the hut door open and closed, and also of the air above the stove, with the following results :

CO in flue gases (hut door open)	980 parts per million
CO in flue gases (hut door closed)	1,460 " " "
CO in air above stove (hut door closed) ..	310 " " "

The increase in the CO content of the flue gases on closing the door is marked, and clearly indicates inadequate ventilation, with consequent impaired combustion. The CO content of the air above the stove is significant, for, on the day of sampling, the down draught was only very slight and intermittent. It is obvious that with the door shut, and with frequent short periods of down-draught such as would occur in windy weather, a lethal concentration would accumulate quite rapidly in such a relatively small space. The time of exposure of any occupant would not require to be greatly prolonged before a fatal result ensued.

Cases 2 and 3

Two men, aged 31 and 32, booked lodgings for the night and retired to their bedroom about 9 p.m. In the morning the bedroom door was found locked, and, as no response was obtained to repeated knocking, entry was eventually obtained by a window, and the two men were found dead in bed. The gas-fire in the room was burning, apparently satisfactorily, but both men had died from carbon monoxide poisoning, the blood in each case showing a concentration of 72% carboxyhaemoglobin. The necropsy revealed no other feature of significance.

A washed nylon shirt and other garments were found hung up in front of the fire as if to dry, and it appeared that the fire had been lit by the men before retiring and had burned all night. The door of the room was fitted with a draught excluder, the window had been closed and the curtains were drawn. The capacity of the room was slightly less than 1,100 cubic feet (31 cubic metres) and the atmosphere in the room in the morning was very hot, dry, and oppressive, almost like an oven, although there was no strong or obvious smell of coal-gas.

The gas-fire stood in a tiled fireplace from which a long flue or chimney led to the exterior. There was some blackening of the tiles above the fire, and the chimney was found to be partially choked. The gas-fire consisted of seven elements or radiants, and, although these were broken in places, the flames appeared satisfactory and combustion complete. There was no defect in the gas-tubing or joints.

After the fire had been allowed to burn for about half an hour with the door and window closed, however, there was noticeable lengthening of the inner cones of the flames, indicating incomplete combustion. The sequence of events leading to the deaths was fairly certain. The exclusion of air entry into a room of small dimensions had resulted in insufficient oxygen for complete combustion, and the choked chimney had caused spilling of the products of incomplete combustion back into the room. Although the actual rise of CO concentration was not determined, it is obvious that a potentially lethal concentration would be quickly achieved in such a relatively small room, and the sleeping occupants would remain quite unaware of the increasing danger.

Conclusion

These fatal cases of accidental carbon monoxide poisoning provide a timely reminder of : (1) the danger of using stoves in confined spaces, *even though these are in good order and fuelled with good quality coal*, unless adequate positive ventilation is ensured at all times, whether the doors or windows be closed or not ; and (2) the danger which may arise from gas-fires, *even if these and their fittings are in perfect order and they appear to be burning satisfactorily*, if there is not also adequate ventilation and extraction of the combustion products.

I am indebted to Dr. E. A. C. Chamberlain, of the Scientific Department of the Scottish Division of the National Coal Board,

for his co-operation in the investigation of Case 1 and for the results of the tests which he carried out in connexion therewith ; and to Mr. David Beavis, Controller of the Edinburgh Division of the Scottish Gas Board, for the report of the investigation carried out by his department in connexion with the other two fatalities.

LOCAL HYDROCORTISONE FOR HUNNER'S ULCER OF THE BLADDER

PRELIMINARY REPORT

BY

J. H. JOHNSTON, F.R.C.S.

Senior Surgical Registrar, Liverpool Royal Infirmary

Local infiltration with hydrocortisone has been used effectively in the treatment of a variety of non-specific inflammatory and fibrotic processes. It appeared reasonable to expect that a similar resolution of focal inflammation with relief of symptoms would be produced by this means in cases of Hunner's ulcer of the bladder. Three patients with this condition have therefore been so treated.

Technique

The injection is carried out cystoscopically through a specially devised "needle" (see photograph). A size 0 hypodermic needle is filed through 1.5 cm. from its point

and lengthened by the interposition, between the two portions, of a size 5E ureteric catheter from which the eyelet end has been removed. The catheter is found to grip the needle securely, and there is no risk of the point becoming detached.

At cystoscopy, using an irrigating instrument and with the patient in the lithotomy position, the affected region of the bladder is identified. The needle, with a stylet in position almost to the point, is passed through the catheterizing or operating channel of the cystoscope and inserted into the bladder wall at or near the ulcer. An assistant is required to withdraw the stylet and inject about 0.5 ml. of hydrocortisone suspension. In all, 5 ml. containing 25 mg. of hydrocortisone per ml. is injected through several punctures into and around the involved area. Penetration of the bladder wall obliquely is found to minimize the tendency of the suspension to flow back from the puncture wound during the injection and after withdrawal of the needle. Ballooning of the vesical mucosa may be produced, but it is probably preferable to inject more deeply into the bladder muscle.

