

Mint, a member of the convention of Pennsylvania for the adoption of the Federal Constitution, a member of the Continental Congress, a signer of the Declaration of Independence, and recognized by all as the American Sydenham?

Thirteen of the twenty medical officers referred to were active in organizing the American Philosophical Society, several were founders of the College of Physicians of Philadelphia, and also of the College of Philadelphia, which afterward became the University of Pennsylvania, while ten became professors in the latter institution; several were honored abroad by election to membership in the Academy of France, the Royal Society of London and other foreign associations. Is it any wonder that the reputation of this hospital advanced so rapidly with such brilliant men in its service?

Volumes could be written to record their merits and embalm their memories; but all may be condensed in the single statement, that with them education never militated against personal goodness, for whether in peace or war, in pestilence or plague, in poverty or wealth, they worked nobly "for the good of their fellow beings and the glory of God."

If Franklin, who was the first secretary and afterward president of the Board of Managers, could today revisit this hospital, which he was so largely instrumental in establishing, he would find that wonderful changes had taken place. To begin with, at the time of his death in 1790, only the east wing was built, for the center and west wing were only commenced and finished about the close of the last and early part of this century. He would now find nothing remaining of the hospital, as he knew it, save the walls of the east wing, while the original plan as afterward completed has, within the last year or so, been subjected to an entire internal remodeling, and other buildings than those originally planned have been erected upon the grounds. He would even find the electric fluid which he successfully conducted along the string of his kite, now successfully employed in the institution whose corner stone he laid, as the customary means of sending the human voice to each portion of the entire range of buildings, and also of illuminating the halls and wards.

In conclusion, I wish to direct attention to the important educational services rendered by this institution. The Pennsylvania Hospital may properly be styled the Mother of American Hospitals from the fact that it was the first hospital in this country; but its reputation, which extends through the length and breadth of our land, has been gained not alone because of the tens of thousands of sick and injured charitably cared for, but also from the fact that medical instruction, bedside and clinical, has been a prominent feature from 1752 to this present time, and has been the means of disseminating the best medical thought and practice all over our country. The hospital, during its earlier days, stood forth as the sole representative institution for medical education, offering the only means for systematic instruction in medicine and surgery on this side of the Atlantic Ocean, and this instruction which has continued for nearly a century and a half, was permitted to suffer only a temporary interruption inseparable from the social disturbances accompanying the War of Independence, when the hospital was occupied by Colonial and British troops for their sick and wounded.

The number of students attending the hospital

lectures became so great toward the close of the last century that the managers, instead of crowning the center building with a dome, according to the original plan, decided to utilize the space by converting it into a clinical lecture room, and it was used until 1868, when the present, but now abandoned, octagon clinical hall was opened. Thirty years have now elapsed, and the building then considered the best for the purpose which could be planned, has now been found unsuitable, and has been superseded by this structure. What a like term of years in the near future may evolve in hospital construction, it would be presumptuous to even consider; but it really seems as if perfection has been attained and all possible surgical requirements met, by the erection of this magnificent building, which is this afternoon formally presented to the contributors of the hospital.

ORIGINAL ARTICLES.

PAST AND PRESENT OBSTACLES TO THE RADICAL CURE OF HERNIA, WITH DEMONSTRATIONS.

Read at the Third Annual Meeting of the American Academy of Railway Surgeons held at Chicago, Sept. 23, 24 and 25, 1896.

BY PROF. E. WYLLYS ANDREWS, M.D.

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CHICAGO.

Foremost among the obstacles which formerly stood in the way of success with radical cure of hernia was sepsis. This was no more true of hernia than of other abdominal work, but in the days now past when all wounds suppurred in the course of healing and when it was rightly thought that opening into the peritoneum was almost a sin, hernia work could not and did not prosper.

Directly dependant upon this obstacle of sepsis (including septic peritonitis) was that of timidity or conservatism, which acted as a blight upon the best surgeons up to about the time of Macewen's method. This tended in two ways to prevent progress: 1, by limiting the extent of the work, thus promoting half measures; 2, by leading many authorities to condemn radical-cure work altogether.

