

We proceed now to mention other modes of treatment recommended.

Sedatives.—These enter, to a greater or less extent, into many of the plans of treatment proposed, but they constitute the basis of all treatment as recommended by that accurate observer, Mr. J. L. Milton, and some others. Mr. Milton¹ says: "The surgeon's first object is to arrest the *pain*; with this the inflammation stops."² For this purpose he prefers morphia in doses of a quarter to a half a grain two or three times a day, and in very severe cases gives three-quarters of a grain once or twice in succession. In the way of external applications, Mr. Milton recommends the following lotion:

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| R. Liq. Ammon. Acetatis, ℥j | 30j |
| Spir. Ætheris, ℥iiss | 45j |
| Mist. Camphor, ℥iiss | 110j |

M. et sig. To be applied by means of a single fold of linen, which is to be kept continuously wet with the fluid.

This is essentially the same method as proposed by Mr. J. Rouse ("Treatment of Acute Orchitis," *St. George's Hosp. Rep.*, Lond., vol. iv., 1869), who gives a purgative draught at the outset; then follows with a grain of opium morning and night, and keeps the testicle enveloped in a hot fomentation of Goulard and laudanum. After subsidence of the acute symptoms, he administers "twenty drops of the acid tincture of steel" three times a day.

In many cases lead and opium wash is very efficient.

The application of the oleate of mercury with morphia is suggested by Professor Marshall, in the *Lancet* of May 25, 1872.

Dr. Ed. Warren, late chief surgeon of the Egyptian army, injects beneath the tunica vaginalis, by means of a hypodermic syringe, from one-sixth to one-quarter of a grain of morphia; then straps the testicle firmly with adhesive plaster, and administers internally twenty grains of the bromide of potassium, with fifteen drops of the tincture of gelsemium sempervirens, and a drachm of the fluid extract of ergot, in half an ounce of cinnamon water, every third hour. The injection of morphia is to be repeated at intervals of eight hours, if necessary, until a grain has been administered. Relief is promised in twenty-four hours; if it fail to occur, discontinue the injections and apply a narrow blister on either thigh, directly over the femoral vessels. (*Lancet*, Lond.)

Pulsatilla.—Drs. Piffard and Fox, of New York, have confidence in this drug, much used by the homœopaths in the treatment of epididymitis. On inquiry, I learn that they give one-tenth of a drop of the "mother tincture" every one or two hours, and they state that the pain is speedily removed.³ I have used it myself in this manner in a number of cases with very good effect, though sometimes it fails.

¹ Pathology and Treatment of Gonorrhœa, fourth edition, p. 221.

² The italics are in the original.

³ See Med. Rec. N. Y., of January 12, 1878, p. 39. Also, same journal for March 16, 1878. Still more recently, Dr. F. R. Sturgis has written in favor of this drug (*The Med. and Surg. Brief*, July, 1878).

Bloodletting.—Venesection in epididymitis is, of course, a thing of the past. The application of leeches to the scrotum has also been wellnigh abandoned. They may be called for, however, when the inflammation wholly or chiefly involves the cord, and should then be placed directly over the external abdominal ring.

Ice.—The application of ice has been recommended by several authorities, and especially by M. Diday;¹ but, according to this author, in order to be successful, it must be done with true French precision. The following are his directions: Two hog's bladders are to be soaked for a few minutes, in order to soften them and make them pliant. Introduce into each, through their openings, enlarged by a stroke of the scissors, four or five pieces of ice as large as a goose's egg. Before tying the necks of the bladders, thoroughly expel the air from them, so that they will the better adapt themselves to the surfaces to which they are to be applied.

An excellent substitute for the hog's bladder is a bag of thin india-rubber, made expressly for this purpose and sold by surgical instrument makers.

The scrotum should, of course, be elevated by a sling bandage or otherwise. Beneath it is to be placed one of these bladders filled with ice, at the same time protecting the thighs and perinæum from the "impression of cold" by the interposition of napkins. The second bladder naturally goes on top, and is to be extended as far as the inguinal ring.

To enter farther into the details given by M. Diday seems unnecessary, since they are such as will suggest themselves to any one with common sense, unless it is important to mention that "the ice should be renewed when melted!"

According to M. Diday, the ice should remain on constantly, night and day, for at least eighteen hours, but in the majority of cases the application for forty-eight hours is required. After its removal we are to taper off with the application of cold, wet cloths, lest the return to the natural heat of these parts should cause too great a shock! This method, it is stated, will supersede all others, even in the most desperate cases of swelled testicle.

