K. J. Lee: Essential Otolaryngology and Head and Neck Surgery (IIIrd Ed)

Chapter 37: Miscellaneous Information

Relevant Anatomy of the Head and Neck

1. *Blood supply to the tonsil*

a. Facial artery:	tonsilar branch (most important) ascending palatine branch
b. Lingual artery:	dorsal lingual artery
c. Internal maxillary artery:	descending palatine and greater palatine arteries

d. Ascending pharyngeal artery.

2. Blood supply to the adenoids

a. Facial artery:	to ascending palatine artery
b. Ascending pharyngeal artery	
c. Internal maxillary artery:	to pharyngeal branch
d. Thyrocervical trunk:	to ascending cervical branch.

3. There are three dehiscences or weak spots through which an esophageal diverticulum can take place:

a. Killian's dehiscence: between the cricopharyngeus and thyropharyngeus muscles.

b. Lamier Hackeman's space: between the circular and longitudinal fibers of the esophagus.

c. Kilian-Jamieson space: between the cricopharyngeus and the circular fibers of the esophagus.

4. Cranial nerve central connection

CN I: Subcallosal, hippocampal gyrus, uncus area. This first cranial nerve receives crossed an uncrossed fibers.

CN III: a. Motor nucleus (also known as lateral nucleus, medial nucleus of Perlia) to the extraocular muscles and levator palpebrae superioris.

b. Edinger-Westphal nucleus (parasympathetic nucleus, anterior medial nucleus) via the ciliary ganglion to the sphincter of iris and ciliary muscles.

CN IV: Motor nucleus (crossed fibers only) to extraocular muscle.

CN VI: Motor nucleus (uncrossed fibers only) to extraocular muscle.

CN V: a. Semilunar ganglion (main sensory nucleus). Gasserian ganglion to somatic sensory fibers.

b. Mesencephalic nucleus to kinesthetic sense from teeth and jaws.

c. Motor nucleus (crossed and uncrossed fibers), i.e. masticator muscles, tensor tympani, tensor palati muscle, and anterior belly of the digastric muscle.

d. Spinal nucleus of V - receives pain and temperature impulses from face, dura, and portions of ear via VII, IX, X.

CN VI (abducens):

a. Motor nucleus in lower pons via uncrossed fibers via longest intracranial course to lateral rectus.

b. From both cortexes to motor nucleus for upper face.

CN VII (facial): a. From contralateral cortex to motor nucleus for lower face, via facial nerve to stapedius muscle, posterior belly of digastric, muscles of facial expression.

b. Superior salivatory nucleus via nervus intermedius, greater superficial petrosal nerve to nasal, lacrimal glands, or chorda tympani to submandibular glands.

c. Nucleus of tractus solitarius - fibers from geniculate ganglion from chorda tympani containing taste from anterior two-thirds of tongue.

d. To spinal tract of V with sensory fibers from concha.

VIII (auditory): a. Cochlear - dorsal and ventral nuclei.

b. Vestibular - superior, medial, lateral and inferior (spinal) nuclei.

CN IX: a. Ambiguus nucleus (motor) via stylopharyngeus inferior salivatory nucleus to Jacobson's nerve to otic ganglion to parotid gland. Tractus solitarius nucleus via inferior ganglion (petrosal) to deep sense and taste.

b. Sensory nucleus of the V nerve via superior ganglion (jugular) to somatic sensation.

CN X: a. Nucleus ambiguus (motor) to soft apalte and pharyngeal muscle.

b. Nucleus ambiguus via XI nerve bulbar portion to join the X nerve to recurrent laryngeal nerve to intrinsic laryngeal muscles.

c. Dorsal motor nucleus (parasympathetic) to secretory fibers, regulates the heart rate and gastric peristalsis.

d. Sensory nucleus of V nerve via jugular ganglion (superior) yields somatic sensation to meningeal branch and auricular branch (Arnold's nerve).

e. Tractus solitarius via internal or medullary or bulbar branch to join the X nerve just outside the base of skull to recurrent laryngeal nerve.

b. C1 to C6 via external or spinal branch to trapezius and sternocleidomastoid muscle.

CN XII: Hypoglossal nucleus to intrinsic muscles of the tongue.

5. Cavernous sinus and superior orbital fissue syndromes (see Chap. 23). The superior orbital fissure transmits the ophthalmic vein, a branch of the middle meningeal artery, III nerve, IV nerve, frontal nerve of V1, lacrimal nerve of V1, nasociliary nerve of V1 and VI. The inferior orbital fissure transmits the zygomatic nerve and sphenopalatine twigs (parasympathetic) to the lacrimal gland.

6. a. The superior constrictor muscle spans from the median raphe and the the pharyngeal tubercle of the occipital bone to the pterygomandibular ligament, mandible, and medial pterygoid plate.

b. The medial constrictor muscle spans from the median raphe to the hyoid bone and stylohyoid ligament.

c. The inferior constrictor muscle spans from the median raphe to the oblique line of the thyroid cartilage, cricoid and cricothyroid muscle.

7. The uvula has five muscles:

A. Palatopharyngeus (pharynx to soft palate).

b. Palatoglossus (tongue to soft palate).

c. Muscle uvula (posterior nasal spine to soft palate).

d. Tensor palati (sphenoid, medial pterygoid plate, eustachian tube to soft palate).

e. Levator palati (petrous, superior constrictor muscle, eustachian tube to soft palate).

8. The pterygomandibular raphe is between the buccinator and the superior constrictor muscles.

9. a. The ciliary ganglion is a parasympathetic ganglion. It receives preganglionic parasympathetic fibers from the Edinger-Westphal nucleus. The synapses are within the ganglion. The postganglionic fibers go to the ciliary muscles and the iris sphincter. It also receives the postganglionic sympathetic fibers on its way to the vessels within the eye. There is no sympathetic synapse within this ganglion. The nasociliary branch of V1 carries sensation back to the central nervous system via the ganglion. There is no synapse for this sensory innervation within the ciliary ganglion.

b. The sphenopalatine ganglion is a parasympathetic ganglion. It receives its preganglionic parasympathetic fibers via the greater superficial petrosal nerve from the superior salivatory nucleus. The postganglionic fibers innervate the lacrimal gland via the zygomatic nerve. Sensory nerves of V2 pass through it without any synapses. The sympathetic postganglion nerve also passes through it without synapse.

c. The submandibular ganglion also has synapses for the parasympathetic. The preganglionic fibers are from the superior salivatory nucleus via the chorda tympani. The post-ganglionic parasympathetic fibers go to the submaxillary gland. The sensory fibers are V3 and the postganglionic sympathetic fibers from the facial artery pass through it without synapses.

d. The otic ganglion also has synapsis for the parasympathetics. The preganglionic fibers are mainly from the inferior salivatory nucleus via Jacobson's nerve (branch of the IX nerve). A small contribution is from the superior salivatory nucleus via the lesser superficial petrosal nerve (branch of the VII nerve). The sensory branch of the V3 and the postganglionic sympathetic from the middle meningeal artery pass through this ganglion without synapses.

10. Contents of the skull foramina, fissures, canals, and sinuses.

a. Cavernous sinus.

1) Internal carotid artery.

2) CN III.

3) CN IV.

4) CN V.

6) CN VI.

b. Superior orbital fissure.

1) CN III.

2) CN IV.

3) CN VI.

4) Frontal nerve.

5) Lacrimal nerve.

6) Nasociliary nerve.

7) Ophthalmic vein.

c. Inferior orbital fissure.

1) Zygomatic nerve.

2) Sphenopalatine branches.

d. Optic canal.

1) Optic nerve.

2) Ophthalmic artery.

3) Central retinal artery.

e. Carotid canal.

1) Internal carotid artery.

2) Carotid plexus of nerves.

f. Jugular foramen.

1) Three compartments.

a) Anterior.

b) Posterior.

c) Medial.

2) Anterior compartment - inferior petrosal sinus.

3) Posterior compartment.

a) Jugular vein.

b) Meningeal branches from the occipital and ascending pharyngeal arteries.

4) Medial compartment.

a) CN IX.

b) CN X.

c) CN XI.

g. Foramen lacerum.

1) Cartilage.

2) Vidian nerve.

3) Meningeal branch of the ascending pharyngeal artery.

h. Foramen ovale.

1) CN V3.

2) Small meningeal artery.

3) Small petrosal nerve.

i. Foramen rotundum.

1) CN V2.

j. Foramen spinosum.

1) Middle meningeal artery.

k. Hypoglossal canal.

1) CN XII.

11. The skull is made of cartilaginous as well as membranous bone. The cartilaginous bone contributes to:

a. Occipital.

b. Sphenoid.

c. Ethmoid.

e. Petrous.

The membranous bone contributes to:

a. Sphenoid.

b. Parietal.

c. Frontal.

d. Lacrimal.

e. Nasal bones.

f. Maxilla.

g. Mandible (may be partly enchondral from Meckel's cartilage).

h. Palate.

i. Zygoma.

j. Premaxilla.

k. Tympanic ring.

l. Squamosa.

m. Vomer.

n. Bony modiolus.

12. The orbital walls are made up of maxillary bone, frontal bone, ethmoid bone, zygomatic bone, sphenoid bone, and lacrimal bone. The lacrimal gland is in the zygomatic process of the frontal bone while the sac is in a fossa bound by the lacrimal bone and the fronal process of the maxilla. The zygoma has four processes:

a. Frontal.

b. Maxillary.

c. Toward the temporal bone.

d. To the greater wing of the sphenoid.

The maxilla has four processes:

a. Frontal.

b. Zygomatic.

c. Palatine.

d. Alveolar.

The mandible is the only facial bone capable of pathologic fracture.

13. Eighty-five percent of the superior thyroid arteries are derived from the external carotid artery while 15% of them are derived directly from the common carotid artery.

14. Referred otalgia:

a. Hypopharynx: via the jugular ganglion and Arnold's nerve of CN X.

b. Oral tongue: via the Gasserian ganglion and auriculotemporal nerve.

c. Base of tongue: via the petrosal ganglion and Jacobson's nerve.

15. Retromolar trigone:

a. Lateral (oblique line from the body of the mandible to the coronoid process.

b. Medial (extension of alveolar ridge to the coronoid process).

c. Anterior (posterior molar tooth).

16. The true cord is 1.7 mm thick. The most important laryngeal muscle for respiration and protection of the airway is the posterior cricoarytenoid muscle, the only laryngeal muscle which abducts the vocal cords.

