Thesis

Basant Kumar Basu M.B. C.M. Esi
107 Shambazaar Street
Calcutta
India
Ovariectomy

Derivation. Greek ovariotomy. Ovary, ovum, & tomē, incision.

Definition. The operation for the removal of one or both ovaries when diseased.

History. It is customary for writers on ovariectomy to mention the fact that from remote antiquity up to the present time extirpation of the ovaries has been practised on the domestic animals for economical purposes, as sows are castrated for fattening purposes and for giving flavour to their meat; also on women, both in ancient periods and middle ages, almost exclusively for immoral purposes, either to prolong their beauty and charms or to fit them to bear children to guard the harem. The writings of Aristotle and Galen put the above facts beyond doubt. We are told by Wierus that a swineherd of Hungary, incensed by the lasciviousness of his daughter, removed both her ovaries with hope of reforming her, as he used to remove the ovaries of the sows. But these facts, interesting as they are from a physiological point of view, have nothing to do with the operation of ovariectomy undertaken by the surgeon with the view of saving life.
In the former case a small healthy organ sparsely supplied with blood-vessels in a healthy being is removed; in the latter case an enlarged and diseased ovary plentifully supplied with blood-vessels with the peritoneum altered is removed. Hence the operation of ovariostomy is quite a different proceeding from the entiration of healthy ovaries. The ancient operation was hands to luxurious vice and immorality. Modern ovariostomy when successful saves the patient from continuous suffering and certain death; and when unsuccessful shortens the sufferings of the patient.

The operation of ovariostomy was suggested and proposed for the radical cure of diseased ovaries in the seventeenth and eighteenth centuries. It was first performed in the beginning of the eighteenth century, but remained long in discredit; and it has been at all frequently or generally practised with in the last twenty-five years.

In 1685 T. Schorckoff, in his Dissertatio medical inauguralis de Hydropoe ovarii; in 1722 Schlenker in 'De singularis ovarii sinistri morbis'; in 1731 Millius of Basko expresses the belief that
The removal of the diseased ovaries would lead to a radical cure. Still they shrank from performing the operation. In 1752 Tarfionni advises ovariotomy as the last resource when all other means have failed. In 1751 W. Peyre recommends ovariotomy and Morand prophesies the triumph of this operation with the words:—“Modern surgery is capable of great achievements; unlimited roads ought to be open to her goal— to cure.” Antony de Haen and Morgagni were opposed to this operation which Van Swieten and Mr. Hunter justify in extreme cases. In 1787 John Hunter advocated ovariotomy when he said “In the early stage of ovarian dropsy I would almost advise that they should be removed entirely, if the complaint can clearly be ascertained as they otherwise will certainly kill the patient.” (Mr. Lectures). In 1798 Chandon was an enthusiastic advocate of ovariotomy. (De l’extirpation des ovaires. 1798). In 1786 Thomas Kirkland was almost on the brink of discovering ovariotomy (“An Enquiry into the present state of Medical Surgery”). Dr. Ephraim McDowell, a young Kentucky practitioner, who attended
John Bell's lectures in 1794, said by his biographer to have been "enraptured by the eloquence of his teacher, and the lessons he embodied were not lost upon him after his return to his native country. Bell is said to have dwelt with peculiar force and pathos upon the hopeless character of ovarian tumors when left alone, and the practicality of removing them by operation. It is not improbable that the young Kentuckian, while listening to the ardent and enthusiastic Scotchman, determined in his own mind to extirpate the ovaries of the first case that should present itself to him after his return to his native country. The subject had evidently made a strong impression upon him, and had frequently engaged his attention and reflection. He had thoroughly studied the relations of the pelvic visera in their healthy and diseased conditions and felt fully persuaded of the practicality of removing enlarged ovaries by a large incision through the abdominal walls." (Gross's Lives of eminent American Physicians and Surgeons).

In 1808 D'Escher suggested the removal of diseased ovaries through an incision along the external border of the rectus muscle.

In 1809 McDowell first performed ovariotomy.
The patient survived 32 years. He performed ovariotomy thirteen times, eight were successful.

Atlee mentions the case of Dr. Robert Houston as the first case of ovariotomy. But Houston appears to have been satisfied with removing the matter contained in the diseased ovary. He did not remove the ovary and hence his case is not considered to be one of ovariotomy.


Dr. Smith of Connecticut performed ovariotomy three times, between 1822–3. Two of them were complete, one incomplete. All recovered.

Ligars of Edinburgh was the first to perform ovariotomy in Great Britain. His first case was successful in 1825; his second case was unsuccessful, the patient died in fifty-six hours. He opened the abdomen two other times but only to prove errors of diagnosis.

In London Dr. Granville performed ovariotomy in 1827. The cases were unsuccessful. Jeaffreson of Framlingham and King of Saxmundham in 1836, West & Tonbridge, and Christ of Charleston had some successful cases.
In 1839 Mr. Morgan and in 1840 Mr. Benjamin Phillips had each an unsuccessful case in London. In 1843 Aston Hay had another unsuccessful case in Guy's Hospital. Bransby Cooper had an unsuccessful one.

Valme had the first successful case in London in 1842.

In 1844 J. Bird had three and Mr. Lane two successful cases.

In 1843 and 1845 Mr. Southam of Salford and in 1846 Dickson of Shrewsbury published successful cases.

Mr. Jolly assisted greatly in the progress of ovariotomy by pointing out that retraction of the pedicle behind the ligature is very likely to occur unless prevented with great care; this may lead to fatal hemorrhage.

In 1846 C. Hawkins had a successful case, but he did not repeat the operation and was not followed by others for several years.

Bird, Lane, and Protheroe were the only operators, although Clay continued the operation successfully in Manchester.
In 1850 Buxton introduced the external treatment of the pedicle (Sir T. Spencer Wells, Ovarian Tumors and Ovariostomy 1882). But according to Granser this external treatment of the pedicle had been introduced into Germany in 1846 by Stilling.