Results

The patients were women aged 63, 68, and 73 years, and were known cases of Hunner's ulcer of two, three, and six years' duration. Treatment by bladder distension under anaesthesia, zinc ionization, and vesical irrigation had formerly been carried out on many occasions. In January, 1956,

each one had one session of hydrocortisone therapy. All have shown marked symptomatic improvement which began a few days after the injection. In the case of the patient with the shortest history of the condition the result was dramatic. On admission to hospital she was passing urine every 30 to 45 minutes during the day and night. Other methods of treatment in the preceding two years had produced amelioration of symptoms for a few days only. For four months after the hydrocortisone injection she micturated every two to three hours during the day and once or twice at night. Recently there has been a gradual recurrence of the original complaint.

The total duration of the remission produced by hydrocortisone is not known, but it is to be expected that, when symptoms recur, further infiltration will again be effective, as is the case with other chronic inflammatory conditions. The results obtained with these patients would appear to justify a more extended trial of local hydrocortisone for Hunner's ulcer, especially in the early case before diffuse fibrosis has developed. Since this investigation began Schulte and Reynolds (1956) have reported satisfactory results of a similar technique using hydrocortisone and hyaluronidase.

I am grateful to Professor Charles Wells for his encouragement and for permission to carry out this procedure.

REFERENCE

Schulte, T. L., and Reynolds, L. R. (1956). *J. Urol.*, 75, 63.

OBSERVATIONS ON THE FOOD HABITS OF MYOPIC CHILDREN

BY

PETER A. GARDINER, M.B., D.O.M.S.

Ophthalmologist, Miller and Barnet General Hospitals;
Research Fellow in Ophthalmology, Guy's Hospital

In the course of an inquiry into the development of myopia in children, which included questions about their diet, I was struck by the number of children who have rigid likes and dislikes of certain foods to the extent of consistently refusing some items.

The main sources of first-class protein are milk, cheese, meat, fish, and eggs. Over a period all the children attending a school clinic for refraction were asked whether they consistently refused one or more of these foods. The refusal to take milk as such or as a mainly milk drink was counted as an absolute refusal. It is interesting in this connexion to find a number of children who refuse their school milk—thereby providing others with a double or sometimes treble portion.

It was possible to divide the children into groups of myopes who were rapidly deteriorating, slowly deteriorating, or stationary. A fourth group consisted mainly of hypermetropes with a few emmetropes.

Results

Tables I, II, and III show that myopes are more fussy about some of their food than other children. This was noted as a generalization by Miller (1940), though not in rela-

TABLE I.—Refusals of Protein Sources

	Active Myopia Rate > 1 D per Annum		Active Myopia Rate 1 D per Annum		Stationary Myopia		Others	
	Boys	Girls	Boys	Girls	Boys	Girls	Boys	Girls
No.	9	26	42	59	27	49	73	76
No. of refusals . . .	5	17	20	30	12	22	18	32
Refusals per head . .	0.55	0.65	0.47	0.50	0.44	0.45	0.24	0.42

TABLE II.—Percentage of Children Refusing Protein Sources

	Myopes (264)	Others (149)
Refusal of milk	16%	5%
" " cheese	18%	14%
" " meat	3%	4%
" " fish	12%	8%
" " eggs	4%	2%

The percentage figures shown in the different categories are not mutually exclusive.

TABLE III.—Percentage of Children Refusing Two or More Sources

	Active Myopes	Stationary Myopes	Others
No.	136	128	149
Percentage refusing two protein sources	11	7	5

tion to these particular items. With increasing fussiness there is an increase in the activity of the myopia. The boys with highly active myopia show a refusal rate more than twice that of boys who are not myopic, and the girls a rate over 50% higher. Double refusals are twice as frequent amongst active myopes as amongst others.

That girls are more particular than boys about their food is well known, and in all these groups this is confirmed, though it is small in stationary and slowly deteriorating myopes. Though the rate of refusal is higher in girls than in boys in each group, it does not equal the rate of refusal for boys in the next group with a higher rate of myopic change.

Between the ages of 8 and 17 the refraction of girls changes more often than that of boys (Brown, 1938). My own figures agree substantially with this observation. The Chart shows the mean proportional changes in refraction per annum of male and female myopes aged 8 to 16. Between the ages of 9 and 13, and again between 14 and 16, myopia in girls increased at a faster rate than in boys.

Proportional change in refraction of myopes per annum.

The percentage refusing a particular source of protein do not provide any conclusive information. The most striking difference is in milk consumption. Over three times as many myopes refused milk as others.

Conclusion

It must not be concluded that myopia in children is associated dietetically exclusively with a different pattern of protein consumption, still less with a deficiency in the accepted sense of the word. There is evidence (to be published later) that other food factors are implicated, and in most individual cases the food pattern is in no way basically abnormal even though the myopia may be increasing rapidly.

Before coming to a conclusion on the exact significance of these findings, the unusual growth of myopes (Gardiner, 1954, 1955) must be linked with more detailed dietary intakes (to be published). None the less, the positive finding in this investigation is that myopic children are more particular about their sources of first-class protein than other children. There is an indication that this may be connected with their