associated physical disease has been considered in our joint group of patients with anxiety states and hysteria. An analysis of these factors in our material is given in Table VII.

TABLE VII

	Favourable Results	Unfavourable Results	Observed Difference Two Previous Groups	Twice Standard Error
Average age	30.14 $\pm$ 7.82	38.45 $\pm$ 11.53	8.31	3.74
Average length of illness	3.43 $\pm$ 4.61	6.05 $\pm$ 7.48	2.62	2.30
Incidence associated physical disease	14.29%	34.54%	20.25%	15.88
Incidence Selection Groups 1 and 2	30.61%	16.07%	14.54%	17.20
Incidence Selection Groups 4 and 5	10.21%	34.09%	23.88%	16.68

Increasing age, length of illness, and associated physical disease—for example, bronchitis, rheumatism, duodenal ulcer, asthma, and colitis—were adverse factors in our experience. Intelligence below the average (Selection Groups 4 and 5) occurred significantly in the unfavourable replies. Although superior intelligence (Selection Groups 1 and 2) is seen more often in the favourable results, this did not happen to a significant extent. Intelligence has been assessed by Dr. Desai, using the matrix test, and graded in terms of “selection groups”—the average being taken as S.G. 3+ and 3-. That older and less intelligent patients do not respond to psychotherapy is a well-known clinical observation.

There are other constitutional factors which may have affected the results, but we did not study them adequately. The neurotic constitution described by Slater (1943) is clearly of the greatest importance. Unstable personalities are often unable to take an interest or co-operate in therapeutic attempts. We would suggest that an active interest in group or individual therapy is itself a favourable prognostic sign.

Summary and Conclusions

Similar clinical material has been separately treated by two methods—in groups (69 cases) by A.S.T., and individually (38 cases) by N.C.—the results of which are compared.

The incidence of psychiatric syndromes corresponds closely in the two groups, with the exception of anxiety states and hysteria, the proportions of which are significantly different. It is argued that this difference is partly due to a subjective emphasis upon one or other term.

The results of treatment, as judged by means of a questionnaire, were found to be similar for both groups.

Comparing and analysing treatments, we found significant differences in the use of physical and of psychotherapeutic methods by both therapists. Such differences were due to personal preference.

Comparing the use of physical treatment, A.S.T. was found to use more modified insulin, but obtained no better results. E.C.T., insulin coma, and deep narcosis were preferred by N.C., who obtained better results from them, this being due to a greater use of E.C.T. in depression.

The difference in psychotherapy lies in the exclusive use of either group or individual methods. The results of treatment by either technique are the same. A.S.T.'s rather better figures are attributable to his preference for group therapy in depression. Psychotherapy of either type yields better results than routine treatment. Within the group, discussion of personal case histories produces better results than educational methods, but the numbers are too small for final conclusions to be drawn.

Apart from treatment, such constitutional factors as age, low intelligence, length of illness, and the presence of associated physical illness significantly affect prognosis. It is tempting to suggest that interest in either group or individual therapy is itself a good prognostic sign.

Our thanks are due to Dr. Louis Minski not only for permission to publish this paper but for freedom of choice in methods of treatment. We are also indebted to Dr. Desai for helpful criticism in writing the paper.

REFERENCES

- Burt, C., Jones, E., Miller, E., and Moodie, W. (1945). *How the Mind Works*, 2nd ed. London.
 Fenichel, O. (1946). *The Psychoanalytical Theory of Neurosis*. London.
 Hill, A. Bradford (1949). *Principles of Medical Statistics*, 4th ed. London.
 Ross, T. A. (1923). *The Common Neuroses*. London.
 Sargent, W., and Craske, N. (1941). *Lancet*, 2, 212.
 Slater, Eliot (1943). *J. Neurol. Psychiat.*, n.s. 6, 1.
 Thomas, G. W. (1943). *Psychosom. Med.*, 5, 166.
 Thouless, Robert H. (1930). *Straight and Crooked Thinking*. London.

