is considered too small to be subdivided as in the preceding tables. The number of positive reactors in the group subsequent to inoculation was thirteen, which gives a percentage of 12.74. For all practical purposes, then, the general conclusions with regard to the relative merits of the two methods of immunization under discussion are the same for children of all ages.

Immunization against diphtheria began in Southampton in February, 1934. From that date until the end of May, 1936, 22.1 per cent. of the population under 16 years of age had been immunized, though the majority had not yet been subjected to subsequent Schick testing. During the period from June, 1934, till May, 1936, inclusive, 1,180 children under 16 were notified as suffering from diphtheria. Of these forty-four, or 3.7 per cent., had been actively immunized against the disease or had been found to be immune.

The incidence rate of diphtheria during the period under discussion among children under 16 years of age was 26.8 per 1,000. Among the children of the same age during this same period who had received a full immunizing course, with or without subsequent Schick testing, the incidence rate was 4.5 per 1,000.

The following table gives clinical and bacteriological particulars concerning the forty-four children notified as suffering from diphtheria after immunization. It will be seen that the severe cases among them had not had the Schick test performed subsequent to immunization, and it is such occurrence which is liable to bring disrepute upon the measure.

TABLE IV.—Occurrences of Diphtheria in Immunized Children

	Number	Clinical Signs				Bacteriological Signs		
		None	Mild	Severe	Fatal	Original Swab + for K.L.R.	Subsequent Swabs + for K.L.R.	Subsequent Swabs Negative
Schick test negative (no immunizing course given).	3	2	1	—	—	3	—	3
3 injections T.A.F., subsequent Schick test negative	8	4	4	—	—	8	3	5
1 injection A.P.T., subsequent Schick test negative	3	2	1	—	—	3	2	1
3 injections T.A.F., no subsequent Schick test	19	8	10	1	—	19	8	11
1 injection A.P.T., no subsequent Schick test	11	4	5	2	—	11	6	5
Total	44	20	21	3	—	44	19	25

Conclusions

The "one-shot" method of immunization with A.P.T. is much less certain in result than the three injections of T.A.F. and T.A.M. As the "one-shot" method is in considerable favour with general practitioners the uncertainty of its results should be clearly realized. A considerable Schick reversion rate is probable after the "one-shot" method with A.P.T.

Severe diphtheria is possible after either method of immunization, but no severe cases have occurred in a large series where immunity was confirmed by subsequent Schick testing. Schick testing subsequent to immunization is essential for the reputation of either method.

Research on the chemistry and physics of glass surfaces to aid in the development of scientific apparatus and ophthalmic instruments has been started at the Mellon Institute of Industrial Research, University of Pittsburgh, by the Bausch and Lomb Optical Company of Rochester, New York. The first studies will be concerned with the effects of environmental factors on the durability of the various types of glass used in optical instruments. Dr. Frank L. Jones will be in charge of these investigations.

CYSTS OF THE MESENTERY

BY

W. A. JACKMAN, M.B., CH.B., F.R.C.S.ED.
HONORARY ASSISTANT SURGEON, BRISTOL ROYAL INFIRMARY

AND

E. A. MAYSTON, M.R.C.S., L.R.C.P., L.D.S.
RESIDENT SURGICAL OFFICER, CORNELIA HOSPITAL, POOLE

Our interest in mesenteric cysts was stimulated by a case of unusual interest which came under our care, and a description of it, given below, adds yet another to approximately five hundred already recorded. Benevieni's account of this condition discovered at necropsy in 1507 is the earliest we are able to trace.

The surgical adventure which we attempt to describe here had one prominent feature in common with those described elsewhere—namely, misdiagnosis. In other respects it presented a series of clinical and pathological surprises sufficiently striking to justify an attempt to bring them to the notice of our profession.

Case Report

A male aged 21 years, an apprentice to a shipping firm, was admitted to the Bristol Royal Infirmary on October 26th, 1935, and the following history was obtained.

Four days before admission he noticed vague generalized abdominal pains which, intermittent at first, gradually became more persistent and colicky in character and localized to the right lower abdomen.

