

*Milliken (S. E.)*

The Radical Cure of Inguinal Hernia  
Bassini's Method Illustrated

*WITH REMARKS ON RECURRENT AND VENTRAL  
HERNIA*

BY

SAMUEL E. MILLIKEN, M.D.

LECTURER ON SURGERY AND SPECIAL LECTURER ON HERNIA AT THE NEW YORK  
POLYCLINIC

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*Reprinted from the MEDICAL RECORD, July 2, 1892*

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THE RADICAL CURE OF INGUINAL HERNIA  
—BASSINI'S METHOD ILLUSTRATED—WITH  
REMARKS ON RECURRENT AND VENTRAL  
HERNIA.<sup>1</sup>

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WITH the advent of antiseptics the surgeons were not long in trying to find some operative procedure which would relieve the thousands of beings suffering from hernia. Up to the era of cleanliness, or antiseptics, the peritoneum was entered with the greatest reluctance, and then as a last resort, being practically limited to those cases of strangulated hernia which had baffled all palliative measures. Taxis was, no doubt, often carried too far, and when the operation was necessitated, it was considered very skilful to be able to relieve the constricting band without entering the hernial sac. During that period the various subcutaneous methods were instituted, silk and silver-wire sutures being employed for closure of the hernial opening. The number of cures effected in this way can best be illustrated by saying that such operations are entirely out of date.

**Heaton's Operation.**—The subcutaneous injection of a solution of white-oak bark into the inguinal canal can be termed a daring, rather than a scientific, procedure. Having been able to follow a number of these cases from the time the injection was made until the hernia recurred, and subsequently had cutting operation performed, I feel that my observations are convincing.

The danger from peritonitis is of little importance, for in not a single case have I seen such symptoms arise, and it was proven on dissection that the fluid had sometimes

<sup>1</sup> Read before the Texas State Medical Association, April 27, 1892.

been placed on the serous surface, along the canal, but not infrequently it was found to have been deposited in the surrounding structures instead. All that can be expected from this method is a temporary barrier to the protruding viscus, as the infiltrated mass, the result of the irritant, will eventually be absorbed, leaving only the stain of the white-oak bark.

**The Cutting Operations.**—Before describing the method under consideration, I shall endeavor to mention a few of the points at fault in some well-known methods.

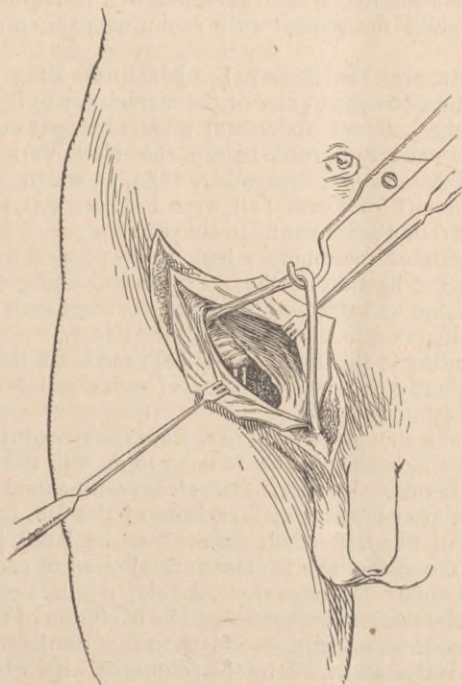
1. **Macewen's.**—Which consists in the formation of a pad by throwing the sac into folds and invaginating it into the inguinal canal.

The first and immediate danger to be anticipated is sloughing of this fibro-serous membrane, the vitality of which must necessarily be lowered. When suppuration does occur, a sinus may remain from a few weeks to several months. One case has come under my observation in which two years had elapsed without any inclination for it to close, and in this instance the hernia had recurred as well. Should immediate union of the wound be obtained, it is nature's endeavor to remove this or any other foreign body that may be so placed; hence absorption sooner or later.

2. **The Open Method.**—In which the inguinal canal has been so successfully replaced by a cicatricial plug, and which offers such flattering immediate results, has afforded me a most admirable opportunity of studying the self-destruction of adventitious tissue.

