SIX CASES OF CARDIOVASCULAR DISORDER WITH PERIPHERAL NEURITIS

BY

EMIL LEIGH, M.D., M.R.C.P.

Assistant Physician, Haymeads Hospital, Bishop's Stortford

AND

A. R. HAZELTON, M.B., Ch.B.

*Medical Superintendent, Manley District Hospital, Manley,
New South Wales*

Six cases were chosen from among many men suffering from a common complaint in a P.O.W. camp in Siam. Typical was a healthy-looking young male who complained of breathlessness on walking on the level, palpitation, and occasional precordial pain. The symptoms resembled those of effort syndrome. A history of malaria (several attacks), diarrhoea, or nutritional oedema was obtained, but none of diseases predisposing to cardiac disorders. There was no advantage to be gained by malingering at this period, nor was there any evidence of hysteria.

Before Thiamine

On examination, tachycardia, abnormal increase of pulse rate on rising from the recumbent position, tumultuous heart action, some impurity of the mitral first sound, a

clusive (pulse rate was reduced in 1 case, increased in 2, unaltered in 3).

After Thiamine

Each patient was then treated with thiamine, 17,000 units being given by intramuscular injection in a period of 13 days. During treatment the men were allowed to be up and about, and no change was made in their habits, occupation, or diets.

After this treatment pilocarpine increased the pulse rate in all 6 cases (average increase, 14). Atropine reduced the pulse rate in all 6 (average decrease, 14).

The stability of the vasomotor control was increased as shown by the results of injections of pilocarpine and atropine. Apparently at the high atmospheric temperature prevailing in Siam the effect of pilocarpine is to increase the pulse rate owing to reduced blood pressure secondary to vasodilatation. Atropine has the opposite effect. The side effects—salivation, dryness, etc.—indicated that there was no error in the use of the drugs.

A fall in the recumbent pulse rate, varying from 14 to 28 per minute, occurred in 5 out of the 6 cases. The sixth remained stationary at 80. The discrepancy between recumbent and upright pulse rates fell from an average discrepancy of 16 to 8 in 5 out of 6 cases.

Abnormalities in physical signs in the heart showed improvement in 4 out of the 5 cases showing them. The pistol shot sound in the groin in the recumbent position disappeared in 2 cases, was greatly reduced in 3 cases, and remained unaltered in the remaining case. Carotid sinus

	Case 1 (J. E. B.)		Case 2 (G. B. S.)		Case 3 (A. R. H.)		Case 4 (H. H.)		Case 5 (R. B.)		Case 6 (D. E. S.)	
	Before Thiamine	After Thiamine	Before Thiamine	After Thiamine	Before Thiamine	After Thiamine	Before Thiamine	After Thiamine	Before Thiamine	After Thiamine	Before Thiamine	After Thiamine
Recumbent pulse rate	92	74	84	70	112	90	84	56	92	64	80	82
Discrepancy between upright and recumbent pulse rates	16	8	20	26	12	6	18	10	14	10	20	6
Pulse rate after pilocarpine 1/5 gr.	+6	+8	No change	+10	+26	+10	No change	+20	+8	+14	+24	+20
Pulse rate after atropine 1/40 gr.	No change	-8	+10	-10	No change	-28	-6	-6	+8	-14	No change	-18
Ciliary fatigue time . .			1½ min.	8 min.	3 min.	4 min.	3 min.	5½ min.	4 min.	10½ min.	5 min.	25 min.
Pistol-shot sound . .	+++	+	++	++	+++	+	++	+	++	—	+++	+
Ergograph test carried to standstill	87 strokes in 2½ min.	260 strokes in 6 min.	100 strokes in 3 min.	206 strokes in 5 min.	89 strokes in 2 min.	400 strokes in 2 min.	65 strokes in 2 min.	122 strokes in 3 min.	164 strokes in 4 min.	350 strokes in 6½ min.	20 strokes in 40 sec.	226 strokes in 4½ min.
Carotid sinus irritability	+	+	—	—	++	—	—	—	—	—	+	—

pistol shot sound over the femoral artery, and carotid sinus irritability could be found. No cardiac enlargement, oedema, or anaemia was detected. The standard exercise tolerance test gave normal results in spite of dyspnoea on walking. Reduced sensibility of peripheral distribution to pin-prick and deep pressure, with sluggish reflexes and slight Rombergism, constituted the common neurological findings. Routine physical examinations were recorded and disease of other systems excluded (detailed case records are available).