17. The parapharyngeal space:

A. Boundaries.

1. Superiorly: base of skull.

2. Laterally: ramus of mandible, medial pterygoid muscle.

3. Posterolaterally: parotid fascia.

4. Medial: superior constrictor muscle, buccopharyngeal fascia.

5. Anteriorly: pterygoid fascia.

6. Posteriorly: carotid sheath.

7. Inferiorly: lesser cornu of the hyoid.

B. This basically describes a five-sided pyramid with the apex at the hyoid.

C. Three compartments:

1. Prestyloid compartment.

2. Retrostyloid compartment.

3. Retropharyngeal compartment.

D. Contents of each compartment.

1. Prestyloid compartment.

a. Internal maxillary artery.

b. Inferior alveolar, lingual and auriculotemporal nerves.

2. Retrostyloid space compartment.

a. Internal carotid artery.

b. Internal jugular vein.

c. Cranial nerves IX, X, XI, XII.

d. Cervical sympathetic chain.

3. Retropharyngeal compartment.

a. Numerous lymph nodes.

b. Node of Rouvière.

E. Communication to space of the head to which infection may spread.

1. Paralingual.

2. Parotid.

3. Carotid sheath.

4. Retropharyngeal.

5. Masticator.

6. Submandibular.

7. Potential spaces surrounding adjacent muscles.

8. Mediastinum via the retropharyngeal space.

F. Neurogenic tumours are the most common neoplasm in this space.

18. The jugular foramen is bound by the occipital bone medially and the temporal bone laterally.

19. Scalenus anticus: anterior tubercle of transverse process of C3, 4, 5, 6 to first rib.

Scalenus medius: posterior tubercle of transverse process of C1, 2, 3, 4, 5, 6, 7 to first rib.

20. Branches of the external carotid artery.

A. Superior thyroid artery.

1. Infrahyoid a.

2. Superior laryngeal a.

3. Sternomastoid branch.

4. Cricothyroid branch.

B. Lingual artery.

1. Suprahyoid a.

2. Dorsalis linguae.

3. Sublingual a.

4. Ranine a.

C. Facial artery.

1. Cervical branches.

a. Ascending palatine.

b. Tonsillar a.

c. Submaxillary a.

d. Submental a.

e. Muscular branches.

2. Facial branches.

a. Muscular branches.

b. Inferior labial a.

c. Inferior coronary a.

d. Superior coronary a.

e. Lateral nasal a.

f. Angular a.

D. Occipital artery.

1. Muscular branches.

2. Sternomastoid a.

3. Auricular a.

4. Meningeal branches.

5. Arteria princeps cervicis.

E. Posterior auricular artery.

1. Stylomastoid branch.

2. Auricular branch.

3. Mastoid branch.

F. Ascending pharyngeal artery.

1. Prevertebral branches.

2. Pharyngeal branches.

3. Tympanic branches.

4. Meningeal branches.

G. Superficial temporal artery.

1. Transverse facial a.

2. Middle temporal a.

3. Anterior auricular branches.

H. Internal maxillary artery.

1. Maxillary portion.

a. Tympanic branch.

b. Deep auricular branch.

c. Middle meningeal a.

d. Small meningeal a.

e. Inferior dental a.

2. Pterygoid portion.

a. Deep temporal branches.

b. Pterygoid branches.

c. Masseteric a.

d. Buccal a.

3. Sphenomaxillary portion.

a. Alveolar a.

b. Infraorbital a.

c. Descending palatine a.

d. Vidian a.

e. Pterygopalatine a.

f. Sphenopalatine a.

Relationships of the Anterior and Posterior Ethmoid Arteries

The anterior ethmoid artery is found in the frontal ethmoid suture at about 15 mm posterior to the maxillolacrimal suture line.

The posterior ethmoid artery is 4-7 mm from the optic nerve.

Histology and Pathology

As in the previous section, it is not the intent of this chapter to cover histology and pathology of the head and neck. The chapter highlights the areas that may be appropriate in this type of synopsis.

1. Lining epithelium:

Middle ear = nonciliated cuboidal epithelium in general, though in the area near the eustachian tube orifice, the epithelium may be ciliated cuboidal.

Eustachian tube = pseudostratified ciliated columnar epithelium with goblet cells.

Mastoid and epitympanum = pavement epithelium without cilia.

Endolymphatic duct and proximal portion of the sac = vilous and lined by columnar epithelium.

Distal sac = smooth and lined by cuboidal epithelium.

Nose:

a. Lower two-thirds of the septum, lateral wall below the superior turbinate = respiratory epithelium (pseudostratified ciliated, columnar epithelium with irregular basal cells and goblet cells) - Schneiderian epithelium.

b. Upper one-half of the septum, lateral wall above superior turbinate and "roof" of the nose = pseudostratified, nonciliated, columnar epithelium with serous glands of Bowman; bipolar olfactory cells as well as supporting and basal cells.

c. Vestibule = stratified, squamous epithelium with some glands.

Nasopharynx:

a. Upper one-half = ciliated columnar.

b. Lower one-half = nonkeratinizing epidermoid epithelium.

Paranasal sinuses and nasolacrimal duct = respiratory epithelium.

Between the oral pharynx and nasopharynx = transitional cells.

Oropharynx and laryngopharynx = stratified squamous epithelium.

Palatine tonsils = squamous epithelium.

Adenoid = ciliated columnar epithelium.

Lingual tonsil = squamous epithelium (striated muscular fibers are usually seen in the specimen).

Larynx.

a. True cord, false cord, upper two-thirds of epiglottis, aryepiglottic folds = nonkeratinizing stratified squamous epithelium.

b. The rest = pseudostratified ciliated columnar epithelium.

Mucous glands are found in the ventricle, saccule, posterior surface of the epiglottis, and margin of the aryepiglottic folds.

Trachea and bronchi = pseudostratified ciliated columnar epithelium with goblet cells.

Upper two-thirds of the esophagus = stratified squamous epithelium with inner circular muscular layer and outer longitudinal muscular layer.

Lower one-third of the esophagus = villous type of columnar epithelium with the same muscular layers.

2. Antoni type A: This arrangement is found in neurogenic tumours. The cells are arranged in palisade or picket fencelike arrangements with the formation of the so-called Verocay bodies. These cells are delicately intertwined with connective tissues and reticular fibrils.

Antoni type B: This has a less orderly architectural formation. The Schwann's cells are haphazardly dispersed within the loose reticular fibrils and small cystic spaces. This also is found in neurogenic tumors. Neurogenic tumor is the most frequently found benign primary tumor in the parapharyngeal spaces.

3. Learn to differentiate between hemangioma, pyogenic granuloma, and hemagiopericytoma.

4. Ameloblastoma (see Chap. 20): Histologically, it consists of a meshwork of interlacing wide strands and islands of epithelial tumor cells in a moderately cellular conective tissue stroma. The periphery is lined with palisading large cells, columnar or cuboidal.

5. Warthin-Finkeldey giant cells are found in the lymphoid tissues in measles.

6. Actinomyces sp. are frequently found in tonsillar specimens. These are considered saprophytes with little clinical significance.

7. Chordoma (neuroectodermal cell origin) has physaliferous cells. Chordoma is not radiosensitive.

8. Granular cell myoblastoma can give rise to pseudoepitheliomatous hyperplasia in the larynx. Three percent of granular cell myoblastoma progress to malignancy. In order of

decreasing frequency of involvement: tongue, skin, breast, subcutaneous tissues, respiratory tract.

9. Inverted papilloma (schneiderian papilloma, transitional cell papilloma, Ewing's papilloma, or cylindrical cell papilloma): The cells are rich in glycogen. Thirteen percent of nasal inverted papilloma progress to malignancy; even the histologically benign category is locally invasive. It usually arises from the lateralnasal wall rather than from the septum. The treatment of choice is wide excision through a lateral rhinotomy approach.

10. Mixed tumor is the most common parotid tumor in the general population, next is the mucoepidermoid tumor. Seventy-five percent of mucoepidermoid tumors are clinically benign. In children, hemangioma or lymphangioma is most common followed by benign mixed, then mucoepidermoid.

11. Rhinoscleroma has Mikulicz's cells and Russel fuchsinophile bodies. It also can give rise to pseudoepitheliomatous hyperplasia of the larynx. The treatment of choice is presently sulfonamides and antibiotics (streptomycin, ampicillin, or tetracycline). The causative agent is Klebsiella rhinoscleromatis (von Frisch's bacillus). The primary site is the anterior nares. There are three stages in this disease: first, atrophic; second: nodular, and third: stenotic. Symptoms include foul, purulent rhinorrhea.

12. The Reed-Sternberg cell is found in Hodgkin's disease but not in lymphosarcoma or reticulum cell sarcoma.

13. Tympanosclerosis is a hyaline-fibrosclerotic lesion due to a nonspecific degenerative inflammatory process.

14. Children with idiopathic respiratory distress syndrome (hyaline membrane disease) lack a surface active material called surfactant. The major component of surfactant is alpha-lecithin.

15. I. Causes of Abnormal Serum Calcium Levels

A. Hypocalcemia

1. Hypoparathyroidism.

2. Malabsorption syndrome.

3. Renal failure.

4. Acute pancreatitis.

5. Hypoproteinemia.

6. Pseudohypoparathyroidism.

7. Iatrogenic: secondary to removal of parathyroid glands during thyroid or head and

neck cancer surgery.

B. Hypercalcemia.

1. Milk-alkali syndrome.

2. Vitamin D intoxication.

3. Sarcoidosis.

4. Multiple myeloma.

5. Primary hyperparathyroidism.

6. Secondary hyperparathyroidism for chronic renal failure.

7. Metastatic disease invading bone (i.e. breast cancer).

8. Pseudohyperparathyroidism: due to the reduction of parathormonelike proteins by head and neck or lung cancers.

II. Symptoms, Signs, and Treatment of Hypocalcemia

A. Hypocalcemia is a potential complication of neck surgery (most often the condition is transient and the symptoms are not severe).

B. Signs and Symptoms

1. Tetany, carpopedal spasms, Chvostek's sign, Trousseau's sign.

2. Seizures.

3. Confusion.

4. Prolonged QT interval on ECG.

C. Acute management

1. 20-30 mL of 10% calcium gluconate IV over 10-15 minutes.

2. Titrate to an appropriate serum calcium level - an IV drip of 10% calcium gluconate.

3. Vitamin D 100,000-200,000 units/day for severe hypocalcemia. Reduce dosage after 4 days since the drug accumulates in the body.

