties of local anesthetics and able to modify appropriately (e.g. addition of 8.4% NaHCO₃ to 1% lidocaine w/ 1:100,000 epinephrine to achieve neutral pH).

4. Demonstrates knowledge of dressing materials and topical agents (e.g. commercially available topical epidermal growth factor) with indications, advantages, and disadvantages of each.
5. Demonstrates knowledge of options / alternatives available to treat problem wounds (e.g. hyperbaric oxygen).

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BLEPHAROPLASTY

BASIC

Knowledge

1. Aesthetics
 - A. Understands overall facial aesthetics.
 - B. Understands aesthetics of the upper face relating specifically to brow and eyelid aesthetics.
 - C. Understands gender differences in aesthetics of the upper face.
2. Anatomy
 - A. Understands topographical anatomy such as supraorbital rim, infraorbital rim, medial and lateral canthus.
 - B. Understands aging changes in the eyelid complex such as brow ptosis, dermatochalasis, fat herniation, rhytids, hooding with visual field cuts.
 - C. Understands anatomy of the periorbital region including eyelid layers, extraocular muscles, and fat pads.
 - D. Understands the sensory, motor, and autonomic innervation of the structures surrounding the eye as well as the lymphatic supply, especially in regard to blocks for local anesthesia.
3. Embryology
 - A. Understands the embryologic development of the eye and periorbital region.
4. Physiology
 - A. Understands the physiology of the periorbital musculature, lacrimal system, extraocular muscles.
 - B. Understands the pathological alterations of the above (e.g. Ehlers-Danlos syndrome, myxedema and hypothyroidism, Grave's disease, allergies, orbicularis muscle hypertrophy, ptosis, Horner's syndrome, diplopia, Sjogrens syndrome).

Skills

1. History and Physical
 - A. Able to obtain a pertinent history including visual changes, diplopia, tearing, dry eyes, any associated medical problems.
 - B. Able to perform appropriate basic physical examination including visual acuity, nerve function, extraocular motility, pupil size and reactivity.
 - C. Able to assess aging changes of the eyelids and forehead that would determine the appropriate surgical approach including brow ptosis, fat herniation, dermatochalasis.
 - D. Able to assess the need for specialized testing such as visual fields and Schirmer's test.

- E. Understands importance of preoperative and postoperative photographic documentation of the eyelid region. Knows the standard photographic series for blepharoplasty and forehead or brow lift.
2. Surgical techniques
 - A. Understands incision placement and importance of preoperative marking in upper lid blepharoplasty.
 - B. Understands technique of upper lid blepharoplasty including excision of skin, excision of orbicularis muscle, removal of excess herniated fat.
 - C. Understands the difference in the surgical techniques of lower lid blepharoplasty including transconjunctival, skin flap, and skin-muscle flap. Knows the indications and limitations of each procedure.
 3. Complications
 - A. Recognizes blindness as a catastrophic complication of blepharoplasty and understands the etiology, the need for meticulous hemostasis, and the need and techniques for emergent treatment.
 - B. Understands the management of acute complications such as hematoma, acute glaucoma, ectropion, corneal abrasion, keratitis, and conjunctivitis.
 4. Appreciates the anatomic and physiologic complexity of the eyelid region and the need for careful history and physical to appropriately diagnose and treat aging changes of the eyelid region.
 5. Appreciates the potential complications of blepharoplasty surgery and understands their management.
 6. Appreciates the importance of preoperative photographic documentation.

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ADVANCED

Knowledge

1. Anatomy
 - A. Understands the anatomic differences in the Asian eyelid.
 - B. Understands complex aging changes in the periorbital region including festoons, midface ptosis, and “tear trough” deformity.

Skills

1. History and Physical
 - A. Able to assess for lower lid laxity and scleral show to determine if lower lid tightening is indicated.
 - B. Able to assess for upper eyelid ptosis.
 - C. Able to evaluate aging changes of the upper and midface to assess the need for adjuvant procedures such as forehead lift or browlift, botox for dynamic rhytids, lid resurfacing for fine rhytids, midface lifting. Knows the integration, indications, and limitations of each procedure.
2. Surgical technique
 - A. Comfortable with performing adjuvant procedures for overall rejuvenation of the upper face, including forehead lift or browlift, botox for dynamic rhytids, lid resurfacing for fine rhytids, midface lifting.
 - B. Understands techniques for ptosis repair.
 - C. Understands surgical techniques for creating variance in the supratarsal fold (e.g. Asian eyelid).
 - D. Understands techniques of extended lower lid blepharoplasty and addressing the orbicularis muscle for festoons.
 - E. Understands techniques of lower lid tightening to prevent or correct ectropion.
 - F. Understands techniques of orbital fat repositioning.
3. Complications
 - A. Understands the management of late complications such as ectropion.
4. Appreciates the relationship of the eyelids and periorbital region to the anatomy and aesthetics of the upper and midface, in both diagnosis of aging changes of the face and in selecting appropriate surgical therapy.
5. Appreciates the importance of postoperative photographic documentation to evaluate long term results.

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BROWPLASTY

BASIC

Knowledge

1. Understands the gross anatomy of the scalp, forehead, and periorbital regions.
 - A. Describes the aging process as it relates to the forehead and brows, eyelids and adnexae.
 - B. Understands the underlying etiology of forehead and lateral canthal rhytids.
 - C. Describes the blood supply, motor and sensory innervation of the forehead and periorbital structures (e. g. cranial nerves III-VI).

Skills

1. Can perform an appropriate physical examination of forehead and periorbital regions.
2. Demonstrates proper judgement in determining the procedure needed to correct brow ptosis, forehead or glabellar furrows, and upper eyelid hooding.
3. Recognizes and treats (or refers) ophthalmic complications or co-existent conditions best evaluated by an ophthalmologist.
4. Exhibits appropriate surgical skills for alteration and reconstruction of eyebrows, forehead, and eyelids, such as:
 - A. Direct browplasty
 - B. Coronal forehead lift
 - C. Variations of coronal lift including mid-forehead and pre-hairline/pre-trichial lift
 - D. Upper and lower blepharoplasty
 - E. Temporal lifts
 - F. Endoscopic approaches

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ADVANCED

Knowledge

1. Understands the relationship of the brows and the forehead to periorbital cosmesis in general.
 - A. Describes surgical principles employed in the correction of brow defects and their relationship to the forehead and upper eyelids.
 - B. Knows the various surgical options available to alter brow position – their indications and limitations.
 - C. Understands methods for brow reconstruction including use of local flaps and punch autografts.
 - D. Understands the indications and limitations regarding the use of botulinum toxin A in the rejuvenation of the upper third of the face.

Skills

1. Demonstrates the ability to manage any complication that might arise from the above procedures, including various techniques of hair replacement (e.g. frontal/temporal nerve injury, supraorbital nerve injury, high hairline after coronal lift, poor scarring).
2. Understands the necessity for obtaining pre- and postoperative photographic documentation.

References

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CHEILOPLASTY

BASIC

Knowledge

1. Understands the gross anatomy of the lips.
 - A. Describes the normal topographical and anatomical features (e.g., philtrum, vermillion.)
 - B. Describes the blood supply to the lips.
 - C. Describes the aesthetic relationship of the lips to the nose and chin.
 - D. Describes the motor and sensory innervation of the lips.
2. Understands the normal and pathological microscopic anatomy of the lips (e.g., minor salivary glands, involvement in Sjogren's Disease).
3. Understands the embryologic development of the lips and their relationship to the palate.
4. Understands affects of aging on perioral complex.
5. Understands the mechanism of median and lateral cleft lip and its relationship to the palate and adjacent present and developing structures.
6. Understands the surgical principles employed in lip reconstruction or alteration.

Skills

1. Evaluates lip deformities carefully with special attention to the effects of the deformity and its treatment on adjacent structures (e.g., maxilla, teeth).
2. Exhibits appropriate surgical skills for lip alteration or reconstruction.
 - A. Completes surgical alteration or reconstruction properly (e.g., cleft lip repair-Millard, Rose-Thompson, Randall; reduction cheiloplasty; Abbe-Estlander, and other flap reconstruction).
 - B. Corrects nasal deformity along with lip repair.
3. Explains treatment options of the aging lip/oral complex.

References

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ADVANCED

Knowledge

1. Understands unit/subunit principle of facial aesthetics.
2. Understands risk/incidence/diagnosis of lip carcinoma.
3. Understands options for lip augmentation/enhancement.
4. Understands relationship of perioral complex with surrounding anatomy (nose, maxilla, and mandible).
5. Understands relationship of perioral complex structure and function.
6. Understands surgical principles in lip reconstruction.
 - A. Specific techniques (e.g., timing and techniques of cleft lip closure, lip reconstruction with adjacent and distant flaps, reduction cheiloplasty, single and double primary cleft lip repair, secondary cleft lip revision, constitution of nasal sill and floor on cleft side).
7. Understands complications of lip augmentation/enhancement procedures.

Skills

1. Evaluates lip deformities/defects in relation to entire nasal/perioral complex.
2. Explains and can perform appropriate techniques for lip reconstruction.
 - A. Cleft lip/nose
 - B. Lip cancer
 - C. Traumatic defects/injury
3. Explains reconstructive options (healing by secondary intention, local flap, grafts, distant flaps, scar revision techniques).
4. Evaluates lip aesthetics and applies appropriate augmentation technique (filler materials, implants, surgical options).
5. Explains the treatment of complications from lip augmentation techniques/procedures.
6. Explains cleft lip/nose rhinoplasty technique.

References

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CHEMICAL PEELS

BASIC

Knowledge

1. Understands the cross sectional anatomy of facial skin and its unique characteristics as compared to non-facial cutaneous surfaces.
2. Understands the regenerative capabilities of facial skin and the process of wound healing.
3. Understands the Fitzpatrick skin type and Glogau photoaging classification systems.

Skills

1. Obtains a pertinent history and performs an appropriate examination.
 - A. Determines if patient is an appropriate candidate for chemical peeling.
 - B. Assesses patient expectations and provides for postoperative care.
 - C. Determines if patient's expectations would be reasonably satisfied with chemical peeling alone or as an adjunct to other rejuvenation procedures.
 - D. Determines if there are any contraindications to chemical peeling and classifies patient skin type and photoaging group; advises the patient regarding possible pigmentary changes and provides appropriate precautions (sun avoidance, etc.).

References

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ADVANCED

Knowledge

1. Understands the indications, contraindications, expectations and limitations of chemical peeling.
2. Understands the advantages and disadvantages of various chemical peeling agents.
3. Understands the postoperative care for the patient undergoing chemical peeling, including dressing techniques.

Skills

1. Exhibits appropriate surgical skills.
 - A. Well versed with specific peel techniques and formulas.
 - B. Peels appropriate regions to the appropriate depth with proper amounts and concentrations of peel formula.
 - C. Provides for eye protection during the peel.
 - D. Understands when medical monitoring and intervention are indicated, e.g. cardiac monitoring, intravenous fluids, etc.
 - E. Closely follows patients postoperative course and recognizes abnormal healing patterns early.
 - F. Provides appropriate intervention if there is evidence of adverse wound healing or infection.