PRIMARY TORSION OF THE OMENTUM IN CHILDREN

BY

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Torsion of the great omentum in its long axis is recognized in the adult as a cause of acute abdominal symptoms, and there are numerous references to it in the literature (Draper and Johnson, 1931; Lipsett, 1941). In the child the omentum is poorly developed and is usually short, filmy, and relatively free from fat; therefore, from its nature, any twist will return immediately to normal. For this reason torsion of the omentum is rare in childhood.

Two types of torsion are recognized: primary or unilateral, where no obvious cause can be found within the abdominal cavity; and secondary or bipolar, where some additional point of attachment is present, such as a focus of inflammation, a hernial sac, or the adhesions of a previous laparotomy. Three cases of primary omental torsion causing acute abdominal symptoms are reported.

Case 1

A previously healthy girl aged 6 was admitted to hospital on October 27, 1947, with the complaint of sudden abdominal pain. This began in the lower abdomen 24 hours before admission and was followed by vomiting on two occasions. About eight hours after the onset the pain settled in the right side of the abdomen and remained there. The appetite was not particularly affected; the bowels had moved four hours before admission. There were no other relevant points in the history.

On examination she was seen to be robust though not obese; the tongue was clean and there was no pyrexia; the pulse was quickened, but the respiratory rate was within normal limits. The whole of the right side of the abdomen was tender to palpation and there was muscle-guarding in the right hypochondrium and to a less degree in the right iliac fossa. Rectal examination was inconclusive. No abnormality was detected in the heart, lungs, or urine. A diagnosis of acute appendicitis was made, and laparotomy was carried out through a grid-iron incision in the right iliac fossa.

At operation some clear free fluid was found in the peritoneal cavity. The caecum, appendix, and small bowel showed some superficial injection. Exploration of the upper abdomen with a finger disclosed a mass in the region of the gall-bladder. It was freely mobile and was delivered without difficulty into the wound. It was then obvious that this was an omental torsion involving most of the greater omentum, and it was ligated at its pedicle and removed. Appendicectomy was then performed and the abdomen closed. Convalescence was uneventful apart from a temporary collapse of the right upper lobe following the anaesthetic.

Pathology.—The specimen was pyriform in shape and measured 7 by 5 cm. It was firm in consistency and plum-coloured, and at the neck the normal omentum was present.

appearing to have undergone two complete turns. On microscopical section some lymphocytic infiltration was found, with haemorrhagic infarction and thrombosis of the vessels. There was no evidence of any active inflammation or tumour formation.

Case 2

A girl aged 4 was admitted to hospital on September 10, 1948, with a history of abdominal pain of five days' duration. The pain had been intermittent and mainly right-sided, and became more severe 18 hours before admission. There was no vomiting and the bowels were opened the day before admission.

On examination the child was flushed; her temperature was 100° F. (37.8° C.), pulse 125, and respirations 20. A small mass was palpable above the inguinal ligament on the right side and there was some muscle-guarding. Rectal examination confirmed the presence of this mass, and an appendix abscess was thought to be present.

At operation the omentum was found to be lightly adherent to the anterior abdominal wall below and to the right of the umbilicus, and in its right half had undergone a torsion. The twisted omentum was removed and appendicectomy performed.

The pathological appearances were similar to those in Case 1, the only difference being in the size of the specimen, which measured 3 by 1.5 cm.

Case 3

A female child of 4 years was admitted on June 6, 1949, with a history of colicky abdominal pain of six months' duration. The present attack was of 24 hours' duration, and was similar in onset to that in Case 1. Once again the pre-operative diagnosis of acute appendicitis was made and at operation the appendix was found to be normal, but the exploring finger discovered a freely movable mass in the right hypochondrium. This was delivered with ease, and proved to be a twisted omentum.

Photograph of specimen in Case 3, showing the intense congestion present and the twist at the junction of the free omentum and the infarcted portion.