Six weeks after the operation, which is the usual time that advocates of this procedure keep their patients in bed, a contracted cicatrix, from two to three inches long and one-quarter of an inch broad, prevents very successfully even the slightest impulse. A number of these patients have come under my observation, the larger proportion of them having worn no truss until the recurrence had taken place. This precaution seems to be a very wise one under such circumstances, as even the most delicate pressure from without added to the constant force being

exerted from within, would no doubt hasten a process that is inevitable, *i.e.*, stretching and thinning of the cicatricial mass. The recurrent herniæ observed after this method, during the first six months, have been rather a separation of the cicatrix, usually at the site of the in-



ternal ring, from the musculo-tendinous structures adjacent. It is, however, the more gradual process, the thinning of the cicatrix, which concerns the comfort and ultimate welfare of the individual operated upon. I have observed repeatedly, and demonstrated the same in my lectures at the New York Polyclinic, peristalsis of the



intestine through the cicatrix. It is needless to say that the wearing of the most perfectly fitting truss occasions great discomfort.

One other complication that sometimes occurs in these cases, as in other abdominal sections where cicatricial union is obtained, is the adhesion of the peritoneum, which causes the patient such agonizing pain on coughing.

3. **Suture of the External Abdominal Ring.**—The best demonstration, to me, of the inefficiency of the closure of the external abdominal ring, is brought out in a paper by Dr. Bull, read before the New York State Medical Association, September, 1889, in which he was able to report forty cases; all were inspected, at periods varying from a few months to six years.

"Twenty of this number had been operated upon by excision and ligation of the sac; the remaining twenty had excision and ligation of the sac, together with suture of the pillars of the external abdominal ring."

According to the report, "By both methods, in all varieties, there were sixty per cent. of cures and forty per cent. of failures."

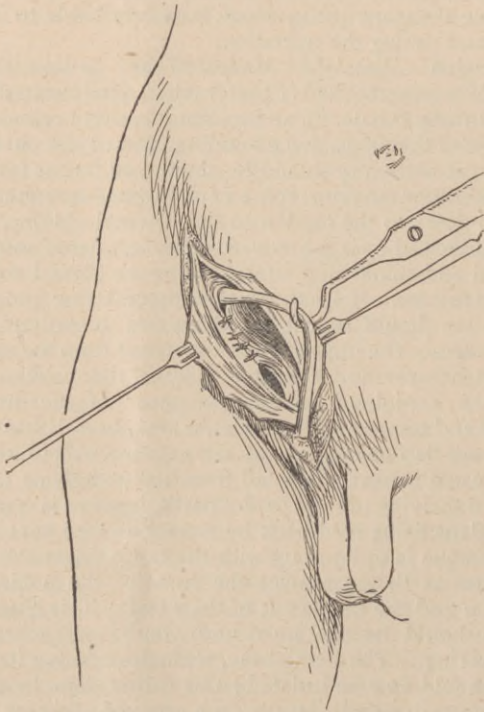
With the above clinical facts, I am convinced that the external abdominal ring has nothing to do with the causation of hernia. Whether it be closed with catgut or silver wire, after ligation and excision of the sac, the percentage of recurrence will continue to be large just so long as the abdominal contents are allowed to enter the inguinal canal. For once there, the closed pillars will soon yield under this constant strain. The condition of the sac, I must confess, is quite secondary to that of the internal ring, as is demonstrated by the frequency with which reducible hydrocele is met with, demonstrating that there exists a communication with the abdominal cavity without a hernial protrusion. It is to the operation for reconstructing the inguinal canal that I wish to call the attention of the Association, believing that the method will appeal to one and all as thoroughly scientific and practicable.



**Cleansing.**—The pubis and scrotum being cleanly shaven, the skin should be soaped and scrubbed with a coarse brush; next the whole area must be washed with plain water; subsequently ether is applied to remove all oily material, and lastly with a 1 to 1,000 corrosive sublimate solution. Great care should be used in thoroughly cleansing the glans penis, which is so very liable to infect the wound during the operation.

