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MANIFESTATIONS OF THYROID DISEASE IN THE UPPER RESPIRATORY TRACT.*

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A search of the literature on thyroid disease during the last decade reveals a voluminous and interesting record of observations and investigations from all the departments of medical science, except laryngology. The meager contributions from our particular branch call for an explanation. Can it be true that in most communities, the neurologist, the surgeon, the internist, and the ophthalmologist, claim these cases exclusively and consider observations of the laryngologist as immaterial and without a scientific suggestion that is worth the trouble? If this suspicion be correct the fault is with the laryngologist who fails to find symptoms and lesions sufficient to prove his interest and value in the case.

The phenomena of the various forms of thyroid disease are so extensive that the majority of specialists may lay a claim for consideration, but in my experience, the greater number of these city patients, will refer their symptoms to the throat or eye and seek advice accordingly.

The cases of impaired function that particularly interest us are the numerous varieties of atypical forms of Graves' disease and myxedema that occur between the extreme manifestations of these disorders. Hyperthyroidism or Graves' disease and so-called atrophic thyroiditis, or myxedema, present distinct and definite diagnostic signs for classification, yet in the modified or atypical forms they interchange and the same patient may exhibit at the same time

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a well-defined Graves' disease with marked myxedematous symptoms.

Before discussing this problem from our special point of view it may be well to enumerate the general diagnostic signs according to the classification of Beebe and Rogers.

CLASSIFICATION.

HYPERTHYROIDISM—More common in young women of 18-30 years.

Onset—May be slow and gradual or sudden and acute.

Tachycardia—120-180; pounding beat felt over a wide area; often a loud systolic murmur over apex, base, and along the great vessels. Irregular from, and very susceptible to the effects of exercise. Blood-pressure variable, generally low, pulse soft and full, marked dyspnea on slight exertion. Marked edema of the legs.

Nervous System—Fine tremor affecting nearly all the muscles, twitching and occasional spasms. Patients are abnormally irritable and excitable; apprehensive, mentally very active and physically restless. Muscular weakness prominent.

Eye Signs—Exophthalmos generally present, although it is not invariable. Occasionally unitateral, corresponding to the side having the enlarged thyroid lobe. Various symptoms arise in consequence of the exophthalmos. No pupillary changes.

Gland—Enlargement varies from nothing to very large goiter. The blood-vessels over the gland are generally much enlarged and pulsate markedly. Right lobe generally the larger.

Nutrition—Severely disturbed; in most cases there is a loss in weight, which may progress to extreme emaciation. Appetite variable; vomiting and diarrhea frequent complications. Patients drink a great deal of water.

Skin—Profuse perspiration, erythema, urticaria, dermatographia, pigmentation, which may occasionally be so marked as to suggest Addison's disease. Hair falls out, but is not coarse and dry. Patients prefer thin clothing and cold rooms. They are more comfortable during cold weather than during hot weather.

Temperature—May be only slightly elevated. 99°-100°. With severe acute cases it runs often to 103°-104°.

Urinary Findings—In most cases normal in volume; glycosuria not unusual; polyuria often observed in later stages. Nitrogen partitions show a very much decreased creatinin excretion, while creatin is present in large amounts. Nitrogen loss is marked during the period of emaciation.

Blood—Hemoglobin low, leucopenia in severe cases, with a marked relative lymphocytosis.

Menses—Very irregular or completely suppressed.

HYPERTHYROIDISM—More common in advancing years, 35-50.

Onset—Slow and gradual, in many cases engrafted on an old Graves' disease.

Heart—Rarely above 100, may be irregular with heaving impulse. Pulse generally shows high tension and the blood-pressure is above normal.

Nervous System—Patient may have some tremor and muscular weakness is likely to be very pronounced, but there is not the same restlessness and jactitation. Patients are occasionally irritable, but they are generally dull and apathetic, mentally slow; memory defective. Pains in joints frequent, and referred to as rheumatism; there is a marked tendency toward sudden giving way of the legs when walking.

Eye Signs—Exophthalmos is unusual, although it may have been present at one time.

Gland—Often no enlargement can be made out; when there is a goiter, it has an elastic rubber-like consistence occasionally cystic and nodular, but very distinctly differing from the active pulsating gland of Graves' disease.

