MAMMOTH OVARIAN TUMORS.

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In searching the literature of this subject, only growths weighing 100 pounds or more have been considered as mammoth tumors. Reports of twenty-three such tumors have been found. Below are appended brief summaries of these cases chronologically arranged.

(1) Ovarian Tumor Weighing 106 Pounds. Great Elongation of the Cervix Uteri and Vagina. By D. George B. Gibb. (*Transactions of the Pathological Society of London*, 1855–56, Vol. vii, p. 273.)

This tumor weighed 106 pounds, and was removed *post mortem*.

(2) A Case of Enormous Polycystic Ovarian Tumor. By Louis A. Rodenstein, M.D. (*American Journal of Obstetrics*, 1879, Vol. xii, p. 303.)

The tumor weighed 146 pounds, and was removed *post mortem*.

(3) An Enormous Ovarian Tumor. By G. D. Neal, M.D. (*Louisville Medical News*, 1883, Vol. xvi, p. 305.)

This tumor was removed *post mortem*, at which time it contained fluid weighing 119 pounds. She had been tapped for three years previous to her death, in all six times, 487½ pounds of fluid having been removed in this way.

(4) Dr. Goodell (*Philadelphia Medical News*, 1883) reports an ovarian cyst removed by operation, weight 112 pounds. Omental and parietal adhesions. Recovery.

(5) An Ovarian Cyst Weighing 116 Pounds Successfully Removed. By Howard A. Kelly, M.D. (*American Journal of Obstetrics*, 1885, Vol. xviii, p. 795.)

In this report Dr. Kelly mentions the following two cases:

(6) Spencer Wells removed a tumor, weighing 125 pounds, from a woman in June, 1873. The patient recovered.

(7) Dr. Keith (statement by Emmet) removed an ovarian tumor weighing 120 pounds. Recovery.

(8) Dr. H. A. Kelly (*Maryland Medical Journal*, 1886, Vol. xv, p. 49) reports an ovarian tumor, weighing 100 pounds, successfully removed by operation.

(9) Colossal Cyst of the Ovary. By M. Buffet. (*Bulletin de la Société de Médecine de Rouen*, 1887–88, 1, 2, S. 117.)

Eighty litres of fluid were withdrawn to relieve impending asphyxiation. Death occurred in forty-eight hours. The autopsy showed a unilocular cyst of the left ovary with subperitoneal fibroma of the uterus, weighing thirty-six pounds. The cyst contained ten litres of fluid; this, added to the eighty litres removed during life, gives a total of 180 pounds for the ovarian tumor and 216 pounds as the combined weight of the ovarian and uterine tumors.

(10) Large Ovarian Tumor. By W. L. Estes, M.D. (*Transactions of the Lehigh Valley Medical Association*, 1887, p. 20.)

This was a polycystic, thick-walled tumor, in which intracystic papillary degeneration had begun. This tumor mass and fluid was calculated to weigh over 125 pounds. On account of adhesions the operation was very difficult, lasting four and a quarter hours, and requiring about 200 ligatures, in addition to the free use of the cautery. The woman made an uninterrupted recovery.

(11) Ovariotomy. By John Homans, M.D. (In his "Three Hundred and Eighty-four Laparotomies for Various Diseases," Boston, 1887, p. 15.)

Case LXXXII, a large ovarian cyst, whose solid and fluid contents (part of which was removed by aspiration a few days before operation) weighed 105 pounds, was removed by operation. Recovery.

(12) A Case of Unusually Large Ovarian Tumor. By Charles K. Briddon, M.D. (*New York Medical Journal*, 1890, Vol. vi, p. 141.)

A multilocular cyst, weighing 149 pounds, was removed by operation. Death followed about eight hours afterwards.

(13) An Enormous Ovarian Cyst. By Dr. Cullingworth. (*Lancet*, London, 1891, 1, 999.)

Preparatory to operation, and in order to diminish shock, aspiration was practised the day before operation. The fluid was allowed to escape for seven hours, amounting to seventy-four pints of thick grumous, chocolate-colored fluid, containing much blood. Operation was undertaken the next day under ether. The tumor was adherent over the entire anterior surface of the abdominal wall. At the end of one-half hour the patient was seriously collapsed, and died before the abdominal wound had been closed. The total weight of the tumor and its contents, including that of the fluid removed on the day before operation, was 154½ pounds.

(14) Mammoth Unilocular Ovarian Cyst. By Dr. A. M. Cartledge. (*American Practitioner and News*, 1891.)

