

the obstructing matter with a stilet. If the flow stops while the tumor is partly collapsed, this may be due to the presence of other cysts which do not communicate with the one tapped. It may then be useful to pass a sound through the canula to feel for these other cysts, which may in turn be punctured, without withdrawing the canula, or there may be a solid residuum which precludes all further benefit from tapping. In withdrawing the instrument it is always well to press the abdominal wall well down upon the cyst, and with the finger and thumb of the other hand so to press the abdominal wall together behind the escaping canula, as to prevent the entrance of air.

Should any bleeding follow, and not be stopped by a little pressure, a harelip pin should be passed completely across the opening, deeply enough beneath the skin to compress any injured vessel. Two or three turns of silk twisted round the pin make sufficient pressure to stop any bleeding.

In ordinary cases a small pad of lint and a slip of adhesive plaster suffice to close the opening. It is often useful to apply pads or compresses of lint or napkins in the flanks to fill up the spaces left flaccid and hollow by the withdrawal of the fluid. The abdomen may then be supported by a binder over all.

One effect following upon tapping is a temporary revival of the secretory power of the kidneys. The quantity of urine thrown off is often considerably increased for a time.

*Tapping combined with Injection into the Cyst of Iodic or other Irritating Fluids.*

The success attending the injection of wine or iodic solutions into the sac of hydrocele of the testicle naturally led to the imitation of this practice in the treatment of ovarian cysts. But the analogy between the cases is only apparent. A simple serous sac which can be perfectly surveyed and commanded is in reality widely different from the imperfectly accessible and probably proliferous ovarian cyst. The difference in size alone alters the conditions materially. Still the method of injecting has been taken up with enthusiasm, especially by Boinet, who in a valuable work<sup>1</sup> details several cases in which it was successfully employed. He urged that, when the cyst was unilocular, filled with a limpid, lemon liquid flowing easily, and the patient otherwise of good constitution, it should be tapped and an iodic injection made immediately afterwards. When the contents were drawn off he passed an elastic catheter, of size just fitting the canula, through the canula, which was then withdrawn, leaving the catheter in its place. Through this the injection was made. He used equal parts of tincture of iodine and water, adding a little iodide of potassium. Of this solution he threw in about three ounces. The cyst was then kneaded, and the position of the patient changed so as to insure free contact everywhere of the solution; it was then, after five or six minutes, withdrawn, if necessary, by aid of the syringe. The catheter was then removed, and the abdomen well compressed and supported by a

<sup>1</sup> Iodothérapie. Paris, 1855.

bandage. If fluid collected again in the cyst he would repeat the injection several times, anticipating refilling and distension.

In multilocular cysts containing a thick liquid, flowing with difficulty, further care is necessary. A large trocar was employed, and after letting all the fluid that could run, a catheter was passed, and a syringe applied to draw out all the thick viscid matter remaining. The rest of the proceeding was the same as in the simple cysts. But in complicated cysts it was sometimes necessary to keep the catheter in. This was to be done when the cyst showed no tendency to obliteration. In these cases the catheter was plugged, fixed by a bandage, and unstopped two or three times a day to let off the gathering fluid. Washing out the cyst with tepid water or weak solution of iodine was practised occasionally to prevent decomposition, and to clean out the cyst. When the fistulous opening formed by the catheter was well established, so that all escape into the peritoneal cavity was prevented by adhesions, the catheter was replaced by an ivory canula furnished with a stopcock. Then iodic injections and washings were performed from time to time. The result was slow, the cysts taking months to contract and shrivel up.

I practised iodic injections a good many times. In three, perhaps four, cases, the cure was complete and permanent. These were apparently monocystic tumors. Possibly they might have been simple cysts of the broad ligament; and possibly, also, simple puncture without iodic injection might have cured them. In other cases, undoubtedly polycystic, I could not satisfy myself that good was effected. Suppurative inflammation of the cysts set in, and a fatal result, not visibly accelerated by the treatment, followed. In other cases the sac refilled, the patients left the hospital, or were submitted to ovariectomy. Acute pain and a degree of collapse not seldom set in during or soon after the injection.

