

Medical Progress.

A REVIEW OF SOME OF THE RECENT LITERATURE ON PERICECAL BANDS AND ADHESIONS.

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It is safe to say that there are at least three types of adhesions: (1) excessive embryonal fusions, (2) inflammatory and traumatic processes, (3) mixed. During the past two years we find an increasing number of writers who lean toward the embryonic origin of these structures, some of whom are on record in the past as believing them to be largely inflammatory. It seems certain that during fetal life there is a mysterious sort of adhesive peritonitis with a selective action on certain folds of the peritoneum, which accounts for the fixed portions of the intestinal tract (Bryant¹). Just how this process takes place is not known, but if one thinks of the contents of the peritoneum becoming more or less adhesive during the evolution of the colon in fetal life, all the findings would be explained. The whole mesentery of the large intestine becomes adherent, each portion to its own chosen structure except that of the sigmoid. This is a very extensive process and it is easy to see that comparatively slight variations would lead to important anatomical changes. Suppose the process is very active on the ascending colon, Jackson's veil is the result from the dragging over the intestine, by its adhesive property, of a fold of peritoneum, much as one pulls up a blanket on a cold night. If the process runs up on to the mesentery of the lower ileum, the intestine rolls up in its own mesentery and we get a Lane kink. Naturally, different writers show minor differences of opinion, but this seems to be the fundamental idea as expressed by Mayo,² Eastman,³ Summers,⁴ Fallon⁵ and others. The possibilities are endless, and it is easy to see that the resulting abnormalities would at least be very similar to the results of peritoneal infection. It is probable that pericecal membranes are present in at least 15% of children (Albrecht⁶), while Eisendrath and Schnoor⁷ and Fallon⁸ claim that Jackson's veil is a fold which is always present to a greater or lesser extent. They say that the Jonnesco and the Jackson veils are synonymous. The structure is a reduplication or fold of peritoneum constantly found during fetal and post-natal life and varies greatly in vascularity. The upper border is at the hepatic flexure and the lower is usually 1 to 1½ inches above the lower border of the cecum, although in some cases they found it covering the whole cecum and part of the appendix.

Another embryonic process which it is necessary to note in this connection, although it involves the cecum only indirectly, is the Lane kink. The mechanism of this abnormality is much clearer and can be explained as a rolling up of

the terminal ileum in its own mesentery. There may be variations, but this is the fundamental process. Campbell⁹ found the condition present to a greater or less extent in 18% of a series of cadavers.

To take up next the adhesions of infectious or traumatic origin—they are so diverse both as to cause and position that it is only necessary to mention the appendix as the commonest single cause and that their varieties may be endless. A good example of this process is the deformity of the lower ileum caused by appendicitis when that organ lies against its mesentery. The resultant scarring of the peritoneum may draw the terminal ileum downward in such fashion that it almost exactly simulates a Lane kink of embryonic origin. The same may also be true of tubal inflammations. Eastman³ partly differentiates such processes from the congenital type by absence of blood vessels. The main difference is the fact that they are usually, but not always, firm, white, localized bands of bloodless connective tissue. They seldom show any orderly arrangement as the congenital veils do, and may catch any loop of bowel. They are often fine string-like processes. If the omentum is involved, it usually springs straight across to the site of inflammation about the cecum without any intermediate process between it and the ascending colon, as is the case in the congenital type.

It is easy to see that the embryonic process results in strong points of support for the colon throughout nearly its whole extent. If these supports are unduly narrowed at any point or if they draw across the gut, they will cause angulation or constriction of its lumen with resulting stasis after the musculature loses its tone. If there is unusual overloading of the intestinal tract due to loss of habit of defecation or any other cause, the same angulation will occur at points of support which under a lighter load would act properly. Under these circumstances they become danger points, and by causing increasing stasis with its resulting putrefaction give rise to mild grades of colitis and pericolicitis.

This brings us to the commonest type of case seen at operation,—the mixed type. In this, the congenital type acts as a forerunner to the chronic adhesive process of adult life with its persistent low grade infection and its ever-increasing obstruction and stasis, thus forming a vicious circle. Associated with this is the increasing density of the embryonic structures due to the tugging of prolapsing organs or a mild degree of inflammation, as pointed out by Pilcher.⁹ When such cases come to operation, it is very difficult to tell where the embryonic process ends and the inflammatory one begins. Luckily this makes comparatively little difference surgically.