References

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CLEFT LIP AND PALATE

BASIC

Knowledge

1. Understands the normal embryological development of the lips, palate, and nose.
2. Understands the embryological basis of clefts.
3. Is able to define various types of clefts including clefts of the primary and secondary palate as well as complete and incomplete cleft lip.
4. Is familiar with the muscular anatomy of the lips and palate including the deficiencies found in patients with clefts.
5. Understands the initial priorities for managing neonates with clefts.
6. Understands the time course for addressing/repairing clefts including orthodontia and alveolar bone grafting.
7. Is familiar with team approach in managing cleft patients including the role of auditory, speech therapy, dental and medical genetics specialists.
8. Understands the anatomical basis for successful cleft lip repair including the reconstitution of the orbicularis oris muscle, alignment of cupid's bow and the vermilion border, creation of the nasal sill and floor of the nose, and symmetrical placement of the alar bases.
9. Is familiar with repair options for the unilateral cleft lip including advancement rotation repair, triangle flap, as well as indications for lip adhesion.
10. Understands the anatomical basis for successful functional repair of cleft palates including the separation of the oral cavity from the nasal cavity with use of oral and nasal mucosal closures, development of a functional velopharynx, functional and aesthetic restoration development of dentition, and preservation of facial growth.
11. Is familiar with repair options of cleft palate defects including V to Y pushback, flap palatoplasty, double opposing Z-plasty, and multi-flap palatoplasty.
12. Is familiar with the management of alveolar defects associated with clefts including use of bone and graft and bone morphogenic proteins.
13. Is familiar with post-operative complications of cleft palate repair including fistula and velopharyngeal insufficiency.

Skills

1. Utilizes the advancement rotation technique as described by Millard for repair of the unilateral cleft lip.
2. Utilizes the various methods of cleft palate repair.
3. Surgically treats the cleft alveolus.
4. Treats other otolaryngologic problems associated with cleft patients including Eustachian tube dysfunction, management of otitis media, audiological monitoring, and coordination with speech therapy.

References

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ADVANCED

Knowledge

1. Understands the embryological basis for bilateral clefts.
2. Understands the basis and timing of cleft lip rhinoplasty.
3. Understands the assessment of velopharyngeal insufficiency and the merits of various treatment options.
4. Able to recognize secondary cleft lip deformities.
5. Is familiar with the role and indications for distraction osteogenesis.

Skills

1. Utilizes, when appropriate, triangle flap repair or lip adhesion.
2. Treatment of secondary cleft lip deformities.
3. Bilateral cleft lip and palate repair.
4. Cleft lip rhinoplasty.
5. Management of velopharyngeal insufficiency including use of speech therapy, pharyngeal flaps, and pharyngoplasty.

References

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CRANIOFACIAL ANOMALIES

BASIC

Knowledge

1. Embryology
 - A. Detailed understanding of the embryologic development of the head and neck.
 - B. Derivatives from ectoderm, mesoderm, endoderm as well as the role of neuroectomesenchyme. Emphasis on basic brain development, otic placode, nasal placode, optic placode and cranial nerves.
 - C. Familiarity with the following structures and their derivatives: frontonasal process, maxillary process, mandibular process and branchial arches.
 - D. Embryonic origin of the cranial bones, maxilla and mandible. Prenatal nasal and oral cavity development. Lip and palate formation.
2. Growth and Development
 - A. Awareness of the general timing, direction and magnitude of bony growth in the craniofacial skeleton.
 - B. Basic differences in shape and proportion between the infant skull and the adult skull and the changes that occur during growth.
 - C. Paranasal sinuses formation and age specific development.
3. Anatomy
 - A. Basic structure of the craniofacial skeleton including the cranial vault, orbital framework, maxilla and mandible.
 - B. Basic blood supply to the craniofacial skeleton.
 - C. Details of blood supply to the scalp, facial soft tissues, auricle, eyelids, nose, lips, oral cavity and palate with respect to incisions and approaches to the craniofacial skeleton.
 - D. Details of motor and sensory nerve supply to the face relative to surgical approaches to the craniofacial skeleton.
 - E. Fundamentals of dental anatomy and occlusion (basic tooth form, Angle classification of occlusion, overjet, overbite, crossbite).
4. Etiology and Pathology of Craniofacial Anomalies
 - A. Familiar with the broad categories of the more common craniofacial anomalies (craniosynostosis – nonsyndromic, craniofacial dysostosis – Apert, Crouzon, Pfeiffer).
 - B. Distinguishes between a syndrome, sequence and association.
 - C. Basic etiologic causes of craniofacial anomaly.
 - D. Familiar with some of the more common causes of craniofacial anomalies.
5. General Treatment Principles
 - A. Recognizes the importance of interdisciplinary care in the overall management of craniofacial anomaly patients.

- B. Detailed knowledge of the otolaryngologic problems in these patients and the recommended treatment to correct these problems.
 - C. Knows the indications for surgical intervention (increased intracranial pressure, ophthalmic complications, airway obstruction, masticatory problems, speech abnormalities, psychosocial reasons).
6. Surgical Treatment
- A. Understands basic principles involved in bone healing, osseointegration, osseointegration, bone grafting, rigid internal fixation, bone substitute materials such as hydroxyapatite.
 - B. Knowledge of incisions and approaches to the craniofacial skeleton with regard for aesthetic placement of incisions.
 - C. Craniosynostosis – general knowledge of cranial vault remodeling and bifronto-orbital advancement.
 - D. Craniofacial dysostosis – general understanding of Lefort III and Lefort I midface advancement, Facial Bipartition and Facial Monobloc procedures.
 - E. Orbital Hypertelorism – basic understanding of the osteotomies and segmental repositioning used to correct orbital hypertelorism.
 - F. Hemifacial Microsomia – knowledge of the techniques used for microtia repair and mandible reconstruction.
 - G. Dentofacial Deformity – understands the basic principles of orthognathic surgical correction of maxillary and mandibular disproportion.
 - H. Distraction Osteogenesis – familiar with the principles and process of distraction osteogenesis and the various applications of this technique in the craniofacial skeleton.
 - I. Familiarity with the early and late complications that can result following craniofacial surgery.

Skills

1. Assessment
- A. Able to carry out a directed history and physical examination specific to craniofacial anomaly patients.
 - B. Accurately describes the basic abnormal features in a patient with craniofacial anomaly using semi-quantitative terminology.
 - C. Knows which diagnostic imaging tests to order in a given patient (plain films, panorex, cephalometric x-rays, 3-D CT scans).
 - D. Categorizes the patient's basic diagnostic group.
 - E. Able to distinguish telecanthus from hypertelorism.
 - F. Correctly diagnoses exorbitism, enophthalmos, hypophthalmos, vertical orbital dystopia, horizontal orbital dystopia.
 - G. Assesses the presence of functional problems in craniofacial patients (intracranial pressure elevation, visual loss, diplopia, chronic sinusitis, otitis media, and upper airway obstruction).
 - H. Undertakes a basic dental exam and occlusal assessment.

- I. Uses basic craniofacial measurements to quantitatively assess the key anthropometric and radiographic findings.
 - J. Able to use craniofacial measurements to assess key anthropometric and radiographic analyses (head circumference, interorbital distance, inner and outer canthal distance).
2. Treatment
- A. Orders the appropriate preoperative investigations in craniofacial surgery patients.
 - B. Familiar with the specific pediatric anesthesia techniques used in craniofacial surgery (positioning, intracranial pressure monitoring, eye protection, airway management).
 - C. Uses perioperative antibiotics and steroids appropriately.
 - D. Manages pediatric patients in the intensive care unit immediately following surgery with special attention to fluids, airway and nutrition.
 - E. Able to perform all of the incisions and approaches to the craniofacial skeleton (intraoral maxillary and mandibular gingivobuccal approaches, upper and lower eyelid approach, lateral canthotomy, preauricular approach, Ridsen incision, submandibular cervicotomy, coronal flap).
 - F. Can osteotomize the malar orbitozygomatic bone segment.
 - G. Able to harvest all types of autografts (split calvarial bone, iliac crest bone, auricular cartilage, costochondral grafts, dermal-fat grafts).
 - H. Safely dissects all parts of the orbit to prepare for bone grafting or other orbital augmentation.
 - I. Correctly handles alloplastic materials (hydroxyapatite cement, porous polyethylene, allogenic dermis).
 - J. Appropriately selects and uses rigid internal metal fixation, resorbable plate fixation, interosseous sutures and wires, maxillary-mandibular fixation.
 - K. Promptly identifies postoperative complications and takes the necessary interventional measures.

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ADVANCED

Knowledge

1. Embryology
 - A. Timing of formation and development of the various embryological structures that participate in craniofacial morphogenesis.
 - B. Understanding of the basic mechanisms and theories explaining embryologic development of the craniofacial skeleton and its associated structures (reciprocal induction, recanalization, fusion of processes, etc.)
 - C. Knowledge of the effects and outcome of various in-utero insults on craniofacial formation.
2. Growth and Development
 - A. Familiar with normal cranial suture biology.
 - B. Details of the mechanisms and timing of growth at all levels of the craniofacial skeleton – cranial vault, orbits, nasomaxillary, mandible.
 - C. General knowledge of the age specific norms for key craniofacial surface anthropometric and skeletal measurements.
3. Anatomy and Physiology
 - A. Details of blood supply to the craniofacial skeleton with consideration of bone viability following osteotomy and segmentation.
 - B. Intracranial surface anatomy including dural folds, intracranial path of cranial nerves, cavernous sinus.
 - C. Skull base anatomy with specific attention to the spatial relationships of the bony foramina and their contents.
 - D. Advanced knowledge of dental anatomy and occlusion (cusps and fossa, incisor inclination, occlusal plane, centric relation, centric occlusion).
 - E. Details of TMJ anatomy, condylar movement and masticatory mechanisms.
4. Etiology and Pathology of Craniofacial Anomalies
 - A. Factors involved in disruption of normal cranial suture growth and premature fusion.
 - B. Effects and sequelae of premature cranial suture fusion.

- C. Knowledge of fibroblast growth factor receptors in craniosynostosis and craniofacial dysostosis.
 - D. Genetic abnormalities associated with the more common craniofacial anomalies.
5. General Treatment Principles
 - A. Detailed knowledge of the indications and timing for surgical reconstruction of patients with craniofacial anomalies.
 - B. Able to coordinate surgical reconstruction with other necessary treatment.
 6. Surgical Treatment
 - A. In-depth knowledge of the various treatment options for patients with craniofacial anomalies and able to discuss the pros and cons of each.
 - B. Craniosynostosis – knowledge of cranial vault remodeling and bifronto-orbital advancement.
 - C. Craniofacial dysostosis – understanding of Lefort III and Lefort I midface advancement, Facial Bipartition and Facial Monobloc procedures.
 - D. Dentofacial Deformity – awareness of the basic orthognathic procedures (Lefort I downfracture, sagittal split mandibular osteotomy).

Skills

1. Assessment
 - A. Able to perform a complete clinical assessment of craniofacial anomaly patients with the history and physical examination focused towards etiopathogenesis as well as qualitative and quantitative description of all the morphologic and functional abnormalities present in a given patient.
 - B. Takes accurate craniofacial measurements using the key anthropometric surface landmarks.
 - C. Understands the principles of soft tissue analysis using anthropometric landmarks and uses craniofacial measurements to quantitatively describe the anthropometric abnormalities relative to age-specific norms.
 - D. Understands cephalometric analysis. Able to trace a lateral and PA cephalogram, identify the osseous landmarks and perform cephalometric analysis to quantitatively describe the osseous abnormalities relative to age-specific norms.
 - E. Identifies functional deficits and sequelae in craniofacial anomaly patients that require early or urgent intervention (increased ICP, airway obstruction, globe compromise).
2. Treatment
 - A. Able to formulate a comprehensive long-term surgical plan of reconstruction with appropriate timing for patients with craniofacial anomalies.
 - B. Able to design the appropriate osteotomies for the following surgical procedures: cranial vault remodeling, bifronto-orbital advancement, LeFort III/II/I midface advancement, orbital hypertelorism repair and facial monobloc/advancement.
 - C. Performs the above listed osteotomies and repositions the bony segments appropriately.
 - D. Selects and applies the proper bone fixation modality where necessary – rigid metal plate, resorbable plate, interosseous sutures, and maxillary-mandibular fixation.
 - E. Uses bone grafting when necessary in the appropriate locations.