In all the cases it was easy to detect iodine in the urine; in one case a strong iodic odor was given off from the patient. I detected iodine in the perspiration and in the breath. In another case, as well as in the foregoing, the signs of iodism were marked. But I have not seen a case in which it could be said that the patient was fatally poisoned by the iodine.

Scanzoni and others think iodic injection ought to be rejected altogether. I think it should be rejected if the fluid drawn by tapping be colloid or puriform, if the tumor be of irregular form, or give other evidence of being polycystic.

Since simple tapping may prove fatal, it can hardly be expected that tapping, plus iodic injection, should be free from danger. Dr. R. Löwenhardt<sup>1</sup> relates a case in which  $\zeta$ iv. of a mixture of equal parts of tincture of iodine and water, with gr. x. of iodide of potassium, was injected. Death followed in fourteen hours. The cyst was found collapsed; there was no trace of inflammation; in the cyst was a small quantity of clear-brown weakly iodized fluid. Death was ascribed to shock.

Legrand<sup>2</sup> relates the case of a woman aged fifty-six, in whom a puncture, followed by iodine injection, was made. Little reaction ensued; in eight days the patient was up; the dropsy quickly returned. The ope-

<sup>1</sup> Monatsschr. f. Geburtsk., 1860.

<sup>2</sup> Gazette des Hôpitaux, 1861.

ration was repeated, and twelve to fourteen pints of fluid were let out. At the instant of injection the patient sank into syncope; a strong shivering, vomiting, peritonitis set in, and death followed in sixteen hours. In this case, probably, some of the injection escaped into the peritoneum.

It is better, I think, to use the concentrated tincture of iodine. There must always remain fluid enough in the cyst to dilute it, and if used already much diluted, its caustic action on the cyst-wall is lost, whilst absorption into the system is promoted.

In performing the operation, the patient should be on her side in bed. Tapping must be performed in the usual way; and when the cyst is nearly emptied, a flexible catheter, closely fitting the canula, should be passed quite through it, so that the end shall project two or three inches beyond the canula into the cyst. Then the remaining fluid should be allowed to drain from the cyst. When no more can be obtained, four ounces of tincture of iodine should be injected through the canula, and allowed to remain about ten minutes. It may then be drained off as far as possible. I would then advise that an ounce or two of water be injected through the catheter to clear it of iodine before removal. The catheter and canula may then be withdrawn together, taking care to keep the thumb over the end of the catheter, to prevent the escape of iodine fluid into the peritoneum during the passage of the instrument through the wound. It would be unwise to reject Boinet's method altogether. It may fairly claim to be adopted in certain cases of presumably simple cysts where circumstances exclude ovariectomy, such as refusal of patients to submit to this operation, or the complication of severe disease, as phthisis.

*Tapping and keeping open the Cyst.*—By this plan it was hoped that the fluid being allowed to escape as quickly as it formed, the cyst would go on contracting gradually to complete obliteration. It was also expected that the irritation set up in the cyst-walls would promote the attainment of this result. A favorable case is reported by Ollenroth (1843). Mr. Alexander Anderson treated two cases in this way, leaving a canula in the cyst. One woman recovered completely after long suffering, suppuration having gone on through the canula, attended with hectic and great emaciation. I saw this case several times, and could not help forming the opinion that her power of resistance against exhausting influences was exceptional. The other woman died a few weeks after the tapping, from constant vomiting. Mr. Anderson abandoned the practice. It is not likely to be revived, unless in very exceptional cases.

Cases have, however, occurred in which, after simple tapping, the punctured wound has kept open spontaneously, giving vent, from time to time, to cystic fluid. In this way a slow cure has been effected.