Nausea and anorexia were present, but no vomiting, and the bowels were open normally. He gave no history of any previous attack, and was unable to recall any serious illness, though his work necessitated continuous service in tropical climates.

On examination we found his temperature 100° F., pulse rate 84, and the tongue dry and coated with a thick white fur. There was generalized abdominal tenderness and rigidity, most marked in the right iliac fossa, with guarding of the right rectus abdominis. Rectal examination elicited tenderness to the left of the recto-genital pouch, but no localized lump. There were no other positive signs.

A diagnosis of acute appendicitis was made and immediate operation advised, to which the patient consented.

OPERATION

The abdomen was opened through a right gridiron incision; the appendix appeared slightly inflamed, fibrous, and adherent to surrounding structures; it was removed. Multiple enlarged lymphatic nodes in the mesentery were thought to be due to the inflamed condition of the appendix, but in an attempt to trace the extent of these a hard calcified gland the size of a large walnut was discovered. As this was considered to be a potential source of abdominal pain it was excised.

Further exploration revealed the presence of a cystic tumour the size of a tangerine orange, suspended from the mesentery by a pedicle which was twisted, twice rotated in an anticlockwise direction. The pedicle was ligatured and the cyst removed; it was intensely congested, and contained a chocolate-coloured fluid. A second and larger cyst was then found, irremovable owing to the wide attachment at its base, aspiration of the chyle from this revealing the fact that it was multilocular.

After evacuation and rupture of the loculi into the main cystic cavity, marsupialization was carried out through a small incision in the left paramedian position, just above the umbilicus. In the absence of any further lesion the original incision was closed in the customary manner.

SUBSEQUENT PROGRESS

Two ounces of chylous fluid drained from the marsupial pouch and the wound healed rapidly. Recovery was uneventful, and the patient was allowed up on the sixteenth day.

PATHOLOGICAL REPORTS

Mesenteric cyst. The cyst wall is composed of fibrous tissue and shows the effects of torsion. The inner lining of the cyst has been destroyed. Fluid from this specimen: chylous fluid into which haemorrhage has occurred. The aspirated fluid is chylous, culture sterile.

Gland from mesentery: calcified gland, evidently the result of tuberculous infection.

Appendix: this shows marked submucosal fibrous thickening, the result of previous acute inflammatory attacks.

We are interested to compare and contrast the findings and procedure in this case with those already described, and consider it appropriate to draw attention to some of the outstanding features of the condition.

Diagnosis

Correct preoperative diagnosis is the exception rather than the rule, and by many surgeons of experience is stated to be impossible in the majority of cases. This is due to the fact that there is no definite symptomatology for the condition, which usually simulates acute appendicitis or intestinal obstruction. Roller states that "when acute complications ensue the differential diagnosis would have to include almost every cause for the acute abdomen, so varied may be the manifestations." In the present instance the sessile cyst was not sufficiently tense to be palpable through the thickness of the abdominal wall, even in the complete absence of rigidity and guarding, and there is little doubt that the pedunculated cyst became tense only after torsion and was too efficiently guarded by the superimposed muscle to allow detection.

Complications

Torsion of a mesenteric cyst is a complication of great rarity, but owing to the difficulty of locating concise accounts of isolated cases we find it impossible to make a percentage estimate of this accident. There can be little doubt that it was responsible for this patient's acute symptoms.

Intracystic haemorrhage may occur, also rupture—(a) into the bowel and (b) into the peritoneal cavity—with consequent peritonitis, ileus, etc. In addition, it is alleged that these cysts may be responsible for the following abdominal catastrophes: (1) intestinal obstruction due to pressure or adhesions, (2) volvulus, and (3) intussusception. Malignant change is extremely uncommon, Warfield citing three recorded cases in twelve years.

Aetiology, Pathogeny, and Associated Abdominal Lesions

We have been unable to trace an account of any case presenting other definite lesions within the abdomen. The natural trend of thought leads one to attempt to associate the concomitant lesions in this case with the formation of mesenteric cysts. We wonder whether the lymphatic infiltration following upon repeated attacks of mild appendicitis predisposed to occlusion of certain of the lymphatic channels; whether the tuberculous infiltration would bring about this change; and whether the appendicular inflammation itself was of tuberculous origin, thus giving support to the theory that a definite sequence of events led up to the final acute illness.