A third obstacle to success by operators of the past has been the extreme multiplicity of operations proposed and the complicated nature of many of them. It is hardly profitable to dwell upon obsolete methods but I have only to remind you of the names of Cooper, Gerdy, Wood, Heaton, Warren, Ball, Nussbaum, Barker, Sewell, Russell, Czerny, Macewen, McBurney, Woelfler, O'Hara, Lucas-Championnière and ask how many of us can even remember the multitude of methods these names stand for. You may turn over old treatises and scarcely come to the end of radical cure methods you will find. Through them all runs the perverted idea of trying to avoid the simple and essential feature of the modern method, namely, laying open the hernial canal. There were subcutaneous sutures with or without invaginating the scrotum. There were operations for "sewing the pillars." There were ingenious transplantations of muscles, fascia, bone plates and sponge grafts to plug up the canal. There were injections of irritants and astringents which as you know had an extensive use at one time and are still exploited. There were numerous forms of lacing and narrowing the canal by sutures passed in from without.

What has become of them all? They have been abandoned the world over because of their danger or inefficiency. The crux of radical-cure work is in the question of recurrence. Hitherto the rise and decadence of hernia cures have been like morning and evening of the same day. Of the scores of ingenious operations in the pre-antiseptic era not one, even the most rational, but was followed by such a train of relapses as soon to bring it into discredit. It will surprise any one, who will take time to look over the standard treatises of only five or ten years ago, to find how distrustful the best surgeons were of all radical-cure work. The conscientious writer could but admit that the numerous relapses and the occasional deaths made the operation hardly advisable. This feeling of distrust was intensified by the fact that many of the methods which failed so signally had been widely heralded in the beginning as infallible.

With the improvements of Macewen and Bassini began a new era. The "open method," the key to success was introduced. Although I think the Bassini method superior to Macewen's, it is fair to give Macewen credit for the central idea, that of dealing directly with the internal abdominal ring. We must not omit to mention that our own Dr. Henry O. Marcy claims to have used essentially the same method some years before either the Scotchman or the Paduan. In inguinal hernia there is but one strategic point, the internal abdominal ring. If this be reconstructed everything else below that point can be ignored. No operator would attempt to obliterate a scrotal sac as a means of preventing return of a scrotal hernia, any more than he would put a bandage around the scrotum instead of a truss above. It is just as irrational to attempt the closure of the external ring or whole inguinal canal while neglecting the internal ring, which is the only practicable point of preventing the return of the hernia.

Now the modern operations, while they are immeasurably superior to the old, also have some obstacles, and as many of you know I have tried to avoid these by a new operation, the imbrication method, which a number of other American surgeons have used with satisfaction.

Among these may be mentioned Dr. L. L. McArthur, Dr. Jas. Burry, Dr. L. Greensfelder and Dr. Bailey of Chicago, some of whom report that they have adopted it after extensively using other methods. Dr. Cole of Montana (five cases) and a number of my professional friends at various places have kindly informed me of their success with it.

Dr. Wm. J. Mayo of Rochester, Minn., has had a large and successful series of herniotomies. He informs me that he uses the imbrication method in large hernias but continues to employ Bassini's operation for those having moderate or small-sized rings. This is in accordance with my own experience, the need of something to supplement Bassini's method having been found very apparent in certain hernias.

I have preferred in my own work to adopt the new method in every case, as it adds no complexity and certainly gives greater security, but I must admit that Bassini's operation in the favorable cases with small rings gives excellent satisfaction also.

To select my method for the bad cases is at once a high compliment and a severe test of merit, too severe, in fact, to be fair, unless cases be classified in making up statistics.

Having stated that even modern operations encoun-

tered obstacles, I am prepared to sustain the proposition by reference to nearly two hundred herniotomies which I have made mostly within the past six years by every method now at all recognized.

Kocher's method ("Verlagerung's Methode," I, II and III) in spite of the eminence of its author, seems to me a step backward, in that it is not an open dissection of the canal. The twisted or sharply flexed neck of the sac drawn outside the external oblique can not but form a funnel or dimple on the peritoneum. The suturing of the aponeuroses is inefficient, blind and endangers the cord in any but the most expert hands. Furthermore the retraction of the sac by the forceps is not practicable except in cases which pass through the external ring, and not always in them. I have seen many sacs, large and small, which never could have been so treated. It is not possible to determine beforehand whether this is true or not. We have, therefore, in Kocher's operation a method which may or may not be applicable to any given case and we may be forced to change our plan after beginning the operation.

O'Hara's operation is somewhat like Kocher's, with certain steps left out.