*Incision of the Cyst.*—Ledran advised and practised the following operation.<sup>1</sup> When the liquid is thick, and contained in several cysts, he made an incision in the most dependent part of the tumor, and, according to its position, either in the median line, or outside the recti muscles; he then divided the cyst in the same direction, and broke down the in-

<sup>1</sup> See Malgaigne, Médecine Opératoire, 4<sup>ème</sup> éd., 1843.

ternal septa, which could be reached. He placed in the wound a strip of soft rag, for which, at a later period, he substituted a tent, and at last a canula, to preserve free vent for discharges and for detersive injections. By this proceeding the cysts empty themselves, their walls suppurate, cleanse, and contract. Sometimes a fistula, difficult to close, remained. It was found that owing to the retraction of the cyst, the opening in it getting below the level of that in the abdominal wall, fluid would escape into the peritoneum. To obviate this accident, Récamier and others sought to effect adhesion between cyst and abdominal wall by caustics before incision; Trousseau by repeated insertion of long needles; Bégin by cutting through the abdominal wall, so as to bare the cyst, and waiting until adhesion had formed all around the wound before tapping and incision of the cyst.

The results of the operation have not established for it a claim to a recognized place in the rank of elective proceedings. It is now chiefly known as a *pis aller*, as the best thing to do in certain cases where the attempt to perform ovariectomy breaks down, either from insurmountable adhesion or other complications. In this way some most unexpected recoveries have taken place. It scarcely differs in principle from the preceding operation, of keeping open a fistulous canal after tapping. The dangers attending it are greater, and therefore it falls, *à fortiori*, under the like condemnation.

A modification of this proceeding was proposed by Deneux and Sacchi. It consists in cutting away portions of the wall of the cyst. Malgaigne advises it as a resource when extirpation cannot be carried out.

In a case operated upon by Dr. Chambers, at the Chelsea Hospital for Women, Dr. Aveling and myself assisting, adhesions rendered it unwise to proceed with the intended extirpation. The cyst was compound; all the contents that could be easily removed were taken away; and the cyst-wall being included in the sutures through the abdominal wall, the wound was closed, all but a small part at the lower end. Several weeks later the wound only gave vent to a slight oozing of pus; and the patient was in a fair way to recovery.

*The excision of a part of the exposed cyst, and then closing the abdominal wound.*

Encouraged by the fact that cures have followed the accidental bursting of an ovarian cyst, and discharge of its contents into the peritoneal cavity, whence they have been removed by absorption, Dr. Blundell and others have been led to hope that ovarian dropsy might be successfully treated by deliberate imitation of this accidental process. Guérin, Bainbridge, and others attempted to carry out this idea by making a subcutaneous incision in the wall of the sac by means of a small tenotomy-knife. But this mode of proceeding is open to the grave objection that it is working in the dark. Many tumors have large vessels ramifying on the surface, which, if divided, might give rise to fatal hemorrhage. Mr. Bainbridge operated by cutting down on the tumor, and excising a piece of the cyst-wall. But this plan, like Guérin's, is open to the objection that the fluid which is to be thrown into the peritoneal cavity may be of a viscid and irritating character. It is true that by his plan Bainbridge avoids the risk of wounding vessels; and as it gives the opportunity of

seeing the nature of the tumor and its contents, the operation need not be proceeded with. It might be treated thus far as an exploratory operation, the information gained from which would govern ulterior measures. Baker Brown operated after Bainbridge's method.

The late Professor Simpson thought the proceeding might be usefully modified by making a preliminary tapping, with the view of ascertaining the nature of the fluid; and if this were found to be benign, to allow it to escape into the peritoneum. In this way, he said, having made sure that the fluid was innocuous, he stopped the tapping by shutting up the cutaneous orifice, and allowed the last part of the fluid to run into the cavity of the abdomen. To provide for the escape of subsequent secretion into the abdomen, it is necessary to keep the lips of the puncture in the cyst from closing by first intention. This is the great difficulty. To gain this object, he sometimes made use of a large "quadrangular" trocar. He then forcibly compressed the tumor daily, so as to break down the adhesions which tended to close the cyst. In this way, at least one cure was effected.

These proceedings have not been justified by experience. Repeated simple tapping would seem preferable. It is better to get rid of the fluid directly, than to let it flow into the peritoneal cavity.