The patient was thirty years old; first noticed enlargement of abdomen at the age of sixteen. Circumference at navel sixty-six and one-half inches. Removal by laparotomy. No adhesions. Recovery. The tumor weighed 111½ pounds.

(15) The Treatment of Large Ovarian Cysts: Report of Case. By Edward P. Davis, M.D. (*Annals of Gynæcology and Pædiatry*, Philadelphia, 1893, Vol. vi, p. 539.)

A multilocular cyst, weighing 160 pounds, was removed by operation. The pedicle was so small as to scarcely require ligation. No adhesions calling for ligation were present, and hæmorrhage was inconsiderable. The patient partially collapsed during the operation, from which, however, she reacted, becoming conscious. Six hours later, without warning, she died in sudden syncope.

(16) An Ovarian Tumor Weighing 111 Pounds. Removed from a Child of Fifteen, whose Weight was Sixty eight Pounds. By Dr. W. W. Keen. (*The College and Clinical Record*, Philadelphia, 1893, Vol. xiv, p. 134.)

A multilocular cyst of the right ovary was removed by operation. There were moderate adhesions to the belly wall and omentum, but the viscera were entirely free. Uninterrupted recovery.

This case was especially remarkable, the age of the child being only fifteen years, and the weight of the tumor exceeding the child's weight by forty-two pounds.

(17) Enormous Cyst of the Ovary in a Young Girl of Seventeen Years. Ovariotomy. Cure. By H. Dayot, Jr., M.D. (*Archives Provinciales de Chirurgie*, Paris, 1893, Vol. ii, p. 559.)

An ovarian cyst was removed by operation, October 9, 1891, from a girl seventeen years old. On entering the abdominal cavity about fifteen litres of ascitic fluid escaped. There were adhesions to the abdominal wall and omentum, but no other visceral adhesions. The operation had to be suspended three times on account of alarming syncope. The operation was completed in two and one-half hours, and the patient put to bed in a semisyncopal condition. For three weeks her condition was quite serious, owing to gastric and intestinal complications. She made, however, a complete recovery.

The total weight of the cyst and the fluid removed was 198 pounds; this included the fifteen litres of ascitic fluid, something over thirty pounds. The girl who carried this tumor weighed not quite sixty-six pounds.

(18) Cyst of Ovary. Operation. Recovery. By H. Maritan (de Marseille). (*Gazette Médicale de Paris*, 1893, Vol. lxiv, 2, S. 22.)

This ovarian cyst was removed by operation. There were numerous adhesions, and alarming collapse followed the operation, but recovery was complete. Her weight before operation was 117 kilogrammes (254 1/10 pounds); after operation she weighed forty-two kilogrammes, which gives the total weight of the tumor mass removed as seventy-five kilogrammes (165 pounds). (This case is referred to by Dr. Harris in his article on "Ovariotomy in Shanghai, China," which follows. There seems to be a discrepancy in the weight of the tumor as reported by him; he says the woman weighed 337 pounds and the tumor 200 pounds 14 ounces.)

(19) Ovariotomy in Shanghai, China. Tumor, 182 pounds. By Robert P. Harris, M.D. (*Transactions of the College of Physicians*, Philadelphia, 1895, Vol. xvii, p. 71.)

This case was operated upon by Dr. Elizabeth Reifsaydor, and was reported in full in the *American Journal of Obstetrics*, 1895, Vol. xxi, p. 512. The tumor was a cystoma of the left ovary, in a small woman weighing ordinarily ninety pounds; the total weight of the tumor and its contents was estimated at 182½ pounds. She made a good recovery.

(20) Enormous Ovarian Tumor, 202 pounds in weight. Death. Reported by A. M. Garcelon, M.D. (*American Gynæcological and Obstetric Journal*, N. Y., 1895, Vol. vi, p. 448.)

This tumor was first aspirated by trocar, 132 pounds of fluid being withdrawn. Five days later the sac with contents, weighing seventy pounds, was removed by abdominal incision. Both ovaries were affected and removed. The cysts were simple and non-adherent. The total weight removed was 202 pounds. The woman died two days after operation.

(21) A very Large Dermoid Ovarian Tumor Successfully Removed. By Skene Keith, M.B., F.R.C.S. (*British Gynæcological Journal*, 1895–96, Vol. xi, p. 466.)

