Surgery for Benign Thyroid Disease

Deepak Gurushanthaiah, MD, FACS
Department of Head & Neck Surgery
Kaiser Permanente-Oakland Medical Center
Oakland, CA

History
• AD 500
  • Abdul Kasen Kalebis Abis
• 12th & 13th Century
  • School of Salerno

“Can the thyroid gland, when in a state of enlargement, be removed with a reasonable hope of saving the patient? Experience emphatically answers NO…If a surgeon should be so foolhardy as to undertake it…every stroke of his knife will be followed by a torrent of blood, and lucky will it be for him if his victim lives long enough to enable him to finish his horrid butchery. No honest and sensible surgeon would ever engage in it!”

Samuel David Gross, 1866
History

- 1860-1866 Albert Theodor Billroth
- 1872 Theodor Kocher
- 1880 William S. Halsted

History

- 1879 Anton Wolfler
  - Post thyroidectomy tetany
  - RLN anatomy & potential for injury
- 1891 Eugene Gley
  - Post thyroidectomy tetany etiology

History

- 1st Century Leonides
- 2nd Century Cladius Galen
- 1820 Karl von Klein
- 1935 EBSLN
- 1938 Lahey

Benign Thyroid Disease

- Thyroid nodules
- Goiter
- Hyperthyroidism
- Thyroiditis
- Ectopic thyroid
- Thyroglossal duct cyst
Surgery for Benign Thyroid Disease

- Conventional thyroidectomy
- Minimal access thyroidectomy
  - Video assisted
  - Endoscopic
  - Open

Minimal Access Thyroidectomy

- Incision size
- Blunt dissection
- Isolation of vascular supply
  - EBSLN identification
- Transection of blood supply
- Delivery of gland
- Identification of RLN
  - Parathyroid glands
- Transection of Berry’s Ligament

Thyroid Nodules

- Follicular neoplasm
  - Vascular invasion
  - Extracapsular spread
- Benign thyroid nodule/cyst
  - Symptomatic
  - Cosmetic

Surgery for Thyroid Nodules
Surgery for Thyroid Nodules

• Epidemiology
  – Sporadic, Endemic, Familial

• Etiology
  – Iodine deficiency, Hashimoto’s, Graves, Malignancy,
    Drugs & nutrients, Genetic defects

• Morphology
  – Multinodular, diffuse (colloid)

• Functional Status
  – Nontoxic, toxic

Surgery for Goiters

• Indications
  – Compression
  – Symptomatic
  – Asymptomatic
  – Cosmesis
  – Large masses
  – Substernal
  – Subclinical hyperthyroidism
  – Suspected malignancy

• Technique
  – Conventional thyroidectomy
  – Sternotomy

Goiters

• Epidemiology
  – Sporadic, Endemic, Familial

• Etiology
  – Iodine deficiency, Hashimoto’s, Graves, Malignancy,
    Drugs & nutrients, Genetic defects

• Morphology
  – Multinodular, diffuse (colloid)

• Functional Status
  – Nontoxic, toxic
Thyroiditis

- Hashimoto’s (chronic lymphocytic)
- Subacute lymphocytic
  - Sporadic silent
  - Postpartum
- de Quervian’s thyroiditis
- Acute suppurative
- Riedel’s thyroiditis

Surgery for Thyroiditis

- Medical management
- Conventional thyroidectomy
  - Increased vascularity
  - Increased fibrosis
  - Increased adherence

Hyperthyroidism

- Grave’s disease
- Toxic nodular goiter (Plummer’s disease)
  - Toxic adenoma
  - Toxic multinodular goiter
- Subclinical hyperthyroidism
Surgery for Hyperthyroidism

- Medical management
  - Preoperative preparation
- Conventional thyroidectomy
  - Thyroid lobectomy
  - Bilateral subtotal thyroidectomy
  - Total lobectomy and contralateral subtotal thyroidectomy
  - Total thyroidectomy

Surgery for Hyperthyroidism

Thyroglossal Duct Cyst

- Surgery
  - Sistrunk procedure
    - Central hyoid
    - Core of tissue to foramen cecum
  - TDC cancer
    - 1% of TDC
Surgery for Ectopic Thyroid

- Lingual thyroid
  - Obstruction
  - Ulceration
  - Hemorrhage
- Lateral aberrant thyroid
  - Controversial (benign vs. malignant)
- Other sites

Acknowledgements

- Department of Head & Neck Surgery
  - Raymond Hilsinger, MD
- Department of Medicine, Division of Endocrinology
  - Marina Basina, MD
  - Amer Budayr, MD