But with the year 1858 a new era began for ovariostomy. Before the operation had been condemned by many distinguished men as cruel, barbarous, unscientific, and unjust. Sir Spencer then Sir Wells began to operate for diseases of the ovary in 1858. Seeing the hope left condition of the patient he left alone, he performed ovariostomy for the first time in December 1857. This case was not encouraging. He had to abandon the operation for strong adhesions. His next three cases in 1858 were successful. Since his first case which proved successful in February 1858 up to March 1867, he has performed
2,000 operations of complete ovariotomy of which 1,388 were successful, with 62 deaths; the mortality being 3.1 per cent. He had 10 cases of incomplete ovariotomies of which 6 were successful with 4 deaths; mortality being 20 per cent. Up to the year 1878 Mr. Wells had operated on 9,000 cases with mortality of 24.5 per cent.

Hence the results of ovariotomy are just as good, if not better, as the operation for strangulated hernia, amputation at the hip, and many other capital operations. Hard was the struggle of ovariotomy for existence. About ten years ago it did not find a place neither in many books on surgery, nor in books treating of obstetrical operations. Now ovariotomy is an established operation and has been adopted by the profession generally. This is a great wonder which surgery has achieved within the last 25 years.
The operation of ovariotomy is now an established and accepted one. The details of statistics are now no more needed in this than in other large operations. It may be confidently asserted to be successful in two out of three cases, good, bad, and indifferent, and in at least three out of four cases when selected ones are operated upon. Sir J. Spence Termo Bart, tells us, as the result of his unrivalled experience, that out of his 900 cases 221 or 24.5 per cent died; and Dr. T. Keith lost only 33 out of 200 cases ("British Medical Journal," June 26, 1875).

Recently Dr. Keith had 70 cases without a single death. (Thomas, Diseases of Women, 1880)

Having thus decided that the operation of ovariotomy is justifiable in some cases and desirable in other cases, let us see what are the cases in which it should be undertaken, and what are the cases least adapted for its successful practice.

Are all cases of ovarian disease to be treated by ovariotomy? If not, what cases should be selected, and at what period of the progress of the disease should ovariotomy be performed?
What cases of ovarian disease are best adapted for ovariostomy?

The above statement would seem to imply that all cases of ovarian disease are not suitable for ovariostomy, that the operation is quite inapplicable in some cases, that ovariostomy is suitable in some cases of ovarian disease. This leads us to consider the different forms of ovarian disease. For surgical purposes it is sufficient to classify all cases of ovarian disease into simple and compound cysts. The former, a rare one, being composed of one cavity only, the latter of many, solid material being almost always present, though varying in amount.

Simple or monocystic tumours, when clearly diagnosed, can be treated by other means than ovariostomy, such as injection of iodine which has met with variable success in the hands of different men. M. Boinet had forty-five cases of this disease, of which thirty-one were cured, five had relapses and nine died. Sir J. Y. Simpson has nineteen successful cases out of twenty, one patient only dying. Dr. Tyler Smith had two success
ful cases out of ten. Dr. Pest had one successful case out of eight (Bryant, 'Clinical Surgery,' 1867).

The treatment by injection is applicable only to simple cases of monocystic tumors is wholly inapplicable and useless in the polycystic tumor, and where much solid matter exists. In many cases it does not do any good, may be followed by a fatal result, and at least is uncertain. It is only in exceptional cases that it may effect a cure.

A simple monocystic tumor unaccompanied by the development of daughter cysts within the parent cyst is certainly a very rare disease. Such cysts are however occasionally found. They are mostly parovarian or broad ligament cysts and may be cured by simple tapping. The majority of cystic tumors, even those which appear to be simple and monocystic, have the remarkable power of developing smaller cysts within them. They have been described by Sir J. Paget as proliferous cysts.
The cases tabulated as monomorphic form nine per cent. of the whole number of cases, many doublets were proliferous cysts, and in these injection of iodine cannot be advised.

In cases of apparent monomorphic ovarian disease the treatment by injection of iodine ought to be entertained by the surgeon, while the circumstances of each individual case can alone determine what treatment should be adopted.

The fibrous or solid tumors of ovary rarely attain to any large or interfere with the patient's comfort, hence there is no necessity for their removal. Should they however attain large size or interfere with the patient's comfort, they should be removed, the question of removing such growths decided upon as in other cases.

All cases of polycystic or multiloculate tumors, composite, adenoid, or cysto-sarcoma-tous tumors as they have variously termed, all cases of poly cystic tumors with variable amount of solid material, such cases forming the majority of those coming under the surgeon's observation, should be treated.
by ovariotomy, there being no other treat-
ment capable of checking the growth of the
disease, palliating its inconvenience,
or averting its end. The injection of iodine
is inapplicable, and there is no other treat-
ment which offers any hope of success.
The patient must die or submit to ovario-
tomy.

Tapping may afford temporary relief to the
patient, but it will have to be repeated
within a brief period and at uncertain
intervals, and thus life may be prolonged
but that existence is miserable; the in-
tervals of ease are uncertain. Death has
followed from peritonitis and suffocation
of the cyst, and from hemorrhage into the
abdomen after tapping. Bryant says
that these causes of death are 35.5 per
cent. more frequent when tapping has
been employed than when the disease
has been allowed to run its course
(Bryant, Clinical Surgery, 1867). Paren-
tal, if not visceral adhesions are apt to
take place after tapping, hence it
is not advisable to have recourse to
it in cases favorable for ovariotomy.
When the case is not clearly understood, it is better to have recourse to tapping to settle a point in diagnosis and run the risk of causing adhesions and even death, than to perform ovariotomy on the patient when the diagnosis is not clear, and the propriety of removing the growth is surrounded with doubt. Dr. T. Spencer Wells, Bart., assures us, however, that the mortality of ovariotomy is but little affected by tapping.