It was ligated at its pedicle and removed. Appendicectomy was also carried out.

The specimen (see accompanying illustration) measured 4 by 4 cm., was quadrilateral in shape, darkly plum-coloured, and almost necrotic in places.

Discussion

Erdmann (1921) reports a case of omental torsion associated with an acute appendicitis in a boy aged 14. At operation a dark necrotic mass was found high up; this proved to be the right half of the omentum, which had twisted on itself three times. The appendix may well have been the initiating factor in this case, which seems to have been a secondary torsion.

Apart from a report by Barsky and Schwartz (1937) in a child of 5, I have found no reference to this condition in children. In the case reported by them repeated attacks of abdominal pain were attributed to a fibrotic omentum which was found at operation.

Torsion without cause is a rare condition. Among various exciting factors that have been suggested as causes of the twist are irregular peristalsis of the bowel due to various causes, from over-violent cathartics to abdominal trauma and irregular fat deposits in the omentum. Payr's theory of haemodynamic torsion is a somewhat fanciful idea, and is without proof. Venous congestion is said to cause the relatively more tortuous veins to twist round the arteries and initiate the torsion. The omentum normally undergoes a purposeless movement within the abdominal cavity. This motility is utilized should any inflammatory process be present within the abdomen when an attempt is made to localize the pathogenic organisms or wall off any necrotic tissue present. It is difficult to understand why this movement should result in an acute twist which is maintained and which is sufficient to cause necrosis of the omentum itself.

A pre-operative diagnosis is unlikely in this condition, laparotomy being undertaken for what appears to be an appendicular inflammation. It is also conceivable that even at operation an accurate diagnosis may not be made when laparotomy is carried out through a small incision in the right iliac fossa. On opening the peritoneal cavity free fluid and enlarged glands may be found and the upper abdomen be inadequately explored, the symptoms of the acute abdomen being attributed to lymphadenopathy, which is often found. Left within the abdomen, the twisted omentum will ultimately resolve and become fibrosed, though abscess formation has been described in the adult from what was believed to have been an acute torsion. The treatment advocated, therefore, is excision of the twisted omentum.

Summary

Three cases of omental torsion are reported as a cause of acute abdominal symptoms in childhood.

The rarity of the condition in children is presumably due to the poorly developed omentum in the small child.

The aetiology of the condition is not known, and the diagnosis is unlikely before laparotomy.

Treatment is simple, and consists of resection.

I wish to thank Mr. Matthew White for his help in the preparation of this paper and for his permission to report Cases 2 and 3, which were treated in his wards at the Royal Hospital for Sick Children, Glasgow.

REFERENCES

- Barsky, E. K., and Schwartz, A. M. (1937). *Amer. J. Surg.*, **38**, 356.
Erdmann, J. F. (1921). *Ann. Surg.*, **73**, 252.

Recommendations for modernizing measures against the international spread of yellow fever along the routes of human travel have been made by a panel of experts headed by Dr. A. F. Mahaffy, formerly Director of the Yellow Fever Research Institute at Entebbe, East Africa, meeting recently at Geneva under the auspices of the World Health Organization. These recommendations are being considered by the WHO Expert Committee on International Epidemiology and Quarantine meeting in Geneva, which is drafting new international sanitary regulations to replace the present out-of-date conventions. The panel agreed that, while eradication of *Aedes aegypti* is now practicable, the eradication of yellow fever is still remote because of the presence of the infection in wild monkeys from which the disease may be transmitted by forest mosquitoes to human beings. Although no great urban epidemics have been registered since 1928 in Rio de Janeiro for the Americas, and since 1937 in Dakar for Africa, the panel insisted that outbreaks are still a possibility should the virus be introduced into areas infested by *A. aegypti*. It recommended that adequate precautionary measures should be taken by individual countries, and considered the eradication of *A. aegypti* to be of major importance.