- F. Understands the role of distraction osteogenesis in various craniofacial anomalies and performs the necessary preoperative analysis and planning for osteotomy design, distraction vector selection and type of distraction appliance.
- G. Selects the appropriate appliance to carry out distraction osteogenesis, performs the correct osteotomy and inserts the appliance with the correct vector of distraction.
- H. Aware of the new developments and technologies on the horizon in craniofacial surgery: endoscopic surgical approaches, bone growth factors, bone substitutes, distraction osteogenesis.

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EVIDENCE BASED MEDICINE

BASIC

Knowledge

1. Understands what it means to practice evidence-based medicine
2. Knows the 5 EBM components
3. Is familiar with the evidence pyramid and can distinguish between levels 1a, 1b, 2a, 2b, 3a, 3b, 4, and 5.
4. Distinguishes between experimental and observational studies
5. Understands why a randomized controlled trial is the gold standard
6. Distinguishes between a systematic review and a meta-analysis

Skills

1. Uses the PICO method to design a clinical question
2. Looks to appropriate sources for evidence
3. Understands the most appropriate study type to design based on the clinical question

References:

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ADVANCED

Knowledge

1. Understands the difference between bias and precision
2. Understands confounding
3. Can distinguish between several sources of bias

Skills

1. Explains elements of a good case series
2. Describes different blinding techniques and who should be blinded
3. Understands expertised-based randomized controlled trials

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FACIAL PARALYSIS/REANIMATION

BASIC

Knowledge

1. Understands gross anatomy of the facial nerve.
 - A. Describes the topographical **anatomy** of the **facial nucleus** and facial nerve.
 - B. Describes the course of the facial nerve in the temporal bone.
 - C. Describes the course of the facial nerve in its extra-temporal course, with special attention to its localization at the stylomastoid foramen and within the parotid.
2. Understands the microscopic and **cross sectional** anatomy of the facial nerve.
3. Understands the physiology of facial nerve paralysis.
4. Describes **clinical and electrodiagnostic testing of facial paralysis**.
5. Understands the pathological alterations of the facial nerve responsible for paresis or paralysis.
6. Understands **grading** systems for facial paralysis.
7. **Describes elements of patient history, physical exam, and laboratory testing in the search for the** etiology of facial palsy.
8. Understands the management of acute facial paralysis.

Skills

1. Obtains a pertinent history and performs an adequate physical examination utilizing tests of facial nerve function.
2. Develops an appropriate differential diagnosis and appropriate therapy based on history and physical findings.
3. Discusses the use of steroids appropriately **and can discuss the role of antivirals**.
4. Evaluates the eye for dryness, and suggests methods of corneal protection (eg. patching, hydrating drops, moisture chamber, temporary tarsorrhaphy).
5. Can describe specific techniques for reanimation of the orbit and oral commissure (e.g. upper lid weight, nerve grafts, XII-VII anastomosis, cross face nerve graft, one and two stage free gracilis transfer, temporalis muscle, transfer via multiple approaches, static facial sling with fascia lata).

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ADVANCED

Knowledge

1. Understands the indications and contraindications for specific techniques in facial reanimation procedures including:
 - A. Nerve coaptation (end-to-end, end-to-side, or partial XII-VII)
 - B. Nerve grafting
 - C. Muscle-nerve pedicles
 - D. Cross face nerve grafts
 - E. Static slings
 - F. Dynamic slings **ie, Lengthening Temporalis Myoplasty**
 - G. Free flaps
2. Understands the indications and contraindications for specific techniques for ocular rehabilitation including:
 - A. Weight (gold, platinum, and platinum chain)
 - B. Palpebral spring
 - C. Lower lid tightening techniques
 - D. Browlift
3. Understands the use of quantitative measure tools for patients with facial paralysis.
 - A. Sunnybrook
 - B. Quality of life outcome measures
 - C. Systems for quantitative functional assessment

Skills

1. Advises the patient on appropriate treatment options available for reanimation.
2. Describes the issues involved in timing of repair (eg. determines full extent of neural injury and confirms muscle viability).

3. Counsels patients pre- and postoperatively and is sensitive to the needs and concerns of facial paralysis patients.
 - A. Explains the sequelae of nerve repairs (e.g. synkinesis, asymmetry, hyperkinesis, involuntary movements, and mass motion).
4. Utilizes proper incisions and exposure to avoid iatrogenic extension of injuries; proper anastomosis, cross-over and reanimation techniques.

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FILLERS, INJECTABLES, AND IMPLANTS

BASIC

Knowledge

1. Understands the gross anatomy of the face including:
 - A. bony, cartilaginous, soft tissue, facial muscle, and dental anatomy
 - B. blood supply
 - C. sensory and motor innervation
 - D. major aesthetic units and nasal subunits
 - E. skin tension lines
2. Understands the natural changes that skin undergoes as a result of aging and repetitive facial muscle use.
3. Understands the pathophysiology of botulinum toxin at the neuromuscular junction.
4. Understands the treatment indications, contraindications, and risks of injectable fillers (including autologous fat), botulinum toxin, and surgical implants.
 - A. Understands the qualities of the ideal facial implant.
 - B. Understands the surgical principles employed in using solid and semisolid implants.
 - C. Understands the treatment indications and risks of soft tissue expanders.
 - D. Understands the physiologic changes in expanded skin.
 - E. Understands the surgical principles of placement, removal, and serial inflation soft tissue expanders.

Skills

1. Able to diagnose and develop an appropriate management plan for problems that can be suitably corrected with fillers, injectables, and implants.
2. Employs local anesthesia and nerve blocks properly.
3. Proficient in administering botulinum toxin and injectable implants appropriately and consistently.
4. Exhibits appropriate surgical skills in soft tissue expander placement and removal.
5. Demonstrates proper technique of serial inflation of soft tissue expander and knows clinical endpoints.

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ADVANCED

Knowledge

1. In-depth knowledge of anatomy of the forehead, orbit, malar area, nose, lip, and chin, including:
 - A. Origin and insertion of facial muscles.
 - B. Detailed eyelid anatomy.
 - C. Regional variation in skin thickness.
 - D. Detailed understanding of the pathway and anatomic levels of the frontal and marginal mandibular branches of the facial nerve.
 - E. Detailed understanding of the course of the infraorbital and mental nerves.
2. Understands cephalometric analysis of the chin, nose, and malar complex.
3. Understands the classification of midfacial deformities and the type of implants used to correct them.
4. Understands variations in complication rates of biosynthetic implants based on implant material and anatomic location.

Skills

1. Exhibits appropriate technical skills in autologous fat harvest, preparation, and injection.
2. Exhibits appropriate surgical skills in implant placement.
 - A. Choice of implant type, size
 - B. Sterile technique in handling implants
 - C. Choice of surgical approach
 - D. Proper incision placement
 - E. Proper dissection technique, avoiding nerve injury
 - F. Symmetric implant placement and fixation
 - G. Layered closure
3. Demonstrates appropriate management of possible complications of implant surgery (e.g. rejection, infection, extrusion, migration, asymmetry, paresthesia, poor scarring) and botulinum toxin (e.g. lid ptosis, asymmetry).

References

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FLAPS AND GRAFTS

BASIC

Knowledge

1. Understands the indications for the various types of grafts.
 - A. Full thickness skin grafts (FTSG)
 - B. Split thickness skin grafts (STSG)
 - C. Dermal grafts
 - D. Mucosal grafts
 - E. Bone grafts
 - F. Fat grafts
2. Understands the advantages/disadvantages of FTSG's and STSG's.
3. Understands the factors **that** determine the survival of a skin graft.
4. Understands and differentiates the indications for the various types of flaps.
 - A. Local skin flaps
 - B. Regional pedicled flaps
 - C. Microvascular free flaps
5. Understands the classification of flaps based upon blood supply.
 - A. random
 - B. axial
6. Understands the classification of flaps based upon tissue movement.
 - A. Advancement
 - B. Rotation
 - C. Transposition
7. Understands the vascular supply to regional cutaneous flaps.
 - A. Deltopectoral flap
 - B. Paramedian forehead flap
 - C. **Temporoparietal fascia flap**
8. Understands the vascular supply of the commonly used regional myocutaneous flaps.
 - A. Pectoralis major
 - B. Latissimus dorsi
 - C. Trapezius
9. Understands the blood supply to bone.
 - A. Knows the advantages of microvascular free flaps over regional pedicled flaps.
10. **Understands the advantages/disadvantages of microvascular free flaps over regional pedicled flaps.**

Skills

1. Properly utilizes the various donor sites for skin grafts in the head and neck.
2. Can employ the use of local flaps.
 - A. Advancement flaps
 - B. Rotation Flaps
 - C. Transposition Flaps
3. Utilizes the three major types of regional pedicled flaps that are used for head and neck reconstruction.

References

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ADVANCED

Knowledge

1. Understands the principles of skin biomechanics when planning and designing local flaps.
2. Understands the mechanism by which delay improves flap vasculature.
3. Understands the advantages of custom prefabrication of flaps, prior to tissue transfer.
4. Is versed in the techniques of post-op monitoring of free flaps.
5. Understands the causes of free flap failure and techniques to avoid flap loss.

6. Is familiar with fasciocutaneous microvascular free flaps and their vascular pedicles.
 - A. Radial forearm
 - B. Lateral thigh
 - C. Scapular and parascapular
 - D. Lateral arm

7. Is familiar with myocutaneous microvascular free flaps.
 - A. Rectus abdominus
 - B. Latissimus dorsi

Skills

1. Utilizes local flaps with particular emphasis on flap design in order to obtain the most favorable scars.
2. Develops the most appropriate plan to manage tissue defects in the head and neck, while considering all available options.
3. Performs meticulous atraumatic tissue handling, especially when performing microvascular reconstruction.

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GENERAL – HEAD AND NECK

BASIC

Knowledge

1. Understands the gross anatomy of the head and neck region.
 - A. Describes the vascular supply to the face and neck.
 - B. Describes the sensory, motor, and autonomic innervation of the face and neck.
 - C. Describes the lymphatic supply of the head and neck with its regional drainage.
 - D. Describes the fascial compartments of the neck and face.
 - E. Describes the structural support of the face (cartilage and bony structures).
 - F. Describes the facial and neck musculature.
 - G. Describes the specialized structural components of the head and neck (hair anatomy, eye, ear, nose)
2. Understands facial analysis
 - A. Describes soft tissue landmarks (e.g. nasion, subnasale, vermillion border) and subunits of the face.
 - B. Understands tension lines (e.g. lines of maximal extensibility [LME], langer lines, and relaxed skin tension lines (RSTL))
 - C. Describes facial divisions into horizontal thirds and vertical fifths, thirds and idealized components of each.
 - D. Use of alternative facial analysis (e.g. when there is no hairline, mid face 43%, and the lower face 57%).
 - E. Understands dental anatomy and occlusion (e.g. angle's malocclusion classification).
3. Understands the embryologic development of the head and neck region and its relationship to disease processes.
4. Understands the physiology of the head and neck region (e.g., deglutition, phonation, mastication, respiration, tearing, speech).
5. Understands the routine and special tests of the anatomy and function in the head and neck region (e.g., rhinomanometry, cineradiography, CT scan, bone scan, MRI, arteriography, radiography, tomography).
6. Understands the surgical principles employed in the head and neck region, such as:
 - A. General surgical care (e.g., IV alimentation, wound healing, hemostasis, pre-operative mediations, anesthesia, dressings).
 - B. Use of different flaps (e.g. local, regional, distant and free flaps).
 - C. Specific techniques (e.g., incision placement and camouflage, flap construction, soft tissue technique).
 - D. Complications.

