TEN CASES OF OVARIOTOMY IN WOMEN
OVER 70 YEARS OF AGE.

BY

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OVARIOTOMY on women over 70 years of age is so uncommon as to justify the publication of a complete series of cases. The advanced age of the patients introduces pathological, clinical, and therapeutical features which are worthy of consideration.

The following ten cases have been met with amongst 625 ovariectomies I have performed.

CASE I.

M. A. F., aged 82½ years. This case was published in the *BRITISH MEDICAL JOURNAL* in 1893 (ii, 1271). The patient was, so far as I know, the oldest upon whom ovariectomy had been performed up to that time, except Homans's patient, who was apparently a few weeks older. The tumour was a multilocular cyst of the size and shape of a cottage loaf. There was some mental wandering, bronchitis, and loss of control of faeces and urine during convalescence; but a good recovery ensued and the patient was in excellent health eleven months later. The patient's mother died at the age of 76, two sisters at 70, and one was still living at the age of 79.

CASE II.

E. F., a widow aged 71, who had had fifteen children, two miscarriages, was admitted to University College Hospital on May 10th, 1898, complaining of enlargement of the abdomen and prolapse of the womb for four years, and of a dirty vaginal discharge, sometimes tinged with blood, which had been present for some months. For six months she had had difficulty and frequency in passing water; sometimes there was an aching pain in the lower abdomen and back; the bowels were confined.

Menstruation began at 17, was regular, not excessive, and lasted for three or four days; it ceased at 50.

The patient's father and mother died at the age of 78.

The abdomen was greatly distended, the half-girth being 22½ inches on each side, while the measurement from ensiform cartilage to pubes was 20½ inches. A large, evidently multilocular, ovarian tumour distended the abdomen. The vagina was inverted and had a large ulcer on it. The os was healthy. Under treatment by boric acid douches the ulcer gradually healed by July 1st.

On July 11th, 1898, ovariectomy was performed. Ventrifixation was also performed by means of the ligature on the right pedicle, and a second silk ligature passed under the left round ligament, tying the left side of the uterus to the abdominal wall; this ligature was removed on the seventh day. The abdominal incision was closed with silkworm gut passed through the abdominal wall, buried silk for the fascia, and horsehair for the skin. The operation lasted thirty-four minutes.

The tumour was a multilocular ovarian cyst without papilloma or solid growth, and contained 15½ pints of fluid. There was very little shock after the operation; a little sickness occurred at 5 p.m. and 11 p.m. The patient slept a good deal in the evening, was comfortable except for a slight pain in the back, and passed urine spontaneously. Some pain next day was due to pressure of a too tight bandage, and was at once relieved on relaxing the bandage. Flatus was passed on the second day.

The recovery was simple, the temperature only once reaching 100° after the operation. The wound healed by first intention, and the patient left the hospital on August 13th. Seen on October 25th the scar was sound, but there was still procidentia of the vagina and cervix. For a few days after the operation the patient was rather sullen, at a time when she slept badly; but later her spirits became normal.

CASE III.

L. B., a married woman aged 70, who had had two children naturally, was admitted to University College Hospital on May 19th, 1908, complaining of a tumour in the abdomen which she had noticed for six months, increasing in size and accompanied by pain in the lower part of the back; she also had pain on passing a motion except when the bowels were relaxed with medicine. Menstruation had always been regular.

The patient was rather feeble. The abdomen was irregularly distended, chiefly below the umbilicus and on the right side by a cystic tumour which reached up to within one inch of the umbilicus and projected into Douglas's pouch, displacing the small atrophied uterus slightly forwards and to the left. The tumour fluctuated and was evidently a multilocular ovarian cyst.

Ovariectomy was performed on May 25th, the pedicle being tied with silk and the surface of the stump turned in and stitched over with fine silk. The abdominal wall was closed with through-and-through stitches of silkworm gut and buried continuous silk for the peritoneum and sheath of rectus. The operation lasted fourteen minutes. There was no abdominal discomfort or shock, and very little vomiting afterwards. The wound united by first intention.

The temperature rose daily to 100° for the first five days, and in the second week on two occasions reached 101.2°; but after the sixteenth day it did not rise above 99.5° and was normal when she was discharged well on June 30th.

The tumour was a multilocular cyst of the left ovary with no solid growth or papilloma; it weighed 2 lb. 7½ oz. The right ovary was normal and was not removed. No cause for the rise of temperature was discovered; there were no râles in the chest, and no pain or mental disturbance.

CASE IV.

