be tried as a test diet: if it fails and insulin is necessary, then more carbohydrate—15 or more blacks (150+ grammes C.)—should be given in a definite arrangement to balance the insulin and the protein and fat (some 10 red portions) eaten at the various meals as desired and as most convenient. Now that protein supplies are scarce the insulin patient is fortunate in being able to increase his carbohydrate if he cannot obtain his pre-war amounts of protein and fat in quantities sufficient to safeguard weight and energy and prevent hunger. This may require a slight increase in insulin, but not in every case. If, therefore, he cannot get all his previous protein and fat, his health need not suffer if he uses more carbohydrate, and insulin when necessary. A prescription of 15 to 20 blacks and only 6 to 10 reds will usually keep him in vigorous health.

Unavoidable Difficulties

Diet cases without insulin are now often in an unavoidably difficult position, and I commonly prescribe a minimum, for an active life, of 10 lines—10 blacks (100 grammes C.+10 to 20 grammes unweighed green vegetables) and 10 reds (75 grammes P. and 90 grammes F.). Now the diabetic with two extra fat rations receives more than the fat content of 10 lines; but admittedly the animal protein obtainable often cannot reach 75 grammes of animal protein. The diabetic's rationed protein, including that provided by the two extra meat rations—equal to meat, bacon, and cheese to the value of 3s.—contains only 5 red portions a day. If he uses 1 pint of milk (3 reds) and can get an egg (1 red) or a helping of fish, poultry, or other unrationed protein food (2 to 3 reds) a day, 8 to 11 red portions of animal protein may be reached. If not, it should be remembered that this scheme allows very liberal supplies of animal protein, and if only some 6 red portions can be got occasionally (no doubt more on other days) the adult diabetic will not suffer from protein (nitrogen) shortage. His doctor should also remember that vegetable protein is not counted in the scheme, and from even limited supplies of cereals and legumes, and especially from green vegetables in the diabetic diet, this amounts to 10 to 20 grammes of protein a day. Diabetics, of course, depend for nutrition partly on the energy-calorific value of these proteins as well as their mere nitrogenous content; but any defect—in, say, 10 reds prescribed—in protein-calorific value is more than made up by the liberal two extra fat rations to which the diabetic is also entitled in place of sugar. But if the diabetic patient on diet alone cannot, with what carbohydrate he can tolerate without glycosuria, obtain enough protein and fat to maintain his weight and energy he is certainly in a difficulty. He has enough protein to satisfy his nitrogen metabolic requirement, but may not have enough to satisfy his energy even though his diet be supplemented by the extra fat, and is almost forced to use more carbohydrate than he can tolerate. Many are compelled to use insulin (usually one fairly small dose of protamine-insulin once a day is enough) to cope with the situation. Such diabetics may think this hard—the times are harder still—but they will soon get over their diet difficulties, and will find themselves, by the blessing of insulin properly used, in better health and possessing greater vigour.

Those diabetics who use my Simple (*Unweighed*) Diet Scheme are often in a similar difficult position. Their protein and fat foods have never been limited, except in obese cases, and I would now advise them to eat all of these foods that they can obtain. The amount will not, in present circumstances, be too much: their carbohydrate, although not weighed, is measured and restricted, and, if they cannot tolerate enough, insulin may be necessary, when never before.

Carbohydrate foods, too, of the type that diabetics used liberally, are greatly missed. The grape-fruit, the orange, the baked or stewed apple, the tomato, which rounded off many gastronomic corners by supplying tasty bulk with little carbohydrate, are mostly gone. Diabetics on low carbohydrate diets must depend more on native vegetables, and they are reminded that freshly grated cabbage, sprouts, celery, turnips, and carrots can make appetizing salads when lettuce and tomatoes are not available.

Conclusion

Let me conclude by emphasizing that if diet difficulties force a diabetic to need insulin, death or even ill-health is not threatened—as many think—but a new era of better health is sure to follow by its proper use and a suitable adjustment of diet. May I add, too, that diabetics, especially insulin cases, should carry on their person the information that they are diabetics, so that if they become ill or casualties in unknown surroundings their need for special treatment will be known. The Diabetic Association, 124, Baker Street, supplies suitable cards and diabetic identity disks on application.

AN ABDOMINAL CATASTROPHE WHICH DID NOT TAKE PLACE

BY

GEOFFREY E. PARKER, F.R.C.S.

I wish to report this case for two reasons: first, because it is an unusual one, even for a war injury; and, secondly, because I think it teaches a lesson. As many surgeons, like myself, are dealing with large numbers of bomb and shell splinter injuries for the first time, the conclusions to be drawn may prove of value.

Case Report

The patient, a member of a bomb disposal squad aged 24, was standing not more than six yards from a bomb when it exploded. On admission to hospital less than an hour later his condition was found to be excellent. In fact, of the eleven cases admitted from this "incident," his case appeared to be one of the least severe. He was bright and cheery, and not in great pain. The pulse was 84, regular, and of good volume. He had two penetrating injuries. One large piece of metal had passed across Scarpa's triangle on the left side, from its upper outer aspect, and lodged just under the skin over the base of the triangle, roughly over the femoral nerve. A second large fragment had entered the left flank just below and behind the postero-superior iliac spine, and there was no wound of exit. A radiograph (see illustration) showed this fragment to be lying somewhere in the left iliac fossa, having penetrated the wing of the ilium. The lateral radiograph was not satisfactory, but another was not taken owing to the rush of work.

There was deep tenderness in the left iliac fossa, but no rigidity or muscle-guarding, and peristalsis was clearly heard in this and all other quadrants of the abdomen. I concluded, therefore, that there was probably no intraperitoneal injury. The case was classified in order of urgency with the other wounded, and in due course was brought along to the theatre. The patient's general condition was still excellent. Morphine only had been given.