The following investigations into the autonomic system were carried out and repeated after treatment with thiamine: the response of the recumbent pulse rate to atropine and pilocarpine (on separate days); ciliary fatigue time; ergograph tests on skeletal musculature; carotid sinus irritability; dermatographia.

Before treatment with thiamine, pilocarpine 1/5 gr. (13 mg.) subcutaneously increased the pulse rate in 4 cases (average increase, 16 per minute), and did not alter it in 2. The effect of atropine 1/40 gr. (1.6 mg.) was incon-

clusive. Irritability disappeared in 2 out of 3 cases. Ergograph experiments showed improvement in all cases ranging from 68% to 800%. Ciliary fatigue time tests showed improvement in 5 cases, ranging from 33% to 500%. The sixth could not see the text and could not be tested. (The eye disturbances form the subject of a separate paper.) Examination of the C.N.S. gave evidence of partial return of the reduced function of the peripheral nerves in all 6 cases. No characteristic changes could be detected in the blood pressures, which were all normal.

Breathlessness was greatly reduced in all 6 cases. Precordial pain was reduced or abolished in 4 out of 4 who had complained of it. Palpitation was reduced or abolished in 4 out of 4. Sleep improved in 5 cases. Nocturnal frequency of micturition was reduced in 3 out of 6 (urine more concentrated in 5 out of 6). Frequency of bowel action was reduced in 2 out of 2. Appetite increased in 1 case, diminished in 1. Headaches were abolished in 2 out of 2. The improvement in symptoms began after the third injection.

It was felt that the dosage of thiamine had been inadequate, but supplies were very restricted.

Conclusions

Thiamine benefited cases of a syndrome of cardiovascular derangement resembling effort syndrome with peripheral neuritis.

There was a disturbance of the autonomic system which appeared to be corrected by thiamine.

Medical Memoranda

Hypertension and Nephrectomy

Ever since Goldblatt demonstrated that hypertension could be produced experimentally by unilateral renal ischaemia, the hope has been present in the minds of physicians that some cases of hypertension would be amenable to treatment by nephrectomy. It was obvious that the necessary condition of a localized silent kidney lesion was not common, and the prospects of operative cure are correspondingly less so. Nevertheless, during the past ten years cases of pyelonephritis and hydronephrosis, and even of renal tuberculosis and neoplasm, have been reported as causing hypertension which was cured by this operation. Some American writers have suggested that 1 in 200 of all cases of hypertension fall into this category, but English opinion tends to regard this as over-optimistic. Ratcliffe, Nesbit, Plumb, and Bohne (*J. Amer. med. Ass.*, 1947, 133, 297), reviewing pyelograms on 2,055 hypertensives in the University of Michigan Hospital, found nephrectomy indicated in under 5%. Cases of hypertension found in members of the Armed Forces, being young and otherwise fit, would appear a suitable field for seeking such surgical opportunity. The following case report suggests that the search is worth while.

CASE HISTORY

On Nov. 7, 1944, a W.A.A.F. non-commissioned officer aged 27 was admitted to hospital with a history of headache and vomiting for eight months. The headache was worse in the mornings. There had been a slight loss of weight, but no other symptoms, in particular no urinary symptoms. Examination showed a normally developed girl with a forcible pulse and a blood pressure of 250/160. The apex beat was not palpable, the femoral pulses were easily felt, and the fundus oculi showed hypertensive change, in that the arteries were narrowed to fine threads. There was some white exudate but no haemorrhages. It appeared to me that early papilloedema was present, though on subsequent reflection I am not disposed to be definite on this point. She had no recollection of any previous illness, and her records showed that at a routine examination eleven months earlier her blood pressure was noted as 120/70. Experience has taught me, however, that the results of routine examination are not a suitable basis for scientific deductions.