We now come to the mobile cecum of Wilms. Here again developmental conditions play a very important rôle. If there is a meso-cecum and ascending meso-colon, the

cecum, being a comparatively heavy blind pouch supported against the abdominal wall in all the animals which do not stand erect, sags down into the pelvis, and the more it sags the more difficulty it has in emptying itself. Hausmann¹⁰ recognized three types: (1) due to a long common mesentery, (2) due to sliding or flaccid slack retrocecal tissue, and (3) due to long mesentery of the ascending colon and hepatic flexure. Case¹¹ and others, while not denying the presence of this condition, say it is not nearly so important as the fixed cecum. Connell¹² found it present in 11 out of 19 operative cases. It is probable that it may also be due to a dilatation and elongation of an originally normal organ by means of constricting bands involving the ascending colon, with resultant stasis. The general feeling among American surgeons seems to be that dilatation of the cecum is of far greater importance than its mobility. Cannon¹³ and others have proved that the cecum is a reservoir which is intended to hold its contents for a considerable time, and if we look to the lower animals we find that those vegetable feeders with enormous ceca have very much less constipation than the carnivora in whom it is rudimentary. That this is due to the type of diet undoubtedly is true, at least in part.

That excessively redundant ceca may cause no trouble was proven in one of my own cases two years ago. The patient, a woman, had an enormous left inguinal hernia. Even when she was lying down, the lower end of the sac was level with the upper edge of the patella. At operation, the cecum was found firmly adherent at the very bottom of the sac, and yet this patient had never been troubled greatly with constipation.

Our last anatomical consideration is the ileocecal valve. Case,¹⁴ Dodd,¹⁵ Baker¹⁶ and others have shown that it is frequently incompetent and that this incompetence is usually associated with stasis in the lower ileum, giving rise to a more or less well defined symptom complex. Case¹⁴ reports it to be present in 17% of all cases. This valve is of great importance in preventing the regurgitation of the cecal contents, which are very rich in bacteria, into the ileum, where bacteria are much less numerous. Naturally this results in putrefaction taking place in an organ which is not suited to it, with resulting absorption of decomposition products. When we look into this matter we find that there is considerable unanimity of opinion as to the fact, but rather less so as to the cause. First on the list comes congenital deformity of the valve itself. This is probably not so common as dilatation of the valve with relative insufficiency due to dilatation of the cecum from obstruction of the colon (Case¹¹). Third comes deformity of the valve from inflammatory conditions, such as adherent appendix, etc., and fourth, pulling on the ileum, withdrawing it from its partial invagination into the cecum and making it incompetent. Thus we have a definite deformity of the valve, usually secondary to some other pro-

cess, but which as a rule is not remedied by the removal of the original cause.

Absolute diagnosis of these varying conditions is difficult and varies somewhat with different authors. I shall not take it up in this paper more than to say that there is a fairly definite symptom complex associated with ileal stasis and that this is the dominating feature. Positive, differential diagnosis can be made only by means of the x-ray, and even that is not always certain.

TREATMENT.

Naturally we find that the treatment recommended by different authors is very variable, but it is possible to reconcile many of these variations when we recognize the underlying condition which each man is proposing to treat. It is absolutely necessary to remember that in this condition each case must be treated according to the findings, and that no hard and fast procedure can ever be successful in all cases. Even where the underlying cause is the same, the resulting pathological processes may be very variable and demand very different treatment. Many cases with quite severe deformities show little or nothing in the way of symptoms, while others, which have marked symptoms, at operation will show an almost normal abdomen.

I cannot hope to cover all the indications for the different operations proposed, but can simply discuss a few of the best known and those which seem to me the most efficient. Medical treatment is often successful in removing symptoms, temporarily at least. Baker¹⁶ advised cutting down the proteids and increasing the carbohydrates. At the same time, green vegetables and fats should be taken freely to increase the bulk and lubricate the stools. As a rule it is necessary to use agar agar and Russian oil and sometimes some form of laxative. The stools should be bulky and evacuation should be thrice daily for a time at least. Bastedo¹⁷ adds to this, as a very important point, the formation of a good habit of defecation. Whipple¹⁸ advocates the use of lactic acid bacilli either by mouth or in the form of enemata.

