MULTIPLE INTERNAL DIVERTICULA (INVAGINATIONS?) OF THE SMALL INTESTINE.

By A. A. SCOT SKIRVING, M.B., C.M.EDIN.,
F.R.C.S.EDIN., C.M.G.,
ASSISTANT SURGEON, EDINBURGH ROYAL INFIRMARY.

THE following case seems of sufficient interest to place on record, and I have not been able to find a reference to a similar condition. A little more than a year ago (November 9th, 1905), while operating in the Royal Infirmary on a case of right-sided acquired strangulated inguinal hernia in a man aged 33 years, and while about to return the congested but viable intestine, I noticed several peculiar depressions on the convexity of the loop. The amount of bowel involved was about 9 in., and the depressions (six in number) were situated at about equal distances from one another. On exploration with a probe it was found that these depressions represented the mouths of hollow finger-like processes which projected obliquely into the lumen of the gut for distances varying from 1 in. (the shortest) to 2 in. (the longest). The largest process was of sufficient diameter just to permit the insertion of a Kocher's dissector. All ended blindly, and were apparently localized invaginations of the whole thickness of the wall of the gut. The condition will best be understood if one imagines a number of slender Meckel's diverticula pulled (inside out) into the interior of the bowel. It is easier, however, to describe the condition than to suggest an explanation for it.

That these localized invaginations (?) were of recent origin, due to some irregular peristalsis of the bowel, it is impossible to believe. Their length, their number, and the absence of any constrictions in the bowel at their sites preclude this supposition. Moreover, repeated gentle attempts in various ways to "reduce" one of them failed. The bowel was accordingly replaced in the abdomen, leaving them exactly as they were. It is interesting, however, to note that they were apparently confined to the portion of intestine involved in the hernia, since examination of several inches of bowel above and below the strangulated loop revealed no indication of a similar condition. Further, on close inspection of the loop, certain slight thickenings of its wall, apparently of a chronic inflammatory character, could be seen in the intervals between the openings of the diverticula. These thickenings (they could not be called bands) were situated at right angles to the long axis of the bowel. It may be mentioned, also, that a few, but not very strong, adhesions existed near the neck of the sac.

Since these appearances seemed to suggest, at any rate, a causal connexion between the hernia and the diverticula, special care was taken on the patient's recovery to obtain a full history of his case.

The more important points were as follows:

No history obtainable of enteric fever, or indeed of any illness of any sort. Bowels have always been regular. Patient first noticed the hernia as a small swelling, three years ago, which disappeared when he lay down. He does not think it followed any strain (patient is a carpenter). The hernia gradually increased in size, and a year ago it had become scrotal and was about the size of a duck's egg. At this time, however, on one occasion he found he could not put it back, and strangulation occurred. Reduction was successfully accomplished by Dr. Miller of New Mains, under chloroform. During the past year the hernia frequently descended into the scrotum, but patient says he was always able to put it back until the present (second) attack of strangulation occurred (November 9th, 1905). On this occasion Dr. Kay of Shotts found reduction impossible, and accordingly sent him into hospital. At no time has patient ever worn a truss.

I have delayed publishing this case until now, as I wished to see whether the after-history might throw any further light on the condition.

I saw the patient lately (December 15th, 1906), when he told me that he has been in good health since the operation and able to work. His bowels had been regular. The cicatrix is sound (radical cure was done at the time of the herniotomy). The only thing that he complains of is that for the last six months he has felt "slight aching pains" in the right inguinal region in the evenings after his work is over. He also volunteered the interesting information that for some four or five years before he noticed the hernia he suffered from somewhat similar

pains in the same situation. These, however, were more severe than the present ones, and of a "prickling" character. It would be interesting to know whether either of these pains is associated or not with the diverticula.

I am indebted to Dr. William Robertson, late House-Surgeon Edinburgh Royal Infirmary, who assisted me at the operation, for reading over the notes of this case, in the description of which he concurs.

An Address

ON

OPSONINS AND THEIR UTILITY IN PRACTICAL MEDICINE.

READ BEFORE THE MEETING OF THE TUNBRIDGE WELLS
AND NEIGHBOURING DIVISIONS OF THE BRITISH
MEDICAL ASSOCIATION.

By HERBERT FRENCH, M.A., M.D.Oxon.,
ASSISTANT PHYSICIAN, GUY'S HOSPITAL.

I do not wish it to be supposed that what I have here to say about opsonins and the question of vaccine treatment of certain diseases is any original work of my own; the credit of the work belongs to Koch, Behring, Wright, Bulloch, Eyre, Louisson, and a host of other workers. It is to Sir A. E. Wright that our present knowledge of opsonins is mainly due.

WHAT OPSONINS ARE.

The white corpuscles of the blood can be kept alive outside the body; experiments can therefore be made with living leucocytes in test tubes and so on. Under the microscope the great Professor Metchnikoff watched such leucocytes engulfing or swallowing up bacteria by a process which we all know by the name "phagocytosis." Phagocytosis is at the bottom of all estimations of the opsonic index.

Let me confine myself for the present to the phagocytosis of tubercle bacilli. If living leucocytes in a test tube be incubated at body temperature along with a number of tubercle bacilli obtained from a cultivation of these organisms, a film can be made of the leucocytes upon a microscope slide, stained appropriately by the Ziehl-Nielsen method for tubercle bacilli, and examined under a microscope with a $\frac{1}{2}$ -in. oil-immersion lens. It will be found that many of the tubercle bacilli are now inside the leucocytes, having been, so to speak, eaten by them. The number thus eaten up by 100 leucocytes can be counted. We shall all agree that the larger the number of tubercle bacilli taken up by 100 leucocytes in this way in a given time, the greater is the phagocytic power of those leucocytes for the tubercle bacilli in question. For instance, granted that the same cultivation of tubercle bacilli be used in each case, and that the time and temperature of incubation be the same, if it be found that one set of leucocytes engulf 100 tubercle bacilli per 100 leucocytes, and another set engulf 200 tubercle bacilli per 100 leucocytes, then the phagocytic power in the latter case is twice that in the former.

The next question is, what are the factors which cause variations in the phagocytic power of leucocytes? There are, of course, many factors—such as the temperature of the incubator, the freshness of the leucocytes, the virulence of the tubercle bacilli, and so on. We do not need to consider all these.

I.

If I were to obtain one set of quite fresh leucocytes from my own blood, and another set of quite fresh leucocytes from a phthisical patient's blood, and some blood serum from a healthy third person, and were then to prepare two test tubes, putting into each the same amount of the same culture of tubercle bacilli, and the same quantities of the serum, and then added my leucocytes to the one, and the phthisical patient's leucocytes to the other, and if after incubating the two for the same length of time I prepared films, and counted the tubercle bacilli taken up by 100 of each of our leucocytes, I should find that the phthisical patient's leucocytes and my leucocytes would have taken up almost exactly equal numbers of bacilli—that is to say, leucocytes from different human