Investigations.—The urine showed a cloud of albumin and a moderate number of red cells, but no casts. A radiograph of the chest revealed a heart at the upper limit of normal and a dilated aorta. An intravenous pyelogram showed a normal left kidney but no secretion on the right. Retrograde pyelography by Squadron-Leader Gordon Lennon, surgical specialist, was reported on by Flight-Lieutenant Donnelly, radiologist, as follows: "A large hydronephrosis is present on the right side. It is of the combined intra- and extra-renal type. The right ureter appears normal. Most of the dye was retained in the pelvis five minutes after injection, suggesting a valvular action at the pelvi-ureteral junction. The above indicates that the hydronephrosis has been caused by an aberrant renal artery." The blood urea was 20 mg. per 100 ml. and the urea clearance was 118.5% of average normal (van Slyke).

Progress.—After a month in bed her blood pressure had fallen to 170/130 and was obviously going no lower. The consultant in surgery (Air Commodore Hall) and Squadron-Leader Lennon agreed that nephrectomy was indicated, and on Dec. 13 this was performed by the latter. Some difficulty was experienced in mobilizing the kidney, which was represented mainly by a hydronephrotic sac. Nothing untoward occurred, however, and on the day after operation her condition was excellent, with a blood pressure of 190/140. During convalescence she remarked that all headache and feeling of discomfort had gone, and that she felt well for the first time for many months. On her discharge from hospital on Jan. 8, 1945,

her blood pressure was 170/115. Three months later her health was excellent, the urine free from albumin or other abnormality, and the fundus oculi normal. Her blood pressure, however, continued to range around 180/130. It was obvious that restoration to normal had not occurred, and probably would not do so, but there was no doubt that she had been changed from an extremely sick young woman to one capable of enjoying all ordinary activities. In November, 1946, she was living a normal life free from symptoms, with a blood pressure of 165/105 but no other detectable abnormality. When last seen in July, 1947, her condition was the same.

DISCUSSION

By far the greatest number of cases of alleged hypertension referred to me from Service units were not hypertensive by ordinary standards. They represent an emotional rise of blood pressure associated with medical examination which reverts to normal when the patient is put at ease with the examiner. A few, however, as in the case quoted, have an undeniable hypertension. If surgery is to be considered, the most convenient preliminary investigation of such cases is pyelography, since biochemical renal function tests, though useful later, do not give the needed information as to the anatomical distribution of the lesion. In dealing with large numbers of cases it saves time if the most selective procedure is done first. Of 30 genuine cases of hypertension that I dealt with unilateral kidney damage was found in two. The progress of one is recorded above. That of the other was cut short, after a successful operation for removal of an atrophic kidney, by an unrelated fatal illness.

C. P. PETCH, M.B., M.R.C.P.,
Late Wing-Commander, R.A.F.V.R.

A Complication of Birth Control

The following case report draws attention to a practice that may be gaining in popularity.

CASE REPORT

The patient, an intelligent married woman aged 31, was admitted on May 25, 1947, from the casualty department, having passed a clinical thermometer into the bladder via the urethra. She complained of slight lower abdominal discomfort, and there was a small quantity of blood in the urine; she passed urine without difficulty but had some discomfort at the end of micturition. The accompanying skiagram shows the thermometer lying transversely across the bladder.

The thermometer was easily visualized by cystoscopy, and the temperature was seen to be 100.5° F. (38.05° C.). The patient

was put in a partial Trendelenburg position and the smallest-size infants' proctoscope was passed through the urethra. Eve's nasal snare was placed round the constriction of the bulb of the thermometer, which was then extracted. There were no subsequent urinary difficulties, and the patient was discharged on the following day.

The explanation of this occurrence is as follows. The patient had read in a magazine of the so-called "safe period" method of birth control and the relation between the time of ovulation and a variation of vaginal temperature, and she was keeping a daily chart of that temperature. For ten mornings this had shown little change. On the eleventh day she carelessly passed the thermometer into the bladder. If this practice is becoming more common, the provision of a specially designed thermometer with flange or handle would seem desirable.

JOHN HANKINSON, M.B., B.S.,
St. Mary's Hospital, W.2.