D. Chronic management.

1. 1800-2400 mg of elemental calcium per day (calcium gluconate is only 10% elemental calcium by weight; calcium lactate 13% free calcium).

2. Vitamin D 50,000 four times a day.

III. Calcitonin.

A. Produced by the C cells of the thyroid.

B. Actions.

1. Inhibits osteoclastic function (decreases bone resorption).

2. Stimulates osteoblastic function.

3. Promotes angiogenesis.

IV. Increased alkaline phosphatase activity implies:

1. Osteoblastic activity.

2. Liver disease.

3. Paget's disease.

4. Fracture.

5. Osteosarcomas.

6. Carcinoma of the prostate.

7. Metabolic bone diseases.

8. Metastatic bone disease.

9. Pregnancy.

16. Thyroid adenoma may present as a calcified mass in the neck. Papillary carcinoma of the thyroid may have "psammoma bodies". Medullary carcinoma of the thyroid gland has amyloid deposits and is thyrocalcitonin producing.

17. Fibrous dysplasia

A. Etiology unknown.

B. Two presentations:

1. Monostotic.

a. More common than the polyostotoc form.

b. Usually involves either the frontal or sphenoid bones.

2. Polyostotic.

a. Female preponderance.

b. Sexual precoccity.

c. Skin lesions.

C. Presents during childhood and arrests when growth is complete.

D. Common findings:

1. Ptosis.

2. Exophthalmos.

3. Decrease of visual acuity.

4. Cosmetic deformities.

5. Hearing loss.

E. Bony involvement:

1. Sphenoid and frontal bones, 50%.

2. Optic canals, 20%.

3. Cranial and temporal bone involvement have been reported.

F. Alkaline phosphatase elevated.

G. Treatment:

1. Curettage.

2. Partial resection.

3. Optic nerve decompression.

18. Biochemical byproducts of metabolic disorders.

a. Mucopolysaccharide content is increased in exophthalmic tissues as well as in hypothyroidism.

b. Chondroitin sulfate is found in urine in Hurler's syndrome.

c. The cells of inverted papilloma have an increased glycogen content.

d. Hypothyroid cells also have an increased hyaluronic acid content.

e. The patients with oculopharyngeal syndrome have an increased cellular content of creatinine phosphokinase.

f. Rhabdomyosarcoma cells have increased glycogen content.

g. Relapsing polychondritis patients have an increased urinary content of mucopolysaccharide.

h. Trypsin is found in the stool of patients with mucoviscidosis.

19. Noma (gangrenous stomatitis): Usually starts at the mucous membrane of the corner of the mouth or cheek and spreads to involve the entire lip or cheek. The microorganisms found are: Borrelia sp., staphylococci, and anaerobic streptococci.

20. The most common benign tumor of the tonsil is squamous papilloma. Some investigators think this is precancerous.

21. Pemphigus: This is an uncommon disease characterized by bullae and erosions of skin, mucous membrane, acantholysis, chemical alterations in blood, and a high mortality. The etiology is unknown. This disease affects all races but with a higher incidence in the Jewish population. The age of onset is between 40-60 years old. There are intercellular attachments. Nikolski's sign is present - firm pressure on top of an intact blister results in extension at the edges.

Pemphigoid: This is a chronic bullous disease of unknown etiology. The bullar are smaller, more tense, and rupture less easily. Involvement of the mouth is less severe and less frequent than Pemphigus. The mortality is considerably lower. The bullae are subepidermal and acantholysis is absent.

22. Cherubism presents with painless, symmetric swelling of the posterior mandible and rami. Radiologically, it shows well-defined multilocular radiolucencies sometimes containing displaced teeth. There is a familial tendency. Pathologically, giant cell reparative granuloma with hemosiderin deposits are noted. There is no bone formation and no evidence of fibrous dysplasia. It is a self-limiting disease which ceases as the child reached puberty. Regression of the lesions and reshaping of the bone may leave minimal disfigurement.

23. Mikulicz's disease (see Chap. 17): There is an increased incidence of lymphoma and macroglobulinemia among these patients.

24. The most common submaxillary gland malignancy is "adenocystic carcinoma".

25. Hereditary lipoid proteinosis most commonly affects the larynx; next (in order of decreasing frequencies) are mastoid, tongue, thyroid, and nose.

26. The normal sweat chloride is less than 50 mEq/L, the normal zinc level is 90 mg%.

27. The lymphatic drainage of the palate is toward the retropharyngeal nodes, subdigastric nodes, and subparotid nodes.

28. Halisteresis: osteomalacia.

29. Ptyalism: excessive salivation.

30. Swallowing:

a. Five times per minute in the awake adult.

b. Once per minute in the sleeping adult.

c. Five times per minute in the sleeping infant.

31. Lead poisoning is characterized by abrupt onset of colic, constipation or diarrhea, anorexia, weakness, paralysis, coma, and convulsions. The erythrocytes show basophilic stippling. The lead level is usually greater than 0.08 mg/100 g of whole blood. The urinary level is 0.15 mg/L. There is increased delta-aminolevulinic acid and coproporphyrin III in the urine. Glycosuria is also present. Radiologically, there are linear opacifications parallel to the growing bone or circling the ossification centers.

Treatment requires removing the patient from further exposure to lead, increasing urinary output, and administering chelating agents (BAL with calcium disodium versenate).

32. Localized compact osteoma is most common in the frontal sinus. Localized cancellous osteoma is more frequently found in the maxillary and ethmoid sinuses. Fibrous dysplasia is most commonly found in the maxillary sinus.

33. Hyperostosis frontalis interna is a form of localized dysplasia limited to the inner table of the frontal bone and occurring mainly in elderly females. Headache may be associated with it. Obesity, dizziness, psychologic disturbances, and inverted sleep rhythm may be seen. The constellation of these findings is known as Morgagni-Stewart-Morel syndrome.

34. Hyperostosis with thickening of the bony walls of the skull is due to:

a. Chronic osteomyelitis.

b. Meningioma.

c. Osteoblastic metastasis.

d. Fibrous dysplasia.

e. Paget's disease.

f. Infantile cortical hyperostosis.

g. Albers-Schönberg disease (osteopetrosis).

35. Idiopathic histiocytosis (histiocytosis X group of diseases)

A. Proliferations of mature histiocytes.

B. Etiology unknown.

C. Three presentations:

1. Letterer-Siwe disease (prognosis = poor).

2. Hand-Schüller-Christian disease (30% mortality).

3. Unifocal eosinophilic granuloma (good prognosis).

D. Letterer-Siwe disease (acute disseminated histiocytosis, acute differential histiocytosis, nonlipid reticuloendotheliosis).

1. Acute, rapidly fatal illness.

2. Involve infants or young children.

3. Exfoliative dermatitis.

4. Hepatosplenomegaly.

5. Lymphadenopathy.

6. Anemia and thrombocytopenia.

7. Involvement of medullary cavities of bone, mucoa of the colon, and lung interstitium.

8. Rx: chemotherapy (steroids, alkylating agents, Vinca alkaloids, cytotoxic antibiotics.

E. Hand-Schüller-Christian disease (multifocal eosinophilic granuloma, chronic disseminated histiocytosis).

1. Chronic disorder with subacute presentation.

2. Usually affects young children but may be seen in adults.

3. Lytic lesions of the skull.

4. Acute mastoiditis, 2% with facial nerve weakness.

5. Intractable otitis media and all related complications.

6. External auditory canal polyp.

7. Proptosis.

8. Pituitary insufficiency (diabetes insipidus).

9. Mandible involvement with loss of teeth.

10. Lymphadenopathy.

11. Hepatosplenomegaly.

12. Ten percent with triad of DI, exophthalmos, and skull lesions.

13. Px: poor with involvement of heart, lung, brain, or pituitary.

14. Rx: as above.

F. Unifocal eosinophilic granuloma.

1. Benign disease.

2. Children and young adults may be involved.

3. Lytic lesions of the skull particularly of the temporal bone.

4. Tympanic membrane perforation.

5. Granulation tissue in the middle ear.

6. Acute mastoiditis.

7. Seventh nerve paralysis possible.

8. Proptosis.

9. Rx: curettage (steroid and radiation therapy may be considered).

36. Muclormycosis (see Chap. 14): It is caused by rhinocerebral phycomycosis.

37. Paralysis of the recurrent laryngeal nerve and the superior laryngeal nerve will cause a vocal cord to be in a cadaveric position. Paralysis of the recurrent laryngeal nerve alone will give rise to vocal cord in a paramedian position.

Ephemeral adductor paralysis is the same as mogiphonia which is stage fright aphonia. For more complete discussion of paralysis of the recurrent laryngeal nerve, see Chap. 15).

38. The carotid body is more sensitive to changes in oxygen tension than to changes in carbon dioxide tension, while the respiratory center is more sensitive to carbon dioxide changes than to oxygen changes. Hypoxemia is defined as PO_2 below 40 mm Hg.

39. The least common type of tracheoesophageal fistula and atresia of the esophagus is one in which the upper end of the esophagus forms a fistula with the trachea while the lower end of the esophagus is not connected to the upper end of the esophagus nor to the trachea, it is a blind pouch. For more discussion of tracheoesophageal fistulae, see Chap. 16.

40. The cricoid is the most common origin of a cartilaginous tumor of the larynx.

41. Sodium uriate crystals are found in gout.

42. False-positive serology may occur in:

a. Malaria.

b. Leprosy.

c. Lupus.

d. Collagen disease in general.

e. Rheumatoid arthritis.

f. Measles.

g. Smallpox.

h. Hepatitis.

i. Infectious mononucleosis.

False-positive heterophile test may occur in:

a. Serum sickness.

b. Rheumatoid arthritis.

c. Hodgkin's disease.

d. Brucellosis.

e. Hepatitis.

43. Actinomycosis is treated with penicillin and tetracycline. Blastomycosis is treated with stilbamidine.

44. Olfactory neuroepithelioma is a malignant tumor of the olfactory mucous membrane; peak age is 11-20 years old. Treatment is primary surgical excision and radiation for residual tumor.

45. Acanthosis nigricans is an uncommon dermatosis characterized by hyperpigmentation and epidermal hypertrophy. The malignant form is associated with an internal cancer primarily adenocarcinoma. The benign juvenile form may be associated with metabolic disorders. Involvement is usually bilateral and symmetric and exhibits a propensity for flexural and intertriginous areas.