When the diagnosis is clear, when it is evident that something must be done for the relief of the patient, when there are no contra-indications for ovariotomy, it is better to perform ovariotomy at once than to lose time which may be of value, or run the risk of causing adhesions by tapping. For diagnostic purposes in some cases tapping is of value, and in others in which ovariotomy is inapplicable or inexpedient, and it is necessary to give relief. In other cases, it is a mistake and should be avoided.
Are all cases of polycystic tumors of the ovary to be excised; and, if not, which should be rejected? It has been already pointed out that there is no hope of doing permanent good to a patient suffering from this disease by any special treatment, as there is no remedy which can check the growth of the tumor or arrest its progress. Further, there is no operation other than ovariotomy which can be trusted to give permanent relief or benefit. Still it would be unwise to interfere with some forms of ovarian disease, and it will be quite unjustifiable in others, and among these the cancerous stand preeminent. And although the diagnosis of such a growth is difficult, yet by a careful examination of the patient and the history of her case an approach to certainty may be made and fair probability attained. Local examination alone does not furnish positive diagnosis, for there are no local symptoms by which a solid or semi-solid multilocular cancerous ovarian tumor can be distinguished from one of benign nature. It
is true that in rare cases the cancerous tumor has more irregular and
nodular outline. The general condition of the patient and the progress of the case
should awaken suspicion of its cancerous nature, for in the cancerous tumor there
will be more emaciation, more wasting and more constitutional decay
than in the benign tumor. The disease will run its course more rapidly, al-
though the tumor may not be as large
as in the cystic tumor of benign nature.
But this rule has many exceptions, for
the cancerous disease of the ovary is of-
ten of the cystic form, and there is no
reason why these cysts should not enlarge as much
in the malignant as in the benign
form, and in practice this has been found
to be the case. When solid and un-
complicated with cysts, the cancerous
tumors rarely attain large size. Then
on pelvic examination the organs are
found somewhat fixed and immov-
able instead of being free and mobile,
the probability of the tumor being can-
cerous is much increased. Cancer
of the ovary has a tendency to affect both the ovaries, the law of symmetry being observed in this as in all other forms of constitutional disease.

Are all cases of benign multilocular ovarian tumors, then, to be excised? There is no difficulty in answering the question in the affirmative, for the patient must be left to suffer the inconvenience of the ovarian disease and die worn out and exhausted by the prolonged suffering produced by the disease, or must submit, at some period of the progress of the disease, to ovariotomy.

What is the duration of life of those suffering from ovarian disease when left alone? The average duration of life of those who are subjects of ovarian tumors when the disease is allowed to run its course is two, at the utmost three years; that few live over four years, and those who survive beyond that period must be regarded as exceptional.
"Taking everything into consideration, we shall not be far wrong in drawing from the published cases of Dr. Lee and Mr. Stafford Lee the conclusion that the probable duration of a case of ovarian disease of progressive character is, in 85 or 90 per cent. of the cases, two or at the most three years; of the apparently 'stationary' or chronic cases, the progress is more favorable, but in such cases the disease is liable at any moment to start into fresh activity. The first question we naturally put to ourselves when a case of the kind comes before us for decision is, 'Does this case belong to the fortunate series 1 in 10 or 15 in the 100? or is it one of the 90 who must die in the course of two or three years if unrelieved?' (Dr. Graily Hewitt, Diseases of Women.) To the operator this question is of much importance, since the question of operative interference is raised when the tumor has grown very large.
and at such a stage of disease the question becomes of little value.

Ovariectomy should not be performed when the tumor is small, is causing little or no mechanical inconvenience, or when the patient is in sound health and well able to perform all the duties of life or able to enjoy its pleasures. Ovariectomy should not be thought of when the patient's general condition of health is very bad, or the bowels are feeble, when there is evidence of disease of any other organ than the ovary, and it is tolerably evident that the bowels of the patient are unable to withstand the shock of the operation, or incapable of rendering the necessary preparative assistance for the recovery of the case. It is no more to be thought of under these circumstances than any other capital operation.
Ovariectomy may be admissible in cases where the patient is evidently being worn out by the disease, and by the disease alone; where the sufferings of the patient are evidently becoming unbearable, and death may be looked upon with calmness and even wished for; where there is even a bare possibility that, after the extirpation of the tumor which is clearly destroying life, the powers of the patient may rally, or at any rate relief to her suffering may be given; under the above circumstances a surgeon may be called upon to perform ovariectomy, as under like conditions he performs an operation in neglected cases of hernia, certain examples of amputation for disease or injury, in the ligation of a vessel or excision of a tumor when suffering is great, death is certain if the patient is left alone, although the probability of saving life is almost nil. With the same object and a like plenitude of hope ovariectomy may be performed under certain circumstances, if only to give relief, and there is bare
possibility of doing more. With chloroform
the operation is rendered painless, and
the after-effects are very slight.
When the condition of the patient is
suspected or evidenced by symptoms to
be due to some disorganisation in the
cyst or some suppuration, ovariotomy
must be performed as soon as possible.
To wait for an improvement in the gener-
al condition of the patient is to allow
her to die, for the general condition can
not be improved when the local cause
is present. The existence of inflammation
or suppuration of the cyst ought to be
an argument for hastening ovariotomy
rather than delaying it. This condition
should be suspected when there are found
fixed local pain or tenderness, constitutio-
al disturbance, fever, quick pulse and
permanently high temperature; in fact
the general condition of the patient
should show some local cause for
irritation. Ovariotomy, however,
should not be performed recklessly;
since when performed without any
reasonable prospect of success it is
plainly unjustifiable, unscientific and inhumane; it injures the profession. The public derives no benefit from it, and the character of the operation necessarily suffers.

Under what circumstances should ovaristomy be performed? It has already been briefly pointed out that the operation is not to be performed, and when it may be justifiable in extreme cases. It now remains to be shown under what circumstances ovaristomy should be undertaken in the majority of cases. Bryant says that ovaristomy should only be thought of only when the tumor by its size has become so large as to interfere with the comfort and curtail the power of the patient to perform the duties and enjoy the pleasures of her ordinary existence; when the general health is becoming affected, and the local effects of the disease are distressing. Baker Brown operated quite
early, as soon as the diagnosis was fully established, in order to avoid changes in the cyst and peritoneum. Peaslee, Tyler Smith waited for some degree of impairment of health as does Dr. Keith likewise. Sir Spencer Wells operates when the patient cannot walk a mile without difficulty. Greenhalgh postpones the operation as long as it is justifiable, in order to secure changes in the peritoneum which will render it less liable to traumatic peritonitis. It seems that the operation should be undertaken when the tumor has grown so large as to be cause of failure of strength, of emaciation, of depression, of nervousness of the patient. To this rule there are many exceptions. The following table of Dr. J. Clay shows the important fact that great emaciation does not produce very unfavorable result.