Nutrition—Generally not seriously disturbed; patients hold their weight and in most cases gain slowly; constipation rather than diarrhea, and flatulency a troublesome habit. Patients do not drink much water.

Skin—Dry, may be scaly; patients do not perspire on exertion; hair and nails dry and brittle; scalp scaly. Pigmentation not common. Patients prefer thick, warm clothing and are cold most of the time. Much more comfortable during hot weather.

Temperature—Subnormal, may reach as low as 95°.

Urinary Findings—Albuminuria not unusual. Nitrogen partitions do not show so marked a disturbance in creatinin and creatin ratios. In large number of cases urine practically normal.

Blood—Hemoglobin low, white blood-count normal.

Menses—Generally regular but scanty.

We note in addition to this classification that the development of Graves' disease is influenced by the hereditary history of thyroid, heart and nervous diseases; that it follows most frequently from fright, strain, over-work, nervous shock, or infectious disease. It

is interesting to observe that the hyper-function of the thyroid is in no relation to the size of the goiter.

Capille has observed that in seventy-nine per cent. of exophthalmic goiters that came to autopsy, the thymus was enlarged. This is of diagnostic importance as thymus cases are attended by enlargement of the tonsils, spleen, and follicular glands of the tongue. The dangers of surgical intervention are greatly increased in these cases. Two cases of myxedema reported by Theisen and E. L. Shurly originated from the removal of an accessory thyroid in the region of the lingual tonsil and which gave the appearance of benign tumors in this location.

It is a well-recognized fact that the faucial tonsils are in definite physiological and pathological inter-relation with the thyroid gland. It is fair presumptive evidence that a tonsillar internal secretion exists which affects the governing action when we find that a series of enlarged thyroids will subside after complete enucleation of the tonsil. We know that septic processes such as tonsillitis, quinsy, scarlet fever, measles, typhoid fever, and influenza, that attack particularly the lymphoid tissues are frequently direct etiological factors in the development of exophthalmic goiter. Indirectly then it may be argued and demonstrated that tonsillectomy has a place in the prophylactic treatment of Graves' disease.

Tonsillotomy however, has proved of little material value in prevention. It is necessary to wait at least a decade before a collective investigation can define the true influence of the complete enucleation operation upon the thyroid in particular, and the system in general.

The effects of thyroid toxemia and deficiency are so profound upon the nervous, muscular and circulatory systems, that it is logical to expect a majority of these cases will present special manifestations in the upper respiratory tract. The unstable vaso-motor system especially renders the subject liable to annoying symptoms in the nose, throat and ears.

In the moderate or severe myxedematous forms we notice defects or changes in speech in many cases. We also find varying degrees of slowness and difficulty in articulation. The voice at intervals becomes husky or thick and the mucous membrane of the larynx, pharynx, tongue, mouth and lips becomes swollen and dry through deficient lubrication. The change in the voice may be associated with a motor insufficiency of the laryngeal muscles. Matthews, of Rochester, Minn., has reported two hundred and eighty-

nine cases of laryngeal paralysis in one thousand cases of goiter; seventeen of these were bilateral. Although my experience is limited, it would seem as if slight motor insufficiency had been classified as paralysis. In the majority of his cases of goiter the frequency of pressure-symptoms is in proportion to the size of the goiter.

In myxedema, however, the goiter is usually small, and the change in voice will be out of all proportion to laryngoscopic findings. Again a considerable paresis may be attended by little or no change in voice. Impairment or perversion of taste is occasionally prominent. Howard in a carefully studied series of thirty-two cases found six with abnormal taste. Hun and Prudden report thirty-three per cent as deficient in taste.

Two of my cases presented themselves for treatment—suffering from a most distressing tinnitus aurium. The symptom was so annoying that sleep was obtained with difficulty. The aural examination was completely negative and relief was obtained by general treatment. Some observers report impaired hearing in seventy-eight per cent of cases. It is difficult to explain whether this is due to hyperemia and swelling of the auditory nerve, trophic changes, or some direct vaso-motor change.