- E. Protection of self and other health care persons from blood and other body fluids to prevent the spread of transmissible disease.

Skills

1. Obtains a pertinent history, and performs an appropriate examination of the head and neck region (e.g., examination of the larynx, fiberoptic endoscopy).
2. Develops an appropriate differential diagnosis, problem-solving strategy, and management plan for disorders for the head and neck region (e.g., squamous cell carcinoma of the anterior tongue), obtaining appropriate consultation as necessary.
3. Exhibits appropriate surgical skills (e.g., flap elevation)
 - A. Selects and administers appropriate anesthetic.
 - B. Monitors patient during surgery.
 - C. Completes surgical alteration or reconstruction properly.
 - D. Is familiar with and performs the proper technique of fine needle aspiration.
 - E. Is certified in Advanced Cardiac Life Support.
 - F. Applies appropriate dressings.
 - G. Manages possible complications properly, including the dissatisfied patient.
 - H. Advises patients correctly postoperatively (e.g., activity, sun exposure, smoking).
 - I. Other (e.g., explains procedure and risks to patient pre-operatively to obtain informed consent).
4. Obtains appropriate photographic documentation of head and neck region with consent.

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ADVANCED

Knowledge

1. Knows how to perform a complete facial analysis including:
 - A. Hairline evaluation (using the Norwood classification).
 - B. Skin type (using the Fitzpatrick classification).
 - C. Wrinkle classification (Glogau classification).
 - D. Understands and identifies ptosis (e.g. congenital vs. acquired).
 - E. Understands the role of cephalometric studies (e.g. maxillofacial abnormalities).
2. Understands ethnic anatomical differences (e.g. Asian upper eyelid vs. a Caucasian upper eyelid).
3. Understands the abnormal embryonic development of the head and neck region and its relationship to syndromes (e.g. craniosynostosis).
4. Understands flap biomechanics (e.g. tension and viability, creep, and stress relaxation).
5. Understands the morbidity of tobacco use as it manifests in the skin and soft tissue after surgical procedures.

Skills

1. Able to analyze and treatment plan complex problems appropriately.
2. Able to formulate extensive surgical treatment plans with multidisciplinary coordination.
3. Demonstrates extensive knowledge in craniofacial reconstruction (e.g. treatment of plagiocephaly, osseous distraction).
4. Demonstrates knowledge of repairs available for cleft lip and palates.
5. Adept at using multiple flaps for extensive oncologic extirpations.
6. Understands the available adjunctive therapies (e.g. leeches, hyperbaric oxygen).
7. Recognizes surgical complications and able to address in a rapid fashion (e.g. compromised flap).
8. Completed a course in sedation, approved for privileges.

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GENIOPLASTY/MANDIBULAR PROCEDURES

BASIC

Knowledge

1. Understands the gross anatomy of the chin and mandible.
 - A. Describes profile analysis with relationship of chin to lips and facial angles.
 - B. Describes the blood supply of the soft tissues and bony structures making up the mentum.
 - C. Describes the motor and sensory innervation of the chin and mandible (e.g., inferior alveolar nerve and its terminal course).
 - D. Describes pertinent tooth anatomy to avoid iatrogenic injury during surgery on the jaw.
 - E. Describes varieties of malocclusion (e.g., overjet, overbite).
2. Understands the relationship of the chin and nose to the adjacent structures from the standpoint of cosmesis and potential pathological situations (e.g., maxilla, dentition, submental region, nose and neck).
3. Understands the manifestations of aging upon the chin and mandible and pathologic alternations produced by mandibular maldevelopment (e.g., airway problems with micrognathia, occlusal problems).
 - A. Understands the relationship of the cranium to the maxilla, mandible, and chin, and how this relationship can be altered by tooth position and lip posture.
 - B. Understands the relationship of a hypoplastic mandible with the tongue and pharyngeal anatomy and its effect on the airway (e.g., snoring, sleep apnea).
4. Understands the surgical principles employed in alterations and reconstruction of the chin and mandible and their relationship to the other surgical alteration in the maxillofacial area.
 - A. Specific techniques
 1. Describes both the intraoral and extraoral approach for implantation of alloplastic implants.
 2. Discusses different types of alloplastic implants available for mandibular and mental surgery.

Skills

1. Obtains a pertinent history (e.g., growth pattern, history of trauma) and performs an appropriate examination of the chin and mandible, including asymmetries and facial analysis (vertical thirds and profile-plasty), TMJ function, occlusion.
 - A. Orders and interprets appropriate lateral and AP cephalometric radiographs.
 - B. Traces and analyzes relationships of soft tissue and bony outlines on cephalometric x-rays.
 - C. Manages possible complications (e.g., rejection, infection, paresthesiae, and asymmetries).

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ADVANCED **Knowledge**

1. Describes bone and cartilage grafts and their use in reconstructing the chin and mandible.
2. Describes sliding mandibular osteotomies and their application in positioning the chin and mandible.
3. Understands when to use alloplast vs. filler vs. genioplasty.

Skills

1. Manages possible complications (e.g., rejection, infection paresthesiae, and asymmetries).
2. Employs intermaxillary fixation properly.
3. Understands compression plating for rigid fixation.

References

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HAIR RESTORATION

BASIC

Knowledge

1. Understands basic anatomy and physiology of:
 - A. Scalp
 - B. Hair follicle
2. Understands common causes of hair loss.
 - A. scarring alopecia (burns, radiation, surgery, disease)
 - B. non-scarring alopecia
 1. temporary (telogen effluvium, alopecia areata)
 2. permanent
 - a. congenital (triangular alopecia)
 - b. acquired (androgenetic alopecia {AGA}, thyroid disorder)
 - c. gender and ethnic differences
3. Understands basic concepts relating to AGA.
 - A. etiology (genetic vs. hormonal influences)
 - B. classification (Norwood vs. Ludwig)
 - C. hair density (follicular miniaturization vs. reduction in number)
4. Understands treatment options for alopecia.
 - A. scarring alopecia (surgical vs. no treatment during active disease)
 - B. nonscarring alopecia (medical vs. surgical vs. no treatment)
 - C. AGA
 1. medical (Minoxidil vs. Androgen Blockade)
 2. surgical **follicular unit grafting** (alopecia reduction {AR}, scalp flaps, free autografts)
 3. gender, age and ethnic differences
 4. synthetic solutions
 5. Follicular extraction/(FUE/FOX)

Skills

1. Obtains and performs pertinent history and physical.
2. Develops differential diagnosis.
3. Can discuss possible diagnostic tests (labs, biopsy) and treatment options.
4. Demonstrates appropriate surgical skills.
 - A. Designs various AR excision patterns.

- B. Designs various scalp flaps and expander placement.
- C. Designs appropriate hairline and donor excision site.
- D. Recognizes operative emergencies and postoperative complications.

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ADVANCED

Knowledge

1. Understands psychological aspects of hair loss.
 - A. motivations, expectations, age, potential problem patients
2. Understands the assessment of hair loss during consultation.
 - A. density, estimated coverage needed, number of sessions, future loss, previous hair restoration surgery
3. Understands issues relating to donor area.
 - A. graft numbers and graft density, strip yield
 - B. strip vs. follicular unit extraction
 - C. single vs. multiblade, closure techniques
 - D. revision surgery
4. Understands issues relating to graft preparation.
 - A. graft terminology (follicular unit, mini-micrografting, plugs)
 - B. harvest technique, transection, handling, storage, survival
5. Understands issues relating to graft placement.
 - A. hair line design (anterior border, frontal-temporal angle, crown)
 - B. recipient sites (punch, slits, coronal vs. sagittal plane placement)
 - C. hair angles, graft sizing, rotation, depth, spacing
 - D. specialty transplantation areas (scars, eyebrow, eyelash, cleft lip)
6. Understands issues relating to alopecia reduction and flap surgery.
 - A. Langer's line, scalp laxity
 - B. stretch back, slot deformity
 - C. deep plane fixation, extenders, delayed methods
7. Understands complications of hair restoration.
 - A. hair transplant (donor scar, telogen effluvium, pitting, cysts, periorbital edema, A-V fistulas, poor growth, progressive hair loss, pain, poor results)
 - B. Alopecia reduction and flap surgery (etiology of necrosis, parathesias, hematoma, alopecia, scar formation)
 - C. treatment options for repair

Skills

1. Medical Therapy
 - A. develops algorithm for pharmacological intervention of AGA
 - B. can discuss contraindications and side effects of medical therapy

2. Surgical Therapy
 - A. Hair Transplant
 1. Appropriately anesthetizes donor and recipient areas.
 2. Appropriately calculates recipient area and number of grafts.
 3. Appropriately calculates donor density and strip length/width.
 4. Uses proper technique for harvesting and placing grafts.
 5. Demonstrates proper revision hair restoration techniques.
 - B. Alopecia Reduction and Scalp Flaps
 1. Recognizes candidates for AR and scalp flaps.
 2. Uses proper technique for developing flaps, using expanders and closing defects.

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INFORMATION TECHNOLOGY

BASIC

Knowledge, Skills & References

I. Hardware

A. What is a central processing unit (CPU)?

1. Central Processing Unit
2. Semiconductor
3. Microprocessor

B. What was the first PC to bring on the personal computing revolution?

1. Answer
2. Central Processing Unit

C. How is information stored on a PC or Workstation?

1. Information Storage and Retrieval

D. What are the different ways of getting information into a computer and list several devices.

1. Information Storage and Retrieval
2. List several devices

II. Software

A. What is an operating system?

1. Operating System

B. What is a Database?

1. Database
2. Data Processing

C. How is computer software sold to Facial Plastic Surgeons (Practice Management Software)? Specialty Software?

1. Computer Imaging
[example 1](#)

[example 2](#)

[example 3](#)

2. Nextech 2002

3. Millbrook Inform

III. Networking

A. What is a LAN, a WAN?

1. Client/Server Architecture

B. What is a server?

1. Server

C. What is a networking operating center?

1. Network Operating Center

D. Describe client server architecture.

1. Client/Server Architecture

E. What is a router?

1. [Router](#)

IV. Internet (World Wide Web)

A. What is the world wide web?

1. Internet

B. What are an intranet and/or a Virtual Private Network?

1. Intranet

2. Virtual Private Network

C. What is an application service provider (ASP)?

1. Application Service Provider

D. What are the different types of email (POP3, Web Mail) and what are the advantages of each?

1. Email

- E. What is a "portal"?
 - 1. Web Portal
- F. How is a website created?
 - 1. Web Design
- G. What is E-Commerce?
 - 1. ecommerce
- V. IT Legal and Security Issues
 - A. What is HIPAA and how does it affect IT implementation?
 - 1. HIPAA
 - B. What is SSL technology?
 - 1. Secure Socket Layer
- VI. IT and Medical Education
 - A. What is medline and how can it be access from the Internet?
 - 1. Medical Research on the Internet
 - B. Why is a medline search preferable to general searches on the Internet (general search engines such as google, altavista, etc.)?
 - 1. Medical Research on the Internet
 - C. What is the content in Medscape, Web-MD and emedicine and how can it be useful?
 - 1. Medscape
 - 2. Web MD
 - 3. emedicine
 - D. Why is Online CME useful?
 - 1. Online CME

VII. The Future of IT

- A. What advances in IT are likely to take place in the next century?
- B. How will these advances lead to security issues for Facial Plastic Surgeons?