In the absence of signs or symptoms pointing to some definite lesion, such as Lane's kink, definite obstructing bands, appendicitis, etc., it is probably best to try out medical treatment thoroughly before resorting to operation. We should remember that these people probably have a rather increased tendency to adhesion formation and that any laparotomy, no matter how carefully done, is almost sure to be followed by some adhesions. This fact probably explains, in part at least, the unsatisfactory result in those cases which Price¹⁹ has so aptly termed surgical junk.

Lane may well be called the originator of surgical intervention in this condition. His work is so well known that it is not essential to go into its details here. The three operations for which

he is justly famous are: (1) reduction of Lane's kink, (2) ileo-sigmoidostomy, (3) colectomy. The first of these needs no discussion other than to say that it has been somewhat modified by different operators, notably Coffey,²⁰ who plicates the mesentery on the side away from the kink in order that it may not recur. Ileo-sigmoidostomy has been variously modified. Morris²¹ uses a sharp-bladed crushing clamp inserted through the anus by an assistant, and passed through the walls of sigmoid and ileum by the surgeon. This is left in place two to four days. If safe and efficient, it must indeed be a very rapid method. Montprofit²² sutures both proximal and distal ends of the cut ileum into the sigmoid, the idea being to give better drainage. Dr. Samuel J. Mixer, in a number of cases has sutured cecum to sigmoid or transverse colon to save the ileo-cecal valve, and more recently Eastman²³ has advocated anastomosis of the lowest point of the cecum to the top of the rectum by means of a large Murphy button. As we have seen, it is of great advantage to preserve the ileo-cecal valve; so I should say, if the technical difficulties of Eastman's operation are not too great, that it was the best, as it also completely drains the cecum, which is prone to fill with fecal matter after ileo-sigmoidostomy. This question of backing up in the cecum is very interesting and is due to antiperistaltic waves, which apparently normally occur in the ascending colon in order that the cecal contents may not advance too rapidly.

In regard to colectomy, there have been few changes in technic since Lane described the operation. Naturally any improvement in the technic of the short-circuiting operation can and should be carried out in the other. Lardennois²⁴ has added one point, namely, that the transverse colon is easily dissected away from the back of the omentum by following its line of fusion. In this way, the omentum and its complete blood supply are saved.

The other modifications of the Lane operation are along the line of conservation, in that only a portion of the large intestine is removed.

Reder²⁵ resects the ascending colon and cecum, and then after doing a lateral anastomosis, ileum to colon, brings the blind end of the ileum out through the abdominal wall, thus leaving a vent which heals within three or four weeks.

Kellogg²⁶ has suggested the formation of an artificial valve where the end-to-side anastomosis is done. Mayo believes colectomy to be seldom necessary, as do Connell,¹² Lardennois,²⁴ Sorrel and others. These writers favor the careful dissection of the constricting bands with plastic repair of denuded areas, and also at times fixation of the intestine to the abdominal wall.

Oppel²⁷ has gone into this matter of reversed peristalsis, particularly after anastomosis, carefully. His conclusions may be epitomized as follows: Never leave a blind pouch without a fistulous opening and if possible never give the fecal stream a chance to go round a loop and

back to the same place. Both of these will result in symptoms of stasis.

Fixation of cecum mobile is advised by Wilms, Hausmann,¹⁰ and Duval.²⁰ The latter splits the peritoneum over the tendon of the psoas parvus and sutures the longitudinal band of the cecum to it. If, as we suppose, dilatation of the cecum is of greater importance than cecum mobile, these operations are to be used only in a small number of cases.

Repair of the ileo-cecal valve by means of several sutures placed in the sero-muscular coats constricting the opening and causing a slight intussusception, has been advised by Kellogg²⁶ and his views are confirmed by Case.¹⁴ This would seem to be a rational procedure in all cases where the ileo-cecal valve was incompetent. Martin,³⁰ on the other hand, claims that stasis is sometimes due to sphincterismus, and that if this is the case the muscle should be cut, permitting the valve to become more or less incompetent. This at first sight does not appear as rational a surgical procedure, but no decision can be reached until more cases have been done by both methods. Most recent authors agree that restricting bands should be severed and the intestine restored as nearly as possible to its original form whenever this seems to give probability of relief, rather than to do a short-circuiting operation or a colectomy. Emphasis should also be laid on various points of technic, such as little handling, plastic repair of peritoneum wherever possible, complete hemostasis and the elimination of dry gauze from the abdomen. It is a question whether oil introduced at operation does any good. Some authors say it does harm.

