A CASE OF ABERRANT THYROID TISSUE IN THE TRACHEA

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Abberant thyroid nodules in the larynx are mentioned in standard textbooks (Price, 1941), but a study of the literature reveals that they are rare, and Joll (1932) in his book on diseases of the thyroid gland does not describe a British case.

Aberrant thyroid tissue may be formed in three ways: (1) during the process of differentiation in the foetus small fragments of primitive thyroid may be enclosed in the respiratory tract (von Bruns, 1914); (2) the developing thyroid may penetrate the wall of the larynx or trachea at some weak spot and subsequently develop in the new site (Paltauf, 1891); and (3) it is claimed that aberrant tissues may be formed as the result of neoplastic invasion of low grade malignancy. Willis (1948) considers that "lateral aberrant thyroids" should be regarded as metastatic deposits, but does not comment on central or intratracheal thyroids. He does, however, make the significant point that in the lateral examples the corresponding thyroid lobe is enlarged. Although enlargement was present in the case to be described no proof of malignancy was found and a developmental anomaly was the probable cause. This theory of origin is supported by Meyer's (1910) case in an infant at an age when thyroid neoplasm is improbable.

The first case recorded seems to be that of von Ziemssen, 1875 (quoted by Joll), in a woman 18 years old. (The majority of examples have been in women.) Dorn's (1919) case in a man, which was associated with vocal cord paralysis and occurred after local removal, would seem to illustrate Willis's (1948) contention that at least some aberrant thyroids are in fact neoplastic. Gödel (1921) published details of the case of a woman aged 39 in whom there was thyroid tissue inside the trachea joined to a hypertrophied thyroid outside the trachea.

Maier (1922) collected 28 cases, and estimated that one out of every 15 intra-tracheal tumours are of thyroid origin. His patient had obstructive symptoms related to pregnancy. Bundschuh (1925) met with two instances, both in women; operation for removal undertaken on account of acute occlusion of the airway in pregnancy was successful. Vacher and Denis (1927) describe a woman who gave a six years' history of respiratory distress, worse in each of four successive pregnancies. In the fourth month of the last of these she sought advice. Laryngoscopy showed a submucous tumour below the larynx and, although the Wassermann test was negative, anti-syphilitic treatment was begun but was unsuccessful. It was followed by 20 exposures to deep x-ray therapy, but the

symptoms became worse, and six weeks after first being seen the tumour was removed surgically. It was adhering by a broad base to the second and third tracheal rings. A living child was subsequently born at full term. This description most nearly resembles the following case.

Case Report

Mrs. C., aged 35, was first seen by a surgeon on October 1, 1943, at an antenatal examination and gave a history of periodic "asthma" of two years' duration. She had had one child 12 years before without mishap, and the second baby was due on December 23, 1943. It was noted that her respirations were stertorous, but no abnormal signs were found in the chest and her colour was good. The patient was next seen on November 3, and a breech presentation corrected by version. Stertor was again noticeable, but the chest was still apparently normal. On November 15, 1943, the patient's husband sought help urgently for her severe dyspnoea. Morphia and adrenaline brought some improvement, but her condition later grew worse and an emergency tracheotomy was performed in the patient's own home for cyanosis, apparently of obstructive origin. She was removed to hospital, and ten days later an abscess appeared close to the tracheotomy incision, and this subsequently evacuated. The abscess was assumed to be the cause of the obstruction. On December 24, 1943, a son was born without mishap, the tube was removed, and the sinus closed. The patient left hospital without stridor. She did not seek further advice till September 21, 1946, when she was again pregnant and complaining of dyspnoea. Stridor was observed, but the cause was not evident. On December 8, 1946, the patient developed an acute laryngeal obstruction, and died in the ambulance while being brought to hospital.

Necropsy.—The post-mortem examination was unremarkable except for the presence of a mass in the lower compartment of the larynx and upper part of the trachea. It

FIG. 1 ($\times 3.5$).—Line of demarcation between thyroid outside trachea and nodule inside (considerable shrinkage has resulted from fixation).

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FIG. 2 ($\times 40$).—Photomicrograph showing microscopic structure with colloid vesicles: normal thyroid to the right and above; aberrant thyroid inside cartilage to left and below.

was about $\frac{1}{4}$ in. in diameter and was adherent by a broad base on the right side from the first to the third tracheal rings. The normal mucosa was tightly stretched over the mass. When first seen the nodule was engorged and oedematous, and the lumen of the air passage was so blocked that it was only a narrow crescentic slit about one-fifth of the normal.

There was no evidence of continuity between the nodule inside and the thyroid gland outside the trachea, nor of erosion of the cartilage or soft tissue. The thyroid gland was of normal size on the left but enlarged to the right (about $2\frac{1}{2}$ in. in diameter) with prominent large colloid vesicles. All the thyroid separated readily from the adjacent structures. No enlarged glands were present in the neck, but a thorough skeletal search was not made and no metastases were found elsewhere.

Histological examination confirmed the thyroid origin of the mass (Figs. 1 and 2), and demonstrated the sharp line of demarcation from the cartilage. There were large colloid vesicles, many showing recent haemorrhages. The mucosal covering was intact, and, further, the normal tracheal mucous glands persisted deep to the nodule at either edge. The adjacent right lobe of the thyroid showed a similar structure, except that haemorrhages (recent and older) were more conspicuous and there was a greater degree of acinar activity. In none of the sections was there evidence of papillary formation, blood vessel invasion, or other malignant signs.

Subsequent conversation with the husband produced the very significant statement that his wife was periodically more short of breath from Christmas, 1944, onwards and that this was always worse two or three days before the menstrual flow. This "asthma" had become progressively more severe during the next 18 months or so, but she would not seek advice as she had been alarmed by her previous tracheotomy experience. Had she complained, the true purport of the periodicity of her "asthma" might well have been appreciated.

Summary

A case of aberrant intratracheal thyroid tissue in a woman is described. This produced severe respiratory obstruction in one pregnancy and fatal asphyxia in the next.

"Asthma" occurred two or three days before each menstrual period, presumably due to cyclical changes in the thyroid nodule.

The pathology was probably due to a developmental defect and not to neoplastic metastasis.

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