THE SCIENCE COMMITTEE

OF THE

British Medical Association.

REPORT CXXI.

ON THE ELECTRO-CARDIOGRAPHIC CURVES YIELDED BY ECTOPIC BEATS ARISING IN THE WALLS OF THE AURICLES AND VENTRICLES.*

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RECENT observations carried out upon a number of patients and upon the heart of the dog beating *in situ* justify the following conclusions.

1. In the dog an artificially excited ventricular contraction yields an electric complex which is distinctive of the area in which it originates. The areas from which specific types of curve may be obtained are numerous. It is not true that there is but a single type for right and left ventricle, and it is equally untrue that certain known types are evidences of hemisystole.

The identification of specific types of curve should prove of considerable value in accurately locating restricted lesions of the heart in clinical work.

2. The type of ventricular complex given by a ventricular beat originating in a single focus is surprisingly constant; it is largely, if not entirely, independent of the phase of diastole in which it occurs, provided that it is not complicated by the complex of a commencing ventricular contraction the result of a normal auricular impulse. Under the last-named conditions very intricate curves are produced.

3. Within a small error of measurement the length of an ectopic ventricular complex is the same as that of the normal ventricular complex (the same feature is noticed in clinical curves, and in the ventricular complex of an auricular extrasystole). This fact is of considerable value in the interpretation of abnormal electro-cardiographic curves.

4. Ventricular ectopic complexes are frequently complicated by the superimposition of normal auricular complexes occurring at the same time. The auricular and ventricular effects may usually be separated. The same statements apply to clinical curves.

5. Many areas of the auricular musculature, when excited, propagate contraction waves of which the electric complexes are distinctive. The auricular complex may be normal in form, diminished or inverted. The type of P variation which most closely resembles the normal P variation is obtained on stimulation of the superior vena cava. Such a type of curve is never obtained from the region of the inferior vena cava. This fact points to the origin of the normal heart-beat in the neighbourhood of the superior venous inlet. (That the pacemaker of the heart is constant in position is evidenced by the constancy of the shape of the normal P variation.)

6. The ventricular complex resulting from an ectopic auricular impulse always commences with a base negative effect. There is considerable variation in the type of the complex as a whole, according to the phase of the ventricular diastole in which it occurs. The most conspicuous variations are an increase in the amplitude of R during later diastole (and this may occur to such an extent that it actually exceeds that of the normal R peak), and an inversion or decrease of T according as the ventricular complex commences in early or late diastole respectively. Variations in the R and T peaks of the post-extrasystolic contraction are also seen. Somewhat similar variations are met with in clinical cases.

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7. Increase of the P-R interval is not uncommon in instances of early auricular extrasystoles.

8. Many of the clinical curves of single and successive ectopic beats have been duplicated experimentally. They will be reported at a later date.

9. In patients, the constancy of the type of extra-systolic electric complex from day to day, month to month, or even year to year, is often very striking. It indicates the constancy of the exciting agent and the limitation of the area of its influence.

Memoranda:

MEDICAL, SURGICAL, OBSTETRICAL.

KALA-AZAR IN THE YANGTSE VALLEY.

FLEET SURGEON P. W. BASSETT-SMITH having very kindly published, with a drawing, in the JOURNAL of December 4th, 1909, p. 1614, the case of kala-azar discovered by Surgeon G. B. Scott, R.N., and the writer amongst the in-patients at the Hospital of St. Vincent, Kiukiang, perhaps a few additional remarks upon the case might prove of interest.

Shortly after we found Leishman-Donovan bodies in liver-puncture material, the boy, aged 11, was placed on soamin injections, grains 5, every alternate day, until a total of 110 grains had been given. He benefited from the treatment, and early in August, about two months after treatment commenced, the spleen, which had reached formerly the pelvic crest, had shrunk to the level of the umbilicus, and the liver from 3 in. below the costal margin to a position where it was scarcely palpable. The anaemia improved, and the child, from being taciturn and dull, became brighter and more intelligent. This improvement continued for about two months, and then the disease showed signs again of making headway. The spleen commenced to increase in size, though the liver remained only slightly enlarged.

A second course of soamin was commenced early in October, and 10 grains were injected every alternate day. After 70 grains had been given diarrhoea set in, and the soamin was stopped. This diarrhoea soon yielded to treatment, but the patient did not improve. Bone marrow, fresh and in tablets, together with tonics and quinine, failed to arrest the extreme anaemia and emaciation. Lung symptoms developed, and the patient died on December 13th, 1909. No *post-mortem* examination was permitted.

It is interesting to note that a case of kala-azar, diagnosed by liver puncture, was under treatment last summer in a missionary hospital in or near Hankow. We are not, however, entirely certain that these cases come from some epidemic centre on the Yangtse. It was found on further investigation that our patient had been brought to this district some two years previously by his father, who had emigrated from Shantung province with his family to work on a local railway. The patient had suffered from fever and swollen belly before leaving Shantung. No other member of his family was similarly afflicted. So far no other cases of kala-azar have been sent in from the railway, though cases of *Schistosomum japonicum* are not at all infrequently seen, and are probably the cases of "big belly" reported to us as occurring in the vicinity of neighbouring waterways. It is not improbable that the endemic centre is in Shantung, from which province reports of cases are often made. Three years ago a terrible famine in Shantung drove numbers to emigrate to the Yangtse provinces. It is likely that the disease will spread along the river, but at present cases would seem to be few and probably imported.

It is interesting to note that cases of kala-azar in Europeans were reported as having occurred amongst those who had taken part in the 1900 campaign against the Boxers. The troops operated for the most part in Chili, which borders on Shantung. Fleet Surgeon Bassett-Smith's patient had been to Tientsin as well as to Yangtse ports, so that a northern origin to his cases cannot be entirely eliminated. The subject is one of extreme interest, and that is my excuse for adding these notes to Fleet Surgeon Bassett-Smith's interesting communication.

Kiukiang.

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