Operation.—The fragment in Scarpa's triangle was quickly removed, and the entrance and exit wounds and the track were excised. The wound was then packed with sulphanilamide gauze on account of some tissue necrosis from burning, and also because the danger of sepsis in a wound anywhere near the perineum justifies this precaution. After excising the upper wound of entry, the gluteus maximus and medius were found to be disorganized, and the area was full of blood. A small ragged hole was felt in the wing of the ilium, and this was enlarged sufficiently to admit two fingers. The iliacus muscle

was felt to be in a state similar to that of the glutei, and after a little searching the bomb fragment, 2 by 3/4 by 1/2 inch, was removed. A careful search was then made for a hole in the peritoneum covering the iliacus, but none was found. I remarked to my assistant that it was a fortunate thing that we had found the fragment, otherwise I should have had to open the abdomen through the midline, in spite of the absence of signs

Radiograph showing position of bomb splinter.

of intraperitoneal injury. All bleeding was stopped and the wound packed with sulphanilamide gauze, which was passed through the hole in the ilium, and packed there as well as in the gluteal region.

Progress.—All went well for ten days. The bowels were open on the third day, and regularly after that. The temperature then rose suddenly to 100.2°, and remained at this level for three days. In addition there was deep pain in the left gluteal region, and some tenderness but no rigidity in the left iliac fossa. The pack had been taken out under evipan on the fourth day, and the wound had discharged some blood-stained serum only. On the fourteenth day the upper wound suddenly discharged some foul-smelling pus and gas, and the temperature fell to normal. For the next five days the wound discharged faeces and gas. The bowels were open daily, and no blood or pus was noted in the stools. That there was direct communication with the bowel was established by the fact that on giving capsules of indigo-carmin by the mouth the blue dye appeared on the dressing within a few hours. After the temperature had been normal for some days I ordered a gentle rectal washout and a barium enema, using a thin solution and under low pressure. The barium came through on to the dressing over the gluteal wound, but unfortunately the x-ray plates were not satisfactory. I think I had been overcautious for fear of disturbing adhesions, and had had the barium solution made too thin.

A few days later the faecal discharge stopped completely, and the wound is now granulating normally and is nearly dry.

Discussion

I do not pretend to understand the anatomy of this accident, but a number of possible explanations present themselves. (1) The fragment may have entered the peritoneum, injured the bowel, and then left the general peritoneal cavity again, to come to rest in the iliacus, protective adhesions subsequently forming. (2) The fragment may have injured the descending colon at the extreme lower limit of its partly retroperitoneal course, just before it becomes the sigmoid loop. (3) The fragment may have injured the blood supply to the colon over a small area, with the development of an area of necrosis. Adhesions would then form about the perforation in a manner similar to that which sometimes occurs in cases of perforating diverticu-

litis, a fistula being produced along the track of entry of the missile. (4) The large haematoma in the iliacus may have become infected by bacterial migration from the adjacent colon, the abscess thus formed discharging both along the track of entry of the missile and to a lesser extent into the colon.

Whatever the explanation may be, the lesson to be learnt would seem to be that if there is the slightest suspicion of an intraperitoneal injury, then, however trifling the physical signs, the abdomen must be opened and explored thoroughly. It would appear to be only a matter of luck that this man did not develop a spreading peritonitis.

My thanks are due to Prof. T. B. Johnstone, group officer in the sector in which I am a mobile surgeon, for permission to publish this case.

Medical Memoranda

Four Brothers with Neurofibromatosis

There are now numerous cases in the records demonstrating the hereditary nature of von Recklinghausen's disease. Thus Gardner and Turner (1940) traced the affliction through six generations, whilst Rocaz and Fiot (1938) found a Bordeaux family in which seven out of nine children had the malady.

In Lincoln four brothers have been under observation suffering from neurofibromatosis of the skin and subcutaneous tissue. One of these died at the age of 29, having developed paraplegia following spinal cord involvement. The three living are all of small stature, and their ages range from 50 to 60 years. In two of the patients the tumours have a generalized distribution, but in the third case the neck and forehead are alone affected. The lesions consist of a medley of tumours, some pedunculated and others sessile. There are areas of brown pigmentation, and some of the tumours have a bluish tinge.

Of four other children one is feeble-minded. Mental instability is not uncommon in von Recklinghausen's disease, and, while the brothers appear rational, two at least have a degree of acquisitiveness which does not always meet with the approval of the legal authorities.

The parents are dead and are said not to have had the disease. The father contracted a second marriage, which produced four normal children. From this it is deduced that the disease was transmitted by the first wife as a Mendelian dominant trait.

I wish to thank Mr. James Lyons for his notes on one of the cases, and Dr. M. L. Bery, M.O.H. for Lincoln, for permitting publication.

ANDERSON GARLAND, M.D., M.R.C.P., D.P.H.

Medical Officer, Burton Road Hospital, Lincoln.

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The National Institute of Health of the U.S. Public Health Service is organizing a new unit for research into some of the many problems of the ageing. It is to be called the "Unit on Gerontology." A statement on the aims of this unit (*U.S. publ. Hlth. Rep.*, 1940, **55**, 2099) points out that the problems of ageing are not limited to the diseases of the aged. They are divided into three major fields of investigation: (1) the biology of senescence as a process; (2) the human clinical problems of ageing and of diseases characteristically associated with advancing years; and (3) the socio-economic problems of a shifting age distribution in the population. The Unit on Gerontology is to concern itself with the first two of these. Information on the subjects under investigation and on methods of approach is asked for. Correspondence should be addressed to Dr. Edward J. Stieglitz, Investigations in Gerontology, National Institute of Health, U.S. Public Health Service, Bethesda, Maryland, U.S.A.