In Graves' disease, taste, smell, and hearing are more rarely affected. In severe myxedema, hemorrhages, from the gums, nose, or throat are common, although unusual in the atypical forms. The patient may consult the laryngologist, complaining of dyspnea on slight exertion; when a careful examination may reveal no physical signs of pulmonary disease. This symptom is often associated with falling hair, brittle nails, dry skin, and other phenomena of early atypical myxedema, which will respond to treatment by thyroid feeding or the administration of iodine or phosphorus. Dyspnea in Graves' disease is a late symptom—usually associated with myocardial or other cardiac change, and may be attended by a limitation of the expansion of the chest. Acidosis and a "fruity breath" may attend this phenomenon.

I have occasionally observed with Lemm, Curtis and others that a peculiar infiltration of the nasal mucous membrane may occur in myxedema as one of the early signs; and later the membrane becomes thickened, and the nose obstructed by a gelatinous, waxy, or yellowish, secretion. Some of these patients complain of a full, cramped or swollen feeling in the throat. The changes in coloring may be transmitted to the pharynx and larynx. It may be pale,

yellowship, or have a bluish tinge. The uvula may be elongated, or angio-neurotic phenomena may appear. The inter-arytenoid fold may be transparent. No change in function of the vocal cords is usually seen.

The symptoms of cough may bring the patient to the laryngologist when associated with Graves' disease. It may be attended by a dry throat and husky voice. In several of my cases this was the predominating and annoying symptom uppermost in the mind of the individual. The temperature, cough, precordial pain, unilateral bruit, and loss of weight had been sufficient in a number of my cases to lead the attending physician into a diagnosis of suspected pulmonary tuberculosis; others were sent to me by members of the family under the same apprehension. Bronchial and pulmonary hyperemia are exceedingly common in Graves' disease.

The cough may be associated with intra-laryngeal pressure from a hard swollen goiter. In this condition the amount of cough may change either with position, diminish or increase with the consistency of the gland. The myxedematous forms more rarely cause cough, although slight pathology in the upper respiratory passages is attended by symptoms out of proportion to the lesions. This may be explained on the basis of the abnormal psychic condition of the individual.

A disease like exophthalmic goiter that passes through many intervals of quiescence and exacerbation must necessarily exhibit a long list of remedies for which great curative value is claimed. The great majority of drugs are useless except when occasionally indicated for the control of special symptoms. The therapeutic measures which I have adopted in this series of thirty cases are those selected by elimination. Rest is certainly essential to success.

A considerable advantage may be obtained from the proper use of the galvanic current. A small (anode) electrode should be applied along the cervical sympathetic. The cathode, should be larger, sponge applied to the neck, along the lower cervical vertebrae, beginning with a one milliampere current and later gradually increasing the dose.

In a number of cases a sedative effect may be noted upon the cervical sympathetic and general nervous system. The dry and swollen mucous membranes are best relieved by the use of lecithin or phosphorus. Soda phosphate in carefully directed dosage is often of great service. Many of the cases combined with myxo-

matous symptoms improve under the administration of pure iodine, especially by the hypodermic method. The X-ray may be of value.

Six cases were treated with the Beebe and Rogers serum with striking improvement. Three of these patients may be classified as complete recoveries. Two of the thirty patients, one of whom died the following day, were operated by general surgeons. Immediate operation was advised in another that died from pressure suddenly ten days later, untreated. The question of surgical interference is exceedingly important. A study of the individual case alone can definitely determine this problem. Medical treatment without improvement should not be prolonged. When surgery is considered necessary the choice of the surgeon is of paramount importance. The best technicians have from one to five per cent mortality.

In myxedema and especially in the atypical, great relief and lasting benefit is attained by the administration of thyroid extract in the carefully selected dosage of carefully selected preparations. The results of this substitution therapy are among the greatest achievement of modern science.

It is evident that the rôle of the internal secretions as governors and regulators of harmony in the functions of the upper air tract is important and significant. It is demonstrable that the tonsils and thyroid are concerned in some delicate and complex influence upon each other and that a wide inter-relationship exists among the ductless glands. These mysteries of bio-chemistry are being unraveled. Meanwhile the clinical observer must stand by and report the signs and symptoms as they appear to him, and apply his treatment according to his most modern conceptions.

In view of the numerous symptoms and conditions of Graves' disease and myxedema with the intermediate forms that are referred to the nose, throat, and ear, it would seem to me within the rules of modesty to respectfully suggest to the internist and surgeon that his case had not been completely examined until the laryngologist and otologist had added his diminutive, but sometimes important contribution to the general information.

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