**Operation.**—*Bassini's Method.*—The patient being thoroughly anæsthetized (I prefer ether, administered with the "Ormsby Inhaler"), an incision is made, beginning at the spine of the pubis, and extending upward and outward. The upper extremity should be about two inches internal to the anterior superior spine of the ilium—everything is divided down to the tendon of the external oblique. The latter is incised over a grooved director, passed into the external abdominal ring, superficial to the hernial sac and cord structures. To expose the internal ring properly, the tendon should be cut for about two to two and one-half inches. The upper flap is now freed from the underlying structures and reflected toward the median line until the conjoined tendon, composed of the internal oblique and transversalis muscles, is brought well into view. The lower flap or segment of the anterior wall of the inguinal canal is next dissected from its underlying fascia, until the shelving process of Poupart's ligament is exposed. These flaps being held back by retractors, the next point of technique is to hook up with the index-finger the cord structures as they pass over the spine of the pubis, and lift them and the hernia out of their bed. This blunt dissection should be continued until you have reached the internal ring. The hernial sac, without reducing its contents, should now be isolated; this is best done by dividing the overlying structures on a grooved director until you have exposed the bluish-grey thickened membrane for a small area. This coat is raised with a small pair of rat-toothed forceps, that the hernial contents may not be injured when the opening is made. The entrance into the peritoneal pouch should be manifested by the escape

of a small amount of serum, unless it be an incarcerated or strangulated hernia, when the fluid may be tinged with blood. The contents having been examined, all adhesions that may exist are tied off with fine catgut. Large masses of omentum should be ligatured, not necessarily



at the most distal point, but where the greatest constriction exists, and it is advisable to use the transfixion method. Occasionally it occurs that the obstacle to reduction is a fibrous constriction situated within the internal ring. That is, however, easily detected at this stage of the

operation, and can be divided without danger by incising upward. Returning to the treatment of the sac, it must be completely separated from the cord and other adherent tissues well within the internal ring, and a moderate amount of traction made uniformly at all points, which is best accomplished by a series of artery forceps held by an assistant.

Ligation with catgut is done also by the transfixion method. The sac is excised, leaving the pedicle about a quarter of an inch in length, which immediately retracts into the abdominal cavity. When a congenital hernia exists, the sac should be cut off one inch above the testis. The reforming of the tunica vaginalis is of no importance, and the prevention of hydrocele will thus be attained. This completes the first step of the operation.

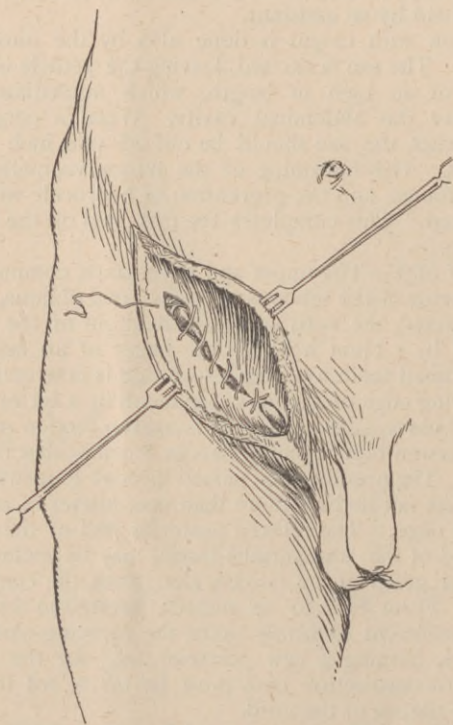
*Second Step.*—The upper and lower flaps, composed of the segments of the tendons of the external oblique, being well retracted, the cord structure held out of the operative field by a blunt hook or the finger of an assistant, the conjoined tendon on the upper side is now united to the shelving edge of Poupart's ligament, by a series of interrupted chromatinized catgut or kangaroo tendon sutures. The Macewen blunt-pointed needle accomplishes this admirably. The needle, when passed through Poupart's ligament, must not include more than one-quarter of an inch from the edge. The relaxed posterior wall of the canal, composed of the transversalis fascia, may be included in the upper grasp of the needle, along with the conjoined tendon. From four to six sutures, inserted in this way, will be sufficient to firmly unite the musculo-tendinous structures, forming a new posterior wall for the canal. In this reconstruction care must be taken not to constrict the tissues of the cord.