46. The eight nerve is covered with astrocytes and glial cells up to the entrance of the internal acoustic canal. Within the canal, this nerve is covered with Schwann's cells. Acoustic neurinoma arises from Schwann's cells and therefore theoretically acoustic neurinoma arises from within the internal auditory canal.

47. To be carcinocidal, the temperature for cryosyrgery needs to be at least -160°C to -180°C.

48. Desmoid tumors are most commonly found in the abdominal wall and extremities. They are locally destructive and the treatment of choice is wide excision. Recurrence rates varies from 40-70%.

49. The triad of coughing, choking, and cuyanosis during feeding implies that the child has a tracheoesophageal fistula.

50. Causes for caseating necrosis include:

a. Tularemia.

b. Brucellosis (20% of patients with brucellosis present with hearing loss as well).

c. Tuberculosis or atypical tuberculosis.

d. Fungus.

51. Rhinosporosis is caused by Rhinosporidium seeberi, also called R. kinealyi.

53. Atrophic rhinitis:

A. Etiology unknown.

B. Female preponderance.

C. Associated bacteria:

1. Klebsiella ozaenae.

2. Corynebacterium diphtheriae.

3. Perez-Heter bacillus.

D. Histologic findings:

1. Squamous metaplasia.

2. Inflammatory infiltrates.

3. Scarcity of goblet cells.

4. Destruction of cilia.

E. Symptoms:

1. Nasal obstruction.

2. Epistaxis.

3. Anosmia.

4. Headaches.

F. Signs:

1. Offensive nasal odor.

2. Green crust.

3. Atrophy of turbinates.

G. Treatment:

1. Medical:

a. Saline irrigations.

b. Systemic antibiotics.

2. Surgical:

a. Endonasal microplasty: voume reduction of the nasal vault by submucosal implants.

b. Young's operation: temporary closure of the nostrils.

53. Causes of anosmia:

a. Fractures of the cribriform plate.

b. Tumors of the frontal lobe or meninges.

c. Viral infections.

d. Nasal obstruction.

e. Drug toxicity.

f. Congenital defects of the nose.

54. Etiology of nasal septal perforations:

a. Trauma.

b. Surgery.

c. Atrophic rhinitis.

d. Syphilis.

e. Tuberculosis.

f. Wegener's granulomatosis.

g. Midline granuloma.

h. Heavy metal poisoning.

i. Lupus.

j. Tumors.

55. A calcified stylohyoid ligament occurs in 4% of the population.

56. Certain viruses have been incriminated as causing certain diseases:

RNA viruses

a. Picornavirus (enterovirus and rhinovirus).

b. Reovirus.

c. Arbovirus (encephalitis, yellow fever, dengue fever).

d. Myxovirus (measles, mumps, flu, croup).

DNA viruses

a. Papovavirus (papilloma of nose, pharynx, and larynx).

b. Adenovirus (URI).

c. Herpes (zoster, simplex, cytomegalovirus).

d. Poxvirus.

57. Most acquired choanal atresias are believed to be a result of tonsillectomy and adenoidectomy.

58. Keratotic papilloma is a wart.

59. Leukoplakia displays:

a. Parakeratosis.

b. Hyperkeratosis.

c. Dyskeratosis.

d. No pleomorphism.

e. No anaplasia.

f. No desmoplasia.

60. Definition:

Metaplasia: Change from one cell type to another.

Anaplasia: Reverting to more primitive cell type.

Desmoplasia: Connective tissue reaction to tumor.

Keratoacanthosis: Large acanthoma.

Pleomorphic: Occurrence in more than one form, existence in more than one morphologic type of cells.

Acanthosis: Increased thickness of prickle cell layer.

Parakeratosis: The nuclei migrated to the surface.

Dyskeratosis: The normal maturation sequence is disrupted and hence keratin is displaced in the wrong layer, i.e. in the prickle cell layer.

Hyperkeratosis: Increased keratin layer, i.e. this is found in pachydermal laryngitis.

61. Airway lengthening techniques:

a. Simple mobilization by blunt dissection of larynx and trachea - 3 cm.

b. Incision of the anular ligaments on one side of the trachea proximal to the anastomosis and on the opposite side distally - 1.5 cm.

c. Laryngeal release:

1. Two methods:

1. Release of the infrahyoid muscles (often accompanied by dysphagia).

2. Release of the suprahyoid muscles (dysphagia is infrequent) - 5 cm.

62. Brucellosis can be caused by Brucelle melitensis or B. abortus. It usually is transmitted by milk or by animals. The prognosis is good. Twenty percent of patients have sensorineural hearing loss.

63. Nevus:

a. Intra-epithelial = benign.

b. Junctional = premalignant.

c. Intradermal = benign.

d. Blue nevus = benign.

e. Mixed nevus = benign.

64. Congenital esophageal stenosis is most common at the junction between the middle and distal one-third of the esophagus. It is best treated with dilatation.

65. Tube feeding syndrome: Tube feeding syndrome usually results from too high a protein intake as well as too high a caloric intake. This results in excess osmotic load. This usually is accompanied by too little water intake. Consequently, dehydration ensues leading to hypernatremia, hyperchloremia, and azotemia. This is further compounded by a negative nitrogen balance in these patients. In response to this stress, the kidney compensates by excreting concentrated urine to preserve water. Since little water is excreted, sodium and chloride also are retained causing further hypernatremia and hyperchloremia. In the presence of a high protein intake without adequate caloric intake, there is an increase in urea production leading to solid diuresis and dehydration. Diarrhea occasionally is noted with this syndrome. This pathophysiologic state will lead to mental deterioration, fever, tachycardia, neuromuscular irritability, and hyperreflexia. This most common complication from this syndrome is pneumonia, finally resulting in coma and death. The treatment is to rapidly decrease the protein and solute load and to increase fluid intake intravenously. The patient should be followed closely, along with daily electrolyte assay. Overaggressive treatment can lead to water intoxication.

6. Adequate urinary volume includes:

a. 10 drops/min.

b. 30 mL/hr.

c. 700 mL/day.

67. During an emergency in which an air embolism is suspected, the patient should be placed with the left side down.

68. Acidosis and vomiting can result from starvation after tonsillectomy in children. Treatment of this would be to encourage the intake of "sweets".

69. The symptoms of cardiac tamponade are:

a. Low cardiac output.

b. Muffled heart sounds.

c. Increased central venous pressure.

d. Decreased amplitude on ECG.

e. Definitive diagnosis made by pericardiocentesis.

70. Cerebral spinal fluid otorrhea.

a. Six percent of basilar skull fractures.

b. Ninety percent close spontaneously.

c. CSF leaks from the middle fossa close rapidly because the rich arachnoid mesh in that area promotes fibrosis and healing.

d. CSF leaks from the posterior fossa close more slowly since this area is relatively sparse in arachnoid tissue.

71. Indications to repair a CSF leak:

a. CSF leak that persists for longer than 2 weeks.

b. Recurrent meningitis.

c. Brain or meningeal herniation.

d. Penetration of brain by a bony spicule.

72. The complications of cholesteatoma in decreasing order of frequency are:

a. Fistula.

b. Extradural or perisinus abscess.

c. Serous or suppurative labyrinthitis.

d. Facial paralysis.

e. Meningitis.

f. Brain abscess.

g. Sigmoid thrombophlebitis.

h. Subperiosteal abscess.

73. Spread of cholesteatoma.

1. Cystic expansion.

2. Epithelial migration.

B. Cystic expansion.

1. Determined by:

a. Space available.

b. Negative pressure.

c. Internal desquamation.

2. Spread to available space:

a. Mesotympanic keratoma.

1) Originates from marginal or central perforations.

2) Passes underneath the lateral incudal fold.

3) Usually involves the posterior tympanum (i.e. facial recess, sinus tympani).

4) May enter the epitympanum by passing medial to the body of the incus.

5) Once in the epitympanum spread continues posteromedially to the aditus between superior mallear fold and the superior incudal fold.

b. Epitympanic keratoma:

1) Originates in the epitympanum from the pars flaccida.

2) Enters Prussak's space.

3) Three routes of egress from Prussak's space:

a) Posterior route:

(1) Most common route of spread.

(2) Ketaoma spread lateral to the body of the incus through a dehiscence between the lateral mallear fold and the lateral incudal fold and around the superior incudal fold and into the aditus.

b) Inferior route:

(1) Keratoma progresses via a dehiscence between the lateral and posterior mallear folds into the posterior pouch of von Troltsch (a space between the pars tensa and the posterior mallear fold) and into the mesotympanum.

c) Anterior route:

(1) Keratoma passes anterior to the neck of the malleus via a dehiscence in the anterior mallear fold into the anterior pouch of von Troltsch and into the protympanum.

3. Spread by negative pressure:

a. Negative pressure done to eustachian tube dysfunction is usually between -100 and -400 mm H_2O but may occasionally reach -600 mm H_2O.

4. Spread by internal desquamation:

a. Keratoma arises from trapped squamous debris.

b. Often there is no evidence of infection.

C. Epithelial migration.

1. Migration through a perforation or an ulcer of an existing keratoma.

2. Epithelium follows the path of least resistance.

3. Keratoma invades vascular spaces within the ossicles.

74. Keratitis obturans vs. external canal cholesteatoma.

A. Keratitis obturans.

1. Otalgia.

2. Hearing loss.

3. Otorrhea is rare.

4. Often bilateral.

5. Erosion of the external canal.

6. Associated with bronchiectasis.

7. Usually young patients.

8. Rx: debridement.

B. External canal cholesteatoma:

1. No hearing loss.

2. Otorrhea is common.

3. Usually older patients.

4. Rx: Medical/surgical (modified radical mastoidectomy if mastoid is involved).

75. Hearing loss and head injuries:

a. Incidence of hearing loss with all head injuries, 33%.

b. Incidence of hearing loss in closed head injuries complicated by unconsciousness, 50%.

c. Of all the hearing losses, 30-80% will be sensorineural.

d. Of the hearing losses 15% will be conductive.

76. Seventh nerve paralysis due to head trauma:

a. Of all head trauma 0.7%.

b. In transverse temporal bone fractures 30-50%.

c. In longitudinal temporal boen fractures 10-20%.

77. Indications for myringotomy with acute otitis media (AOM):

a. Severe pain.

b. Patient with a complication of AOM (i.e. meningitis, brain abscess, etc).

c. Neonatal OM.

d. AOM not responsive to routine antibiotics.

