

rubbed in, and five minutes later the mustard-gas liquid was applied as previously described, using a platinum loop. Nothing further was done except to put a lint jacket over the rabbit's body about 15 minutes after applying mustard gas to site 3. The photographs were taken 8 and 23 days respectively after application of the mustard gas. *The marked superiority of ointment O' is shown in site 2.*

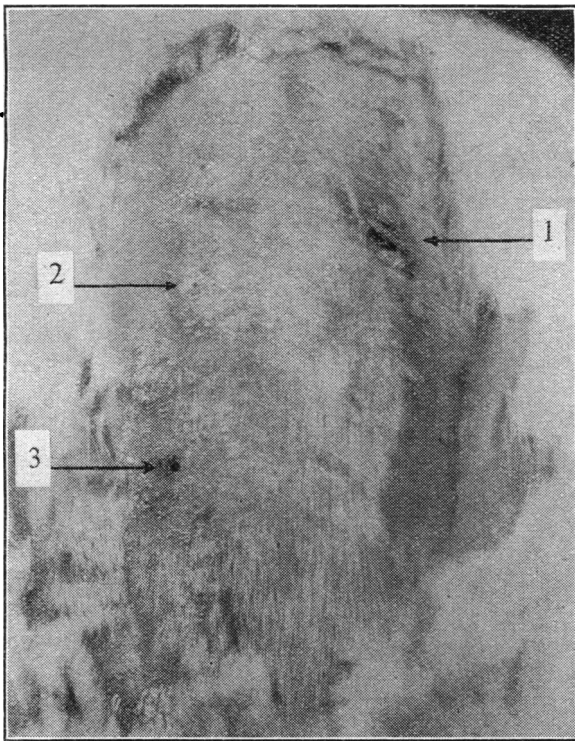


FIG. 4.—Condition of rabbit of Fig. 3 23 days after application of prophylactic ointment. The marked superiority of ointment O' is shown at site 2.

Zinc oxide was chosen because of its known value in the so-called S.R. lacquers (sulphur-resisting lacquers) used in the internal lining of food cans. During thermal processing, especially of meat foods, sulphur compounds liberated from sulphur-bearing proteins interact with tinplate to form the blue-purple sheen of tin sulphide, often observed inside cans on opening. Ordinary plain (transparent) lacquer still permits such staining, whereas the same lacquer containing very small amounts of zinc oxide in suspension completely avoids sulphur-staining.

Research is obviously required into the possible chemical neutralizing effect of ZnO on mustard gas, the ZnO being suspended in an aqueous solution (or emulsion in saturated aqueous solution) of mustard gas. However, the barrier presented by ointment O' is now beyond dispute, whatever the actual mechanism of its action.

At the annual general meeting of the Society for Relief of Widows and Orphans of Medical Men, held on May 8, with Dr. R. A. Young, president, in the chair, one vice-president and eight directors were elected to fill the vacancies in the Court of Directors. The annual report showed that the total membership was 282. During 1945 fifty-five widows received relief amounting to £4,837. Each widow over 65 years of age received £75, and those under 65, £60. In addition a Christmas present of £15 was made to each widow. A legacy of £5,000 from the late Dr. Charles Reid, of Stafford, was invested in 2½% Consolidated stock. The invested capital of the society, which is over £140,000, can never be sold and used as income. Many members joined H.M. Forces during the war, and those who have been demobilized are asked to notify the secretary of their present address. Full particulars of membership, which is open to any registered medical man who, at the time of his election, is resident within a twenty-mile radius of Charing Cross, may be obtained from the secretary (11, Chandos Street, Cavendish Square, W.1).

VOLVULUS OF THE SMALL INTESTINE

BY

W. G. KERR, M.B., Ch.B.

AND

W. H. KIRKALDY-WILLIS, F.R.C.S.Ed.

(From the Native Civil Hospital, Nairobi, Kenya)

Volvulus of the whole or part of the small intestine is said to be exceedingly rare in Europe and America. We have had seven cases—all natives of East Africa—during 1945. Braimbridge, in a personal communication, states that in 25 years of surgical practice in Kenya he has found it the commonest cause of acute intestinal obstruction in the native, occurring in more than half his cases. During 1945 there were 21 admissions with acute intestinal obstruction into the above hospital:

Strangulated inguinal hernia	4
Intussusception (all adolescents or adults)	4
Meckel's diverticulum	1
Bands and adhesions	3
Volvulus of pelvic colon	2
Volvulus of small intestine	7

Symptoms and Signs

The age of an East African is seldom exactly given, for he does not know the year of his birth but only the age group to which he belongs. These patients were variously estimated as being between 20 and 45 years old, and they all complained of abdominal pain, distension, and tympanites. The fact that the majority of cases came to hospital within a few hours of onset indicates the severity of the symptoms. Vomiting, usually regarded as an early and severe symptom, was not a feature, and was recorded in only three of our cases. Rigidity usually masked any visible peristalsis, although this was observed in one case. The abdomen was silent in five. Absolute constipation was not an invariable rule; one of the patients had diarrhoea, and one passed blood and mucus per rectum (he had also partial pelvic colon volvulus). One of the patients (the only female) was eight months pregnant, and her pains were at first thought to be labour pains. In her post-operative convalescence she was delivered of a living child. The following table gives a summary of the seven cases discussed in this report.