This was a dermoid ovarian tumor, containing, however, seventy-five pounds weight of fluid, which was removed by tapping. Some days after laparotomy was performed and the tumor removed. There were no adhesions except in the pelvis. The total weight of the tumor and contents was more than 100 pounds. Recovery.

(22) The Successful Removal of a 125-pound Ovarian Tumor. By J. G. Lynds, M.D. (*Transactions Michigan State Medical Society*, 1898, Vol. xxii, p. 147.)

A multilocular cyst, weighing 125 pounds, was removed by operation. The cyst was adherent to the abdominal wall over its entire portion, as well as to the diaphragm, stomach, and omentum. Recovery.

(23) An Enormous Ovarian Cystoma. By D. Tod Gilliam, M.D. (*Medical Record*, August 5, 1899.)

This ovarian cyst, weighing a little more than 176 pounds, was removed by operation, the patient making a complete recovery. There were extensive adhesions to the abdominal wall, which were separated with great difficulty.

To the twenty-three it is desired to add the case of Dr. A. M. Cartledge and myself, operated on May 13, 1897. The tumor sac, with a brief report, was unofficially (not being on the programme) exhibited by him at the meeting of the American Medical Association in Philadelphia in June, 1897, and will be found mentioned in the *Association Journal* of December 18, 1897. It is now reported in full for the first time, in conjunction with, and by the courtesy of, Dr. Cartledge. The following gentlemen were present at this operation: Drs. J. A. Crosby, Allen Crosby, Tom Buckner, T. N. Willis, W. F. Beard, Frank Beard, T. E. Bland, G. Lawrence, C. P. Harwood, and R. D. Pratt, all of Shelbyville, Kentucky.

The patient was a woman of thirty-seven years, the mother of one child. She was five feet four inches tall and of large frame. The tumor had been recognizable for many years; eight years before, the woman had gone to Louisville for operation, but her courage failed at the last moment, and she had returned home untouched by the surgeon's knife. The tumor continued to increase in size, and pressure-effects became so marked that for the last year and a half she had been able to rest only in the sitting posture. At the time of operation the condition was extreme; respiration was becoming wellnigh impossible, and strength had been much reduced. The enormous abdomen hung down to the knees. The circumference at the navel was seventy-nine inches, and the distance from the ensiform cartilage to the pubis was forty-nine inches.

The patient's condition made it impossible to think of moving her, so operation was undertaken in a small house in the country, eight miles from Shelbyville, Ky. Unfortunately our anæsthetist had missed

the train, and the gentlemen present, as spectators, were unwilling to essay the anæsthetic, as they did not believe it probable that the patient would survive the operation. I was, therefore, deployed to give the anæsthetic while Dr. Cartledge attacked the tumor handicapped by the loss of an accustomed and trained assistant. The woman and tumor combined weighed nearly 400 pounds, so first we had to nail the rickety table to the floor and brace it with pickets knocked off the garden fence. Before the administration of chloroform was begun a prelimi-

FIG. 1.—Mammoth ovarian cyst, weighing 245 pounds.

nary tapping was done, with the patient sitting upright on the table edge. Twenty-four gallons of fluid were then withdrawn. The chloroform was given with the patient in a semireclining position. After exposing the sac, ten gallons more of fluid were withdrawn. The operation consumed two hours, and was most difficult because of the extensive adhesions. The parietal wall was anteriorly stuck fast to the sac over perhaps half of its extent, and there were extensive adhesions to the intestines, and also adhesions in the loins and pelvis. The adhesions required many ligatures, but were finally all separated, the

pedicle was tied off and the sac removed. The cyst was unilocular. A large amount of gauze was packed in over the raw surfaces, dressings were applied, and finally a large pillow was placed beneath the binder over the abdomen, replacing in some measure the pressure of the tumor so suddenly removed. The patient left the table with a pulse of 114. She progressed well until the fifth day, when her temperature was normal and pulse 108. At this time symptoms of intes-

FIG. 2.—Appearance of abdomen three days after operation.

tinal obstruction began to manifest themselves, and the patient finally succumbed on the morning of the seventh day. The reproduced photographs give a very fair idea of the appearance just before and three days after operation. The weight of the tumor-sac and contents, weighed by Drs. Willis, Crosby, and Beard, was 245 pounds; thus it will be seen that this cyst weighed forty-three pounds more than any recorded in history.

