CARCINOMA OF THE THYROID GLAND IN CHILDHOOD
Report of a Case*

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Carcinoma of the thyroid gland used to be considered a rare condition in childhood; only 10 cases had been reported by 1930, but by 1956, Winship [1] was able to collect 334 cases, many of which had not previously been reported. Hayles[2] reported 41 cases seen at the Mayo Clinic up to 1954, while Roberts[3] could find only 6 cases in the British literature.

One case of carcinoma of the thyroid gland in a child has been reported from Turkey;[4] this was a girl of nineteen whose symptoms dated back at least five years prior to her admission.

The commonest pathological form is a papillary type of tumor, while follicular and undifferentiated tumors are less common. Buckwater and Meredith [5] reported a case of a small round cell carcinoma of the thyroid.

The usual presenting symptom is a swelling in the neck, either in the thyroid gland itself or in cervical lymph glands. In only six of Winship's 334 cases were there symptoms of hoarseness, dysphagia or stridor; all these cases died soon after operation.

Unlike the situation among adults, there appears to be no particularly high incidence of carcinoma of the thyroid in children in areas where goiter is endemic. On the other hand there is a definite association between irradiation of the neck or mediastinum (usually for "status thymo-lymphaticus")in early life and carcinoma of the thyroid gland. Rooney and Powell [6] found that 7 of their 10 cases had had previous irradiation to the thyroid region.

The prognosis of carcinoma of the thyroid must be extremely guarded, and five year follow-up studies have proved unreliable in assessing the success of any particular form of treatment. Metastases are known to have appeared some twenty years after the original operation, and Karasu's case shows that a child may survive at least five years in the presence of pulmonary metastases. It appears that cases with local symptoms (pain, hoarseness, dysphagia or dyspnea) carry a much

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worse prognosis than those with painless nodules. This can well be explained by the fact that infiltration of the larynx, trachea, esophagus or recurrent laryngeal nerves must occur for focal symptoms to be produced, and because of such infiltration the lesion will not be amenable to total excision.

There appears to be general agreement that treatment should be a combination of surgery and radiotherapy; hemithyroidectomy or total thyroidectomy combined with a radical block dissection of the neck, if the lymph glands are enlarged, followed by postoperative irradiation, is the treatment of choice. It is often worth while to excise isolated metastases, as patients have been reported to survive such excision for many years. Bone metastases are usually very radiosensitive but the use of radioactive iodine has proved disappointing.

The case described below showed several unusual features and is therefore reported.

Case

A. D., a boy aged 14 years, was admitted on August 3rd, 1959, with a history of four months' progressive dyspnea. On direct questioning he also admitted to slight dysphagia and some weight loss. A month before his admission he had been treated elsewhere for asthma. There was nothing of note in the family history or the past history.

On examination he appeared to be a sick, rather wasted boy who was in conderable respiratory distress. There was marked stridor and the accessory muscles of respiration (sternomastoids and alae nasi) were moving, although there was no cyanosis. In spite of careful palpation no mass could be felt in the neck.

A plain roentgenogram of the neck showed a grossly narrowed trachea both in the anteroposterior and lateral projections and a barium swallow showed a long stricture of the esophagus with loss of the normal mucosal outline (fig.1).

In view of the long history it was thought that tracheotomy was not urgent, but that evening he became cyanosed and a low subthyroid tracheotomy was carried out. It was noted at that time that his trachea appeared to be compressed. His condition improved rapidly but a further soft tissue roentgenogram of the neck showed an almost complete obliteration of the trachea (fig. 2).

The following morning it was noted that swallowed fluids came out around the tracheotomy tube and a barium swallow suggested that this was due to pharyngeal paralysis and spill-over into the larynx.

On August 10th, the neck was explored under a general anesthetic administered through the tracheotomy tube. Preliminary direct laryngoscopy(Dr. E. Çobanoğlu) showed edema of the ary-epiglottic folds and of the vocal cords but no ulceration or loss of mucosa. An attempt to introduce an endotracheal tube was unsuccessful, the tube being held up below the vocal cords.

The usual collar incision was used and the strap muscles were divided; those on the right side were firmly adherent to the thyroid gland. The thyroid gland was small but the right lobe was very hard indeed. It was mobilised in the usual fashion but it became obvious that the trachea and the pharynx were infiltrated and that the tumor could not be removed completely. The thyroid isthmus was divided and the right lobe was removed by cutting it off the trachea and pharynx. The left lobe of the gland felt completely normal. The wound was closed in layers with drainage.