Judging from our personal experience, or rather from our personal observation, the use of cold applications, and especially of ice, in the manner recommended by our highly respected friend M. Diday, will be found to be of value in some cases of gonorrhœal epididymitis, especially at the outset of the attack; but they will prove, in the majority of instances, insufficient. One rule as to their continuance is enough; if they do not afford relief within two hours, leave them off and seek other means.

Poultices.—If cold fails, then heat may be tried in the form of hot poultices,—an old-fashioned mode of treatment, to be sure, but one which is doubtless of service in some cases when the patient is un-

¹ Ann. de dermat. et syph., Par., 1869.

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willing to submit to puncture of the tunica vaginalis. In these poultices, tobacco found a legitimate use. An ounce or so of "fine cut" was to be mixed in half a pint of hot water, which was brought to the boiling-point while stirring the mixture, and adding gradually ground flaxseed or ground elm-bark, so as to give it the proper consistency. The poultice should be large enough to envelop the whole testicle, its surface covered by a layer of thin muslin, upon which laudanum may be sprinkled, and a piece of oil-silk applied over the outer surface, to protect the bedclothes. Poultices of tansy, stramonium, hyoscyamus, and belladonna, have also been recommended; while Besnier (*Bull. gén. de thérap.*, Par., fev. 1870) advises that the scrotum, carefully elevated, should be continuously enveloped by compresses saturated in a concentrated infusion of the leaves of digitalis, applied either hot or cold, as may be pleasant to the patient.

Strapping the Testicle.—This procedure is much less used now than formerly. It was first suggested by Dr. Fricke,¹ of Hamburg, and is sometimes called by his name. It is only applicable after the swelling has been reduced, the pain dissipated, and when the parts will bear gentle handling. When an indolent swelling remains and absorption is tardy, I not unfrequently resort to it. The rubber adhesive plaster, or the mercurial plaster prepared by Seabury and Johnson, of New York, is far more cleanly than the ordinary adhesive plaster; or, when a sedative effect is also desired, we may employ a mixture of two parts of adhesive plaster with one of extract of belladonna, spread upon thin leather.

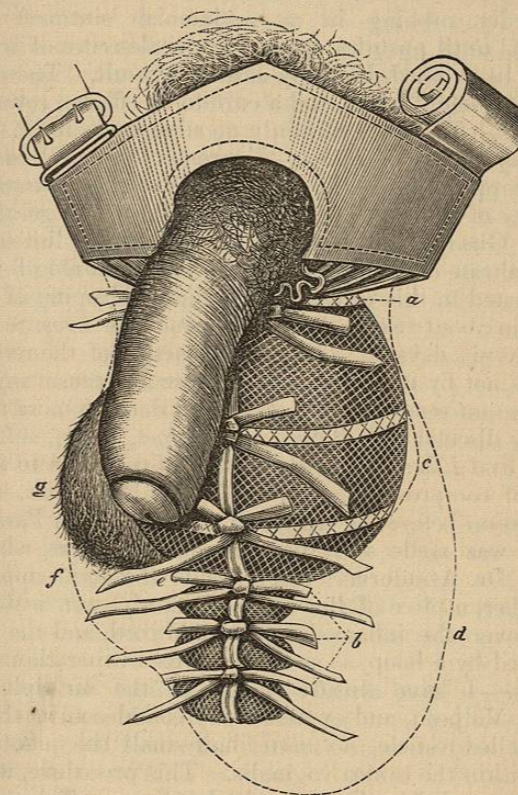
Before applying the plaster, the hair should be carefully removed from the scrotum with a razor or scissors. The plaster is to be cut into strips about three-quarters of an inch in width. The testicle is now to be pressed down to the lower portion of the sac, and held there by the thumb and forefinger of the left hand, while a strip is placed firmly round the affected side of the scrotum, just below the abdominal ring. Successive strips are added, each one overlapping the preceding for one-third its width, and care being taken that they all fit smoothly, until all but the bottom of the testicle is enveloped; the latter should be covered with strips applied longitudinally, like the bottom of a wicker basket, and finally the whole is to be secured by a long narrow strip carried circularly several times around the tumor. In the course of from twelve to twenty-four hours, the plaster will be found to be loosened by the decrease of the swelling, when it should be removed and fresh strips applied. The compression should be continued until the testis has nearly returned to its normal dimensions, and in the meantime the parts still be supported by a bandage. Cullerier states that strapping the testicle has been entirely abandoned in France.