78. Resonance frequencies of the ear:

Concha	5000-6000 Hz
EAC	3700 Hz
EAC and concha	2500-3000 Hz
ME	3000-5000 Hx
Modified radical mastoidectomy	2000-2500 Hz.

79. Auditory brainstem responses:

A. Wave	I	Eight nerve.
	II	Cochlear nucleus.
	III	Superior olivary nucleus.

IV	Lateral lemniscus.
V	Inferior colliculus.
VI	Medial geniculate.
VII	Auditory radiation.

B. Neonate:

1. Exhibit just three waves (I, III, V).

2. Have a normal increase in wave V latency until 1 year of age.

80. The fenestration operation restores hearing but lacks the transformer and lever mechanisms, thus leaves an unrestored conductive hearing loss of about 35 dB. Failure from the fenestration operation occurs within 2 years. If the hearing results are sustained for 2 years, it is most likely that it will be sustained forever. The osseous closure of the fenestration is rare if enchondralization as well as irrigation to remove the bone dust is done during the operation.

81. a. Mucopolysaccharide content is increased in exophthalmic tissues as well as in hypothyroidism.

b. Chondroitin sulfate is found in urine in Hurler's syndrome.

c. The cells of inverted papilloma have an increased glycogen content.

d. Hypothyroid cells also have an increased hyaluronic acid content.

e. The patients with oculopharyngeal syndrome have an increased cellular content of creatinine phosphokinase.

f. Rhabdomyosarcoma cells have increased glycogen content.

g. Relapsing polychondritis patients have an increased urinary content of mucopolysaccharide.

h. Trypsin is found in the stool of patients with mucoviscidosis.

82. Carcinoma of the tongue: Ninety-five percent of malignancies of the tongue are epidermoid. Malignant lesions of the oral tongue are three times as common as those of the pharyngeal tongue.

Among lesions of the oral tongue, the posterolateral border is the most frequent site. The middle one-third of the tongue is more frequently involved with malignancies than the anterior one-third.

83. Rates of lymph node metastasis in head and neck cancer:

A. Laryngeal cancer.

1. Glottic carcinoma:

a. Midmobile VC, 2%.

b. Anterior commissure with 5 mm of subglottic extension, 5-15%.

c. Fixed VC, 7%.

d. Delphian node, 5%.

2. Supraglottic carcinoma:

a. Epiglottis, 22-31% (14-16% occult).

b. Epiglottic and false cord, 55% (30% occult).

c. Supraglottis and true vocal cord, 53% (33%).

3. Subglottic carcinoma.

a. Primary subglottic cancer, 23%.

b. Glottic cancer with 5 mm subglottic extension, 23%.

4. Transglottic carcinoma:

a. In general 30-50% (20% occult).

b. Epiglottis and FVC and TVC, 50% (50% occult).

5. Hypopharynx carcinoma:

a. In general 66% (50% occult).

b. Aryepiglottic fold, 40% (33% occult).

6. Bilateral metastasis:

a. Usually seen in supraglottic or base of tongue tumors.

b. Supraglottic carcinoma, 5%.

c. Vallecula, 11%.

d. If an ipsilateral node is positive there is a 33% chance that a contralateral node will be positive.

B. Lip cancer:

1. T2, 52%.

2. T3, 73%.

C. Floor of the mouth carcinoma:

1. T2, 65%.

2. T3, 71%.

3. Occult nodes, 15%.

D. Buccal carcinoma:

1. Cervical metastasis, 50%.

E. Tongue carcinoma:

1. Anterior tongue:

a. T2, 43%.

2. T3, 72%.

c. Occult node, 65%.

2. Posterior tongue: 78%.

a. Occult node, 19%.

F. Retromolar trigone:

1. Cervical metastasis, 60%.

2. Contralateral nodes, 23%.

84. Carcinoma of the lip:

a. Basal cell carcinoma.

1) Usually involves the upper lip.

b. Squamous cell carcinoma:

1) Usually involves the lower lip.

2) Upper lip lesions metastasize early.

3) Lower lip lesions metastasize infrequently (6-8% of cases).

85. Cartilaginous tumors of the larynx:

a. Chondromas and chondrosarcomas.

b. Generally males in their fourth through sixth decades are afflicted.

c. Cricoid cartilage most frequently involved.

d. Symptoms secondary to encroachment of the subglottic space.

e. Treatment is surgical:

1) Laryngectomy or hemilaryngectomy.

2) Treat chondromas and chondrosarcomas in a similar fashion.

f. Chondrosarcomas primarily metastasize by local invasion, but have been noted on rare occasion to metastasize to lung.

86. Extramedullary plasmacytoma:

a. Most appear in the head and neck (usually in the nasopharynx).

b. Usually involves middle-aged males.

c. Locally aggressive.

d. May evolve to myeloma.

87. Inverted papilloma:

a. Polypoid neoplasm of the lateral nasal wall (involvement of the nasal septum is rare).

b. Histologically benign but clinically invades adjacent structures.

c. Squamous carcinoma coexists in 13% of patients.

d. Actual degeneration to frank malignancy seen in only 2% of cases.

e. Male preponderance.

f. Treatment by wide surgical excision through a lateral rhinotomy approach.

g. High incidence of recurrence with inadequate surgery (25-75%).

88. Cervical metastases from the occult primary tumor:

a. Represent 4.7% of cases.

b. Squamous carcinoma is the predominant histological type.

c. Up to 90% of the primary lesions can be found by repeated examination and random biopsies or at autopsy (10% will never be found).

d. Usual site of primary tumor in determinant cases (in decreasing order of frequency):

1) Oronasopharynx (nasopharynx, base of tongue, and tonsil).

2) Larynx and hypopharynx.

3) Lung.

4) GI tract.

5) Thyroid gland.

e. Treatment:

1) RND alone, radiation therapy alone, or combined therapy.

f. Prognosis:

1) Five-year survival 30% regardless of type of treatment.

2) Prognosis is worsened if primary tumor is found.

89. Rhabdomyosarcoma of the head and neck:

a. Most common head and neck soft tissue malignancy in children.

b. Site of involvement (in decreasing order of frequency):

1) Orbit, 33%.

2) Neck.

3) Face.

4) Ear and mastoid, 7-10% each.

5) Tongue.

6) Palate.

7) Larynx: rare.

c. Attacks children in the first decade of life.

d. Grows rapidly.

e. Orbital tumors are locally aggressive but rarely metastasize; in contrast, other head and neck rhabdomyosarcomas metastasize more readily to lung, bone, brain, and other viscera by hematogenous routes.

f. Treatment includes surgery, radiation therapy, and chemotherapy.

g. Recent 3-year survivals are up to 80%.

90. Neurogenic tumors:

a. Two histologic patterns:

1) Antoni type A: A palisading pattern of nuclei above a central mass of cytoplasm (Verocay body) - picket fence appearance.

2) Antoni type B: Diffuse arrangement of nuclei and cytoplasm with no discenible pattern.

b. Both types are frequently seen within a single specimen.

c. The VIII nevre is covered with astrocytes and glial cells up to the entrance of the internal acoustic canal. Within the canal the VIII nerve is covered with Schwann's cells. Acoustic neurinoma arise from Schwann's cells and therefore, theoretically, acoustic neurinoma arises from within the internal auditory canal.

91. Paragangliomas (glomus tumors):

a. Site of involvement (in order of frequency):

1) Carotid body.

2) Jugulotympanic.

3) Intravagal.

4) Laryngeal.

5) Nasal.

6) Nasopharyngeal.

7) Orbital.

b. Multicentric in 10% of cases.

1) Associated with other malignancies in 8% of cases.

c. Familial tendency.

d. Incidence of metastasis is 2-6%.

e. Workup includes carotid and vertebral angiography and jugular venography.

f. Treatment: Surgical excision; radiation therapy may paliate nonoperative candidates.

g. Morbidity and mortality is most related to tumor size and location.

Order of morbidity:

1) Jugulare.

2) Tympanum.

3) Vagale.

4) Carotid body.

92. Craniopharyngioma.

a. Arise from a squamous cell nest in the region of the anterior pituitary gland (the embryonic Rathke's pouch area).

b. Clinical presentation:

1) Headaches.

2) Visual loss (bitemporal hemianopsia).

3) Optic atrophy.

4) Hypopituitarism.

5) Enlargement of the sella turcica.

6) Parasellar calcifications.

c. Differential diagnosis:

1) Optic glioma.

2) Pituitary tumors.

d. Treatment is controversial.

1) Total surgical excision.

2) Surgical debulking followed by 550-6500 rad.

93. Esthesioneuroblastoma.

a. Neurogenic tumor of the olfactory region.

b. Derived from olfactory epithelium.

c. Slow growing.

d. Local invasion and distant metastases possible.

e. Usually found in males during their second decade although all ages may be affected.

f. Sx:

1) Unilateral nasal obstruction.

2) Epistaxis.

3) Headache.

4) Rhinorrhea.

g. Px:

1) Surgery or radiation therapy alone: 45% 5-year survival.

2) Combined therapy: 67% 5-year survival.

94. Osteoma:

a. Benign slow-growing osteogenic tumor.

b. Usually found on the bones of the face or skull.

c. Common areas of growth (in decreasing order of frequency):

1) Mandible (usually in lingual surface of the ramus).

2) Frontal sinus.

3) Ethmoid sinus.

4) Maxillary sinus.

5) Sphenoid sinus.

d. Generally present as a painless mass.

e. May on occasion cause pain or invade the cranium.

f. Treatment:

1) Surgical excision.

g. Must consider Gardner's syndrome in the evaluation of the patient.

1) Autosomal dominant disease.

2) Patients present with osteomas, soft tissue tumors, and intestinal polyps.

3) Intestinal polyps may undergo malignant degeneration in 40% of patients with gastrointestinal symptoms.

95. Teratoma:

a. Tumors of embryonic origin.

b. Usually arise from basisphenoid near the midline.

c. Three types:

1) Dermoid.

2) True teratoma.

3) Epignathia.

d. Dermoid.

1) Polypoid masses with skin containing appendages ("hairy polyp").

2) Ectodermal and mesodermal components.

e. True teratomas.

1) All three germ layers represented.

2) Skull deformities are common.

3) Possible malignant degeneration.

f. Epignathus.

1) Well-differentiated "parasitic fetus" protruding from the mouth.

2) Patient usually dies.

g. Sx:

1) Respiratory distress.

2) Dysphagia.

3) Copious mucoid secretions.