<table>
<thead>
<tr>
<th>Tubal Cases</th>
<th>Good</th>
<th>Improved</th>
<th>Much</th>
</tr>
</thead>
<tbody>
<tr>
<td>Successful</td>
<td>21</td>
<td>17</td>
<td>47</td>
</tr>
<tr>
<td>Unsuccessful</td>
<td>21</td>
<td>25</td>
<td>46</td>
</tr>
</tbody>
</table>
### Dr. Peaslee's Table

<table>
<thead>
<tr>
<th>Cause</th>
<th>Count</th>
</tr>
</thead>
<tbody>
<tr>
<td>Shock or collapse</td>
<td>7</td>
</tr>
<tr>
<td>Peritonitis</td>
<td>12</td>
</tr>
<tr>
<td>Septicaemia</td>
<td>9</td>
</tr>
<tr>
<td>Exhaustion</td>
<td>7</td>
</tr>
<tr>
<td>Shock and Septicaemia</td>
<td>1</td>
</tr>
<tr>
<td>Hemorrhage</td>
<td>9</td>
</tr>
<tr>
<td>Strangulation of the intestine in the wound</td>
<td>1</td>
</tr>
</tbody>
</table>

### John Clay's Table

<table>
<thead>
<tr>
<th>Cause</th>
<th>Count</th>
</tr>
</thead>
<tbody>
<tr>
<td>Shock or collapse</td>
<td>25</td>
</tr>
<tr>
<td>Hemorrhage</td>
<td>24</td>
</tr>
<tr>
<td>Peritonitis</td>
<td>64</td>
</tr>
<tr>
<td>Phlebitis</td>
<td>1</td>
</tr>
<tr>
<td>Tetanus</td>
<td>2</td>
</tr>
<tr>
<td>Intestinal affection</td>
<td>6</td>
</tr>
<tr>
<td>Abscess</td>
<td>3</td>
</tr>
<tr>
<td>Chest disease</td>
<td>4</td>
</tr>
<tr>
<td>Congestion of brain</td>
<td>1</td>
</tr>
<tr>
<td>Diabetes</td>
<td>1</td>
</tr>
</tbody>
</table>
It seems that many cases of death ascribed as due to peritonitis, are really due to septicemia; hence the principal causes of death after ovarioectomy are septicemia, peritonitis, hemmorhage and shock.

The first of these is the great evil to be feared, and combined with the second causes more deaths than all the others added together and multiplies by ten.

Conditions favorable to the operation.

Clarity and certainty of diagnosis.

The importance of clearly understanding the nature of the tumor cannot be overestimated. The operator should with most careful and repeated examination, alone or with counsel, ascertain not only that a tumor exists, but that it is ovarian, not uterine, that is not carcinous, that pregnancy does not complicate the case, that the contents are fluid. Cases are on record where surgeons of great
skill have cut down when uterine fibroids, cysts of the kidneys, preg-
nant uterus, and other abdominal enlargements under the impression that ovarian cyst existed.

The general health of the patient should be strong and good enough
to bear the shock of the operation and to assist in the repair of the wound. This point has been touch-
ed before.

The patient should desire the operation and be hopeful of the result.
She should be convinced of the necessity of the performance of the operation.
The operator should give her all reasonable hope of a good result.
The mental state of the patient has a marked influence on the re-
sult of the operation. Women of extremely nervous and excitable tempera-
ment, deficient in self-control, and prone to hysterical affections are
very unfavorable subjects for the operation and still more for
the after treatment. Most opera-
tions agree that a depressed and at
prehensile condition commonly lead
to an unfavorable result.

Pancilcocutar character of the cyst —
the tumor of moderate size, when
free, or even if the adhesions were
extensive, provided they are not firmly
fixed in the pelvis justifies a favor-
able result.

Absence of much solid matter in
the cyst. The greater the amount
of solid matter in an ovarian tumor
the more favorable will be the pro-
osis as to the rate of growth and
the more unfavorable as to the
cure.

The following table of Dr. Clay in
reference to the character of the
tumor:

<table>
<thead>
<tr>
<th>Class of cases</th>
<th>Monocystic</th>
<th>Polycystic</th>
</tr>
</thead>
<tbody>
<tr>
<td>Successful</td>
<td>19</td>
<td>66</td>
</tr>
<tr>
<td>Unsuccessful</td>
<td>25</td>
<td>106</td>
</tr>
<tr>
<td>Total</td>
<td>44</td>
<td>172</td>
</tr>
</tbody>
</table>
Clap of cases: Small
Successful: 8
Unsuccessful: 13
Total: 21

Class of Cases: Medium: Large
Successful: 14: 30
Unsuccessful: 17: 18
Total: 31: 48

Thickness of the abdominal wall. — The greater the thickness of the abdominal wall, the more extensive will be the surface which must unite to effect closure of the abdominal opening, and the greater the probability of suppuration occurring between the lips of the wound and pus pouring into the peritoneum.

Absence of strong pelvic adhesions. — The presence of adhesions to the abdominal viscera greatly complicates the case, but, as this can be determined only after the ab
dominal section, its consideration will be postponed until that point in the description of the operation is reached.

The following conditions, although unfavorable as to the result of the operation, do not contravene it, unless they exist in the most exaggerated degree:--

Obscurity as to diagnosis;
Great constitutional impairment;
Gastric or intestinal disorder;
Depression of spirits;
Presence of much solid matter in the tumor;
Extensive and firm adhesions to viscera;
Complication with other diseases;
Great thickness of the abdominal walls;
On the operation of Ovariotomy.
Let us enquire into the necessity of adopting any special method of treatment in the preliminary preparation of the patient before proceeding to the consideration of the operation. Some authors have led us to believe that the success or non-success in the ultimate result of this operation may be determined by the care with which the preliminary treatment has been carried out. The necessity for such a line of practice is not obvious. The preliminary treatment of a patient about to undergo ovariotomy need not be different from that which experience teaches to be necessary previous to any capital operation. The general standard of health should be improved by all those hygienic means and other influences which are well known to act beneficially, such as good air, simple nutritious food, a fair amount of stimulants and the use of some tonic. Let her take exercise when she can without pain, but let her not be fatigued. She should take exercise on level ground; no shaking or straining should be allowed. She should rest in half
reclining position. She should have repose and quiet, even if she were able to take exercise, a day or two before the operation.