In considering the above twenty-four cases it is observed that, of the fifteen cases operated on in which recovery took place, the average tumor weight was 129 pounds; while of the six in which operation was followed by death, the average weight was 181 pounds. Case IX should perhaps be excluded from these six, as in it only aspiration was done for the purpose of relieving impending asphyxiation, death following in forty-eight hours; but as this tumor weighed 180 pounds, the average weight will not be changed.

In nine of these fifteen cases which recovered adhesions were noted as present, either slight or extensive; while in the five fatal cases adhesions were very extensive and troublesome in two cases, were very slight in one case, and were entirely absent in one; in the remaining fatal case (XII, Dr. Briddon's) the transcript makes no statement about adhesions. Of the five deaths, three occurred either on the table or within a few hours as a result of syncope (shock). One (XIV) occurred in two days, the exact condition not being stated; and one in seven days (XXIV) as a result of intestinal obstruction.

In two of the fifteen successful cases, preliminary tapping was done a few days before operation, seventy-five pounds of fluid being so withdrawn in one case, the amount not stated in the other. Of the five fatal cases two were tapped beforehand, seventy-five pints being withdrawn in one case and one hundred and thirty-two pounds in the other.

These considerations are interesting, but are unavailing in so far as they might be expected to throw any light on the most important question in connection with this subject,—viz., the wisest and safest method of dealing with mammoth tumors. It is to be hoped and believed that, for the future, fewer and fewer of these tumors will succeed in eluding the surgeon's knife at a time when they can be very simply and safely dealt with.

Manifestly but three methods of dealing with these tumors present themselves. (1) Immediate extirpation; (2) preliminary tapping, followed in a short time by extirpation; (3) tapping repeated as often as necessary to relieve uncomfortable distention.

Most surgeons will doubtless remain sufficiently radical in their feelings to prefer the risk of immediate death at their hands, combined with the possibility of complete cure, rather than the martyrdom to a colossal cyst which would require frequent tappings. Nevertheless, it is possible for a woman to reach a good and ripe old age under these circumstances. Dr. Ap. M. Vance, of Louisville, has reported a most remarkable case of this kind. The woman began to be tapped at the age of thirty-four years, and this was repeated at intervals until death overtook her at the age of eighty. In all, she was tapped 179 times. While under Dr. Vance's observation, an average tapping measured twelve gallons. It was always a very heavy, mucilaginous fluid, and would have averaged at least ten pounds in weight to the gallon. So at each tapping about 120 pounds of fluid were withdrawn. Assuming that the amount all along had been about the same, we find that this woman, during forty-six years of her life, produced and was relieved of the astounding quantity of 21,480 pounds of this fluid. On the other hand, many women soon succumb to such a fearful drain, as illustrated by Case III, the woman dying in three years after 487 pounds of fluid had been withdrawn.

While these cases reported do not distinctly show it, it must be true that extensive adhesions compromise severely the probability of recovery. Unfortunately, the extent of adhesions cannot be determined beforehand. And even if such determination could be made, the choice of method would still remain an open one for the individual judgment. The extent of adhesions can only be determined after the operation has been begun, as in Dr. Cartledge's case (XXIV). In this case, after the extent of adhesions had been determined, the operation had so far progressed that desistance would necessarily have been fatal, and so it had to be pushed to a radical conclusion.

Under such circumstances marsupialization, as recommended by Pozzi, Pean, and Spencer Wells, could scarcely be considered. The process which would be essential for the obliteration or casting out of the sac in such mammoth tumors would necessarily terminate fatally.

In so far as any conclusions can be drawn from a study of these twenty-four cases, the following are submitted :

(1) The fatality from such tumors is directly proportioned to the size of the tumor.

(2) Extensive adhesions to the parietes and viscera militate against successful operations, but are second in importance to the size of the tumor.

(3) Preliminary aspiration, followed by extirpation in a few days, is apparently no safer than immediate operation.

(4) Marsupialization is contraindicated in tumors of mammoth proportions.

(5) Successive tappings are sometimes tolerated over a long period of years, but lead ordinarily to exhaustion and death in a comparatively short time,—a few years.

(6) When death occurs after operation, it is most apt to be immediate, within a few hours, as the result of shock. If this first danger is passed safely, the fatal issue is apt to be the result of obstruction of the bowel, especially in those cases where extensive adhesions are present.

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November 2.—Since writing the above, a twenty-fifth case has been communicated to the writer by Dr. A. H. Cordier, of Kansas City, Missouri The patient was a mulatto woman, very much emaciated, and with an enormous tumor, weighing 165 pounds. Operation and complete extirpation were followed by death.