Macewen's operation, with its pad of folded sac, is in my judgment easily overestimated. That the sutured and puckered sac really unites into a solid mass in all cases I know of no way of proving. That serous exudate and adhesions gradually give way we do know to be a fact. Nevertheless I have sometimes used the Macewen sac treatment in connection with Bassini's and my own operations in preference to cutting it off. We should be careful not to place too much reliance upon the treatment of the sac as a step in radical cure. The sac is a result, not a cause of the hernial protrusion, and its removal is an incidental not a decisive factor in its cure. If the aponeurotic walls are left weak a new sac will have no trouble in forming, whatever has been done with the old one.

Macewen's suture closing the whole thickness of the abdominal wall into one mass destroys obliquity of the inguinal canal and the natural valvular arrangement. The same thing is true of Halsted's modification of Bassini's operation. With this last admirable operation fewer obstacles are met and its popularity in America, which seems to have exceeded that in Europe, is, in my judgment, well deserved.

As you know, Bassini's essential improvement consists in a careful suturing of the posterior wall of the inguinal canal, so as to reconstruct the internal abdominal ring. To do this it is necessary to split open the canal, to draw aside the cord temporarily and to get rid of the sac permanently.

The suturing of the posterior wall of the canal is a species of plastic operation. It restores the length and obliquity of the canal and contracts the internal ring so that it will transmit the cord, and only the cord, from within outward. The hernia can not now descend because it is stopped at its very point of exit. If it had been stopped at some other point—say in the canal or at the external ring—it would sooner or later make a way in the looser tissues around the obstruction and reappear to the discredit of surgery. Herein lay the weakness of the older methods. They did not go to the strategic point, the internal ring. The external oblique aponeurosis is sutured by Bassini over the reconstructed canal *edge to edge*. This is entirely changed in my operation as will be seen. [The writer, with Dr. Allport's assistance, here dem-

onstrated upon the cadaver the complete Bassini operation and followed this by performing on the opposite side his own or the imbrication operation.]

Now as my subject is "Obstacles," permit me to refer to some drawbacks even to the success of the Bassini operation just seen. As certainly as you do a number of these operations you will come upon cases where its execution is difficult. These are cases of large internal ring with corresponding defect or absence of the posterior wall of the canal. They are not always large hernias, but sometimes the defect is so great that no muscular nor tendinous tissue appears between the ring and the rectus border. Now the repair of the posterior wall becomes difficult because it involves suturing into apposition structures wide apart. It is well enough to place one or two of the lower stitches into Poupart's ligament and the rectus sheath, but when these tissues must be depended upon too largely to repair the posterior wall the result is very unsatisfactory.

The obvious remedy for such a defect is the use of a flap from some neighboring part to fill this gap.

It seems to have occurred to several operators to attempt this in various ways. Flaps formed of fascia lata and even of a portion of the thigh muscles, such as the tensor vaginæ femoris, have been suggested. Woelfler advocated the use of the anterior sheath of the rectus muscle turned outward and sutured into the ring and posterior wall. The problem is to rebuild this deficient wall with a flap of some analogous tissue, which can be brought into position with ease and certainty without additional dissection or damage to other parts. To this end I use the structure nearest at hand, the *upper* segment of the divided external oblique, sliding it gently from its former position in front of the cord to a corresponding one behind it. Observe that its fibers are not changed in direction or even separated from the muscle behind. It is simply incorporated *with* the material Bassini uses in the posterior flap. I can not insist too strongly on the importance of using all the conjoined tendon and transversalis fascia present as part of this flap, since some operators have seemed to think it only necessary to include the layer of aponeurosis of the external oblique. This may be a kind of "imbrication" but it is not my method. Here I desire to call attention to the smooth firm appearance which the canal presents with this new structure incorporated. Of its strength and its unimpaired nutrition there can be no question. The question first suggested on seeing this step in the technique, is whether perhaps we have put the parts under too great tension (see Coley & Bull, *Sajous' Annual*, 1896, Vol. III). The fact is that there is never great tension here as shown by the ease with which these deep sutures are drawn. The overlapping is only 2 or 3 cm. Is it not true that in a dilated canal the anterior wall is stretched, and that, by thus disposing of the upper flap, we simply make the tension equal in front and behind the cord? Consider, also, how much firmer the union must be between overlapping surfaces than between those united edge to edge as by Bassini.

The *lower* flap of external oblique aponeurosis now remains as a covering to the cord, and is gently laid and sutured overlapping the upper with the cord between them. It is perfectly obvious to you that we now have the same anterior wall as before to the inguinal canal, namely, this aponeurosis. The external ring is also restored as before or perhaps a little

smaller. Into the posterior wall, however, is introduced a new and strong layer. Three layers now occupy the place of two and are so interwoven that they support each other and the tension is equally shared by the two lines of suture. I attach some importance to this point as I have found that in the Bassini method the deep row bears all the stress, and the edge to edge union of the aponeurosis over the cord is not always perfect.

