Education of the Epileptic Child

SIR,—Your leading article (October 11, p. 823) underlines a problem that has given concern to education and health authorities for some time, but the size of the problem is difficult to determine. Among the 400,000 children in London County Council schools a recent inquiry revealed 249 "epileptics." Of these, 166 are attending ordinary schools. This means that their treatment is adequate, and the community is ready to accept their occasional seizures, whether these are major fits, minor, or some equivalent. This figure of 249 children is probably too low, but the excess will consist of other children like these who are able to lead much the same kind of life as normal school-children, and who have not therefore been brought to the notice of the school physician. Of the remaining 83, 11 are in schools for the educationally subnormal, 12 are in schools for the physically handicapped, where attention is available for their more frequent fits and transport between home and school can be provided, 58 are in epileptic colony-schools, and two 5-year-olds are at home while the result of further treatment is observed.

The two greatest difficulties met with in the care of these children are to ensure effective treatment, and to persuade the community in which they live to accept them. The first means that the parents have to co-operate with the family doctor and with the hospital over what must seem a very long period, and the second means that teachers, school-fellows, and the parents of other children have to overcome any repugnance they may feel. The fear and other emotions aroused by a major fit in a companion are not easily dispelled, but in some schools that have faced this problem the most encouraging results have been obtained. If this attitude were general there might be no need for a special school for maladjusted epileptic children, for their acceptance by the community should reduce the amount of maladjustment, or, if maladjustment is sometimes part of the syndrome, then such children could be admitted to the existing special schools for maladjusted children. As such a Utopia has not yet arrived, it is perhaps necessary to consider the provision of some form of special education for the few children who cannot be accommodated in one or other of existing types of school.—I am, etc.,

London, S.E.21. DENIS PIRRIE.

Arterial Spasm in Limb after Venepuncture

SIR,—Whilst reading the article on "Arterial Spasm due to an Intravenous Infusion," by Dr. M. Sutton (October 18, p. 859), I was reminded of a much commoner phenomenon which receives little recognition in textbook or article. I am referring to arterial spasm in a limb following venepuncture, either for withdrawal of blood or for transfusion by a drip.

I first came across this phenomenon some years ago when I had visited a case with an obstetrical flying squad. I had used both arms for the drip, so that I was taking blood pressure on an arm which had had a previous venepuncture. The radial pulse was poor and the blood pressure was low, and it was some time before I realized that the pulse on the other arm and over the carotid was quite good, and that in fact the patient had already responded to transfusion. I have met this phenomenon several times since, and only the other day a dramatic demonstration of it was seen in my ward. A woman was admitted to hospital following an abortion with haemorrhage: during the course of treatment venepuncture had been made into both median basilic veins. I was called to see her because both radial pulses were weak, thready, and rapid, although one house-surgeon pointed out that the patient's face was red and florid whilst her hands were cold and blue. On further examination a bounding carotid pulse was found, which made it apparent that the weak radial pulse with the low blood-pressure recording on each arm was due to local arterial spasm. The patient was, in fact, not shocked, but toxic, for she had a raised temperature which caused the rapid pulse.

It is quite reasonable that this phenomenon should occur, for Ochsner (1940) has already described the reflex spasm that can occur in a limb following thrombosis in a vein. It is perhaps, therefore, not surprising that simple venepuncture should produce a similar spasm. It is important to realize that this can occur, for failure to recognize the true condition might lead to the continuance of transfusion long after the necessity for it has ceased. It is true that other signs and the patient's general condition should help to counteract the impression given by the falsely low blood-pressure recording on the arm which had undergone venepuncture, but, by the unwary, these additional guides might be overlooked.—I am, etc.,

Bristol. T. F. REDMAN.

REFERENCE

Ochsner, A., and De Bakey, M. (1940). *Arch. Surg. (Chicago)*, **40**, 208.

Severe Damage to Limb after Blood Transfusion

SIR,—Dr. M. Sutton's article (October 18, p. 859), recording a case of arterial spasm due to intravenous infusion, recalls a case in which severe damage to a limb followed a blood transfusion, and two further cases of minor circulatory impairment from the same cause.

Case 1.—A girl of 18 was admitted for an emergency appendicectomy. A pelvic abscess was drained nine days later. After an initial improvement the patient became increasingly toxic, intestinal obstruction developed, and it was decided to perform a laparotomy in an attempt to relieve her obstruction. The patient's general condition was poor, blood pressure 105/80, pulse 120, poor volume, temperature 100.6° F. (38.1° C.), face and extremities pale and cold. A saline intravenous drip was set up in the dorsum of the right hand, pending the arrival of blood. Thiopentone 0.25 g. and tubocurarine chloride 16 mg. were injected into the drip tubing, and after intubation the anaesthetic was continued with cyclopropane and oxygen.

