Mr. X is 44 years old and is a coal-miner working at the coal face. He has no complaints whatsoever. He has two abnormalities—a positive direct antiglobulin reaction and a low haptoglobulin level. An apparently healthy man with this type of true positive direct antiglobulin reaction and no significant previous illness seems to be unique.

This case obviously needs following before a final answer to the present finding can be given. The most likely explanation is that he has an acquired haemolytic "anaemia" which has been detected in a very early stage, and which is at present fully compensated, although one might have expected a higher reticulocyte count. The low haptoglobulins suggest that haemolysis may be active. Nosslin and Nyman (1958) found these levels to be low in haemolytic diseases. The serological findings are those of a haemolytic anaemia; the haematological findings are normal. The picture is very similar to that sometimes seen in known cases of acquired haemolytic anaemia, either during natural remission or after treatment with steroids or by splenectomy. It remains to be seen whether in the course of months or years the present findings will change and show the full picture of an acquired haemolytic anaemia.

A further examination of specimens taken in October, 1958, showed no change. The haemoglobin level was normal and the red cells still showed the same degree of sensitization.

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BILATERAL THROMBOPHLEBITIS AFTER A SINGLE DOSE OF ERGOTAMINE TARTRATE FOR MIGRAINE

BY

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Although ergotamine tartrate has such a well-established place in the treatment of the acute attack of migraine and the toxic effects of ergot and its alkaloids are so often quoted, the incidence of thrombophlebitis occurring after ergotamine tartrate has not often been recorded; in fact, only one reference has been found—that of Sir Russell Brain (1947), who, writing on the treatment of migraine, states: "Ergotamine tartrate has a highly specific effect on the headache . . . there seems no risk of ergotism, but pregnancy and arteriosclerosis are contraindications, and, rarely, a single dose may cause thrombophlebitis."

Below are given the case histories of three patients who in one practice in the course of two years have developed bilateral thrombophlebitis following a single dose of ergotamine tartrate.

Case 1

A married woman aged 42, with two children, was diagnosed by an ophthalmic surgeon in 1954 as suffering from migraine, precipitated by strong sunlight. The wearing of dark glasses seemed to prevent the recurrence of any severe attacks, but ergotamine tartrate ("femergin") was prescribed in case of need.

On May 11, 1955, she developed an acute attack of migraine and took her first dose of ergotamine (two 1-mg. tablets) at 11 a.m. About 2 p.m. the headache disappeared quite suddenly, but she experienced a cramp-like pain in her right calf. This pain persisted and grew in severity throughout the afternoon and evening. In the night she was very restless with the pain and began to have sharp pains in the left leg. In the early hours of the following morning she was unable to stand up.

Examination later that morning showed that she was afebrile and had no gross varicose veins; but a dull red line, which was very tender, was present over the course of the long saphenous veins in the right leg, extending about a quarter of the way up the right thigh. A similar red line, also very tender, was present in the left leg, but this did not extend above the knee.

Both legs were strapped with "elastoplast," sorbo-rubber strips covering the affected veins, and she was encouraged to be ambulant. Within 24 hours she was much easier, all symptoms had gone within four days, and when the strapping was removed after 12 days there was no evidence of any residual thrombosis. She did show some varicosity of the long saphenous veins, more marked in the right leg.

Case 2

The patient, a married man aged 44, had a history of marked varicose veins in both legs, for which he had had injections in 1942, which had been followed by a troublesome phlebitis. This had dissuaded him from any surgical procedure, and he had resigned himself to a below-knee elastic support. He had also managed to change from a manual occupation to a sedentary job in May, 1956—a change which had relieved his leg symptoms but aggravated his migraine.

On July 19, 1956, he received his first prescription for ergotamine tartrate, and on July 23 he had a typical migraine attack on rising. He took two 1-mg. tablets sublingually about 9 a.m. (it was Sunday) and then had a little breakfast. His headache began to ease and he decided to seek some fresh air in the garden. About 10.30 a.m. he was compelled to return indoors with severe pains in both legs. The pains increased, and by lunch-time he was only capable of lying on his bed. After a restless day and night he found numerous red lines on both legs.

Examination then revealed an intensive network of very tender red lines over both legs and extending half-way up each thigh. He was admitted to hospital, and the following day both long saphenous veins were ligated at the saphenous opening to obviate the danger of pulmonary emboli. He made a steady recovery.

Case 3

A married man, a shop-proprietor aged 44, whose mother had suffered from asthma, was first diagnosed as suffering from migraine in 1952. Codeine tablets usually relieved the attacks, but in February, 1957, they became more frequent and he was subsequently kept on a modified Gowers mixture as a preventive. On March 23 he had his first prescription for ergotamine in the form of "cafergot."

On April 5 he felt a typical attack starting on rising. He returned to bed and swallowed his first dose of ergotamine tartrate (two tablets) at 10.30 a.m. He fell asleep, and awoke at 2 p.m. with his headache gone but having severe pains in the varicose veins in both calves. He remained in bed, and slept through the early part of the night, but found himself unable to stand the next morning owing to severe pains in both legs, the left being the worse.