The preparations of iron as tonic medicine seems to be very valuable, having apparently an influence for good which other tonics except quinine do not possess. It is no more useful, however, in the preliminary treatment of ovariotomy than in the preliminary treatment of any other capital operation, though it is as good. In hospital practice it has been found that wounds are less prone to inflame and erysipelas-like affections are less common under the influence of iron than when no such preliminary treatment has been adopted. The administration of iron should be recommended in an operation where peritoneum is involved.

The tincture of perchloride is to be prepared, and given with pyrothol, or lemon or spirits of chloroform.

Two days before the operation a mild aperient such as castor oil or ten grains of rhubarb with twenty grains of sulphate of potash in some aromatic water should be given to
gently move the bowels; and on the morning of the operation a warm water enema should be given to wash out the lower bowels, but all violent purgation must be condemned. The catamenial period should have passed at least a week before the operation, as all ovarian excitement is injurious at such a time, and should be carefully avoided. For if ovariotomy is performed without any consideration of this point, a bad result may be expected.

In hospitals the patient should, as much as possible, be separated from others and kept in a private room which should be well ventilated. A special nurse should be engaged who is trustworthy and who knows how to use a female catheter. In private practice the patient's own house is the best place for the operation, and country is preferable to town, as fresh country air conduces more to the rapid preparation of a wound than the atmosphere of a large city. In operation on the abdomen this influence for good is of great value, and should not be cast
away unless compelled by necessity. A few days before the operation the operator and his assistants should not go to the dissecting room or to the post mortem; they should not handle any morbid preparations. They should avoid all erythematous affections and contagious diseases. One who undertakes to perform ovariotomy should observe the same rules as the obstetrician. Practitioner, since the same insoluble poisons which are recognised to be injurious to the perineum are equally injurious to patient suffering from ovarian disease when subjected to ovariotomy, hence they should be carefully shunned. Consequently the mother-on at an operation and all who may come in contact with the patient should studiously avoid all infections or contagious disease.

All beds and bedding, blankets, sheets, hangings should be perfectly fresh; all sponges should be new, soft, well cleansed, scalded and free from soap and grit; flannels when wanted, should be fresh and previously washed in warm water; all insi-
instruments should be scrupulously clean. The hands of the operator should be cleansed with soap just previous to the operation, and well warmed for manipulation, for cold hands are injurious to the exposed peritoneum. Dr. Peaslee considers this fear of irritation from the handling of the intestines and the peritoneal membrane to be so great that he leathers his hands with a preparation which he calls an artificial serum, composed of four pints of water, six drachms of white of egg and four drachms of salt.

Temperature of the Room in which the operation is performed. — There is a difference of opinion about this point amongst the operators, Dr. Clay of Manchester, Peaslee of America and some others advise that the temperature of the room where ovariotomy is to be performed should be 75° or 80°, and a good supply of moisture engendered by diffusion of steam; whilst Sir Spencer Wells and others make no such rule. The best thing is to have the room heated to comfortable temperature, 65 degrees being amply sufficient; greater heat acts
as a depressant upon the patient and can do us good. A warm room with good ventilation is to be preferred to a hot one with closeness. A cold damp room is always to be avoided.

The position of the patient. Patient suffering from ovarian disease can rarely assume the horizontal position, and when the tumor has become so large as to require operation, this position becomes almost impossible. Hence half reclining position is the most comfortable for the patient and convenient for the operator. Some operators have employed the sitting posture in preference to any other, on account of the facility with which the tumor can be removed through the abdominal incision, and also on account of the advantages it gives in preventing the escape of the ovarian cyst contents into the abdominal cavity. Mr. Hutchinson, for the same reason, prefers the patient to be turned partially on her side. But there are objections to these positions. The chief objection is that the same law of gravity which acts upon the tumor and its contents facilitating its evo-
cave from the abdominal cavity, and allowing it to tumble out when the incision is made, acts as powerfully up on the abdominal viscera, and thus the disposition which always exists for the intestines to escape through the abdominal section is greatly increased and the danger of excess of manipulation of these parts much aggravated; the difficulties of the operation are, moreover, increased. The tumor may fall out too rapidly, and, by causing a too sudden and unexpected strain upon the pedicle, a severe and perhaps a fatal rupture of some important part may follow. This evil is no slight one; and the advantages of the side posture are more than counterbalanced by the disadvantages. The semi-recumbent or half-sitting posture has all the advantages of the other postures above referred to without their evils; the tumor can readily be removed from the abdominal cavity, and with care its fluid contents can without difficulty be prevented from passing into the abdominal cavity. There is plenty of room for every manipulative act.
That is necessary.

Instruments required. — Scalpel; probe; pointed bistouri; director; scissors large and small; dissecting forceps; long slightly curved needles, two threads on each suture; drainage tube; glass or India-rubber; Allumium needles threaded; torsion forceps; artery forceps; broad retractors; blunt hooks; bare-lip forceps; wire-nippers; forceps; pressure forceps; Belon's ovariotomy forceps; umbrella; wire-eraser; needle-holder; clamps; vulcanised India rubber tubing to fix on canula; ovariotomy trocar; catgut ligatures; strong white cord; silk suture and silver wire; diachylon plaster; catheter for emptying the bladder; soft napkins; bandage or lace napkins; anaesthetic and inhaler; cautery irons; cautery clamp; perchloride of iron; safety pins; sponges counted; cotton wool and iodiform wool; warm flannels; brandy and ammonia; ipecacuan, tosh sheets; hypodermic syringe; Hull's eye lantern; two-ounce syringe.
Number of assistants: The operator will require five assistants: one to administer anaesthetics, one to stand opposite to him and aid in manipulating the tumor and abdominal wall, one to take charge of instruments, one to apply ligatures, the actual cautery etc., and the fifth to take charge of the spray. The nurse who is to take charge of the patient may look after the cleansing and supply of new sponges, wrung out in carbolic water.