*Third Step.*—The formation of the anterior wall of the canal is accomplished by suturing the recently divided external oblique tendon, continuously, with fine catgut, throughout its entire length. This re-establishes the valve like condition of the inguinal canal. The skin



wound is closed with interrupted catgut sutures after the insertion of a small glass drainage-tube, from two to two and one-half inches long, into the lower angle of the wound, and the following dressing is applied :

Iodoform powder (or what is preferable, fine crystals)



should be spread along the line of suture and around the drainage-tube ; on this a strip of Lister protective or rubber tissue, two inches wide and long enough to overlap one inch at the ends, a perforation being made for the



drainage-tube ; moist iodoform gauze, six layers thick and sufficiently long and broad to overlap the wound two inches on all sides, also perforated for the drainage-tube ; next a larger compress of moist sublimated gauze is placed over the upper part of the wound and held in position by a two-inch strip of surgeons' rubber adhesive plaster, extending almost entirely around the pelvis. An intervening layer of rubber tissue should be used to prevent infection from the plaster. Over the drainage-tube is placed sublimated gauze, very loosely distributed ; next, cotton, and lastly it should be covered by rubber tissue, one foot square, which is perforated for the penis and held in position by a Hank truss or simple spica bandage. The advantages of having the above dressing are several : First, infection from without is prevented by the rubber tissue, which is most external, and by the small strip which is in immediate contact with the skin. By means of the adhesive plaster alone can perfect retention of the deeper dressing be accomplished. However, the most important point in this detailed dressing is the arrangement of the drainage-tube, which can be removed at the end of thirty-six or forty-eight hours by simply taking off the external dressing and not disturbing that which is in immediate contact with the wound. After its (the drain) removal the point of exit should be iodoformized well, covered with loose sublimated gauze, and a new protective dressing applied. Where animal sutures have been employed the wound should heal under one dressing, even in cases of strangulation.

Confinement in bed for three weeks has been the maximum. Since I have been performing this operation this has occurred in but two cases, in each of which I endeavored to discard the glass tube and adopt capillary drainage with strands of catgut. In each of these cases a moderate amount of retention took place and primary union was prevented. No case should be permitted to leave bed before a fortnight, as too great a strain will be put on the freshly united structures.

**After-treatment.**—In all my cases, when this or any

other radical operation has been performed, I insist on the wearing of a truss for six months. The choice of apparatus is a subject worthy of consideration, as it would not only be uncomfortable but hazardous to apply a truss with a powerful spring; on the other hand, a light and uncertain support must be avoided. Any of the frame or complete band trusses, preferably with a water pad, will give the greatest comfort to the patient, and will afford the most uniform and perfect support to the inguinal region.

**Conclusions.**—No attempt has, or shall be made to present to the Association a statistical paper, as sufficient time has not elapsed in any of my cases to pronounce them radically cured. Suffice it to say, that during the past eighteen months I have operated after this plan on ten cases, and as yet not a single recurrence has appeared. However, with the author's permission, I shall make a few quotations from Professor Bassini's book, which was published in 1889, and as late as September, 1891, he wrote me that the percentage of cures was quite as large, in proportion to the number operated upon, as at the time of the original report.

**Statistical Remarks.**—"Two hundred and sixty-two were operated upon, ten of these were strangulated. Of the two hundred and fifty-one non-strangulated cases, one hundred and eight were observed from four and one-half years to one year; thirty-three from one year to six months; ninety-eight from six months to one month; seven recurred; four, the results are unknown; one died of shock."

To Mr. Bert Wilder, of *Harper's Weekly*, I am indebted for the truthful and artistic illustrations.



