



A HISTORICAL NOTE ON THYROID DISEASE AND ITS SURGICAL TREATMENT

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The thyroid gland with its various problems has since the turn of century lent itself to surgical treatment because of its accessible position. Surgery has more recently been supplemented by non-surgical forms of treatment, particularly for hyperthyroidism with the emergence of antithyroid drugs and radioactive iodine therapy. The “father” of modern surgery, **Theodore Billroth** in 1867, was the Professor of Surgery in Vienna when it was a world centre. Billroth was a pioneer not only in thyroidectomy surgery but other areas of general surgery, but thyroidectomy then had a mortality rate of 40% and brought to light such problems as myxedema and hypoparathyroidism. **Theodore Kocher**, a contemporary, became Professor at Switzerland’s Berne University in 1872 at the age of 31. He was remarkably interested in thyroidectomy surgery and reduced

the mortality rate to about 5% as well as its morbidity for which he was awarded the Nobel Prize in Medicine in 1909. His surgical prowess inspired many visiting surgeons, such as **William Halsted**, the first Professor of Johns Hopkins University and “father” of modern American surgery. Thyroidectomy then attracted the attention of American surgeons such as **George Crile**, the **Mayo brothers**, and **Frank Lahey** (who had first advanced the notion of recurrent nerve dissection). The volume of thyroidectomy surgery performed by these pioneers provided the economic basis for the establishment of the Mayo Clinic, the Cleveland (once known as the Crile) Clinic, and the Lahey Clinic.

In 1925, the Viennese surgeon, **Felix Mandl**, discovered parathyroid tumors which can be confused with thyroid tumors because of the intimacy of physical relationship. In the 1940s, **Dr. Hayes Martin** advocated needle aspiration biopsy to diagnose neck lumps preoperatively. In the 1950s, **Foote and Frizell** of the Memorial Hospital described the behaviour of papillary cancer of the thyroid. At that time, **George Crile Jr.**, the son of the founder of the Cleveland Clinic, replaced the traditional aggressive surgery of thyroid cancer with a more biologically suitable type which has been the basis of treatment to this day. The cardinal issue in thyroid cancer has been the extent of thyroidectomy, and the best known advocate for the total approach has been **Dr. Orlo Clark** of the U.S.A., whose advocacy is prevailing. The question of nodal metastasis treatment is still controversial. Radioactive iodine was championed by **Chapman** in the 40s for hyperthyroidism, which was applied to thyroid cancer especially by **Bierwaltes** of Michigan.

External radiation for frivolous indications is a predisposing factor in thyroid neoplasia which was reported by Duffy et al in 1950. In the 1950s **Horn and Hazard**, U.S.A. pathologists, recognized medullary cancer as an infrequent but significant form of thyroid malignancy which is now strikingly diagnosed by DNA analysis, permitting curative surgery as reported by **Wells and Thompson** of the U.S.A. At present, the membership of the American Association of Endocrine Surgeons and the American Society of Head and Neck Surgery have an ongoing interest in treatment factors in thyroid malignancy.

Canada has been a presence in the entire field of endocrine problems of which thyroid is only one, of a group of ductless glands. In 1925 **Collip**, Dean of Medicine, University of Western Ontario, who was instrumental in isolating insulin for Banting and Best, also isolated parathyroid hormone or parathormone which had been utilized in the early management of Dr. Mandl's first patient with parathyroid tumor. The first insulin secreting tumor of the pancreas was successfully cured by general surgeon **Roscoe Graham** at Toronto General Hospital in the 30s. It represented a significant contribution since this type of tumor can be found in combination with other endocrine tumors in the so-called MEA-1 syndrome which receives a great deal of contemporary attention. The cure of diabetes was discovered by an orthopedic surgeon, **Frederick Banting**, and a then science student, **Charles Best** at the University of Toronto. In the 1960s, **Dr. Copp**, who was then the Professor of Physiology at the University of British Columbia, discovered calcitonin which is a weak calcium lowering hormone elaborated

by the thyroid gland and is very much instrumental in the diagnosis of medullary cancer. Ultrasonography, the most widely used modality in thyroidological assessment today, was reported sporadically, but its significant application was pioneered by **Rosen, Walfish and Miskin** approximately 30 years ago and now enjoys world-wide use.

Ultrasound in turn led to fine needle aspiration biopsy, the definitive diagnostic maneuver in thyroid management, pioneered by **Rosen, Walfish and Strawbridge** from Toronto's Mount Sinai Hospital. Scandinavian workers had earlier utilized the technique but its adoption in North America followed these Mount Sinai Hospital workers' reports. FNAB is the signal method of patient selection for cancer surgery.

Also approximately 30 years ago, **Rosen and Bain** of the University of Toronto reported the first world case of radiation-induced hyperparathyroidism which of course had been only associated with thyroid tumors. About that time, **Dr. Jean Dussault** of Quebec working with **Dr. Robert Volpé** of Toronto introduced a technique of diagnosing newborn thyroid insufficiency permitting prevention of mental retardation. This was a stunning world-wide discovery and a credit to Canadian endocrinology. Currently there is a great effort being made to improve adjuvant measures in the non-surgical treatment of advanced thyroid cancer.

The number of individuals who have made contributions to the better management of patients with thyroid cancer is legion and far exceeds the few individuals who have been mentioned in this article. While thyroid malignancy in its common forms is a relatively unaggressive problem, it is noteworthy that this disease is increasing more frequently annually in Canada than any other cancer while leaving a growing number of survivors. Thyroid cancer surgery may not share the complexity of cardiac or transplant surgery, but the number of affected patients demands improving treatment techniques by vigorous medical personnel that requires the active support that only interested individuals and groups such as The Canadian Thyroid Cancer support Group (Thry'vors) Inc. and the Thyroid Foundation of Canada can provide.

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