A CASE OF EXOPHTHALMIC GOITRE

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There are so few records of cases of exophthalmic goitre in children under the age of five, that it seems worth while to report this fatal case. The literature on the subject has been reviewed recently by Helmholtz¹ and McGraw².

Case report.

LILIAN L., aged 2½ years, was seen at the Children's Hospital, Birmingham, in May, 1928. The maternal grandmother had a small adenoma, the size of a walnut, of the thyroid gland. The mother, aged 27, had had an uniformly enlarged thyroid gland 'for as long as she could remember.' There were no associated symptoms. The father was healthy, but he had one brother who had a simple goitre at age of 16.

Fig. 1. On admission at 2½ years.

Patient was the first child. During her pregnancy the mother was in bed nearly all the time because of vomiting. The child was suckled for 11 months, and all was well till age one year, when she had double pneumonia and was very ill for three weeks. After that she became very nervous. The enlargement of the neck was noticed for several weeks, and the bulging of the eyes for two weeks before seeking advice.

The appearance of the child at this time is shown in Fig. 1. Her nutrition was good and skin moist. Her weight was 1 stone 9 lb. The thyroid gland was uniformly enlarged and soft, and pulsated. There was appreciable exophthalmos: no tremor. The deep reflexes were brisk,

The area of cardiac dullness was somewhat increased, and there was marked tachycardia. While under observation for 10 days the rate varied from 110–150. The heart sounds were closed. The tonsils were much enlarged, but did not look unhealthy.

Blood examination showed a high leucocytosis. This can be explained by the fact that the child happened to be in the incubation stage of measles, the rash of which, along with Koplik spots, appeared on the tenth day after admission to hospital.

The resting blood sugar was 72 mgrm. One hour after the administration of 20 grm. of glucose it had risen to 403 mgrm. and 2 hours after had fallen to 141 mgrm. The urine contained .12 per cent. sugar.

COURSE.—She was not seen again until August. All the features of the disease were now more marked, and her appearance is shown in Fig. 2. From May to August she had gained 1 lb. in weight. She was much more excitable, and had become unmanageable at home.

Fig. 2. Condition three months later.

Exophthalmos was more pronounced. The thyroid gland appeared to be larger. The heart enlargement is shown in the X-ray photograph (Fig. 3). Tachycardia was more pronounced, and the rate varied from 120–170. A systolic murmur was now audible. The thymus gland was markedly enlarged, as is shown by X-ray. The tonsils were still enlarged and congested.

Blood examination showed a lymphocytosis:—red cells, 5,680,000; white cells, 16,200; (polymorphonuclears 23 per cent., small lymphocytes 65 per cent., large lymphocytes 12 per cent.).

Sugar tolerance was not re-tested and sugar was not again detected in the urine. An attempt to estimate the metabolic rate was not successful. Tremors were not present.

TREATMENT.—During a period of five weeks, under medical treatment, the child lost weight, and the tachycardia persisted. Administration of iodine had no effect.

Operation for removal of the right lobe of the thyroid was undertaken by Mr. Lloyd on September 14th, under general anaesthesia. She appeared to stand the proceedings very well when, almost at the point of completion of the operation, she expired suddenly, presumably from heart failure.

AUTOPSY.—A well nourished child. The right lobe of the thyroid gland had been removed but the remaining portion was uniformly enlarged. The site of operation was free from hæmorrhage. The air passages were free from obstruction. The most prominent organ seen on opening the thorax was a greatly enlarged thymus gland, overlapping the heart, great vessels

and lungs to a remarkable extent. The thymus weighed 96 gm. (The normal weight of the gland for this age is 20 gm.) The lungs showed some area of collapse, possibly due to the pressure of the enlarged thymus. The heart appeared to be somewhat hypertrophied.

The lymphoid tissue throughout the body showed well marked general hyperplasia, this being specially seen in the small and large intestines, the spleen, the pharynx and the cervical and mesenteric glands. The liver, kidneys and brain were normal.

Fig. 3. Skiagram showing enlargement of heart and thymus.

HISTOLOGICAL EXAMINATION.—The thyroid gland showed a marked hyperplasia of the alveolar epithelium. Several areas showed papilliferous extensions of the secretory epithelial cells, thus greatly increasing the surface area of the secreting tissue. The vascularity was pronounced throughout. There was no evidence of inflammatory or neoplastic change (Fig. 4).

The thymus gland showed a well marked lymphoid hyperplasia and some increase in the smaller blood vessels. Hassal's corpuscles were present in very large numbers and distributed fairly regularly throughout the gland. The pituitary gland appeared normal. The cells of the anterior lobe showed well marked granular eosinophilic and basophilic staining. The cortical substance of the supra-renal glands was well differentiated and stained normally. The cells in the medulla were healthy and the blood spaces intact.

The cardiac muscle stained well and showed no degenerative signs. In some areas small collections of mononuclear leucocytes occurred. The blood vessels were healthy. The lymph glands and spleen showed simple hyperplasia.

Fig. 4. Microphotograph of thyroid gland ($\times 40$).

The case illustrates the importance of thyroid disorder in the mother in producing thyroid instability in the child, and suggests its responsibility for the status thymo-lymphaticus which here is more likely to be congenital than secondary to the increased blood supply to the gland.

Infection was the exciting factor, and the first acute respiratory infection, at the age of twelve months, was followed by signs of hyperthyroidism. Intercurrent infection rendered the condition more acute.

The clinical picture did not differ in essentials from that in an adult, with the notable exception that tremors were never present. This seems to be a fairly constant finding in children. The first symptom was nervousness, and was present for more than twelve months before the parents sought advice. Helmholtz has drawn attention to this long initial period in which the true nature of the illness is not recognized. That being so, and 'nervousness' being an early complaint in exophthalmic goitre, it would appear to be a symptom demanding more than cursory attention in the child of a goitrous mother.

The prognosis in older children appears to be reasonably good, but there are on record only two cases of recovery in children under the age of five years. Dreschfeld's³ case, a girl aged three years, who had persistent diarrhoea, recovered after treatment with belladonna and pancreatic emulsion, and was well at the age of seven years. It is difficult to estimate the severity of the case. Helmholtz reported a case of recovery after thyroidectomy in a child aged three years. The case now recorded was considered a good surgical risk, and apparent failure of the usual medical treatment seemed to justify operation. The pathological findings were similar to those in the adult, with the exception of the very marked enlargement of the thymus.

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