Summary of Cases

Case	Sex	Date of Admission	Duration of Symptoms	Interval between Admission and Operation	Type	Result
1	M.	4/1/45	12 hours	1 hour	Whole of S.I.	Recovered
2	M.	24/1/45	1 hour	2 hours	"	"
3	M.	14/4/45	36 hours	4 "	"	Died
4	F.	31/5/45	48 "	20 "	Combined S.I. and L.I.	Recovered
5	M.	26/7/45	4 "	18 "	Independent S.I. and L.I.	"
6	M.	6/11/45	4 days	24 "	Whole of S.I.	"
7	M.	12/11/45	11 hours	2½ "	"	"

Operative Findings

A right paramedian incision was employed for preference, and the purple distended bowel could be seen usually even before opening the peritoneum. The bowel prolapsed through the wound and was reduced in all by exteriorization and rotation until the mesentery lay straight. There were no adhesions or other apparent cause within the abdomen for the rotation, except in one case in which two tapeworms, each 4 ft. (120 cm.) long, were found tied together in a massive knot at the upper end of the jejunum. Owing to the gross distension of the intestine it was found impossible to return the bowel without preliminary evacuation of the contents. In all cases, therefore, a lower loop of intestine was opened, and a rubber tube inserted through the ring of the purse-string suture. In some cases emptying was satisfactory, but in others the tube was soon blocked by undigested food and had to be removed to allow the contents to be emptied. This was done by milking the contents gently out through the enterostomy. Some gas was present, but in the main the bowel contained

dark-brown fluid with fragments of undigested food—chiefly maize husks or even whole grain. The bowel was heavy, and manipulations had to be done with care. Such manipulations obviously carried the risk of paralytic ileus, but there was no alternative. After thoroughly emptying the bowel, the enterostomy was closed by a purse-string suture; the small intestine could then be readily returned. The abdomen was not drained.

Two of the cases were complicated by rotation of the caecum and ascending colon as well; in one an accompanying volvulus of the pelvic colon was discovered after reducing the small-intestine volvulus. The gut was viable in all our cases; and it is to be observed that we did not find within the peritoneum the quantities of dark blood-stained fluid said to be so typical (Devlin, 1945.)

The female case is worthy of full description.

Case 4.—She was the only woman in the series and, as already mentioned, was eight months pregnant. An upper abdominal incision was made in the midline. Above the pregnant uterus the caecum was found in the left hypochondrium; the ascending colon had a fully developed mesentery and there was a total volvulus of the whole of the small intestine, caecum, and ascending colon. This was reduced and a colostomy made at the lower part of the ascending colon. A tube which had been inserted was soon blocked by whole maize grains and had to be removed. The consequent spilling of intestinal contents soiled the abdominal wound. An oblique incision was made in the right iliac fossa and a fresh tube, passed through this, was anchored in the colostomy opening with a view to binding the caecum in its normal position. On the thirteenth day the upper abdominal wound burst open, but the bowel did not prolapse, owing partially to the use of a prophylactic corset and partially to the plugging of the abdominal wound by the pregnant uterus. Secondary suture was performed, and on the fifteenth day she was delivered of a healthy male child despite the fact that the presentation was a breech with extended arms.

Post-operative Treatment

There was only one death in our seven cases, though the mortality is usually regarded as high (Grey Turner, 1943). We attribute the success largely to the use of post-operative gastric suction combined with adequate intravenous fluid replacement. One of us had treated four cases in the previous five years in small out-station hospitals; gastric suction was not used, and all the patients died. In the present series a Ryle tube was inserted and suction maintained for up to five days, until there was return of bowel activity as evidenced by auscultation or bowel action. Blood or plasma not being available as yet, we used 5% glucose and 0.45% saline—the latter figure being adopted to reduce the chance of pulmonary oedema from salt retention. During gastric suction the patients received one litre of glucose-saline as a basic daily ration, and one litre for every half-litre of gastric contents aspirated. The remaining two litres given during the 24 hours were 5% glucose in triple-distilled water. Five out of the seven cases had sulphonamides intravenously or by mouth. Some paralytic ileus was common to all; one case had a burst abdomen, and one patient—admitted late—died on the fifth day from peritonitis.