The operation lasted one and a half hours, during which time the gut was freed of adhesions and 2½ in. (6.35 cm.) of intestine resected and a large abscess in the right flank drained. After three-quarters of an hour the patient's blood pressure became unrecordable. The intravenous saline was changed to blood, the table placed in the Trendelenburg position, the anaesthetic discontinued, and oxygen alone administered. At the end of the operation the systolic blood pressure was 80, pulse 150, and 2½ pints (1.7 l.) of blood had been transfused.

Soon after the blood transfusion commenced the right hand and distal two-thirds of the forearm became a mottled purple colour. The left hand was also blue and cold and the peripheral circulation was extremely poor. The radial pulse was perceptible in both wrists, but was weaker on the right. On return to the ward, warmth was applied to the arm. In all, 4 pints (2.27 l.) of blood were transfused and the drip was continued with dextrose-saline for 48 hours.

The patient's peripheral circulation never improved after operation and death occurred on the fifth post-operative day. The circulation was always worse in the right arm, which remained blue and cold and after 48 hours began to swell, when the drip was discontinued. The radial pulse at this stage was just perceptible, but disappeared on the right side as the swelling increased. For 24 hours before death it was impossible to feel a pulse in either wrist. The right hand and distal third of the forearm progressed to frank gangrene with bleb formation.

Case 2.—A middle-aged woman was admitted with a ruptured ectopic pregnancy and severe intra-abdominal bleeding. Her pulse could scarcely be felt, her blood pressure was unrecordable, and she was semiconscious. An intravenous blood transfusion was set up in a vein on the flexor surface of the left wrist—the only vein visible—and as soon as her systolic blood pressure reached 90 mm. laparotomy was performed. The operation lasted 30 minutes, and during this time the left hand and distal half of the forearm assumed a purplish mottled appearance identical with Case 1. The radial pulse was present, but the volume was diminished compared with the right. Once the bleeding vessel had been ligated and the peritoneum closed the patient's condition rapidly improved and the blood pressure rose to 120/80. The circulation in the left arm improved fairly quickly, and it became warm and pink again while the drip continued.

Case 3.—A woman, aged 65, was undergoing an operation for abdomino-perineal resection of rectum. During the operation her

blood pressure fell from 140/70 to 110/70. An intravenous blood transfusion was given throughout the operation, which lasted an hour, into a vein on the dorsum of the right hand which ran superficial to the space between the fourth and fifth metacarpals. At the end of the operation the fourth and fifth fingers were found to be cold and purple in colour, the tips of the fingers being dead white. Warmth was applied to the hand in the ward, and the drip continued for another hour, without improvement in the appearance of the two fingers. The drip was changed to a proximal vein in the other arm, with immediate return of circulation in the right hand.

In Case 1 the patient's peripheral circulation was minimal, and the diminution caused by the cold blood entering the limb was sufficient to precipitate gangrene. Case 2 might have ended in the same way if the transfusion had been continued long enough and if the patient's general condition had not improved.

These cases are in no way comparable to that of Dr. Sutton's, in which the stimulus causing spasm was an intravenous needle lying in close proximity to the arterial wall and acting as an irritating foreign body. In the above cases the stimulus was that of cold acting upon a circulation which was already impaired. But they serve to draw attention to the danger of using peripheral veins to transfuse blood, for long periods, in patients whose general condition is poor.—I am, etc.,

Isleworth, Middlesex. A. B. VAUGHAN.

Lumbar Intervertebral Disk Protrusion

SIR,—In view of recent correspondence about "painful back" I believe Dr. D. M. Graham-Service (October 18, p. 882) may be on the right track. I am with him in condemning back supports: it seems to me there can never be support of the back when the belt is partly enveloping the movable abdomen. All the same, I feel he has missed the point in endeavouring to replace bony structures by manipulation, and even when he has done so I fail to see how he can be certain that these have been replaced micro-accurately, if I may use the term. I have no doubt he is right to try to correct the posture, but I feel he is wrong in directing treatment to bones and joints rather than to muscle groups. If for any reason there is postural alteration of bones or of the joints related to the back, it seems quite obvious that muscle groups must then take on the permanent job of trying to hold the pre-injury posture.