I can not refrain from stating that I have found the principle of imbrication applicable to other purposes such as uniting abdominal wounds after ordinary celiotomy near the linea alba and linea semilunaris; but in this part of the subject I can not hope to interest you at the present time.

DISCUSSION.

Dr. COLE—I had the pleasure about a year ago of witnessing a demonstration of this operation by Dr. Andrews upon a living subject, and since then have had an opportunity to make the operation in five cases, and while that comparatively does not amount to very much, yet I wish to say the operation is to my mind an ingenious improvement upon the Bassini operation and one that will prove satisfactory. Before seeing Dr. Andrews I was prejudiced in favor of the Kocher operation; in suitable cases I still think it is an admirable operation, but I do not think it is so well suited to the average case presented as the practical modification and improvement by Dr. Andrews. You all know what the feature of the Kocher operation is, putting the sac through the upper torsion and making a new operation. I think I have done the operation in three or four cases.

Dr. MAYO—I wish to thank Dr. Andrews for his very clear demonstration of his method of operating for the radical cure of inguinal hernia. He is to be especially congratulated that he has wasted so little time on the peritoneal sac. In the past the treatment of the sac has been altogether too much insisted upon. The peritoneum and skin are the coverings of a hernia and neither has any particular retentive strength. Dr. Andrews wisely shows this in a negative way by dealing almost entirely with the muscles and aponeurosis. The proper restoration of these structures settles the question of radical cure. The sac may be cut off, or as done by Macewen, puckered up about the internal ring; it matters little so long as it is not allowed to evert between the important muscular and aponeurotic structures and prevent their firm union. Like the sac, the skin has no retentive power and is important mainly from the fact that it can only by great difficulty be rendered reliably sterile, and as suppuration is one of the most common causes of failure by introducing relatively weak scar tissue in the place of structural union of tissues, the greatest care in dealing aseptically with the skin is absolutely necessary. Dr. Andrews' method of placing the sutures is a good idea, for in case suppuration should take place the deeper parts of the wound might escape. Greig Smith long ago pointed out that scar tissue is essentially the same between different tissues and always unreliable and that it should be covered by normal structures if possible. Bassini's operation does this most admirably, the line of sutures of Poupart's ligament being protected by the over-lying flap of the external, and the sutures in the external oblique being protected underneath by the deeper tissues pulled under by the previous line of sutures. But when the space of the internal ring is large the traction necessary to bring the conjoined tendon to Poupart's ligament at the lower angle is great and the union endangered by cutting of the sutures. It is to this class of large hernias it seems to me Dr. Andrews' operation can be beautifully applied; it readily protects this weak point by the strong external oblique fascia which is drawn under in his method. Hal-

sted's operation is one which depends on scar tissue union in one line from within out and succeeds only by leaving in permanent silver wire sutures which act as an internal truss. I have done the Halsted operation a number of times with good success. The Kocher operation is defective in drawing the relatively weak sac between the muscles. After an operative experience of 125 cases of radical cure I had come to the conclusion that the Bassini was the most rational operation and I now practice it almost exclusively. Dr. Andrews' modification of the Bassini in the large hernias, where the defect in the abdominal wall is considerable, will be of great value.

A MEMBER—I am very glad indeed to have had this very clear description; it seems to me to be one of the best operations I have ever seen. I never have had much experience—in all probably thirty cases—but on the majority I did the Halsted operation, except in introducing the stitches I devised a little scheme of my own. I used altogether the heavy common gut but instead of inserting the sutures in the same manner as Halsted does on the side, I insert the suture on the top about a third of an inch and draw it out again on top, so instead of the edges coming in contact, the edges were turned into the canal; so you have an edge turned down and that seems to me to abate the tendency to a new hernia forming in the new ring, as in the Halsted operation, because in this method of inserting stitches you have instead no raw bulging edges. This edge where it is carried on the upper ring projects downward, and that downward projection interferes with the proper union and a new hernia is formed. My greatest difficulty is to draw it tight enough to be safe and at the same time to prevent strangulation of the cord. My cases have rarely recurred; the oldest, I think, is a little over six years old; most of them have been in the hospital and I have seen very little of them afterward; some of them I have traced two years, but I have heard of but one or two out of twenty of that method that have lapsed. One case I have had under observation continuously; I was an attendant in the hospital at that time; he had a very large hernia which had troubled him for twenty or thirty years. In this case my upper suture above the cord gave way, causing a protrusion; as soon as I discovered that I opened it and trimmed the edges and inserted a new suture, and that is six months ago and it is very good yet.