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ADVANCED

Knowledge and Skills

1. What is Information Science?
[Information Science](#)
2. What is Information Technology?
[Information Technology](#)

LASERS, LED PHOTOMODULATION, PULSED LIGHT AND RADIOFREQUENCY ENERGY IN FACIAL PLASTIC SURGERY

Introductory Statement:

Advancing technology and the associated proliferation of devices have required expansion of this section to include additional concepts and approaches to skin rejuvenation. Selected topics are meant only to introduce a general fund of knowledge regarding currently available technologies and inclusion does not constitute endorsement of use of efficacy by the American Academy of Facial Plastic and Reconstructive Surgery, Inc.

BASIC

Knowledge and Skills

- A. Understands basic physics and tissue interaction.
- B. Has a working knowledge of terminology and concepts including but not limited to:
 - a. ablative
 - b. Chromophore-dependent
 - c. Fractional Photothermolysis
 - d. (Intense) pulsed light
 - e. Non-ablative
 - f. Non-chromophore-dependent
 - g. Photodynamic therapy
 - h. Photomodulation
 - i. Radiofrequency energy
 - j. Selective photothermolysis
 - k. Subcutaneous lipolysis
 - l. Thermal confinement
 - m. Thermal diffusivity
- C. Is familiar with the various modalities of head and neck cutaneous anesthesia.
- D. Understands the application of lasers in (the treatment of):
 - a. Accumulated fat in the lower face submentum and neck
 - b. Actinic damage and other epidermal/dermal lesions
 - c. Atrophic/depressed/hypertrophic scars and keloids
 - d. Tattoo removal
 - e. Dermatochalasis, facial lines and rhytidosis
 - f. Melasma and other dyschromias
 - g. Rhinophyma
- E. Understands absolute/relative contraindications for various treatments.
- F. Understands the limitations and possible complications of various treatments.
- G. Is familiar with safety protocols.
- H. Understands post treatment care instructions.

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ADVANCED

Knowledge and Skills

- A. Understands characteristics of devices/techniques available for rejuvenation of the aging face:
 - a. CO₂ laser (continuous wave-scanned, pulsed)
 - b. Erbium-YAG (short, long, variable pulse)
 - c. Fractionated ablative laser (erbium-YAG, CO₂)
 - d. Fractionated nonablative laser (glass fiber)
 - e. Pulsed light (visible infrared)
 - f. Laser lipolysis
 - g. LED photomodulation
 - h. Radiofrequency energy (mono, bi-, multi-polar: transcutaneous, “injectable”, microneedle)
 - i. Visible pulsed light
- B. Matches appropriate device(s) with patient skin type and indication(s).
- C. Is familiar with suggested treatment parameters for indicated devices in various treatment areas of face and neck.
- D. Appropriately integrates treatment(s) with other aesthetic procedures.
- E. Appropriately combines various devices/techniques.

- F. Understands the benefits and limitations of skin rejuvenation with various devices/techniques:
- a. Ablative laser (including fractionated)
 - b. Non-ablative lasers (including fractionated)
 - c. LED phototherapy (photomodulation therapy)
 - d. Pulsed light (visible and infrared)
 - e. Q-switched lasers
 - f. Radiofrequency devices
- G. Is familiar with prevention of and appropriately manages complications of treatment.
- H. Provides patients with clear pre- and post-operative home care instructions and appropriate follow-up care.
- I. Uses devices in an ethical manner.

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LEGAL, ETHICAL AND SOCIOECONOMIC ISSUES IN FACIAL PLASTIC SURGERY

BASIC

Knowledge

1. Understands the concept of duty in the patient/physician relationship.
2. Understands that care is provided until the relationship is terminated.
3. Understands that the failure of a surgeon to abide by this duty, even if the patient is unable to or fails to meet financial obligations, may be legally considered abandonment.
4. Understands that “Standard of Care” is defined as” The care that the average, careful and prudent practitioner of one’s specialty would be expected to meet under the same circumstances”.
5. Understands that the elements required for a valid informed consent include:
 - A. The diagnosis or suspected diagnosis
 - B. The nature and purpose of the proposed treatment and its anticipated benefits
 - C. The risks, complications and side effects of the intervention
 - D. The probability of success, individualized to the patient’s condition
 - E. Reasonable available treatment alternatives
 - F. The possible consequences, if the rendered medical advice is not followed.
6. Understands the legal concept of “Affirmative Duty”, under which the physician is required to volunteer information rather than wait for a question from a patient.
7. Understands issues concerning a minor’s capacity to provide consent. If criteria are not met, then the parents/ guardian can provide proxy consent.
8. Understands that there is no liability on the doctor’s part if a “prudent person” in the patient’s position would have accepted the treatment had he or she been adequately informed of all significant risks.
9. Understands the medico-legal importance of maintaining accurate records and providing timely dictations.
10. Understands the appropriate procedure for correcting inaccuracies in the medical record.
11. Understands that a physician’s duty is not relieved because a patient fails to return for care. A reasonable effort must be made to ensure follow-up care.

12. Understands that when a relationship is not terminated properly, the physician may be found guilty of patient abandonment.
13. Termination can occur via mutual agreement, via the physician's request, or via the patient's request for transfer of care to another physician.
14. Certain criteria must be met in order to terminate the relationship:
 - A. The patient is informed that there is no further necessity for medical or operative treatment.
 - B. The patient is referred to another physician with the patient's knowledge and consent.
 - C. A physician must provide advanced notice that is sufficient for the patient to be able to obtain medical management elsewhere.
 - D. The request should be made with a registered letter with a return receipt requested.

Skills

1. Obtains a pertinent history, review of symptoms, and performs an appropriate examination of the head and neck region to address the specific complaint and to document pre-existing conditions.
2. Elicits a complete family history of medical and psychiatric disorders.
3. Elicits a complete history of the patient's concerns, duration of concerns, and impact on activities of daily living.
4. Fully explains issues related to the procedure including potential complications, adverse reactions, dissatisfaction, and the recourses available to the patient in the event of same.
5. Considers therapeutic alternatives and develops appropriate management plan.
6. Appreciates the need for a team approach and prolonged follow-up for patients with complicated aesthetic issues.
7. Assesses and implements strategies to attain the goals of treatment.

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ADVANCED

Knowledge

1. Understands the moral obligation of the doctor pertaining to consent:
 - A. The patient should be legally competent.
 - B. The patient must be appropriately informed.
 - C. The consent must be given voluntarily without constraint or coercion.
2. Understands the issues regarding whether all forms of surgery (e.g., cosmetic surgery) constitute “treatment”.
3. Understand the importance of developing good patient selection criteria.
4. Understands medical ethics within the context of physician responsibilities: Autonomy, beneficence, nonmaleficence, and justice.

5. Understands that in order to meet the burden of proof in a tort of medical negligence, four legal elements must be proven:
 - A. The physician must have owed a duty of care to the patient.
 - B. The standard of care must have been violated by the physician.
 - C. This violation of the standard of care must have proximately caused particular events.
 - D. A loss or injury must have occurred for which the patient can be compensated.
6. Understands the legal theory of negligence due to the “borrowed servant”. Three elements must be proven:
 - A. The support staff person was negligent;
 - B. The surgeon possessed the requisite degree of control over the support staff person;
 - C. The acts of the support staff person were within the scope of his/her job description.
7. Understands the legal Doctrine of Vicarious Liability. Direct negligence on the part of the physician need not be proven. Negligence can be imputed to the physician because of other’s actions, even when the physician has not met with nor spoken to the patient.
8. Understands that a lowered legal threshold is required in instances when there is a breach of a “Special Agreement” or “Guarantee”. Such a scenario can occur with use of computer imaging systems, because a judge or jury may decide that a specific operative result was guaranteed.
9. Understand the term *Res Ipsa Loquitur*: literally the “act speaks for itself”. This doctrine is applied when the alleged acts of negligence are so obvious that the details of the case can be understood without the aid of expert testimony.
10. Understands the ethical implications of “conflict of interest” (e.g., endorsements, speaking arrangements, gifts from corporations).

Skills

1. Is capable of performing procedures at a level in accord with accepted practice at that time, as performed by a responsible body of medical practitioners (meets the “standard of care”).
2. Is capable of implementing written communication guidelines to document interactions between office staff, and to prevent problems in the event of unexpected outcomes.
3. Documents relevant outcomes, observations, and issues concerning noncompliance.
4. Is cognizant of religious issues and their impact upon the overall plan of care.
5. Understands that if a patient is a minor or is incompetent, the physician’s responsibility to the patient supercedes the religious objections of family members. In such cases, a physician can resort to legal processes to insure that appropriate care is provided.

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LIPOSUCTION

BASIC

Knowledge

1. Understands the anatomy and physiology of the head and neck.
 - a. Knows the anatomical boundaries essential in each region to be liposuctioned (e.g., submental, jowls, cervical, **facial**).
 - b. Knows the sensory and motor innervations of the head and neck, especially interstructural relationships and various levels of vital structures.
2. Understands the physiology of skin, muscles, and fat.
 - a. Knows the limitations and benefits of the procedures secondary to the aging process (e.g., loss of elasticity of skin, theory of finite numbers of fat cells).
3. Understands the physiology of lipolysis.

Skills

1. Performs proper pre-operative assessment of patient.
 - a. Performs an appropriate examination of patient's head and neck, evaluating skin, fat, and other anatomical structures to best determine the degree of improvement that can realistically be expected.
2. Thoroughly counsels patient pre-operatively on risks and benefits of the procedure, including assurance of realistic expectations by the patient and advising patients in detail on proposed course of pre- and postoperative care.
3. Documents pre- and postoperative state photographically using relevant views.
4. Recognizes importance of close follow-up care.

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ADVANCED

Knowledge

1. Knows the history of the development of liposuction and its evolution to the modern techniques presently used.
2. Understands the theory of the benefits offered by liposuction and understands the alternatives to liposuction including injectables for submental fat reduction.

Skills

1. Exhibits appropriate surgical skills.
 - A. Places incisions properly (e.g., submental, intranasal, postlobular, pre-tragal).
 - B. Acquainted with high suction apparatus, necessary pressures for effective liposuction (and geographic variations with respect to altitudes), and various cannulas available.
 - C. Demonstrates proper surgical techniques with appropriate amount of care and caution (e.g., pinch and roll technique, spoke wheel pattern, fenestra of canula pointed away from skin flap, preservation of vascular arcades).
2. Treats complications appropriately (e.g., hematomas, sloughing, irregularities, hypesthesiae), and counsels patients appropriately.
3. Recognizes importance of thorough pre-operative counseling of patient.
4. Recognizes adjunctive potential of liposuction in combination with other cosmetic procedures (e.g., chin implants, malar implants, rhytidectomy).

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MOHS SURGERY

BASIC

Knowledge

1. Describes the differential diagnosis of clinical skin lesions.
2. Understands the gross and microscopic pathology and physiology of skin cancers:
 - A. Basal Cell Carcinoma
 - B. Squamous Cell Carcinoma
 - C. Melanoma
3. Describes the role of photodamage and carcinogen exposure in malignant transformation of skin cells.
4. Understands the dynamics of skin movement in the head and neck.
 - A. Favorable skin tension lines
 - B. Blood supply and innervation of flaps
 - C. Understands nonsurgical medical treatment options available for nonmelanoma skin cancer. (cryosurgery, curettage and electrodesiccation, 5 fluorouracil, Imiquimod, photodynamic therapy)
5. Understands the principles of wound healing.
6. Understands the role of photodocumentation of skin lesions, surgical defects, and repair.