The administration of anaesthetics in the operation and local anaesthesia is of critical importance in ovariotomy is to obliterate hurry. This is secured by the administration of an anaesthetic; the success of the operation has greatly been influenced by the use of the anaesthetics.

It is true that operations for the excision of ovarian tumors had been performed before the introduction of anaesthetic, but how fatal were the results, and recovery was exceptional. It is no wonder that many succumbed to the practice under
the circumstance, although it is surprising that any patient was found to convalesce. The see a patient with the agonies of an abdominal section was enough to make the hardest heart turn with horror, and to witness the operator's hands within the abdomen of a struggling woman, in his endeavour to remove an adherent growth, was almost sufficient to lead any professional man who has seen such operation to condemn it as unjustifiable. And how could the operator be quiet in all his movements, gentle in all his manipulation and thoughtful over the difficulties which necessarily are present in ovariotomy, when the cries of the patient from agony stimulates him to hurry on and the her struggle forebode all gentleness. All operators will agree that hurry in the operation is bad and unjustifiable and destructive; force should never be employed where art will answer, blind force and dragging should strongly be condemned. Steadily...
in operating, gentlemen in manipulat-
ing and thoughtful attention to every
detail are essential to success.
The safety of the patient must de-
tend on her quietness and passive
ness under the operator's hand.
Hence the value of an anaesthetic
cannot be too highly praised, for by
it the patient is not only rendered
insensible to all pain, but perfect
quiescence is secured and her pass-
iveness under the operator's hand
is guaranteed. The vomiting which
follows, the use of an anaesthetic
is the only argument against its
use, but this evil must be endured
for a positive good. Vomiting may
be rendered less common by adminis-
tration of nitrous oxide gas follow-
ed by chloroform mixture (al-
cohol one part, chloroform two parts
and ether three parts) as recom-
nended by the Medico-Chir-
urgical Committee of the Medico-Chir-
urgical Society. For the same
reason Sir Spencer Wells uses
leucolride of methylene and Dr. Keats'
erth.
The Operation

Surgeons are not agreed as to the extent of the abdominal incision. We shall first describe the incision through the abdominal walls and then give the opinions of great operators about the length of the incision.

The operator standing at the right side of the patient, makes the incision with a bistoury. It should pass directly through the linea alba, and extend from a point at a varying distance below the umbilicus to one a little above the symphysis pubis. Passing through the skin and subcutaneous tissue, layer by layer, it is continued until the operator sees the fibrous sheath of the recti muscles. An inexperienced operator may take this for the peritoneum. If any doubt exists, it should not be separated until exposure to the air and pressure by forceps, fingers, or sponges, have stopped the venous flow occurring from the vessels exposed by the abdominal incision.

Then the fibrous structure should be caught by a tenaculum, snipped by scissors, and a grooved director passed under it, upon which it may be
slit. If this exposes one of the belly of one of the recti, it will be evident that the linea alba has not been struck by the incision. To reach it the director should be pushed under the sheath across the muscle and it will be arrested at the linea where the incision should be made. All hemorrhage having ceased, the parietal peritoneum should be lifted by the tenaculum, stripped and slit upon the director for the length of the incision. During this part of the operation small vessels will bleed freely. It is not necessary to ligature them, temporary compression by forceps will usually control their flow perfectly.

It must not be supposed that there are no difficulties in cutting through the abdominal walls. It has happened that operators have stripped the parietal peritoneum from the muscles under the impression that it was an attached cyst, have cut into the cyst and allowed its contents to flow prematurely. Baker Brown had a case where a loop of the intestines was lying on the anterior
surface of the tumor, and it would have been snipped had the operator not slit the peritoneum upon a direc
tor. Dr. McLane B. Tracy published a case where both the walls of the urinary bladder were cut through by the abdominal in-
cision.

The careful operator will see, before commencing the abdominal incision, that bladder has been emptied by means of a catheter; the linen of the patient will be drawn up out of harm's way and becoming soiled by the use of waterproofing; the limbs of the patient well protected and kept warm by a pair of drawers and covered by clean sheets either with or without a blanket. Having seen to all these, the operator may and will proceed to consider the extent he will make his incision. The length of the incision should previously be determined. Sir James Y. Simpson Bart., Dr. Clay, and Mr. Wallace always adopted the long incision, and their success has been great, it therefore seems that long incision should always be adopted. Sir J. Spencer Wells Bart., Dr. Keith and others have often selected the short in
cision, and their success has been equally great, hence short incision appears preferable. The truth lies between the two extremes. When the tumor can be removed with facility by a short incision, a long one is clearly unnecessary, and when the tumor is mono-cyclic or nearly so and free from abdominal adhesions, it may be so removed. But when the tumor is large and semi-solid, or when adhesions exist which cannot be easily broken by gentle traction upon, the best practice doubtless is to employ a long incision, as by it the removal of the growth is greatly facilitated, the causes of its retention in the abdomen and the connection of adhesions satisfactorily ascertained, and consequently can be dealt with safely. The best practice, seems, then, to be to commence the operation with a short incision, and in many the growth can be removed through this short incision without further trouble. But when difficulties appear and adhesions exist for the breaking down of which strong force would be necessary, and some work
ing in the dark called for, then it is
better to increase the length of the
wound upwards, even for an inch
or two beyond the umbilicus. Such long
incision is quite insignificant compared
with the evil effects of violence and
dragging upon the tumor for the purpose
of its removal, or the blind tearing
down of the abdominal or visceral
adhesions which have retained the
growth. The evil effects of long in-
cision under the circumstances are
almost none. But I have seen the
bad results of the violence which has
been employed to remove large tumor
through a small opening or to tear
an adherent one from its abdominal
or visceral connections. In one case
the bladder was torn away.