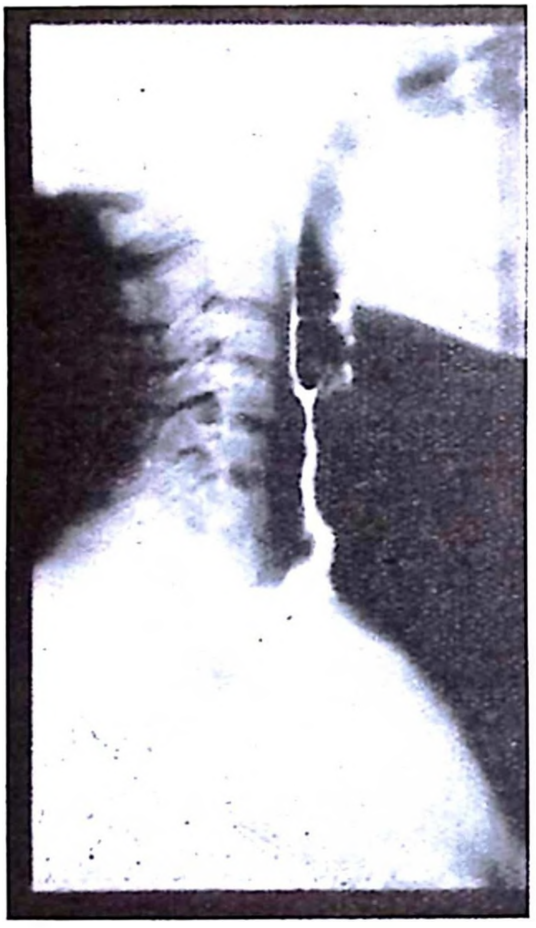

Fig. 1.—Barium swallow showing constriction of esophagus.

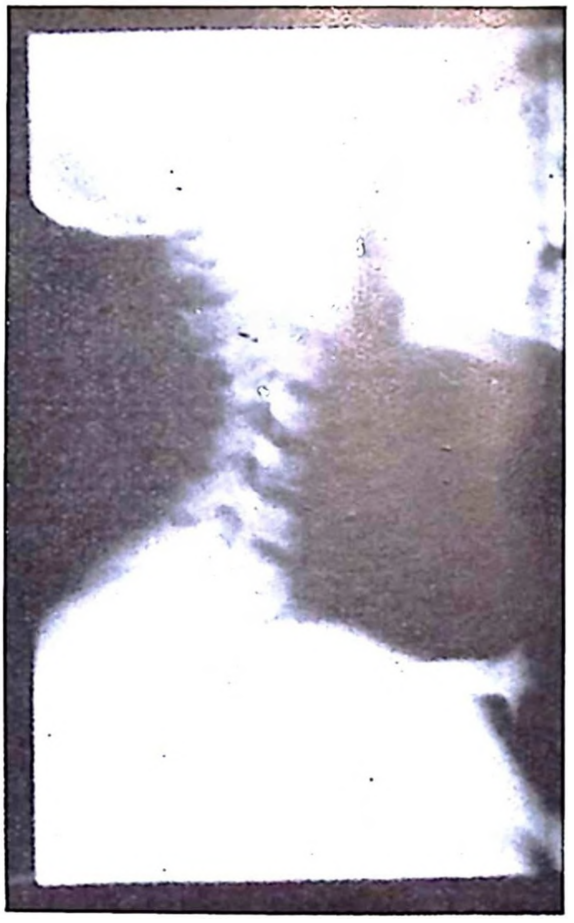

Fig. 2.— Lateral roentgenogram of the neck to show tracheal stricture.

The histological report on the specimen removed was as follows:

"Fragments of thyroid tissue interspersed by dense bands of fibrous tissue in which there is a chronic and purulent inflammatory exudate. A papillary and tubular neoplasm blends imperceptibly with the thyroid tissue and appears to arise in the gland. Mitoses are moderately abundant and lymphatics appear to be invaded. This is a carcinoma of thyroid origin."

His immediate postoperative condition was satisfactory but two days after the operation he developed a fistula alongside the right wound-drain through which swallowed liquids and food emerged. This came presumably from the infiltrated pharyngeal wall and a barium swallow confirmed this opinion.

A course of 2000 r. was given to the neck over 16 days and at the end of the course the pharyngeal fistula closed spontaneously. An attempt to remove the trache-

otomy tube produced immediate respiratory difficulty and the boy was therefore discharged with the tracheotomy tube in situ on October 1.

He was re-admitted a week later with severe stridor which was only partially relieved by aspiration through the tracheotomy tube. A few cubic centimeters of lipiodol were injected through the tracheotomy tube to produce a "tracheo-bronchogram," this showed a filling defect about 1 cm. below the tracheotomy tube, with tracheal narrowing (fig. 3). A small endotracheal tube was manipulated through the tracheotomy tube past this narrowed area and his dyspnea was relieved.

Fig. 3. — "Tracheo-bronchogram" to show the filling defect below the tracheotomy tube.

A further course of radiotherapy to the upper mediastinum was without effect and he developed hard glands on both sides of the neck, presumably lymphatic metastases.

He finally developed severe dysphagia and a tracheo-esophageal fistula and became progressively more cachectic until he died on December 12, 1959.

Summary

Carcinoma of the thyroid gland is an uncommon disease in childhood. The literature is reviewed briefly and the salient points are stressed; it would appear that most cases present originally with a swelling in the neck. A case presenting with severe tracheal compression is reported, this being the second case to be described in Turkey of carcinoma of the thyroid gland in a child.

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