It seems to me, on thinking over quite a large number of cases seen as assistant and a small series as operator, that adhesions involving the large intestine are far more prone to recur than those involving the small, and that the dividing of bands causing constriction and angulation, is more important than fixation, and that short circuiting operations and colectomies are of greatest value where there has been a marked hypertrophic process in the large intestine, associated with the adhesion formation.

CONCLUSIONS.

The most important thing in the treatment of these conditions is that each case is a law unto itself and must be judged and treated individually; that probably most of the procedures advocated will be of benefit if used in those cases to which they are adapted; that no single procedure will benefit all, and that there will always be a certain percentage which will be unimproved or even made worse by any operation.

Short-circuiting operations and colectomy may have very far-reaching ill effects in some cases and should be done only after careful thought.

Finally, there seems to be no class of surgery in which the surgeon can use well balanced surgical judgment and common sense to greater advantage.

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Book Reviews.

Cystoscopy and Urethroscopy for General Practitioners. By BRANSFORD LEWIS, B.S., F.A.C.S., Professor of Genito-Urinary Surgery, Medical Department of St. Louis University, St. Louis, Mo., Genito-Urinary Surgeon to St. John's Hospital, etc.; and ERNEST G. MARK, A.B., M.D., F.A.C.S., Professor of Genito-Urinary and Venereal Diseases in the University Medical College, Kansas City, Missouri, etc.; with a chapter by WILLIAM F. BRAASCH, M.D., Attending Physician to the Mayo Clinic, Rochester, Minnesota. With 113 illustrations, 23 of which are printed in colors. Philadelphia: P. Blakiston's Son and Company, 1012 Walnut Street. 1915.

This book is of real value to those interested in the subject matter it contains. It devotes its first seven chapters to as complete and satisfactory a

summary of the history, development and present-day knowledge of cystoscopy as we have seen. The last five chapters, which are devoted to urethroscopy, are equally well treated, and are most timely at this moment, when for the first time in this country the pathology and treatment of urethral conditions are receiving the attention their importance deserves. Paper, type and illustrations are all most excellent, and the publishers as well as the writers are to be congratulated for the good quality of their work.

Pyelography (Pyelo-Ureterography); A Study of the Normal and Pathologic Anatomy of the Renal Pelvis and Ureter. By WILLIAM F. BRAASCH, M.D., Mayo Clinic, Rochester, Minn. Octavo volume of 323 pages, containing 296 pyelograms. Philadelphia and London: W. B. Saunders Company. 1915.

Dr. Braasch's book is chiefly valuable for the large number and the excellent quality of its illustrations, which show the renal pelvis in its normal state, and in a great variety of abnormal and pathological conditions. The material comes from the Mayo Clinic at Rochester, Minnesota, and the pictures, although they are numerous, are still a careful selection from a great mass of work done during the last five years. The text of the book is written in a simple, pleasant fashion, which makes the reading of it easy and at the same time provides a large amount of information in a small number of words. It contains chapters on the history and technic of this comparatively new field of work, and also chapters devoted to a consideration of the normal and abnormal anatomy of the renal pelvis and its many pathological conditions. There is a very complete bibliography of the subject as well as a good index at the end of the book. The publisher's work is well done.

General Medicine. Edited by FRANK BILLINGS, M.S., M.D., and J. H. SALISBURY, A.M., M.D. Series 1915. Chicago: The Year Book Publishers. 1915.

This is the first volume in the practical medicine series of the current year on the past year's progress in medicine and surgery. It consists of a series of chapters on infectious diseases and diseases of the lungs, heart, arteries, blood and hematopoietic organs, ductless glands and kidneys, and metabolic diseases. Each chapter presents the details of the most important advances made in its domain during the past season. The work is illustrated with twenty-four figures in the text and eight special plates and constitutes an excellent epitome of recent progress in general medicine.