96. Nasopharyngeal carcinoma: Because of its location, quite frequently presents first with a neck mass. Another common symptom is "blocked" ear secondary to serous otitis media.

97. The site of the "unknown" primary for a metastatic node in order of decreasing frequency is: nasopharynx, base of tongue, pyriform sinus.

98. The toluidine blue test: It stains mitotic lesions, mucin, food particles, and exudates a royal blue. It does not reveal submucosal extensions. Technique:

a. Rinse the mouth well.

b. Paint with 2% aqueous solution of toluidine blue.

c. Wait 30 seconds.

d. Rinse with warm water or 1% acetic acid to remove excess dye.

e. The positive areas are stained a royal blue.

99. Calcium gluconate = 9% free calcium (dosage: 12-15 g/day).

Calcium chloride = 27% free calcium (dosage: 6-8 g/day) (irritating to the stomach).

Calcium lactate = 13% free calcium (dosage: 10-12 g/day).

100. Fifty percent of myxedemic patients have reversible sensorineural hearing loss.

101. Amyloidosis gives a positive (metachromatic) crystal violet stain, and green birefringence with congo red stain.

102. Adenocystic carcinoma consitutes 6% of all salivary gland tumors.

103. A 99mTc scan will reveal Warthin3S tumor or oncocytoma as a "hot" nodule.

104. Papilloma of the oral cavity is most frequently seen in the faucial region. Some physicians consider them premalignant.

105. The incidence of carcinoma of the esophagus is increased in patients with:

a. Achalasia.

b. Oculopharyngeal syndrome.

c. Caustic burns.

d. Plummer-Vinson syndrome.

e. Pernicious anemia.

106. Herpangina: Etiology: Coxsackie A, characterized by minute vesicles in the anterior pillars of the fauces.

107. In achalasia, aspiration pneumonitis is a frequent complication. Prior to esophagoscopy, it is wise to first pass a nasogastric tube to remove the retained esophageal contents.

108. Leiomyoma is the most common benign tumor of the esophagus.

109. Scleroderma: This is a disease of unknown etiology perhaps secondary to some immune mechanism related to the connective tissues. The most common sites within the gastrointestinal tract are the esophagus and small bowel. The upper esophagus is not usually involved. This disease is more prevalent in females than in males. Physiologic abnormalities include decreased motility of the esophagus and esophagitis. Pathologically the mucosa and the submucosa are involved; however, the longitudinal muscles seldom are involved. A typical barium swallow will reveal a flaccid, dilated esophagus which is similar to that of achalasia. Dysphagia in 39%; decreased mouth opening in 28%; sicca syndrome in 80%.

Dermatomyositis: This is a nonsuppurative, nonhemorrhagic type of polymyositis in which cutaneous and muscle changes are noted. In the muscle, inflammatory reaction followed by granulation tissue invasion and hyaline degeneration is noted. The skin changes are nonspecific. Dysphagia occurs in most of the so-called collagen disorders, but it is encountered most frequently in dermatomyositis (60% of patients with dermatomyositis complain of dysphagia). Unlike scleroderma, there is no esophagitis in dermatomyositis.

Decreased esophageal motility is present in both disorders.

	Dermatomyositis	Scleroderma
Dysphagia	Pharyngeal	Sternal
Nasal regurgitation	Frequent	Absent
Stage of disease	Severe muscle disease	Widespread surface
Remissions	With steroids	None
Complications	Rare	Esophagitis, herniation
Findings at esophagoscopy	Normal	Esophageal ulceration
X-ray	Loss of peristalsis	Loss of peristalsis
Motility	Decreased	Decreased
Site of maximum involvement in the esophagus	Upper one-third	Lower two-thirds.

110. Cancer of the respiratory system (listed in decreasing order of frequency):

a. Lung.

b. Larynx.

c. Oral cavity.

d. Pharynx.

e. Tongue.

f. Lip.

111. Chylous leak.

a. < 150 mL/day: apply pressure dressing.

b. > 150 mL/day: explore neck and ligate duct.

112. Esophagus.

A. Tumors.

1. The incidence of carcinoma of the esophagus is increased in patients with:

a. Achalasia.

b. Oculopharyngeal syndrome.

c. Caustic burns.

d. Plummer-Vinson syndrome.

e. Pernicious anaemia.

2. Leiomyoma of the esophagus:

a. Most common benign tumor of the esophagus.

b. Involves the thoracic esophagus.

c. Causes smooth compression of the esophageal lumen on barium swallow.

B. Physiology.

Esophageal pressures:

a. 5-10 mm Hg: normal resting pressure of lower esophageal sphincter.

b. 40-60 mm Hg: characteristic of achalasia.

c. 10 mm Hg: compatible with scleroderma or gastro-esophageal reflux.

C. Congenital esophageal stenosis:

1. Most commonly occurs betweent the middle and distal one-third of the esophagus.

2. Treatment is by repeated dilatations.

113. The advantages of surgical resection followed by radiation:

a. Without prior irradiation a frozen section, when obtained, is more reliable.

b. Better wound healing.

The disadvantages:

a. An operated field has decreased blood supply and consequently, poor oxygenation. This condition renders the tumor less radiosensitive.

b. Since there is poorer blood supply, the patient is more susceptible to radionecrosis.

The advantages of preoperative radiation:

a. Since an unoperated field is better vascularized, the tumor is more radiosensitive.

b. Preoperative radiation does not convert an inoperable lesion into an operable one. However, it does help to sterilized submucosal inapparent pseudopod involvement, making the planned margin of resection a safer one.

The disadvantages:

a. Unreliable frozen section.

b. Decreased healing potential.

114. The most commonly encountered malignancy in children is malignant lymphoma. A proper workup should include a histologic diagnosis, limits of the primary lesion, chest PA and lateral x-rays, IVP, and bone marrow study. The overal prognosis is about 30%. Lymphoma can be staged as follows:

Stage I: localized.

Stage II: limited to above the diaphragm without systemic symptoms.

Stage III: diffuse disease.

115. Seasonal allergies:

Early spring: trees, pollens.

Late spring: grasses.

Fall: ragweed.

Winter: dust, molds.

116. Cytotoxic allergy testing:

a. Highly sensitive.

b. Employs patient's serum and mixes it with the antigen to be tested.

c. Usually used to test for food allergy.

d. Should be done if skin testing is equivocal.

e. In vitro test, therefore no possibility of anaphylaxis.

f. Reactions are noted even if the antigen has been avoided for a long period.

g. Time consuming.

117. There are two types of asthma:

a. Intrinsic, which usually manifests itself after age 30. It is nonseasonal. It is correlated with infection.

b. Extrinsic, which manifests itself before age 30. It is seasonal.

118. Autocoids.

A. Histamine.

1. Histamine is found in mast cells, platelets, leukocytes, and the parietal cell region of the stomach.

2. It:

a. Contracts smooth muscles.

b. Increases dilatation and permeability of capillaries and venules.

c. Dilates arterioles amd venules via a direct action on the musculature.

d. Contracts larger vessels.

e. Stimulates exocrine glands.

f. Increases gastric secretion.

3. Antihistamine (i.e. Benadryl) is not effective against unreleased histamine.

B. Serotonin:

1. Serotonin is found in platelets, cerebral tissues, and the mucosa of the gastrointestinal tract. It is not found in the mast cells in man.

2. It increases capillary permeability.

3. It contracts smooth muscles.

C. Kinins.

These are active polypeptides in blood during certain hypersensitivity reactions.

1. Kallidin I (bradykinin) is found in plasma and increases capillary permeability, causes smooth muscle contraction and vasodilatation. It is formed by the action of enzymes on plasma globulin.

2. Kallidin II is a decapeptide. It has similar properties to Kallidin I, but is formed by different enzymes. The enzyme may be kallikrein.

D. Prostaglandins:

1. Produced by nearly all body tissues.

2. Thousands of analogs (i.e. PGEs, PGFs, PGGs, PGHs, etc).

3. Actions:

a. Potent vasodilators.

b. Increase cardiac output.

c. Regulate platelet aggregation.

d. PGFs contract bronchial and tracheal muscles while PGEs cause relaxation of these muscles.

e. Promote diuresis.

f. May stimulate or depress the CNS.

g. Cause the release of ACTH, LH, and thyrotropin (may abort early pregnancies).

h. Appear to amplify pain by sensitizing nerve endings.

4. Mechanism of action is by stimulating cAMP or cGMP production.

119. Cystic fibrosis:

a. Hereditary disease of children and young adults.

b. Generalized dysfunction of the exocrine glands.

c. Features:

1) Chronic obstructive pulmonary disease.

2) Pancreatic insufficiency.

3) High sweat electrolyte levels.

4) Cirrhosis of the liver.

5) Nasal polyps.

d. Diagnosis:

1) Sweat chloride values of greater than 60 mEq/L are considered diagnostic.

120. Innominate artery compression syndrome:

a. Stridor.

b. Recurrent bronchopneumonia.

c. Projectile vomiting with fast feeding

121. Inherited coagulopathies: evaluation and treatment.

A. History: A complete medical history should be taken stressing the following points:

a. Prior surgical procedures: If the patient has undergone a prior surgical procedure without significant hemorrhage, this is often the best indication of normal hemostatic function. More attention should be given to prolonged bleeding requiring transfusions following minor procedures.

2. Medications and toxins: One should ascertain whether the patient is taking any medication particularly heparin, warfarin (Coumadin), acetylsalicylic acid, etc, and exposure to toxins at work or at home.

3. Family history of bleeding: This is of particular importance in congenital defects although a small percentage of defects have no positive family history of bleeding.

4. Spontaneous hemorrhage.

5. Prolonged bleeding with minor trauma.

B. Physical examination: A complete physical examination with particular attention to:

1. Purpuras.

2. Hemarthroses.

3. Hepatomegaly.

4. Splenomegaly.

C. Laboratory studies: Table 37-1 is a synopsis of laboratory values usually found in the various coagulation defects.

As a routine for patient undergoing surgical procedures the following tests may be performed. The test f is not used as a screening test.

a. Hemoglobin, hematocrit to rule out anemia from unsuspected bleeding or chronic disease.

b. White blood count with differential to rule out leukemia, infectious diseases, etc.

c. Partial thromboplastin time (PTT) tests for all the coagulation factors except IV, VII, and XII. Normal value is 30-45 seconds (definitely abnormal if over 50 seconds). Consists of adding commercially prepared partial thromboplastin to the patient's plasma in the presence of calcium.

d. Prothrombin time (pro time) tests for Factors II, VII, IX, and X. Consists of adding whole thromboplastin to the patient's plasma in the presence of calcium.

e. Platelet count normal value 100,000/450,000/mm^3 depending on method. Bleeding problems usually do not occur unless the platelet count is below 50,000-60,000/mm^3.