Skills

1. Describes the technique of Mohs surgery including:
 - A. Horizontal layers of excision
 - B. Micrographic control
 - C. Mapping procedures
 - D. Frozen section histopathology
2. Demonstrates proper postoperative wound care of a Mohs defect.

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ADVANCED

Knowledge

1. Appreciates the surgical skin anatomy of the head and neck.
2. Understands the areas of high risk for skin cancer recurrences and invasion.
3. Describes the importance of embryonic fusion planes in tumor invasion.
4. Can determine skin lesions best managed by Mohs excision techniques:
 - A. Lesions of the nose, eyelid, lip, ear.

- B. Recurrent or incompletely excised tumors.
 - C. Tumors with aggressive histology (morpheaform, infiltrative or micronodular BCCA, and poorly differentiated SCCA).
 - D. Lesions with poorly defined margins.
 - E. Tumors with perineural invasion.
5. Can discuss the indications and limitations for using Mohs surgery with pigmented lesions (melanoma in-situ, lentigo maligna).

Skills

1. Applies the use of the following techniques for treatment of Mohs surgical defects:
 - A. Healing by secondary intention
 - B. Primary closure
 - C. Local flaps (advancement, rotation, transposition)
 - D. Split thickness skin grafts
 - E. Full thickness skin grafts
 - F. Pedicled flaps
 - G. Distant myocutaneous flaps
2. Demonstrates proper planning of incisions and surgical technique for closure of Mohs defects.
3. Provides proper postoperative wound care and appropriate follow-up.

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NEOPLASIA AND RECONSTRUCTION

BASIC

Knowledge

1. Understands and is able to describe the embryologic development of the head and neck.
 - A. Branchial arches and clefts
 - B. Auricular development including the external ear
 - C. Midline structural abnormalities
 - D. Development of the palate and lips

2. Has an understanding of the anatomy of the head and neck.
 - A. Can describe the anatomic relationship between the skin and muscles of the face.
 - B. Is able to describe the pertinent neuroanatomy of the head and neck with special attention to the cranial nerves and their extracranial course.
 - C. Understands the anatomy of the neck spaces and relationship of the layers of fascia as they invest both the neck and the face.
 - D. Is able to describe the blood supply to the face and neck and its application to the various pedicled flaps available in this region.
 - E. Understands the use of free flaps in head and neck reconstruction.

3. Describes the lymphatic supply and drainage patterns as they pertain to the various structures of the upper aerodigestive tract.
 - A. Can predict the lymph node basins to which various tumors of the head and neck will primarily drain.
 - B. Can use this knowledge to describe the anatomic basis for different types of neck dissections.
 - C. Is able to describe the most common area where one can expect metastasis based on lymphatic drainage.

4. Understands the normal and pathologic histologic appearance of the various anatomical structures of the head and neck.
 - A. Upper aerodigestive tract
 - B. Lower respiratory tract
 - C. Esophagus
 - D. Skin
 - E. Sinonasal tract
 - F. Thyroid gland
 - G. Parotid gland

5. Understands the relationship of the head and neck region to adjacent anatomical structures.
 - A. Central nervous system
 - B. Mediastinum
 - C. Skull base
 - D. Ocular

6. Understands the pathology of the common neoplasms of the head and neck.
 - A. Squamous cell carcinoma
 - B. Basal cell carcinoma
 - C. Malignant melanoma
7. Is able to discuss the pathophysiologic mechanism whereby these tumors develop and spread.
8. Understands the role of lymphatic mapping in the comprehensive treatment of melanoma.
 - A. Using methylene blue
 - B. Using radiolabelling
9. Is able to discuss the impact that lymphatic mapping has on local/regional and distant control in malignant melanoma.
10. Understands the role and limitations of lymphatic mapping in mucosal squamous cell carcinoma of the head and neck.
11. Classifies head and neck tumors according to the current American Joint Commission guidelines.
12. Is able to discuss the etiology and factors that contribute to the development of neoplasia in the head and neck.
 - A. Congenital
 - B. Alcohol/tobacco
 - C. Radiation
 - D. Environmental
14. Understands the physiologic process that depends on normal anatomy and function in the head and neck
 - A. Articulation
 - B. Speech
 - C. Deglutition
 - D. Taste
 - E. Smell
15. Understands and is able to discuss the impact of treatment of the common head and neck cancers on the various function(s) of the head and neck region by region.
 - A. Oral cavity
 - B. Oropharyngeal
 - C. Laryngeal
 - D. Hypopharyngeal
16. Understands and is able to discuss the impact of treatment of major head and neck cancer on the patient's quality of life.
16. Is able to discuss the difference between organ preservation and functional preservation.

17. Is able to discuss the relative role of the following in the treatment of head and neck cancer:
 - A. Radiation therapy
 - B. Chemotherapy
 - C. Organ preservation protocols

18. Understands the utility of noninvasive methodologies in the investigation of tumors of the head and neck and their impact on treatment and outcome.
 - A. CAT scanning
 - B. MRI
 - C. PET

19. Understands the theory and appropriate use of Mohs dermatographic surgery for the treatment of skin cancers.

20. Understands surgical treatment strategies and inherent differences between issue types which makes each cancer unique.
 - A. Squamous Cell Carcinoma
 - B. Melanoma
 - C. Basal Cell Carcinoma

21. Understand the pathologic and clinical significance of the different subtypes of Basal Cell Carcinoma
 - A. Nodular
 - B. Infiltrative
 - C. Morpheaform
 - D. Superficial

Skills

1. Obtains pertinent history and performs an appropriate physical examination. Assesses the overall general health of the patient.
2. Evaluates possibility of distant metastases, multiple synchronous primaries, negative nitrogen balance, nutritional deficiency, and extent of primary tumor.
3. Employs appropriate adjunctive diagnostic means to evaluate the tumor and the physiologic condition of the patient (e.g., triple endoscopy, palpation, laboratory and radiologic studies, immunologic studies.)
4. Takes appropriate photos during visits, procedures, and surgeries.
5. Makes appropriate preoperative referrals (e.g., radiation therapy, medical oncology, dentistry.)
6. Develops an appropriate surgical plan for the patient. Presents the patient to Tumor Board.

7. Obtains informed consent from the patient and discusses risks of surgery and alternatives to surgery. Realistically discusses prognosis and rehabilitation.
8. Exhibits appropriate surgical skills:
 - A. Monitors blood loss, renal function, vital signs during surgery in conjunction with anesthesiologist.
 - B. Plans airway securement preoperatively with the anesthesiologist.
 - C. Completes surgical resection and reconstruction properly (e.g., incision placement, laryngectomy, maxillectomy, flap delay or rotation).
 1. Monitors resection margins clinically with use of appropriate frozen sections.
 2. Replaces blood loss when necessary.
 3. Manages airway appropriately (e.g., tracheotomy, stenting, prolonged intubation.)
 4. Obtains appropriate split-thickness and full-thickness skin grafts or flaps.
 5. Develops and transfers myocutaneous flaps.
 - D. Uses suction drains, passive drains, and pressure dressings appropriately.
9. Manages complications definitively (e.g., carotid exposure, carotid blowout, flap necrosis, Pseudomonas infection, accidental decannulation, pneumothorax, air embolism.)
10. Schedules follow-up examinations at appropriate intervals to check for residual or recurrent tumor.
11. Makes appropriate postoperative referrals (e.g., speech and swallowing therapy.)
12. Provides psychological support of the patient and family during therapy for cancer.
13. Able to discuss difficult issues with the family such as hospice care, palliative treatment, do code status (do not necessitate/do not intubate discussion), and inoperable candidacy.

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ADVANCED

Knowledge

1. Understands and is able to describe the embryonic development of the head and neck.
 - A. Have an advanced knowledge of the development and incidence of cleft lip and palate.
 - B. Able to discuss the embryologic basis behind the major craniofacial inherited disorders.
 - C. Have an understanding of management of congenital mandibular hypoplasia.
2. Has an understanding of the anatomy of the head and neck.
 - A. Has an understanding of the anatomic relationship of the extracranial course of the cranial nerves, their relationship to the neuromuscular and cutaneous components that they supply, and can apply this to different approaches in facial plastic surgery.
 1. Endoscopic browlift
 2. Midface lift
 3. Deep plane facelift
 - B. Has an understanding of the deep fascial planes and investing fascia of the face and neck as they relate to the SMAS, platysma, and mid face.
 - C. Understands the complex anatomy of the eye and eyelids.
3. Understands the pathology of uncommon neoplasms of the head and neck.
 - A. Juvenile nasopharyngeal angiofibromas
 - B. Olfactory neuroblastomas
 - C. Congenital malformations of the lymphatic system
4. Is able to discuss the relative role of the following in the treatment of head and neck cancer:
 - A. Photodynamic therapy
 - B. Gene therapy
5. Is able to discuss the various gene theories that may underlie the development and progression of head and neck cancer:
 - A. P57
 - B. TGF- β
 - C. Metalloproteinases
 - D. Immunosuppression and immunologic checkpoints (PD1, PDL-1, CTLA4)
6. Understands the theory behind Mohs surgery and its role in:

- A. Recurrent basal cell carcinoma
- B. The danger zones of the face
- C. Management of squamous cell carcinoma of the face
- D. Limitations
- E. Failure rate
- F. Need for radiation therapy

Skills

1. Employs the use of microvascular free tissue transfer to repair major defects in the head and neck region.
 - A. Advises the patient of risks and benefits of free flap reconstruction as well as donor site morbidity.
 - B. Technically able to assist in common free flap reconstructions:
 1. Radial forearm flap
 2. Fibula free flap
 3. Rectus abdominis free flap
 4. Anterior lateral thigh flap
 - C. Performs appropriate neurovascular anastomosis techniques.
 - D. Manages postoperative complications.

3. Employs advanced knowledge of technology in the performance of facial plastic procedures.
 - A. Facial skin processes
 1. Light Therapy
 2. Coblation
 3. Laser Therapy
 4. Chemical Therapy
 5. Dermabrasion
 - B. Mid-face rejuvenation techniques
 1. Endoscopic
 2. Direct
 3. Volume restoration (fat, fillers, implants)
 - C. Forehead lifting techniques
 1. Endoscopic
 2. Direct
 3. Midforehead

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OTOPLASTY

BASIC

Knowledge

1. Understands the external anatomy and structural components of the external ear.
 - A. Describes topographical features (e.g., helix, antitragus, fossa triangularis, cauda helices).
 - B. Describes the extensive collateral circulation of the ear and contribution of the perichondrium.
 - C. Describes the innervation of the ear as related to block techniques for local anesthesia.
2. Understands the structural support of both the ear and lobule (e.g., yellow fibro-cartilage, subcutaneous tissues).
3. Understands the embryologic development of the ear (e.g., mandibular and hyoid arch contributions, hillocks, otic placode).
4. Understands the normal relationship of the ear to the head (e.g., cephalochonchal, scaphoconchal, and otocephalic angles), measurements of normal projection, and relationships of the auricle to the external auditory canal and glenoid fossa of the mandible.
5. Understands routine and special tests of function (e.g., audiometry).
6. Understands the pathologic alterations of the ear (e.g., lop, satyr, shell ears; microtias I, II, III, and IV) and contributions of flattening of the antihelical fold and prominent cauda helices, traumatic deformities such as cauliflower ear (otohematoma).
7. Understands the surgical principles employed in otoplasty (e.g., cutting, thinning, and suturing to achieve antihelical fold; postauricular skin excision; anterior approaches, implants and local and distant flap reconstructive techniques; Mustarde/Furnas suture techniques; and various conchal setback techniques).
8. Understands and employs the use of prosthetic implants and prosthetic auricles when appropriate.
9. Understands the common and uncommon complications (e.g., perichondritis, hematomas, telephone deformity, asymmetry), their avoidance, and treatment.
10. Understands the embryology, assessment, diagnosis, and surgical options in treatment of congenital auricular atresia.