Aetiology

There is no reference to the subject of aetiology in those recorded cases to which we have had access. Salisbury Woods (1945), in describing a recent case, refers to 28 cases collected by Rowlands and Turner (1937), and Hamilton Bailey (1940) quotes two cases. This condition, we believe, may well be associated with the dietary habits of the African native. It is his custom to start the day by drinking up to two pints (1.4 l.) of maize-meal gruel in the early morning, and again at mid-day, and then taking nothing solid until the evening meal. In four of our cases the time onset was definitely known as 7 a.m., 9 a.m., midday, and 4 p.m. This sudden distension of the small intestine by thick liquid causes an overloading of one or two loops, which during exertion may become displaced and start the volvulus (Webber, 1945). The resultant spasmodic peristalsis completes the process. In one of our cases, as mentioned, there were, in addition to masses of recently digested food, two tapeworms knotted together, which may have been the starting-point. In volvulus of the sigmoid colon, chronic distension from constipation is generally considered as the *causa causans*; the process in the small intestine would thus appear to be similar. The evidence that such a

large meal may be responsible is confirmed by the findings of McWatters (1945) in 12 cases in India; he suggests it followed the eating of coarse indigestible food. It is to be noted that we also dealt with four cases of acute intussusception in adults. Such cases have been described in Mohammedans by Morro (quoted by Hamilton Bailey in *Emergency Surgery*), and was at first attributed to hunger pains. It should be noted that during Ramadan, Mohammedans fast from sunrise to sunset: then they feast. The sudden gross overloading of the bowel is probably the responsible factor, as in our cases of volvulus.

Summary

Seven cases of volvulus of the small intestine are presented. The condition is relatively common in the East African native.

Reduction is best carried out by exteriorization, and emptying of the bowel by open enterostomy.

The aetiology is discussed; the practice of the African native of taking large gruel meals is held to be the responsible factor.

There was one death from peritonitis. Post-operative gastric suction and intravenous salines are regarded as life-saving measures and have changed the prognosis.

Our thanks are due to the Director of Medical Services, Kenya, for permission to publish this paper.

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NOTE BY Sir HENEAGE OGILVIE

During two years of service with the East Africa Force in Kenya, Somalia, and Abyssinia I was responsible for the surgery of an army whose soldiers were mostly Africans—men who lived differently and suffered differently from any patients I had handled before. In learning a whole chapter of surgery that was new to me I was helped beyond measure by the unflinching kindness of the officers of the East African Medical Service; the Director of Medical Services, Dr. Paterson; the Chief Surgeon, Mr. Braimbridge; and the Pathologist, Dr. Vint. Mr. Braimbridge, in particular, instructed me in the methods and guided me through the pitfalls of tropical surgery, and during my spells at General Headquarters, Nairobi, demonstrated his methods and allowed me to help him with operations at the native civil hospital. At that hospital I met the writers of this article—two young surgeons who have the care of a number of beds and perform a weekly operating list that would be the envy of those who practise in London. Their report on volvulus has interest because of the rarity of the condition in literature and the very creditable number of recoveries they record, for it raises the important question of variations in structure of different races—one as yet hardly touched upon by anatomists or anthropologists.

The African as a patient is cheerful but moody, brave in the face of pain or danger, but terrified of the unknown. He contracts most of the diseases of the European, but to many he reacts differently, and to some, such as peptic ulceration and arterial diseases, he seems to be immune. He has a remarkable resistance to wound infection by pyogenic organisms, and a remarkable ability to repair the effects of trauma. He unites fracture rapidly and seldom suffers from non-union—a complication to which the white settler in Africa seems to be particularly prone. His bodily structure is different from that of the European. Some differences are known—that his skin is more pigmented and richer in sweat glands, that his tibia is longer in proportion to his femur, that his cranial vault is thicker. Others are suggested by his reactions to trauma; for instance, the extreme rarity of injuries to the menisci of the knee, though every kind of osseous fracture and ligamentous tear is encountered, suggests some structural differences. Others again, particularly those of the abdominal viscera, are commonly observed but not recorded. South African anatomists have told me that the African small intestine is usually several feet longer than that of the European, and Vint also believes

this to be the case. The appendix is longer, the stomach larger but not otherwise different. The mesentery is either longer or more extensible, for at laparotomy or necropsy the intestines can be lifted more easily to the surface for examination or manipulation. Anomalies of intestinal rotation and fixation are much more common, particularly the persistence of unfixed mesenteries. It is possible that it is in this greater mobility of the alimentary canal rather than in his dietary habits that the reason for the proneness of the African to volvulus is to be found.

Medical Memoranda

Leukaemic Infiltration of the Site of Herpes Zoster

Leukaemic infiltration of the site of the vesicles of herpes zoster is rare enough to justify the following case record.