Prof. Thiry, of Brussels, the most eminent syphilographer of Bel-

¹ *Ztschr. f. d. ges. Med.*, Hamb. 1836. Translation in *Brit. and For. M. Rev.*, Lond., 1836, vol. i., p. 253.

gium, has published a long series of lectures on gonorrhœal epididymitis in the *Presse méd. Belge.*, 1876-7, in which he strongly advocates the wellnigh abandoned strapping. He claims that it has fallen into disuse chiefly because it has been reserved for the stage of decline after the inflammatory symptoms have subsided, while, in his opinion, the time for its application is the "*période de stade*," i. e., when the inflammation has fully reached its height. When called to

FIG. 39.



Miliano's compressive suspensory.

a case, he first ascertains if the general febrile disturbance has subsided, and any trouble in the digestive organs has disappeared. If not, he gives an emetic, "which soon makes that all right," and proceeds at once to strapping. He, however, rejects all plasters for this purpose, and uses only narrow strips of muslin, which are made to envelop the testicle in six to eight layers. The mode of application is about the same as that in general use, except that each strip when applied is finally to be brought back to the strip encircling the neck

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of the scrotum. The whole is retained in place by spreading starch-paste on the last two layers applied.

Dr. G. Miliano accomplishes compression of the inflamed testicle by a suspensory bandage, that can be gradually tightened as the testicle diminishes in size. The accompanying wood-cut will explain itself.

Antimonial Frictions.—This method was introduced in Strasbourg by M. Michel, in 1865. It consists in making minute punctures along the cord from the scrotum to the external abdominal ring, and then repeatedly rubbing in an antimonial ointment (*pommade d'Autenrieth*),¹ until pustules appear, the coalescence of which, however, should be avoided, lest ugly cicatrices result. The pain is said to cease in forty-eight hours, and a cure to be effected toward the end of thirty days. There are certainly no advantages in this treatment.

Solutions of nitrate of Silver.—Fourneux Jordan² treats epididymitis by the application to the affected side of the scrotum of a solution of nitrate of silver (ʒij ad aquæ ʒj) followed by gentle pressure.

Dr. Marc Girard applies to the affected testicle lint soaked in a solution of nitrate of silver, one part to one hundred of water. In five cases treated in this way, at the military Hospital of Gand, the pain ceased in about twenty-four hours, and the average length of treatment was six days. "The mode of action of the remedy is unknown; it is not by revulsion, since it does not cause any pain but merely a pleasant sensation of heat, and it does no more to the skin than slightly discolor it." (*Arch. méd. belges*, Brux., août, 1870.)

Collodion and Ether.—The application of collodion to the scrotum as a means of compression, suggested by M. Bonnafont, was a subject of discussion before the Academy of Medicine in Paris, in 1854, and a trial was made of it by Ricord and others, who reported against it. Dr. Assadorian³ recommends the local application of sulphuric ether, a piece of lint kept constantly wet with this fluid being laid over the inflamed testicle and cord, and the bed-clothes being elevated by a hoop, so as to favor free evaporation.

Punctures.—I have already spoken of the multiple punctures proposed by Velpeau, and expressed my confidence in them for the relief of swelled testicle, no matter how small the quantity of fluid contained within the tunica vaginalis. This procedure, which is also highly recommended by Cullerier, is, I believe, sufficient for the relief of all cases, without resort to any deeper incision.

The late M. Vidal (de Cassis) revived an operation which is said to have originated with a French surgeon by the name of Petit, who published a work on venereal in 1812. This operation is simply an extension into the substance of the testicle of the incisions

¹ R. Antimonii et Potassii Tartratis, . . . one part.
Axungie benzoatæ, . . . three parts.
M.

² Brit. M. J., Lond., quoted in N. York J. M., Oct., 1869, p. 63.
³ Am. J. Syph. and Derm., vol. i., p. 216.

recommended by Velpeau. Vidal states that he first employed these incisions in swelled testicle when the body of the testicle was involved, to which form of the disease he gives the name of parenchymatous orchitis. His design was, by dividing the tunica albuginea to relieve the constriction exercised by this fibrous tunic upon its inflamed contents. Finding, as he says, that the operation was unattended by any unpleasant result, and that it relieved the pain and hastened resolution, he extended it to the more frequent cases in which the epididymis is alone attacked, and found the effect equally favorable. In his work on venereal, this author states that he has performed this operation with impunity in four hundred cases, and claims for it preference to all other modes of treatment. His directions as to the manner of performing it are to incise the tunica albuginea with a bistoury or lancet, passed through the scrotum and tunica vaginalis to the extent of six-tenths of an inch (*un centimètre et demi*), and to penetrate the parenchyma of the testicle to the depth of less than three-tenths of an inch (*de moins de moitié*). Only one puncture of this kind is to be made. In spite of M. Vidal's testimony in its favor, we can hardly believe this operation entirely devoid of danger, especially since the report of four cases observed by a single surgeon, M. Demarquay, in which the substance of the testicle gradually oozed from the incision in filaments, and in three of which the testicle was totally lost.¹ Salleron gives two similar cases.² Diday also reports two cases in which atrophy of the testicle followed Vidal's incision.³ If resorted to at all, it should probably be reserved for those cases in which it was first used, viz., where the body of the testicle is extensively implicated.