*Electrolysis.*—Does any resource still present itself before the *ultima ratio*, ovariectomy? Some hope has been raised by the method of electrolysis. Like iodic injections, electrolysis was first tried upon hydrocele of the tunica vaginalis. When a student in Paris I saw some cases treated not without success by Leroy d'Etiolles by electrolysis; and I have an indistinct recollection of his applying the same method to other tumors, including ovarian. Fieber reports (*Wien. Med. Presse*, 1871) an apparent cure. The case is further attested by Braun. Other promising illustrations are cited in America and Canada. A memoir on the subject, which I have not had the opportunity of seeing, was read at the session of 1877 of the American Gynæcological Society. In 1876, when on a visit to Montreal, Dr. Macdonald showed me a patient who, in his opinion, confirmed by another surgeon who had aided in the treatment, had been cured by electrolysis. I was not able to detect any remains of disease.

Of uncertain efficacy in hydrocele, electrolysis does not promise much for the more difficult cases of ovarian cystic disease. Treatment must in any case be tedious. In the colloid or proliferous cysts, which make up the greater number of ovarian tumors, it is hard to understand that any benefit can be obtained. And the simple cysts can be dealt with by quicker and surer methods. Still reports of instances in which electrolysis has been tried on cysts precisely diagnosed are interesting.

#### OVARIOTOMY OR EXTIRPATION OF THE DISEASED OVARY.

Ovariectomy has been contrasted with tapping. The fallacy that deprives this comparison of all practical application is of the same kind as that which invalidates all absolute doctrines in medicine. There are cases for which ovariectomy is best; there are cases for which tapping is best. The great distinction between the two operations is, that the first

kills or cures; whilst the second hardly ever cures, and can, at best, prolong life. Looking to cure, we should prefer ovariectomy, if the case admitted of this operation; looking to mere palliation, we must in many cases resort to tapping. The first is more an operation of choice, the second rather one of necessity.

It has been urged against tapping that it lessens the chance of ovariectomy being successful by promoting the formation of adhesions. This objection has been disposed of by experience. The moderate parietal adhesions following tapping rarely present any serious obstacle to the execution of ovariectomy. On the other hand, tapping is often useful in clearing up the diagnosis; as a means of gaining time for the patient's general health to recover; or of lessening the shock by removing the fluid a few hours or days before removing the solid portion of an ovarian cyst. Thus, it may be affirmed that tapping promotes the success of ovariectomy, instead of being antagonistic to it.

#### PRECAUTIONS BEFORE OPERATING.

1. It is needless to say that a *good diagnosis* is the first point.
2. If there is much *anasarca or œdema* of the legs, it is well to tap some days previously. Great prostration, with quickly supervening dyspnoea, carry the same indication. The effused fluid becomes absorbed and excreted, thus removing what might be an injurious complication. If this be not done, the absorption-process must go on simultaneously with the wished-for process of healing from the operation. In this case the quality of the blood is impaired by having thrown into it, just at the wrong time, a large quantity of watery and effete material.
3. Examine the *urine for albumen*. The presence of albumen is not indeed an absolute contra-indication, for it may depend upon temporary congestion of the kidneys, the immediate consequence of pressure by the tumor. The tumor removed, the kidneys may recover. But if the albumen be accompanied by casts, by persistent œdema of the legs, hands, and face, heart-disease complicating, and be thus traced to permanent Bright's disease, the operation will be likely to fail. Brodie used to insist upon this condition as being highly adverse to the success of capital operations.
- Mr. Wells insists further that a small quantity of highly concentrated urine, depositing mixed urates in abundance, indicates a state of hepatic and renal disorder which should be corrected before operating. For this purpose saline purgatives, as sulphate of soda, carbonate of magnesia, and lithia-water may be given with advantage.
4. *Avoid*, unless the urgency is extreme, a *menstrual epoch*. When we can select, the best time is within a week after a period.
5. *The state of the heart and lungs* should also be examined as to their soundness and fitness for work. If there is advanced phthisis it may be of doubtful advantage to operate.
6. *The season.*—When there is a choice it is wise to follow Brodie's advice as to avoiding operation during an east wind. The wind is of more importance than the mere season of the year, the only point usually