Dr. ANDREWS—Of course I am gratified to hear of Dr. Cole's favorable report of cases done by my method. I had the pleasure of meeting Drs. Cole and Galbraith a year ago and showing them my operation, but to hear that this method has been introduced as far as Montana is a surprise. The Kocher operation, like others which depend upon the sac, only seems to me a step backward. Sac adhesions are untrustworthy to retain a hernia. Farther, can any diagnostician tell us whether or not he has congenital hernia before operating? How can Kocher's method be used without a separable sac?

As to the sac, it does not make any vital difference what you do with it. You know the operation of O'Hara consists of cutting off the neck of the sac and retracting the stump, without, however, the deep sutures of Kocher. He leaves the scrotal part of the sac in the scrotum and no harm results in most cases. In a few cases I have dealt with the sac by pushing it back entire. This was when one was found having no distinct neck. Of course a majority of cases have so well-defined a sac that it is easy to strip it gently from its bed and ligate it off. I was particularly pleased with Dr. Mayo's remarks on the sac question. We must not put dependence upon peritoneal tissue for permanent repair, but upon careful reconstruction of the aponeurotic walls. I stand firmly on this principle as embodied in Bassini's and my own method, and distrust the type of operations depending upon sac closure or adhesions. In case of a very large cord or any veins, I do not advocate removing any of them; I always leave two fair-sized veins on the cord and I think one needs to take special pains to avoid

the artery; it is not difficult as it is large, and if you get your artery mixed in with the sutures I think it would most certainly cause gangrene of the testicle.

HEREDITARY ATAXIA—FRIEDREICH'S DISEASE.

A clinical lecture delivered before the Woman's Medical School of Northwestern University.

BY DANIEL R. BROWER, M.D.

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[Reported by Cunera R. Scheffer, M.D., Clinical Assistant.]

We have before us today, as patients, three members of the same family. In the antecedent history, we can neither see any positive evidence nor gain any information as to venereal disease or alcoholism, two of the most prolific causes of lesions in the nervous system; but we do find a striking record of pulmonary tuberculosis. On the maternal side, two aunts and two uncles, as well as the grandmother, died of this disease. The mother, a French-Canadian, is living and in good health. She is small in stature. On the paternal side there is a history of health and longevity, but we are told that the children were "scrofulous." The father, of the same nationality as his wife, died somewhat over a year ago, of organic heart trouble. So far as our uncertain knowledge can testify, the cousins have had no diseases other than those common to childhood.

In the immediate family there were eleven children, four of whom are not living. Three of these died of acute illnesses, while the fourth was a hydrocephalic baby. There are two grown sons apparently healthy. Three young daughters are in a poor physical condition, having enlargement of the post-cervical glands, and are markedly undersized. We will now turn to the patients.

Case 1.—This boy is 12 years of age, and American born. For the last four years he has had trouble in walking. It began with a slight stagger and has been steadily, and during the past year rapidly, increasing. Notice his style of locomotion. The toes are brought to the ground first, and the feet are widely separated. This is suggestive of spastic paraplegia. He can not walk at all with his eyes closed. There is incoördination of the upper extremities also. There is no atrophy. The deep reflexes are absent, but the plantar, a superficial one, is still intact. This difference is due to the separate paths taken by the sensory fibers upon their entrance into the spinal cord. The deep reflexes enter the posterior columns directly, while the superficial pass into the cornua through Lissauer's zone, and it is not until the posterior horn is involved that the superficial reflexes are lost. Rectal, vesical and sensory symptoms are entirely lacking. Notice the back; scoliosis is a common accompaniment of this disease. There is a double curvature similar in outline to the letter S.

Case 2.—This boy is 21 years old, and was born in Canada. His ataxia has been progressive from the age of 14. His gait is like his brother's, but with a much more widened base, and you see he can not walk at all without the aid of a chair, which he pushes in front of him. There is the same incoördination of the upper extremities, and something that was not found in the first case, a difficulty in speech, shown by his thick, halting articulation. Reflex irritation and the spinal curvature are the same, and in addition to the latter, we have another common deformity, the