Skills

1. Performs an appropriate examination and evaluation of the ear and its component parts in order to adapt the variation of the technique to the variations of the deformity. Analysis of the component parts, antihelix, concha, helical rim, and conchal rim (cup or shell ear), lobule, Machiavellian ear, left to right asymmetry deformity, and associated anomalies. This examination includes hearing testing, examination of the canal and tympanic membranes, and evaluation of the relationship of the pinna to the condyle of the mandible.
2. Exhibits appropriate surgical skills.
 - A. Places incisions properly (e.g., postauricular with anterior approach only when necessary).
 - B. Develops appropriate flaps when necessary from regional or distant locations.
 - C. Handles cartilage, perichondrium, and skin appropriately.
 - D. Implants autologous and homologous material in proper location with appropriate coverage.
 - E. Knows when to execute the subsequent stages of auricular reconstruction and in what order.
 - F. Places sutures correctly (e.g., size, location, and color).
 - G. Advises patients on postoperative care (e.g., headband, trauma).
3. Documents pre- and post-operative states photographically, employing correct views. Also documents pre- and post-operative measurements of projection at superior, middle, and inferior portions of the ear.
4. Is sympathetic and responsive to the concerns of both the parent and child (in pediatric otoplasty).

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ADVANCED

Knowledge

1. Understands the surgical principles utilized in auricular reconstruction (e.g., staging the procedure, patient selection, pre-operative measurements, harvesting and sculpting of autologous rib cartilage, utility of synthetic auricular implants and timing of external auditory canal reconstruction).
2. Understands how to treat the complications related to harvesting rib cartilage for auricular reconstruction.

Skills

1. Is familiar with the harvesting of autologous rib cartilage.
2. Understands how to sculpt and suture rib cartilage into a three-dimensional ear framework.

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PSYCHOLOGICAL ASPECTS OF PLASTIC SURGERY

BASIC

Knowledge

1. Understands the different roles a Facial Plastic surgeon may have to assume (i.e. reconstructive, cosmetic, counselor).
2. Understands the concept of body image throughout life.
3. Understands the reaction of anxiety related to plastic surgery.

Skills

1. Ability to form a relationship with the patient based on realistic expectations and mutual responsibility.
2. Ability to recognize the patient with severe psychological pathology/personality disorders and to request psychiatric consultation.

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ADVANCED

Knowledge

1. Understands the psychological challenges facing by patients born with facial anomalies (i.e. clefts).
2. Understands the different investigational tools available for pre-operative and post-operative screening (i.e. clinical interviews, psychometric assessments).

Skills

1. Ability to obtain both a physical and psychological evaluation and have the skill to interpret the report of the psychologist/psychiatrist.
2. Understands and recognizes the symptoms of Body Dysmorphic Disorder (i.e. delusional fixation, insatiable desire for surgery).

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RHINOPLASTY

BASIC

Knowledge

1. Anatomy and Embryology
 - A. Understands the internal and external anatomy of the nose (nasal bones, upper and lower lateral cartilages and their subdivisions, internal and external nasal valves, turbinates, sinuses, muscles, blood and nerve supply).
 - B. Understands the embryologic development and the deformities that result from maldevelopment, specifically unilateral and bilateral cleft lip and nose.
 - C. Understands the proportions of the nose with respect to the rest of the face (length, projection, rotation, angles of incidence) and what anatomic feature contributes to each (skin thickness, muscle, cartilage and bone).
2. Physiology
 - A. Understands the basics of nasal physiology (olfaction, humidification, filtration, airflow, turbinate responses).
 - B. Understands the function of the internal and external nasal valves (Bernouli principle, Starling resistor) aberrations of function, and causes.
3. Surgery
 - A. Understands the various rhinoplasty approaches (open, closed), and incisions (columellar, marginal, intercartilagenous, intracartilagenous) and advantages/disadvantages of each.
 - B. Understands how a particular nasal anatomic abnormality relates to a particular surgical step.
 - C. Can organize a series of surgical steps into a complete operative plan.
 - D. Can decide between basic surgical maneuvers for changes in nasal length, nasal width, tip projection, tip rotation, and tip definition.

Skills

1. Obtains a pertinent functional and surgical history.
2. Performs a thorough examination.
 - A. Anterior rhinoscopy and nasal endoscopy
 - B. Internal and external nasal valve assessment
 - C. Nasal and facial morphology and analysis
 - D. Skin type classification, with appraisal of solar and age-related changes
3. Positions the patient correctly for the 6 standard preoperative photographic views, and photographs the patient competently.

4. Radiographs are really not relevant in clinical rhinoplasty
5. Surgery:
 - A. Demonstrates proper injection and infiltration techniques.
 - B. Demonstrates proficiency in performing open and closed approaches.
 - C. Performs septoplasty competently.
 - D. Performs dorsal reduction of bony and cartilaginous regions competently.
 - E. Performs lateral and medial osteotomies competently.
 - F. Performs cephalic trims of the lateral crurae.
 - G. Performs interdomal suturing.
 - H. Applies the principles of Anderson's tripod to surgical maneuvers.
 - I. Works with septal, auricular, and alloplastic grafts in primary rhinoplasty, especially as these grafts pertain to internal and external valve surgery.
 - J. Understands alar base reduction theory and how to apply it.

References

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ADVANCED

Knowledge

1. Is familiar with the notable surgical developments in rhinoplasty and the evolution of the surgery over time.
2. Anatomy and Embryology
 - A. Can delineate the changes with age of the normal nose and the operated-upon nose.

- B. Understands the specific problems that develop with time or after surgery with the cleft lip and nose and what solutions are available.
3. Physiology
 - A. Understands and can explain the pathophysiology of Wegener's granulomatosis and its surgical options.
 - B. Understands and can explain the pathophysiology of cocaine abuse and its surgical options.
 4. Psychology
 - A. Understands the impact of rhinoplasty on the psyche of a patient.
 - B. Understands how facial dysmorphic disorder affects the surgical outcome in cosmetic rhinoplasty.
 5. Surgery
 - A. Understands how varying various portions of the alar cartilages affects nasal length, projection and rotation.
 - B. Understands how to tailor alar base reductions to reduce alar flaring and alar base width.
 - C. Understands how to interpret columellar show, differentiating a hanging columella from alar retraction and the relative contribution of each.
 - D. Understands how spreader grafts, batten grafts, and upper lateral cartilage flare sutures affect nasal valve area and nasal resistance.
 - E. Understands what osteotomies do to nasal valve area and nasal resistance.
 - F. Can correctly identify the various materials available for nasal augmentation, and can choose between them (including autogenous and alloplastic materials).
 - G. Understands the difference between rhinoplasty for Caucasian, Asian and Afro-American noses, and can choose from a variety of techniques to address the differences.

Skills

1. Analyzes nose preoperatively and correctly identifies how it relates to the rest of the face.
2. Completes a preoperative surgical plan based on the analysis, and the functional and cosmetic goals.
3. Surgery
 - A. Can perform open and closed approaches on revision rhinoplasty patients.
 - B. Performs at least three maneuvers to lengthen a short nose.
 - C. Performs at least three maneuvers to reduce alar retraction.
 - D. Understands how to protect from alar retraction, postoperative rotation, and postoperative loss of projection.
 - E. Performs vertical dome division for both increasing and decreasing nasal projection, and understands the differences in the two procedures.
 - F. Places alar batten grafts, alar spreader grafts, tip grafts, columellar struts, and other cartilage grafts for nasal form and function.

- G. Performs sliding, perforating and percutaneous osteotomies, and understands the distinctions between them.
 - H. Places alloplastic and autogenous materials for nasal augmentation.
 - I. Harvests calvarial bone for nasal dorsal augmentation.
 - J. Harvests costal cartilage for nasal dorsal augmentation.
 - K. Harvests and shapes auricular cartilage.
 - L. Performs a rhinolift for aging noses.
 - M. Understands how to place external incisions on the nose for maximal exposure and minimal scarring.
4. Postoperative care:
- A. Identifies early complications of rhinoplasty (hematoma, infection) and can manage them.
 - B. Understands how to treat postoperative soft tissue thickening with steroid Injections.
 - C. Understands the time course of healing and the physiology behind it.

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RHYTIDECTOMY

BASIC

Knowledge

1. Anatomy

- A. Describes the microscopic changes in the skin with aging (e.g. loss of elastic fibers, changes in collagen and thickness of the dermis).
- B. Analyzes the aesthetic elements of the face and how these elements change with aging (e.g. rule of thirds, vertical fifths, Frankfort plane).
- C. Understands the anatomical manifestations of aging for each region of the face (e.g. deepening of the nasolabial fold or groove, jowling, brow ptosis, loss of subcutaneous fat).
- D. Describes the topographical anatomy of the face (e.g. glabella, radix, rhinion, nasion, menton, pogonion).
- E. Understands the anatomy of the facial nerve and its relation to surgical planes of dissection.
- F. Understands the neurovascular supply to the earlobe, preauricular region and forehead.
- G. Understands the muscles of facial expression and how they relate to the SMAS.

2. Surgical principles

- A. Describes the preoperative patient assessment, including analysis of which patients are “good” or “poor” candidates for cosmetic surgery (“warning signs”, tobacco abuse). Understands patient’s motivation for cosmetic surgery.
- B. Describes the options for general or sedation anesthesia and techniques for injection of local anesthetic.
- C. Understands the basic SMAS (imbrication or plication) facelift technique and placement of incisions. Understands deep plane techniques.
- D. Explains the differences between male and female facelifts (e.g. incision placement, skin characteristics, preservation of the sideburn).
- E. Lists the possible complications of facelift, their management and prevention (e.g. hematoma, infection, prolonged edema, skin slough, neurosensory loss, pigment changes, asymmetry).
- F. Understands how to manage the dissatisfied patient.

Skills

1. Preoperative assessment

- A. Obtains a complete medical history and addresses the specific complaints of the patient. Understands the patient’s motivation and expectations for surgery.
- B. Assesses skin characteristics and type.
- C. Describes the goals that can be obtained with facelift surgery, and its limitations.
- D. Assesses the patient’s need for adjunctive procedures.
- E. Describes the risks of surgery (e.g. hematoma, scarring, hair loss, injury to nerves, asymmetry, risks of implants and of ancillary procedures).

2. Surgical skills

- A. Places basic incisions in appropriate areas. (male and female)
- B. Can perform flap undermining safely and accurately.
- C. Performs cosmetic closure.
- D. Gives patient appropriate instruction for wound care and post-operative visits.

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ADVANCED

Knowledge

1. Surgical principles
 - A. Describes the placement of incisions around earlobe and tragus, and management of the temporal hairline.
 - B. Understands different facelift techniques (e.g. skin, SMAS, deep plane, composite, endoscopic) and the planes of flap development for each technique including transition zones.
 - C. Understands the indications and limitations for long flap and short flap techniques. Can describe the tuck-up or mini-lift and its relationship to the original facelift.
 - D. Describes adjunctive procedures to facelift including liposuction, chemical peel, laser, fat augmentation, implants. Can discuss indications and risks of these treatments.
 - E. Understands the role of midface rejuvenation.
 - F. Describes the role of tissue adhesives, their risks and benefits.