It would seem, therefore, that we have a condition of chronic muscle spasm together with an associated ache. Local analgesia benefits most of these cases more than anything else except rest in bed, but with neither treatment do we get permanent relief. Certain surgeons seem to be showing some advance in their ideas of lengthening the tendo achillis, but they do not seem to realize that by so doing they allow the individual to take his weight more on the tarsus than on the heel. I have found great relief in most cases by a much simpler method—namely, by raising the heel of the man's shoes ¼ in. (0.6 cm.) or more.

For some unfathomable reason pitching the balance forward tends to relief of symptoms, and I think that here is a great opportunity for someone with ample time and facilities to investigate this approach. On the whole this gives more permanent relief than any other treatment I have investigated.—I am, etc.,

London, S.W.1. VINCENT HYSLOP.

SIR,—I cannot let Dr. D. M. Graham-Service's letter (October 18, p. 882) pass without comment, because it contains two statements which do disservice to our patients. In discussing diagnosis Dr. Graham-Service says that "apart from these two methods (i.e., operation or myelography) I do not think that an absolutely definite diagnosis of disk protrusion can be made." He goes on to suggest other causes for pain, and continues: "Here I agree with Mr. Henderson that because the condition is essentially subjective it is difficult to assess the results of conservative treatment." It would appear from these two statements that the criteria on which the diagnosis is made by these two gentlemen are inadequate.

I believe it is true to say that no surgeon with any experience would operate on, or treat by any other method, a patient thought to be suffering from a disk protrusion unless there were ample objective signs that this was the cause of the symptoms. The first set of signs are those relating to the spine, and concern its posture, its range of movement, and the presence or absence of tenderness. In their absence one seeks for some other cause of the sciatica. The second set of objective signs relate to the lumbo-sacral plexus of nerves. The most important are the alteration of a reflex or of skin sensation. I do not forget the importance of *x* rays and examination of the cerebrospinal fluid, or the great stress to be laid on a detailed history, or the assessment of the patient's emotional state and domestic, social, and industrial background. I take these for granted.

It is possible for a patient to have pain referred down a leg, but in the absence of signs indicating that one or more nerve roots are involved there must be some other cause than that of a protruded intervertebral disk, or any other lesion—such as an abscess or tumour—capable of involving the nerve root. It must, I think, be the experience of every surgeon that subjective sciatica has been caused by lesions of joints and in particular of the sacro-iliac joint; while it has recently been reported that osteoid osteoma, either of the vertebral body or of the neck of the femur, has been operated on mistakenly as cases of protruded intervertebral disks.

Finally, I have often been struck by the spelling of "disk" in your *Journal*. According to my anatomy book it should be spelt "disc," and according to my dictionary a "disk" is a flat circular surface, and a "disc" is a flat circular object. There is not the slightest shadow of doubt that the disks on which I have operated were objects and not surfaces.—I am, etc.,

Manchester, 3. W. SAYLE-CREER.

*** *The Shorter Oxford English Dictionary* remarks: "The better spelling is disk."—ED., *B.M.J.*

Gluten in Adult Coeliac Disease and Idiopathic Steatorrhoea

SIR,—The new light which has been cast upon the problem of coeliac disease by Dicke[1] and others in Holland, and later confirmed by the Birmingham workers, Anderson *et al.*,[2] has stimulated renewed interest in the problem of the malabsorption syndrome.

We have been interested to learn the effect of gluten on adults suffering from the malabsorption syndrome, for we have recently had in our wards two females, aged 42 and 30, who gave a history of diarrhoea in childhood, and are now of the petite size which may be found in those whose growth has been hampered by coeliac disease. They have been proved cases of fat malabsorption as the result of repeated fat balance studies. It seemed to us that the same improvement should occur in these patients when wheat flour was removed from the diet as occurs in children. They were therefore placed on a diet free of wheat flour. Neither of the patients was suffering from diarrhoea at the time, and this diet made no alteration to their bowel habit. Fifteen grammes per day of gluten, which would represent the content of about ½ lb. of bread, was then added to the same diet for a period of six days. The patients were unwilling to continue with the diet for longer. In neither was there any loosening of the bowels during this period. The fat absorption figures during six days on a gluten-free fat balance diet, and again during six days on the same diet with added gluten, were respectively 81.8%:81.3% for one patient and 84%:88.5% for the other. Both these patients had been on a maintenance dose of pteroylglutamic acid for some time, and this was continued during the experiment.

A third case of coeliac disease, 17 years of age, had had symptoms of the disease since the age of 11 months, and had been in hospital many times subsequently. We gave her gluten 15 g. to take every day at home, in addition to her usual food. After six weeks of this she reported that