Mr. Henry Smith,⁴ surgeon to King's College Hospital, London, has advocated the same treatment by incision into the body of the testicle, and states that he has met "with results which have astonished himself and his numerous pupils." Mr. Smith's recommendation has excited a lively discussion in some of the London medical journals.

Numerous other topical remedies have been recommended in gonorrhœal epididymitis, but many of them are not worthy of mention. Inunctions of mercurial ointment upon the scrotum may relieve the pain, but are liable to cause salivation. They may be used with caution in those cases in which the acute symptoms have subsided, leaving chronic engorgement of the epididymis.

The late Prof. W. Boeck, of Christiania, spoke highly of a curious mode of treatment, viz., the injection of a few drops of a solution of nitrate of silver into the prostatic urethra, and stated that the pain and swelling were thus relieved in twenty-four hours, provided they

¹ Brit. and For. Med.-Chir. Rev., American edition, April, 1859, from the *Bul. gén. de thérap.*, Par., tome lv., p. 549.

² *Arch. gén. de méd.*, Fev., 1870.

³ *Ann. de derm. et syph.*, Par., 1869.

⁴ *Lancet*, Lond., 1864.

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were not dependent upon effusion into the tunica vaginalis. (Oral Com.)

Dr. L. D. Waterman, of Indianapolis, reports¹ a plan of treatment which he states has been eminently successful in his hands and others. He administers internally acetate of potassa with acetate of morphia, the latter so graduated as to secure full, but not excessive, anodyne effects. Locally he employs a liniment composed of

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| Tinct. Iodinii, | Tinct. Opii, | |
| Aq. Ammoniae, | Ol. Olivæ. | M. |

The proportions of the iodine and ammonia are so graduated that, when a woollen cloth, saturated hourly with the liniment, is kept constantly applied to the scrotum, the effect will be bearable and only cause half blistering of the skin or exfoliation, with a stinging sensation for a short time after application. The pain is said to cease, sometimes in three hours, always within twenty-four, and the effusion to be rapidly absorbed without tapping.

Iodoform.—Dr. Julian Alvarez,² of Palma, Majorca, reports four cases of epididymitis successfully treated by the application of iodoform ointment. He claims that this agent calms the pain in the course of one or two hours; that it exercises a very marked resolvent action, and materially shortens the duration of the disease. He uses, according to the intensity of the inflammation, an ointment containing one or two grammes of the iodoform to the ounce of lard.

In a similar manner, iodoform has for several years been used with very satisfactory results at the Charity Hospital, Blackwell's Island, where it was first proposed by myself. One drachm of iodoform mixed with one ounce of glycerine is painted upon the testicle, which is to be enveloped in lint and covered with oil-silk or india-rubber tissue.

The induration of the epididymis, which is usually left behind after the subsidence of the acute symptoms of an attack of swelled testicle, will sometimes disappear spontaneously. If, however, it is inclined to persist, the earlier it is attacked the better, for the chances of success are certainly superior while the plastic material is not yet fully organized. If the indurated epididymitis is still abnormally sensitive to pressure, the application of a few leeches over the cord, repeated several times at interval of a few days, will be found of service. A small quantity of mercurial ointment should be rubbed into the scrotum morning and night, and the genital organs should be well supported by a suspensory bandage.

Another local application worthy of trial is the iodide of lead ointment, or an ointment of iodoform, one scruple, to half an ounce of lard, the strength of which may be increased; the latter especially has proved of service in our hands. The application should be made directly over the indurated mass. Much is to be expected also from the

¹ Practitioner, Lond., November, 1876, p. 334.

² Independ. med., Barcel., June 1, 1877.

internal administration of iodide of potassium, which is so powerful an agent in resolving inflammatory products generally.

It is impossible to say how old an induration of the epididymis can be treated with hopes of success. M. Gosselin's cases show that it may disappear after existing for several months, and it is not improbable that a cure may be effected after a much longer period. Where the epididymis on both sides is affected, the attempt should certainly be made, especially if the patient is young and intends to marry. It is a serious question whether the surgeon should inform him of the impotency which his disease may entail, since the effect upon his mind might possibly be most disastrous.

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