Warfield admits that necrosis of a tuberculous lymph node may account for the formation of a mesenteric cyst, but considers that the theory of lymphatic obstruction from this cause leading to cyst formation is so unlikely that it should be discarded. The clearest pathogenic classification is that given by Higgins and Lloyd, as follows:

- (a) Cysts of embryonic origin.
- (b) Of intestinal origin, diverticula.
- (c) Unclassified anomalous varieties such as traumatic, parasitic, obstructive, etc.

The age incidence varies from infancy to old age, the commonest being between 30 and 40 years, slightly more common in women than in men.

Pathology and Pathological Anatomy

The shape and size of these cysts are very variable, ranging from minute lymphatic dilatations to those which fill the whole peritoneal cavity and, as our case illustrates, they may be sessile or pedunculated, unilocular or multilocular; 70 per cent. occur in the mesentery of the small intestine, and of these 25 per cent. are found in the mesentery of the ileum. The true mesenteric cyst, as defined by Roller, must occur between the layers of the mesentery or under the gut serosa, and must not be in the position generally described as retroperitoneal.

Treatment and Prognosis

The treatment is entirely operative, and may be classified as follows:

1. Enucleation. This is obviously the most desirable, but not always practicable. The mortality of this operation is 9 per cent.
2. Enucleation with bowel resection, which may obviously lead to a considerable surgical undertaking with the attached risks. The operative mortality is 25 per cent.
3. Marsupialization has a mortality of 16 per cent.
4. Aspiration only, following which recurrence is almost certain.

The choice of operation depends upon a number of factors, most of which are obvious and arise out of the varied circumstances of each individual case. The ultimate mortality is in the region of 30 per cent.

BIBLIOGRAPHY

- Higgins and Lloyd: *Brit. Journ. Surg.*, 1924, xii.
Flynn: *Ann. of Surg.*, April, 1930.
Peterson, E. W.: *Ibid.*, September, 1932.
Warfield, J. O.: *Ibid.*, September, 1932.
Collins and Bordez: *Arch. of Surg.*, February, 1934.
Roller, C. S.: *Surg., Gynecol. and Obstet.*, June, 1935.

R. Caussé (*Ann. d'Oto-laryngol.*, July, 1936, p. 661) describes fourteen cases of congenital nystagmus and emphasizes the importance of differential diagnosis from vestibular nystagmus—for example, in neurological conditions a wrong diagnosis of disseminated sclerosis may be made. In compensation cases after head injuries a congenital nystagmus may be present. If the eye movements are not recognized as congenital in origin it is easy to make a wrong diagnosis of an inner-ear lesion. The main difference lies in the type of nystagmus. In vestibular nystagmus the eye movements are alternating slow and quick jerks, while in congenital nystagmus one usually sees regular to-and-fro movements ("pendulum"). This only applies when the patient looks forward. When the eyes are made to look sideways or upwards, congenital nystagmus also has slow and quick components like vestibular nystagmus. Further, among the fourteen cases there were four in which the congenital nystagmus had vestibular characteristics even on looking forward. Therefore the type of nystagmus alone is not sufficient for differential diagnosis. Congenital nystagmus is unstable. There are periods when it becomes arrested and at other times the rhythmic movements are greatly exaggerated. Vestibular nystagmus, on the other hand, is absolutely constant and regular. Vestibular tests applied to a subject with congenital nystagmus show the reactions of a normal labyrinth. The nystagmus may be increased by the added vestibular response or it may be abolished temporarily, because the eye movements produced by the test are in the opposite direction. The majority of patients with congenital nystagmus have some abnormal eye condition—for example, corneal opacities or high myopia. In very exceptional cases the vision may be normal. Rhythmic movements of the head are occasionally seen, and these are synchronous with the eye movements. The presence of such head movements ("cephalic nystagmus") practically always justifies a diagnosis of congenital nystagmus.