Examination revealed a tender red line over a vein in his left leg, extending for about 4 in. (10 cm.). He had a small area of tenderness over a vein in the right calf but no redness. Both legs were strapped with elastoplast; he was much better in 48 hours, and when the strapping was removed after one week no signs of thrombosis or phlebitis were present.

Discussion

Von Storch (1938), in a review of an early trial of ergotamine tartrate for migraine, mentions perivascular pains and pains in varicose veins as a rare complication. Spasm of the saphenous vein is referred to by Clarke (1957). The observation of Russell Brain quoted above is, however, the only reference to thrombophlebitis occurring after ergotamine; he mentions it as happening after a single dose, which is confirmed by the above three cases.

The third case is particularly interesting, for the difference between this patient's two legs tends to suggest that the pain which occurs in varicose veins following ergotamine may be the first stage of a thrombophlebitis.

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SALT INTAKE AND HYPERTENSION

BY

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Hypertension was found by Dahl and Love (1957) to be associated with a high dietary intake of salt. In a group of 1,346 adults, habits of salt intake were classified as follows: (1) low intake—never add salt to the food at table; (2) average intake—add salt to food after tasting if insufficiently salty; and (3) high intake—routinely add salt to foods customarily salted before tasting.

TABLE I.—Correlation of Salt Intake and Hypertension in 1,346 Adults

	No. in Group	No. with Hypertension
Low intake	135	1
Average intake	630	43
High intake	581	61

Hypertension was significantly more frequent among those with a high intake than among the average group (Table I, $p < 0.01$).

Dahl (1957) also studied the sodium excretion in hypertension, assuming that sodium is the important ion and that sodium excretion normally reflects intake with reasonable accuracy. The average sodium excretion of nine hypertensive men was 204.3 ± 27.3 mEq/24 hours, while the average excretion of 19 men with normal blood pressure was 165.7 ± 32.0 mEq/24 hours. The difference is significant ($p < 0.01$). In the present work sodium excretion has been measured in a larger group of men with hypertension.

Method and Results

The 24-hour urinary excretion of sodium has been measured in 20 men with hypertension and in 20 men with normal blood pressures. Blood-pressure levels over 140/90 mm. Hg have been regarded as abnormal. The mean age of the group with hypertension was 49.8 years, and their mean blood-pressure level 218.9/127.3 mm. Hg. The mean age of the normotensive group was 56.3 years. All were out-patients, taking their normal home diet and unaware that their salt intake was being investigated. The work has been confined to men because of the greater difficulty of

collecting samples in women and because of premenstrual sodium retention. Sodium was estimated by flame photometry.

The mean sodium excretion of the 20 men with hypertension was 156.3 mEq/day (S.D.=54.6). The mean excretion in the 20 with normal pressures was 154.1 mEq/day (S.D.=46.2). The difference is not significant.

In this small group little reliance can be placed on differences in the subjects' accounts of their dietary habits. It is of interest, however, that high salt intake was commoner among the men with normal blood pressures (Table II).

TABLE II.—Salt Intake in 20 Men with Hypertension and 20 Men with Normal Blood Pressures

	Salt Intake		
	High	Moderate	Low
Normal blood pressure	9	10	1
Hypertension	4	15	1

Discussion

The present results do not confirm the findings of Dahl and Love (1957) that hypertension is associated with a high sodium intake and excretion.

There is other evidence suggesting that sodium plays an important part in the pathogenesis of hypertension. Hypertension is extremely rare among the Australian aborigines (Hicks and Matters, 1933), the Cuna Indians of Panama (Kean, 1944), and the tribes from the Szechwan mountains of West China (Morse and Beh, 1937). A factor common to all these peoples is a low sodium intake of 1-2 g. or less a day, but many other factors, nutritional or genetic, may be responsible.

With restriction of dietary salt to less than 250 mg. a day, the blood pressure falls in most hypertensive patients and rises again if more salt is added (Kempner, 1948). Moreover, Perera and Blood (1947) found that the rise in blood pressure of hypertensive subjects resulting from deoxycortone could be prevented by restriction of sodium intake. They showed also that an increase of dietary sodium chloride from 4 to 15 g. daily produced a slight but definite rise in blood pressure in six patients with hypertension.

In rats the use of 2% sodium chloride as drinking-fluid for six weeks produces hypertension and renal hypertrophy (Sapirstein *et al.*, 1950). The feeding of salt also enhances the hypertension resulting from experimental renal ischaemia (Verney and Vogt, 1938), and salt restriction prevents production of hypertension in rats by deoxycortone injection (Braun-Menendez, 1951).

Summary and Conclusions

The sodium excretions of 20 men with hypertension and 20 men with normal blood pressures did not differ significantly. Other evidence suggests that sodium is necessary for the production of hypertension. In our society, however, hypertension cannot be related simply to dietary sodium intake.

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