Tapping of the Cyst.
The cyst having been exposed, should
be tapped in situ, and for this pur-
pose Bryant's trocar and cannula with
moveable forceps seem to be very good.
The railcellum forceps, which slide upon
the cannula by being made to grasp the
cyst walls, hold the instrument firm-
ly in its position, and thus enable
The operator to make traction upon the tumor for the purpose of removal. Some operators, after exposing the cyst, roll the patient on her side, then slightly drawing the cyst into the mouth of the abdominal incision for it there by vulsellum, open the cyst and make pressure upon the cyst and the abdomen to prevent the escape of the cyst contents into the peritoneal cavity. The contents all escape outside.

The removal of the cyst when simple after it has been emptied is easily done if there are no adhesions; but when the cyst is compound or solid it may be necessary, to allow of its extraction, to loosen its size by breaking down its contents, and for this purpose the operator makes a free opening into the cyst; the edge of the opening is held firmly well open and forward by forceps he introduces his hand into its interior and breaks down the solid contents and removes them. By these means the most compound cysts can be reduced in size and removed.
When the cyst is so adherent to the abdominal parietes as to render it difficult to distinguish the cyst wall from the pariетal layer of the peritoneum. Sir T. Spencer Wells, Bart. first empties the cyst, then seize the posterior or upper wall of the cyst from within by forceps and inverts it, the cyst then peels off on good traction. This is a very good practice.

On adhesions and their treatment. When the abdomen has been fairly opened and the cyst exposed, then if the ovarian cyst moves freely within the abdomen on each respiratory act, it is most probable, if not certain, that the tumor is free, and that if adhesions exist, they are not severe; for, when the tumor is fixed to the abdominal walls, this movement of the cyst is absent. Fibrous or fibro-cystic tumors of the ovary or uterus usually have flabby appearance.

On the completeness of the abdominal section, the adhesions present themselves in three forms: firstly,
as forming complete and compact union between the peritoneal covering of the cyst and the abdominal peritoneum; secondly, as loose and fibrous connective bands; and thirdly, as visceral adhesions.

When a firm and compact union exists between the peritoneal covering of the cyst and the abdominal peritoneal membrane, the operator loses his guide as to the depth of his abdominal incision; and under these circumstances he will not be certain whether the abdominal cavity has been opened or not. Here he ought to proceed with care, otherwise he is apt to strip off the abdominal parietal peritoneum from the muscles. But this is avoided by enlarging the abdominal incision till he sees the distinct line of separation between the cyst wall and the abdominal peritoneal membrane. Next he breaks down the adhesions by introducing his finger carefully between the cyst wall and the parietal peritoneum. Here some force is justifiable, for if the adhesions are confined to the abdominal parietes and can be broken down, there is scarcely much subsequent danger to be apprehended.
time care, however, is necessary at this stage of the operation. The extent of the adhesions should be found out and their strength tested by the introduction of the finger. If they are too numerous and too firm for separation, the operation has better be abandoned at this stage and the wound closed; or if many firm visceral adhesions exist, it is better to follow the same practice, as the latter are much more dangerous than those attached to the abdominal walls. As a broad rule it may be laid down that while parietal adhesions may be fearlessly treated when they can be divided, the adhesions of the cyst to the viscera and helices must be looked upon with alarm. The practice of Sir T. Spencer Wells Bart. of emptying the cyst, seizing its upper or anterior through its inferior, inverting it and peeling it off by traction is very good.

The fear of hemorrhage from lacerated adhesions should always be present to the mind of the operator, and every torn surface should be carefully
examines with a view to arrest bleeding.

Omental adhesions should be particular
ly examined with care and torn
with caution. They are very vas-
cular and cannot be treated with
too much consideration. They should
should be divided and secured with
silk or carbolized catgut ligature.
Tearing them off with force is al-
ways bad. Spencer Wells' clamp for-
ceps for holding theomentum while
the operator secures the vessels is
every valuable. Firm bands like
adhesions may be similarly treated.
The ends of the ligature may be cut
off, and the knot left in.

The operator need not introduce his
hand into the abdomen to find out
if any adhesions exist or not; for
when they are present between the
cyst and internal abdominal wall
they will evidence.

The treatment of the pedicle.
The practice of different operators
varies extremely. In France, Maissin
usually twisted off the cyst by con
tined torsion, leaving the pedicle to fall back into the abdomen; whilst
Credieu preferred to fix the pedicle externally and secure it by means
of a common clamp. In Germany
Martin and Lampenbeck cut through
the peritoneum, covering of the pedicle
by a circular incision, cut off the
tumor, tied each vessel separately
and fixed the pedicle to the walls of
the abdomen by means of a double
ligature. Dr. Clay fastened the pedicle
by a double ligature, cut off the tumor,
and, having allowed the pedicle to drop
backwards into the pelvis, brought
the ends of his ligature out through
the lower ends of the incision. Dr. John
Smith advises the same treatment of
the pedicle as Dr. Clay, but differed
from him in the important point of
dropping both pedicle and ligatures
which are cut off close, into the pelvis,
the wound should then be closed. Sir
Spencer Wells prefers to fix the pedicle
externally by means of a clamp, and
Dr. J. Keith has adopted the same
practice, although recent experience
has satisfied him of the value of
actual cautery as employed by Baker Brown and Stöllberg who divided it by actual cautery, and allowed it to drop back into the pelvis. Atlee of America employs the eraser or. It seems that one uniform practice cannot be adopted, that the special peculiarities of each case influence the method to be adopted. It appears from the results of practice of different operators who have adopted the various plans above referred to, that good success attended each. Upon the whole the best results have been obtained by treating the vesicle externally.

The first object in the treatment of the vesicle is to prevent hemorhage; and to attain this the operator should employ such means as are least likely to excite or be followed by peritonial inflammation. When a plan shall be found by experience to secure both these ends, one great difficulty will be removed, and mortality of the operation doubtless diminished. In the infancy of ovariotomy the early operators secured the pedicle by one or
two ligatures, but the fastening of the pedicle by one ligature is dangerous and cannot be adopted with safety. It does not attain even the first object, the operator ought to have in view, security from hemorrhage, while the mortality of the cases in which it has been employed has been very great. The practice of fastening the pedicle by double ligature still exists, and in Dr. Cleay's hand has been successful.