CASE REPORT

A ship's engineer aged 52 had had no serious illness until August, 1945, when he developed a typical attack of herpes zoster, affecting the tenth dorsal segment on the left side. On admission to hospital it was noted that he had enlargement of the spleen and of the lymphatic glands in the neck and axillae. A blood count confirmed the diagnosis of chronic lymphatic leukaemia. His herpes subsided, but raised thickenings were left on the skin, and biopsy of one of



them demonstrated leukaemic infiltration. Two months later he was invalided to the United Kingdom and admitted to Ronkswood Hospital, Worcester.

On examination his general nutrition was good. The mucous membranes were pale, and large discrete glands of soft consistency were present in the anterior and posterior triangles of the neck, both axillae, and the inguinal regions, the spleen being enlarged to four fingerbreadths below the costal margin. In the distribution of the left tenth dorsal segment the herpes zoster was seen. All the vesicles had healed, but their sites were marked by raised thickenings in the skin of a coppery colour. These are shown in the accompanying photograph. Blood investigations revealed: Hb, 78%; red cells, 3,680,000 per c.mm.; C.I., 1.05; leucocytes, 138,700 per c.mm. (lymphocytes 68%, lymphoblasts 27%, neutrophils 4%, monocytes 1%).

I am indebted to Sir Walter Haward, Director-General of Medical Services, Ministry of Pensions, for permission to publish this case.

Worcester.

C. H. CATLIN, M.D., M.R.C.P.

Reviews

A CHARTER FOR HEALTH

A Charter for Health. By a Committee of the British Medical Association. (Pp. 95; illustrated. 6s.) London: George Allen and Unwin.

This little book has been written by members of a committee of the British Medical Association under the chairmanship of Sir John Boyd Orr. Its purpose is to give to a more intelligent section of the public, especially those interested in social and current political problems, an outline of a representative medical view on promoting better physical and mental health in the people of this country. The basic concept of the writers seems to be that the health of the community is, and will be, just as good as the present standards of living and education will allow.

The approach is not to the prevention of specific sickness, and diseases are seldom mentioned except as illustrative examples; rather the object has been to stress the need for raising the whole economic and social level and improving the physical and mental background of the entire population to a level at which the vast majority can enjoy to the full their span of years, without serious risk of breakdown, whether physical or mental. Chapter headings such as "The Essentials of Health," "The Role of Medicine," "The Family," "The Home," "Food," "Occupation," and "Recreation" indicate the scope of subjects on which the medical profession's beliefs are expressed. In dealing with all these subjects the writers refer back again and again to the need for the economic stability of the family at a higher level if the growing members are to have a proper background in which to grow up to full and balanced physical and mental stature.

As is inevitable but right the whole emphasis is on the needs of children as opposed to the present generation of adults. Education of girls for their future duties as wives and mothers, education designed to lessen the difficulties of personal relationships, and education towards assuming a great responsibility in the community are all stressed. The need for a wiser planning of education includes a plea for more recreation without restraint of the child and a lighter burden of lessons and homework for the older child.

Perhaps a little overlapping in subject from chapter to chapter has resulted from the large number of contributors, but this fault emphasizes the very importance of the repetition. A feature of the book is the excellent modern photographs which serve as illustrations. The opinions expressed are authoritative and sound. The text is clear and well written. It is to be hoped that it will reach in large numbers the public for whom it was designed.

A TEXTBOOK OF NEUROLOGY

Clinical Neurology. By Bernard J. Alpers, M.D., Sc.D. (Pp. 797; illustrated. \$8.00.) Philadelphia: F. A. Davis Company. 1945.

Dr. Alpers, professor of that subject in Jefferson Medical College, Philadelphia, has given us an admirable new textbook of neurology. A fairly large book, it is unusual among texts of this sort, for it is both pleasant to read and accurately informative. It is pleasant to read because the author presents his material in a systematic manner, it is well written, there are plenty of good illustrations and diagrams, and the general production is excellent. The first two hundred pages deal with the basis of neurology, and there are chapters with headings such as "The Interpretation of Neurological Symptoms and Signs," "The Topical Diagnosis of Nervous Disease," and "Headache, Vertigo, Coma and Pain," which precede more orthodox chapters in which related groups of diseases are described. Dr. Alpers has used the didactic medium, avoiding references and bibliographies, and he has managed to give a general presentation without that rigidity of description which is found in the smaller texts. In one place he says, for example, "All forms of meningitis have features in common, an understanding of which is helpful in treatment and prognosis," and then he goes on to discuss those features before describing the individual diseases. His book cannot well be used for reference, and it is large by the standard of student textbooks in this country, but it is so pleasant to read that most clinical workers who come into contact with neurological problems will enjoy it and benefit by it.