The PTT and the prothrombin time will detect over 90% of the coagulation defects. Combined with the other tests and a careful history and physical examination, defects in hemostasis should be detected with only rare exceptions.

f. Test for specific factors:

A definitive diagnosis for each of the factor deficiencies can be made by assaying for each factor. These tests are particularly helpful when Yable 37-1 fails to give the diagnosis, i.e. fails to differentiate between deficiency in Factor XI and that of XII. Factor assays are extremely specialized and are beyond the scope of this book.

Table 37-1. Laboratory Values in Coagulation Defects

	Platelets	Bleeding time	PTT	Pro Time	Thrombin Time
I	N	I or N	I	I	I
II	N	N	I	I	N
V	N	N	I	I	N
VII	N	N	N	I	N
VIII	N	N	I	N	N
IX	N	N	I	N	N
X	N	N	I	I	N
XI	N	N	I	I	N
XII	N	N	I	N	N
XIII	N	N	N	N	N
Willebrand	N	I	I	N	N

D. Treatment

Whan a deficiency is detected using the preceding screening tests or when there is a strong suggestion of hemostatic abnormalities from the history and/or physical examination, a hematologist should be consulted for the management of the patient. Before any treatment is instituted, blood should be drawn for laboratory studies. In the rare instance when the patient is hemorrhaging due to an unsuspected disorder the following guidelines may be used:

1. Minor bleeding:

a. Tamponade.

b. Ice packs.

c. Topical thrombin.

d. Synthetic vasopressin will transiently increase Factor VIII levels in patients with measurable activity.

2. Major bleeding:

a. All of above if feasible.

b. Concentrates of specific factors if diagnosis is known (i.e. Factor VIII or Factor IX deficiencies).

c. Cryoprecipitates.

d. Fresh-frozen plasma (contains all factors but no platelets).

e. Fresh whole blood (used only when blood volume needs to be restored).

122. A total of 1056 patients, 90% of whom received greater than 1000 R, 25 or more years ago were scanned - 174 scans were abnormal. Sixty carcinomas were found - 35% of cold nodules in this group are malignant (Favus, M. J.: Thyroid disease after irradiation of neck. N Engl J Med 294:1020, 1976).

Hemaniomas: 96% present by 6 months of age. Natural history of capillary type: slow growth --> rapid expansion --> involution --> regression. If rapidly growing, 300 R may be given. Cavernous and port-wine type tend to be more permanent. Port-wine skin has been treated with argon laser.

Cystic hygroma: abnormal growth of jugular lymphatics:

a. Tends to surround vessels and nerves.

b. Do not regress - may enlarge with URI.

c. Recurrence uncommon postexcision.

123. Facial paralysis: be able to present both sides of the issue.

a. May - Surgical Rounds 1979.

In poor prognostic group (low MST, low tears, or low saliva).

	Pts	Good	% Improv	Cx
Total decompression	7	7	100	Dry eye 100%
Vertical/horizontal decompression	39	28	70	
No Rx	20	7	35	
Steroids	31	3	10	

b. Adour Laryngoscope, 1978, p. 787.

241 Bell's palsy (unselected).	All Pts	Total paralysis
No treatment	63%	40%
Prednisone	90%	79%

124. Congenital nasal masses

Dermoid.

a. Contents: sweat glands, hair, skin.

b. Site: midline (may have opening toi skin), 45% go deep to nasal bones. One-third of these to cribriform.

c. Dx: Examination.

d. Rx: External (may require "open sky" if deep to nasal bones).

Glioma.

a. Content: neural tissue.

b. Site: usually off midline. 15% retain fibrous dural attachment.

Dx: Examination.

Rx: Most removable extracranial.

Encephalocele.

a. Contents: Neural tissue with CSF.

b. Site: In or out of nose. Associated with large bony defects.

c. Dx: Positive Furstenburg's sign. Do not aspirate. Metrizamide scan.

d. Intracranial repair necessary if through cribriform.

125. Davis and Fazekas, In: Controversies in Otolaryngology, J. B. Snow (ed). Radiation Rx for mucoepidermoid of parotid.

a. An irradiation dose of 5000 R given after superficial parotidectomy for T1 lesion decreased recurrence from 50% to 10%.

b. A dose of 6500-7500 R increased local control in patients with tumor left behind at surgery to 70-80%.

126. Doxorubicin (Adriamycin) is the most successful drug so far for parotid malignancies. Lung metastases are most responsive.

127. Mactericidal antibiotics include: penicillins, cephalosporins, aminoglycosides, vancomycin, TMP-SMX.

128. Lesser known antibiotic side effects:

a. Carbenicilline: bleeding secondary to platelet inhibition hypokalemia.

b. Aminoglycosides: competitive neuromuscular blockade.

c. Polymixins: noncompetitive neuromuscular blockade.

d. Clindamycin (or any antibiotic): enterocolitis due to C. difficile (Rx for this is vancomycin).

e. Penicillin: interstitial nephritis.

129. Streptococcus: A disease of infants characterized by rhinitis, excoriation at anterior nares, and cervical adenopathy. Rx: penicillin.

130. Bacteriology of chronic sinusitis:

a. Anaerobes 60-80%.

b. Staph. aureus 10-17%.

c. H. influenzae 10%.

d. Rx: Penicillinase resistant penicillin.

Bacteriology of acute sinusitis:

a. Strep. pneumoniaew 43%.

b. H. influenzae 31%.

c. Rx: ampicillin, cefaclor, or erythromycin-sulfa.

d. Deep neck infections are all anaerobic, except for parotid space which is usually staphylococcal. Rx: penicillinase resistant penicillin.

131. Factors to decrease wound infection in head and neck surgery:

a. Becker study: cefazolin decreased infection rate from 84% to 32%.

b. Rice: povidone-iodine irrigation decreased infection from 38% to 2%.

c. Panje: closed-wound suction decreased infection from 6% to 1-2%.

132. H. influenza may be a pathogen in facial (particularly periorbital) cellulitis in children and can be recovered from the nares.

133. Chloramphenicol is the drug of choice for serious infections due to H. influenzae:

a. There are strains resistant to ampicillin.

b. Cefmandole may not cure meningitis, which is associated with 10% of facial and buccal H. influenzae cellulitides.

134. Nasal cultures do not correlate with sinus cultures in acute sinusitis.

135. Tonsillectomy mortality:

a. Alexander study (Baltimore, 1953-1964): 1.03 deaths/10,000 patients; of 17 deaths seven were caused by hypoventilation, four by aspiration, and four by hemorrhage.

136. Natural history of peritonsillitis (Fried, Arch Otol 107). Of 57 patients after I and D, only one recurred; 41 patients had one or no sore throats in a year.

137. Mucormycosis (Blitzer, Laryngoscope, 90:635):

a. 170 cases; survival 75%. If diabetic, survival 60% with other illness 20%.

b. Rx: surgical debridement, amphotericin B.

c. Poor prognostic signs: nasal deformity, facial necrosis, hemiplegia.

d. Nonprognostic signs: cranial nerve or ocular signs.

38. Myringotomy and PE tubes are the most frequently performed operations in the USA. Recent literature on otitis media (OM) includes:

a. Epidemiology:

1) Teel, D. W. Ann Otol Rhinol Laryngol suppl 68:

a) Risk factors for recurrent otitis include white race, male sex, allergy, family history for OM.

b) Effusions persist after acute OM. 40% still present at 1 months, 20% at 2 months.

2) Virolainen, Ann Otol Rhinol Laryngol suppl 68:

a) Of 708 year old school children, 8% have serous OM at any time.

b) Risk factors were: history of acute OM; many URIs.

c) No correlation of SOM and allergy in this study of 1200 children.

3) Fiella, Ann Otol Rhinol Laryngol suppl 68:

a) Studied 938 healthy children 3 years old.

b) 10% had type B tymp. 70-80% resolve within 6 months (30-40% in 1 month).

b. Bacteriology:

1) Ruokinen, Ann Otol Rhinol Laryngol 88: Adenoids and otitis media.

a) Children with ear problems grew significantly more viruses and H. influenzae from adenoid tissue than did children with adenotonsillitis and no ear problems.

2) Schwartz, JAMA, p. 1270, May 1979:

a) Nasopharyngeal culture predicted middle ear pathogens in 72%.

3) Therapy:

a) Thomsen, J. Ann Otol Rhinol Laryngol suppl 68: Penicillin vs. placebo in acute OM - no difference in response. At 3 months, 25% of both groups had effusions.

b) O'Shea, J. Ann Otol Rhinol Laryngol Suppl 68: Antihistamine/pseudoephedrine vs. placebo - no effect on treatment of serous OM.

c) Cantekin, Bluestone: Ann Otol Rhinol Laryngol Suppl 68: Decongestant improve eustachian tube function in children with URI. No clinical effects reported on, however.

d) Schwartz, Ann Otol Rhinol Laryngol Suppl 68: Prednisone (1 week) successfully cleared serous OM in double-blind crossover study of persistent (>3 weeks-old) effusions. All received sulfisoxazole.

e) Draf, Ann Otol Rhinol Laryngol Suppl 68: PE tubes - 84.8% had normalized hearing; 76.9% required tubes only once; draining ears complicated first surgery in 12%.

f) Gates, Ann Otol Rhinol Laryngol Suppl 68: 15% of effusions are cleared by general anesthesia induction, unrelated to presence or absence of N_2O (probably related to positive pressure mask induction).

139. Recent literature on hearing:

a. Goodhill, V. Ann Otol 82, 1973: Fifteen patients with sudden hearing loss explored. Of patients with fistula, only those operated on before 1 month had any improvement. These patients might have gotten better on their own at that early stage.

b. Paparella, Ann Otol Rhinol Laryngol Suppl 68: Bone conduction thresholds decrease with time in chronic OM. Macromolecules can pass into perilymph with the onset of OM.

c. Reiter, Arch Otol 106: Hearing in rheumatoid arthritis S/N loss in 50% (13% of controls). Conductive loss in 13% (0% of controls).

d. Wilson, Arch Otol 106:

1) Steroids in sudden hearing loss.

2) Double blind study.

3) All patients with mild loss recovered.

4) Steroids had no effect on dismal prognosis of severe loss.