The dread of the evil consequences from decomposition of the extremity of the ligatures pedicle, and the fear of exciting peritonitis by the presence of such a foreign body as a double ligature hanging from the wound renders the minds of the operators dissatisfied with the practice just described and led Stilling of Germany in 1841 to urge upon the expediency of treating the pedicle externally. Mr. Hutchinson perfected the practice by introducing the clamp. Up to the present time the external treatment of the pedicle has been attended with good success, still reflective minds have not
no satisfactory keen so satisfied as 
they wished. The good which was evident 
ly obtained by maintaining the secured 
pedicle external to the wound was neu-
tralised by undoubted evil. When the 
pedicle was long and narrow, the 
method appeared good and success-
ful; but when the pedicle was short 
or broad, bad effects followed from 
traction upon its interns and its atten-
dates from their helveic position. Hence 
other plans were looked for by which 
traction would be avoided and hemor-
hage prevented. The plan which sug-
gested itself was dropping the pedicle 
with the divided ligature. Dr. Rogers 
of New York first performed it. His 
patient recovered. It was not, however, 
generally approved of. It was repeat-
ed at intervals with tolerable suc-
cess, and has now gained a strong 
hold upon the professional mind, 
and bids fair to become, in cer-
tain cases, a more general 
practice. Dr. Peaslee (American 
Journal of Medical Science July 1865) 
and others. Bryant have found that 
the extremity of the divided pedicle
did not slough, but atrophied, the ligature could not be detected, the fibrillated end of the divided pedicle being free. The professional mind having realised the fact that the pedicle of an ovarian tumor might with safety be strangled by a ligature dropped into the abdomen, and the wound closed; and having been taught by experience that the strangulated extremity of the pedicle did neither slough, decompose nor set up any peritoneal mischief, looked out for some other plan of treatment by which the presence of the foreign body, the ligature, might be done away with. As a result, the division of the pedicle by scissors was tried, while that by actual cautery has been introduced. Baker Brown says, as the results of his practice, that the actual cautery is very good, while results of Hobbling of Stockholm from the use of actual cautery are certainly startling. But hemorhage at times follows and renders it uncertain.
The evidence, on the whole, seems to indicate that the practice is good in certain cases - that in short, fleshly, and broad pedicles, the cautery is efficient, but that in long ones and thin pedicles it is unnecessary, other treatment being more applicable.

As far as we can judge at present from all experience, it appears that the best practice in the cases of long pedicles is to fix them externally by means of clamp; with short and broad pedicles cautery may be employed, or the pedicles ligatured in two or more parts with stout silk, the ends of the ligatures cut off, the stump dropped in, and the wound afterwards closed.

In the treatment of the adhesions, the practice should be guided by like principles. When they are slight, they may be broken down; when strong they may be divided or ligatured, or perhaps destroyed by the cautery. When large vessels exist, they must be tied until the crushing and cauterising plan of
treatment has been perfected.

On Sponging out the Pelvis. —

The tumor having been removed, the pedicle secured, it will be well to examine the opposite ovary to be sure of its healthiness, and then to turn attention to the fluid or blood that may have escaped into the pelvis during the operation. If the fluid of the ovarian cyst is of the serous kind, and evidence of the presence of blood into the abdomen purely negative, there will be no need of running the risks of irritating the peritoneum or pelvic organs by the application of a sponge for the thin serous fluid of ovarian cysts is readily absorbed, and the presence of a little blood is of small consequence, for we know that blood may be extensively effused into a joint and be absorbed, as it may into the cellular tissue of a part and yet be absorbed. Blood may be effused into the peritoneal cavity, without, if necessary, any serious result. When it is
necessary to use a sponge, it should be new, of the softest kind, and well warmed, two or more dips into the pelvis being carefully made to free the cavity from all foreign matter. The sponge is to be preferred to flannel, is unirritating. The number of sponges and instruments used should be counted before and after the operation for obvious reasons.

Treatment of the Wound.

The operation completed, the pelvis cleaned, the opposite ovary examined, all signs of hemorrhage absent, the operator then may proceed to the closure of the wound. He should do this by means of deep and superficial sutures, and he may employ silk or silver sutures according to his fancy. The silver sutures are not less irritating than silk, and in their removal they are more liable to scratch and tear the tissues through which they are drawn. Hence silk sutures are
pear preferable. These sutures should be inserted at intervals of an inch and should include the muscles and peritoneum, intermediate superficial sutures being inserted through the skin. When union has taken place, they should be removed, any time between three and six being suitable.

**Drainage tube.**

In all complicated cases where the peritoneum has been much involved and there is a probability of hemorrhage or serous exudation, the introduction of a drainage tube at the lower angle of the wound should be followed. One made of glass is better than the India-rubber.

**The After-treatment.**

It is better to keep the stomach quiet when a patient has taken chloroform or any anaesthetic mixture, and as the value of a opiate after an operation is great, it is better to give one by the rectum, half
a grain of morphia suppository after ovariotomy is very good. The suppository should be administered before the patient has recovered from the effects of the anaesthetic, and care should be taken that it be well passed into the rectum. If pain appears, the suppository should be repeated, but it is so rarely necessary to administer it more than once.

The room of the patient should be kept cool and airy. For the first two days milk and barley water form generally the chief diet, but should sickness supervene as the result of cholera form, ice and milk or ice and soda-water should be given; and everything should be cold. If it continues, food should be given two or three times during the day by the rectum. When the stomach can take, fresh meat, brandy, and wine ought carefully to be given to keep up the powers of the patient and so enable nature to complete recovery. The application of ice bags to the abdomen is ef
great value, and so is ice ear to the head when the temperature rises.

The urine ought to be drawn periodically by a catheter, the bowels should be relieved, and their action rendered easy by exercise; the bladder should not be allowed to be distended, nor bowels left loaded too long.

Basant Kumar Basu, M.B., C.M. B.D.
107 Shambazaar Street
Calcutta
India


Thomas J. G. Diseases of Women 1886.