Skills

1. Preoperative assessment
 - A. Obtains photographic documentation of the patient and knows the proper views and patient positioning.
 - B. Uses computer imaging to instruct the patient about potential surgical results.
2. Surgical skills
 - A. Understands two-layer facelift and performs this with appropriate flap redraping, placement of appropriate vectors of tension, and removal of the proper amount of tissue for desired result.
 - B. Understands deep plane and endoscopic approaches.
 - C. Performs the necessary adjunctive procedures and understands the appropriate timing of these procedures (e.g. how and when to perform laser resurfacing or a chemical peel).
3. Postoperative assessment
 - A. Obtains photographic documentation.
 - B. Able to counsel patient during the early postoperative period.
 - C. Able to manage complications.
 - D. Removes sutures at the appropriate time.
 - E. Can critically analyze results and address patients concerns.

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SCAR REVISION/DERMABRASION

BASIC

Knowledge

1. Understands the importance of favorable skin tension lines and how they differ from Langer's lines.
2. Understands the influence of facial muscle contraction on wrinkle formation.
3. Describes the maturation sequence of a scar.
 - A. Phases of wound healing (substrate phase, proliferative phase, maturation phase).
 - B. Collagen changes associated with wound healing.
 - C. Cicatrization and wound contraction.
4. Understands the pathology of a scar (eg. changes in the epidermis, dermis and connective tissue layers).
5. Discusses the advantages of skin surface hydration in healing.
6. Understands the difference between hypertrophic scar and keloid.
7. Describes various treatment modalities to correct hypertrophic scars and keloids (eg. intracutaneous steroids, excision, radiotherapy, pressure dressings, laser treatment).
8. Discusses the use of anti-tension taping to prevent scar hypertrophy.
9. Discusses the indications for dermabrasion (e.g. acne scars, traumatic scars, rhinophyma, traumatic tattoos, pigmentation disorders).
10. Understands the use of filler substances for depressed scars of various etiologies.

Skills

1. Implements scar revision utilizing favorable skin tension lines.
2. Demonstrates the use of the following techniques and describe the advantages, disadvantages and limitations of each:
 - A. fusiform excision
 - B. "M" excision
 - C. Z-plasty
 - D. W-plasty
 - E. Broken geometric line

3. Understands and applies the use of serial excisions for wide scars.
4. Applies appropriate postoperative wound care techniques.
5. Understands the role of preoperative and postoperative photodocumentation.
6. Appropriately counsels patient and emphasizes realistic expectations.
7. Understands the role of scar camouflage make-up.

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ADVANCED

Knowledge

1. Describes the limitations and contraindications of dermabrasion (e.g. active herpetic lesions, use of Accutane, Fitzpatrick skin types V, VI).
2. Describes complications of dermabrasion (e.g. milia, persistent erythema, pigment changes, infection, skin necrosis, contact dermatitis, hemorrhage).
3. Understands the surgical precautions necessary for aerosolized blood products produced by dermabrasion.
4. Understands the indications, advantages and complications using the following filling agents:
 - A. Collagen (Zyplast, Zyderm)
 - B. Silicone
 - C. Fat
 - D. Human dermis
 - E. Hyaluonic acid (Restylane, Perlane)
 - F. Calcium hydroxyapatite paste (Radiance)
 - G. Polymethylmethacrylate beads in bovine collagen (Artecoll)
5. Understands the indications for tissue expander use.
6. Describes the histopathologic changes of the epidermis, dermis and subcutaneous tissue with the use of tissue expanders.
7. Understands the role of laser resurfacing for scar revision (e.g. Carbon dioxide, pulsed dye, erbium:YAG, Nd:YAG).

Skills

1. Realistically evaluates a scar for surgical improvement.
2. Demonstrates the appropriate techniques and uses of wire brush versus diamond fraise dermabrasion.
3. Shows the proper method using topical skin refrigerants and adjunctive measures in dermabrasion (eg. facilitating dermal planing, hemostasis and anesthesia).
4. Demonstrates the skin landmarks that indicate adequate dermaplaning and understands the importance of preserving the reticular layer of the dermis.
5. Demonstrates proper postoperative care for dermabrasion.
6. Demonstrates the use of tissue expanders to enhance skin availability for scar revision.
7. Understands and applies the advantages and limitations of rapid tissue expansion.

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TRAUMA

BASIC

Knowledge

1. Understands the normal head and neck anatomical and dental occlusal relationships.
 - A. Facial bone anatomy
 - B. Soft tissue anatomy of the face and neck
 - C. Basic dental anatomy
2. Understands the evaluation process for the multiple trauma patient with head and neck injuries.
 - A. Describes the initial evaluation of the patient following established protocols.
 - B. Describes sequential examination of the head and neck structures and other vital organs.
3. Understands the indications and contraindications for diagnostic tests in the head and neck trauma evaluation (e.g., CT scan, angiography, MRI, radiographs).
4. Understands the need for appropriate consultation in patients with central nervous system, ocular, or spinal injury.
5. Understands the immediate and subsequent medical and surgical management of major head and neck trauma.
 - A. Describes airway management techniques (e.g., intubation, cricothyroidotomy, tracheotomy, hemostasis).
 - B. Describes management of shock, stabilization, and correction of cranial or unstable cervical vertebral fractures, and obtains consultation as indicated.
6. Has completed ACLS, and possibly ATLS testing.
7. Describes nasal, mandibular, frontal sinus, naso-orbital-ethmoid, zygomatic, maxillary, and dental injuries with features and complications of each.
8. Understands surgical approaches to the craniofacial skeleton.
9. Understands the rigid and resorbable plating systems.
10. Describes soft tissue trauma, understanding early versus late management.
11. Understands the use of scar revision, dermabrasion, grafts, and tissue expansion in reconstruction of traumatic deformities.

Skills

1. Obtains a pertinent history and performs appropriate rapid and serial examination of the head and neck region as well as examination of the “total patient”.
2. Reviews past medical history, tetanus immunization status, medication allergies, and medications.
3. Develops appropriate sequential management plan.
4. Administers tetanus prophylaxis and antibiotics.
5. Protects self against patient’s bodily fluids.
6. Exhibits appropriate surgical skills.
 - A. Treats soft tissue and skeletal trauma properly.
 1. soft tissue:
employs wound irrigation, minimal debridement, undermining of wound edges, layered cosmetic closure, plans and executes appropriate tissue replacement techniques.
 2. skeletal trauma:
 - a. reduces and stabilizes fractures of the facial bones (e.g. mandibular-maxillary fixation, wiring, plating techniques).
 - b. manages dental fractures and occlusion properly.
 - B. Manages CNS, spinal cord and vascular injuries acutely requesting consultations appropriately.
 - C. Identifies ocular and neurologic injury and stabilizes until the appropriate specialist arrives.
 - D. Monitors the total patient throughout treatment.
 - E. Manages postoperative care and complications.

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ADVANCED

Knowledge

1. Understands dental occlusal relationships and their influence on fracture management.
2. Is knowledgeable in the management of complex soft tissue injury.
 - A. parotid gland and duct injuries.
 - B. facial nerve injuries.
3. Describes management of eyelid and lacrimal system injuries.
4. Understands the indications for open reduction and fixation of a condylar fracture.
5. Understands the surgical approaches to the orbit and the advantages and disadvantages of each.
6. Understands the systematic approach used to treat panfacial fractures.
7. Understands indications for frontal sinus repair, obliteration and cranialization.
8. Recognizes the importance of soft-tissue re-suspension in facial fracture repair.
9. Understands secondary management of post-traumatic facial deformities.
 - A. Understands possible causes of secondary deformities.
 - B. Describes techniques for secondary corrections of these deformities.
10. Recognizes issues unique to the management of pediatric facial trauma.

Skills

1. Obtains and interprets the appropriate radiographic studies.
2. Successfully manages complex craniomaxillofacial injuries involving other specialists as necessary.
3. Exhibits advanced surgical skills in the management of facial trauma.
 - A. Demonstrates comprehensive understanding of soft tissue techniques in managing complex injuries.
 - B. Plans incisions and surgical approaches to most effectively treat facial fractures.
 - C. Develops and employs a sequential plan for the repair of panfacial injuries.
 - D. Uses soft tissue re-suspension to prevent secondary deformities.
4. Diagnoses and manages complications and unsatisfactory outcomes in facial trauma.
 - A. Recognizes and develops plans to treat malocclusion.
 - B. Demonstrates the use of osteotomies and grafting techniques to treat secondary deformities.
 - C. Employs scar revision and other techniques to correct soft tissue deformities.

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VASCULAR LESIONS

BASIC

Knowledge

1. Understands Mulliken and Glowacki's classification system for vascular anomalies.
2. Understands the difference between the natural history of hemangiomas and the natural history of vascular malformations.
3. Recognizes the implications of high flow versus low flow lesions.
4. Understands the staging system for lymphatic malformations and its implications for treatment and prognosis.
5. Understands the role of angiography in the evaluation and management of vascular anomalies.
6. Understands the indications for corticosteroids in the treatment of hemangiomas and the potential complications associated with this treatment.
7. Understands the indications for beta-blocker in the treatment of hemangiomas and the potential complications associated with this treatment.
8. Understands the role for lasers in the treatment of superficial and deep vascular anomalies and the potential complications associated with this treatment.

Skills

1. Obtains pertinent history from patient with vascular anomaly, emphasizing distinguishing aspects of the natural history that would help determine the type of vascular lesion.
2. Performs an appropriate physical exam, assessing patient for high flow or low flow lesion and ascertaining extent of lesion.
3. Develops appropriate differential diagnosis.
4. Demonstrates appropriate understanding of treatment options, and conveys these appropriately to patient.
5. Understands natural history of hemangiomas, including potential for involution of lesion.

6. Maintains good rapport with other specialists that participate in the care of these patients, including interventional radiologists, pediatricians, and primary care physicians.
7. Demonstrates appropriate pre-surgical planning, including consultation with anesthesiologists about airway concerns.
8. Considers pre-operative angiography and embolization immediately prior to excision of high-flow lesions.
9. Understands surgical approaches to provide access to the vascular lesion.
10. Demonstrates appropriate surgical skills including handling tissue appropriately, maintaining a clean plane of dissection, avoiding injury to adjacent tissues and structures, and assuring adequate hemostasis.
11. Recognizes and manages intra-operative complications appropriately.
12. Demonstrates appropriate follow-up of patients during and after medical or surgical management.

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ADVANCED

Knowledge

1. Knows the histological characteristics of vascular anomalies, including the phenotypic relationship between hemangiomas and placental tissue.
2. Knows characteristic radiographic features of each type of vascular anomaly.
3. Recognizes indications for sclerotherapy, and understands the potential complications associated with this treatment.
4. Recognizes the indications for OK-432 in the treatment of lymphatic malformations.

Skills

1. Performs an appropriate physical exam, ascertaining the effect of the vascular anomaly on surrounding structures and recognizing the feasibility of reconstruction based on the extent of lesion and the availability of donor tissue.
2. Recognizes characteristic findings of high flow and low flow lesions on radiographic images.
3. Demonstrates advanced surgical skills including familiarity with plastic soft tissue instruments, precise dissection with minimal trauma to adjacent tissues, appropriate bony and soft tissue reconstruction after resection, and precise cutaneous closure with appropriate skin eversion.
4. Demonstrates ability to speak to laypersons, the local medical community, and related specialists about the evaluation and management of patients with vascular anomalies.

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