5) Steroids seemed effective in moderate losses:

a) 78% recovered S/N.

b) 38% recovery in placebo group.

e. Mattox, Simmons, Ann Otol, p. 463, 1977: Natural history of sudden hearing loss; 65% recover to functional hearing regardless of Rx. Bad prognosis signs include down-sloping audio above 4000 Hx, vertigo, high sed. ratge, poor discrimination, late presentation.

140. Surgical treatment of Ménière's disease

a. Arenberg, L. Arch Otol 103:589, 1977.

1) Vertigo relief from surgery 70-90%.

2) Hearing improvement 0-70%.

3) States that early surgery works best if glycerol test is positive.

4) Advises vestibular nerve section if glycerol test is negative.

b)Austin, Arch Otol 106, Jul 1980.

1) Endolymphatic sac surgery "successful" in 22/26 patients in whom vestibular aqueduct was tomographically patent and in only 1/13 patients with nondemonstrable aqueducts.

c. Thomsen, Arch Otol 107:271, 1981.

1) Placebo effect of surgery in Ménière's disease: 1 year follow-up 70-80% improved whether they underwent simple mastoid or sac surgery.

2) Vertigo and hearing results slightly better in sac group ($p<0.05$).

141. Results of stapes surgery in a private practice. P. J. Doyle, J Otolaryngol 1:5 1980.

a. Eighty-six patients: 75 using fat-wire prosthesis.

1) Better hearing 73%.

2) Improved subjectively 63%.

3) Dizzy from 2 weeks to 3 months 53%.

4) Hearing worse 10%.

142. Revision stapes surgery. J. Crabtree, Laryngoscope 90:224, Feb 1980.

a. Thirty-five revisions:

1) Twenty-six for conductive loss - 15 were improved, two were worse.

2) Nine for sensorineural loss - one was improved, five were worse.

143. Immunodeficiency in Pediatric ENT. Kimmelman, C., Ann J Otol Fall 1979.

a. Hypogammaglobulinemia accounts for 50% - presents with pneumonia.

b. IgA deficiency accounts for 33% - presents with URIs.

c. Chemotactic defects account for 13% and present with pneumonia.

144. Relapsing polychondritis. Damiani, J. Laryngoscopy p. 929, 1979.

a. Current therapy includes dapsone, immunosuppressives, and steroids.

145. Face-lift pearls:

a. Sun exposure is the most significant factor in premature aging.

b. Diseases of premature aging (all autosomal recessive) include:

1) Cutis laxa, associated with hernias, emphysema, aneurysms - repeated lifting may help.

2) Progeria, associated growth retardation and early atherosclerosis - lifting is not recommended.

3) Werner's syndrome, associated with high-pitched voice, diabetes, osteoporosis - lifting not recommended.

c. Most authorities recommend dissection superficial to platysma, but beneath galea temporally to avoid hair follicles.

d. Complications: hematoma 1-8% usually within 24 hours, presents with pain - more common in males; hair loss, skin slough, nerve loss, salivary cysts (which usually respond to aspiration and pressure).

146. Chemical face peeling.

Materials: phenol, crotonil, soap, water.

Indications: fine wrinkles, erasure of dermabrasion demarcation.

Precautions:

a. Dark-skinned individuals may lose pigmentation.

b. Peel regions rich in adnexal structures.

c. If for pigmentation, do superficial peel (no tape).

Phenol toxicity:

a. Cardiac arrhythmias.

b. Cental depression, decreased blood pressure, headache, nausea.

Complications:

a. Bleaching.

b. Blotchy hyperpigmentation - best avoided by cleansing.

c. Peroral scarring - avoid face-lift at same sitting.

d. Prominent skin pores - avoid deep peel in young patients treated for pigemntation.

Healing timetable for chemical face peel or dermabrasion:

5 days: epidermis regenerates

7 days: epidermis loosely attached to dermis

2 weeks: new collagen deposited, fills out dermis giving youtful appearance.

1 month: pigmentation begins to return in spots; milia may appear.

6 months: epidermis normal thickness.

10 months: dermis normalizes.

147. Nasal polyps in children:

a. Antral choanal in 33%, few of whom are allergic, almost all cured with Caldwell-Luc procedure.

b. Bilateral in 47%, two-thirds with cystic fibrosis, one-third were allergic.

148. Polypectomy does not affect the course of asthma in Samter's syndrome (aspirine hypersensitivity). Brown. Arch Otol 105, July 1979.

149. Multiple malignancies in head and neck cancer. Weichert, Laryngoscope 89:933, July 1979.

a. Incidence of second primaries 6.5%; synchronous in one-third of these.

150. Dermatofibroma dimples when squeezed, melanoma does not.

Facts to Know

When preparing for an oral examination, it is helpful for the candidate to be familiar with the history, physical findings, radiologic findings, and pathologic findings of a few common disease entities. It is also appropriate for him to know prognosis, and certain statistics discussed in the recent literature. Some of the clinical disease entities are:

1. A lump in the neck: Is this infectious, cystic, or a hard tumor? Possible tuberculosis, fungal diseases, cat scratch fever, lymphoma, thyroid disease may be implicated. Is a barium swallow necessary? Cervical spine films? Is this a mass with an unknown primary malignancy (nasopharynx, base of tongue, and pyriform sinus)?

2. Evaluating a child with airway problem: Is it congenital? Is it vascular? Is it

pharyngeal or laryngeal? Is it secondary to a foreign body?

3. The etiologies for a nasal septum perforation.

4. Paralysis of the vocal cord: a workup may include complete blood count, urinalysis, chest and cervical spine x-rays, barium swallow, lumbar puncture, glucose tolerance test, ESR, neurologic consultation, all x-rays, etc. What is Ortner's syndrome? What does the ECG show? Is there any thyroid disease? Does sarcoidosis enter the list of differnetial diagnoses?

5. Massive facial fracture: emergency room management and definitive surgical care.

6. Sinusitis: acute sinusitis as well as chronic sinusitis, able to read x-rays adequately, able to treat the acute problems as well as the long-term problems.

7. Tinnitus: character of the tinnitus, is it pulsatile? What brought it on? Duration, hearing loss, vertigo, complete neurologic and otolaryngologic examination. Do acoustic trauma, glomus tumor, acoustic neurinoma enter into the list of differential diagnoses? Be prepared to order the necessary tests to further evaluate a patient with tinnitus; be prepared to justify ordering the particular test or tests. Also be prepared to discuss the technique of how some of the tests are done and the interpretation of some of the tests, for example, ABLB, Bekesy, BSER.

8. Vertigo: The history and character of the vertigo are very important. Definition of vertigo, dizziness, lightheadedness, etc, is important. Be prepared to workup the patient with dizziness not only from an otologic standpoint, but perhaps from a cardiovascular, endocrine, allergic, and neurologic standpoint. Here again, be discriminative in what tests you order and be able to describe the technique as well as the results.

9. Chronic otitis media: Immediate management as well as long term management.

10. Sudden hearing loss: Be familiar with the current concepts and literature on the etiology and management of this disease entity.

11. Malignancies of the various otolaryngologic and anatomic sites.

12. Management of a conductive hearing loss not necessarily secondary to otosclerosis - complications of middle ear surgery.

13. Facial nerve palsies of various etiologies: management, different electrical testings.

14. Nasal obstruction in children: choanal polyp, allergic polyps, enlarged adenoid, angiofibroma, fibroma, deviated septum, allergy, choanal atresia, foreign body, tumor, etc.

15. Prepare to discuss progressive hearing loss and vertigo in children and adults, Ménière's disease, acoustic neurinoma, meningioma, congenital syphilis, suppurative labyrinthitis, cholesteatoma, ototoxicity, Cogan's syndrome, otosclerosis, eosinophilic granuloma, perilymphatic fistula, vascular, viral, and functional hearing loss. What are the syndromes that can give hearing loss and vertigo? (See Chap. 9).

16. Prepare to discuss metabolic and electrolyte disorders in postoperative patients. The following points may be used to help in your preparation:

a. The daily fluid requirement is 2200 mL/24 hr.

b. The daily output of fluid is about 700 mL through resopiration, 1200 mL in the urine, 100 mL through perspiration if the patient has no fever, and 200 mL in the feces.

c. The daily caloric need ranges from 1800 calories to 3000 calories depending on the metabolic rate.

d. During surgery, when the skin incision is made:

1) Catechols, growth hormones, and cortisol levels are increased leading to an increase in serum glucose, gluconeogenesis, glucagon level, and a decrease in insulin receptor sites.

2) There is an increase in ADH leading to decreased urinary output.

e. Symptoms of water intoxication are lethargy, seizuree activities and coma. Serum sodium in the range of 115-120 mEq/L. Water intoxication can lead to congestive heart failure, decreased glomerular flow rate, and renal failure.

f. SIADH (syndrome of inappropriate ADH) can be caused by chlorpropamide (Diabinese), clofibrate (Atromid), vincristine, cyclophosphamide (Cytoxan), meperidine (Demerol), and morphine sulfate. The findings are low serum, increased urinary sodium, and increased urine osmolality (greater than 300 mOsm).

g. Metabolic acidosis can be caused by lactic acidosis which can be secondary to excessive ethanolic intake, obstructive pulmonary disease, sepsis, DBI, and acetazolamide (Diamox). Sepsis is a common cause of lactic acidosis in postoperative patients.

h. Metabolic alkalosis can be caused by vomiting, nasogastric tube suction, decreased extracellular fluid volume, decreased chloride and potassium, increased aldosterone levels, and by diuretics. One of the treatments is replacement of chloride.

i. Hyperosmolar coma (i.e. greater than 340 mOsm/L; the normal value is 285-290 mOsm/L) is a condition that can be caused by phenytoin (Dilantin), steroids, thiazide diuretics, myocardial infarction, and stroke. The serum sodium, BUN and blood sugar are elevated. In spite of elevated serum glucose, there is no ketoacidosis.

j. Normal serum values:

Na = 140

K = 4

Cl = 95-105

Bicarbonate = 28

Normal arterial blood gases:

PO_2 = 95-100

pCO_2 = 40

pH = 7.4

Oxygen saturation = 97-100%

k. Weight loss, decreased serum albumin, and decreased total iron binding capacity are indications of malnutrition in a postoperative patient. A decrease in caloric intake leads to ketosis which in turn leads to decreased urinary excretion of uric acid which can cause gout symptoms. Remember that 1000 mL of 5% dextrose and water IV solution has only 200 calories.