Mrs. B., aged 74 (two children, no miscarriage), was seen by me at New Barnet, in consultation with Dr. Elam, in May, 1914. She had lost a good deal at the menstrual periods, which ceased at the age of 50. At the age of 71 she had a grave attack of hemiplegia, for which Sir Thomas Barlow saw her in consultation. For nearly a year it was thought she would not recover. She gradually got about, but had since suffered from phlebitis in the veins of the arms and legs. Early in 1914 she began to complain of pain in the lower abdomen and of difficulty in micturition and defaecation. A tumour was discovered reaching up nearly to the umbilicus, most marked on the left side. It was fixed, was diagnosed as an adherent ovarian tumour, and was removed (at the patient's house) with some difficulty, on account of the strong adhesions, on May 4th, 1914. In cutting the tumour free the bladder was opened for about two inches and the hole was closed with silk sutures, not involving the mucous membrane. A drainage tube was inserted. The wound healed by first intention, except the track of the drainage tube, which closed quickly by granulation. There was no trouble after the operation.

The tumour was a multilocular ovarian cyst, with no solid growth or papilloma, the cyst having the usual columnar epithelial lining.

The patient remained well for more than six years after the operation, but died of haematemesis, thought to be due to gastric ulcer, when over 80 years of age, on October 15th, 1920.

CASE V.

C. G., a virgin aged 71, was sent to me by Dr. Goulet on February 17th, 1916, complaining of swelling of the abdomen and aching pain for the past six months. Menstruation had ceased at 50. It had not been very regular at first, but became more so later on, and was always attended with a good deal of pain. The patient had lately suffered on most days from vomiting. On six occasions she had had to have a catheter passed for retention of urine. The bowels were confined. She had really had pretty good health; but when a young woman, having a "displacement" of the womb, she was kept in a recumbent position for twenty years, always being carried if she left her room; she suffered much from sickness during this time. The legs were not swollen and she had been getting thinner. A slight cough sometimes troubled her, but there was no expectation. The tumour had been discovered by the doctor a fortnight before I saw her.

The abdomen was greatly distended by a multilocular ovarian tumour considerably larger than a uterus at term. The uterus was small and freely movable, and the lower end of the tumour could be felt in front of the body and movable apart from it.

A multilocular ovarian tumour of the left side which contained neither new growth nor papilloma was removed in a nursing home on February 20th, 1916. The right ovary, atrophied, was not removed. The patient made a simple recovery. The wound healed by first intention. She was in fairly good health in February, 1923, seven years after the operation. A sister is living at the age of 86.

CASE VI.

C. D., aged 70½ years (four children, no miscarriage), was admitted to University College Hospital on July 18th, 1918. Her last child was born thirty years ago. She complained of being suddenly seized with pain in the abdomen when out walking recently. A doctor whom she consulted found an abdominal tumour, which had greatly increased in size during the last month.

Menstruation began at 17 and ceased at 54. It had been regular every four weeks, lasting seven days, unaccompanied by pain. The flow was rather free, fifteen diapers being used; micturition was frequent; the bowels regular. The patient had lost a good deal of flesh lately.

On examination an abdominal (evidently multilocular ovarian) tumour, as big as the uterus at term, reached up to the ensiform cartilage. The uterus was atrophied and movable. Behind and to the left side was a hard tumour, as big as a hen's egg, which appeared to be an ovarian fibroid. The large abdominal tumour could not be felt per vaginam. The case was diagnosed as an ovarian fibroid on the left side and a multilocular ovarian cyst on the right.

The large tumour was found to affect the left ovary when removed on July 20th, 1918, through a four-inch median abdominal incision; on tapping this cyst about a gallon of straw-coloured fluid escaped. The pedicle was tied and stitched over with silk. A small cyst was found in the right ovary, which was also removed. The hard tumour proved to be a subperitoneal calcified fibroid of the uterus and was not removed. The abdominal wound was closed with through-and-through stitches of silkworm gut, continuous silk for the peritoneum, interrupted silk for the sheath of the rectus, and silkworm gut for the skin.

The patient was a little sick after the operation and required the use of the catheter. She made an uninterrupted recovery, and left the hospital on August 12th, 1918.

The tumour was a multilocular cyst, quite smooth on the outer surface and free from adhesions, and showed a few dilated lymphatics; an accessory ostium was present in the Fallopian tube. The inner surface was irregular and covered in places with pigment and thin patches of papilloma up to the size of a sixpence, and in a few places with little solid white growths not bigger than a grain of wheat or a pin's head. There was no extensive mass of papilloma and no other solid growth. The right ovary measured

3/4 by 1 1/2 by 1/4 in. and had two or three small cysts in it free from papilloma.

Under the microscope the wall of the large cyst was fibrous and had undergone hyaline degeneration. The papillomata were covered with a single layer of cubical or short columnar epithelium; the stroma of the thicker papillomata was oedematous and in some places cystic.

I examined the patient on January 23rd, 1923, when she was in excellent health and spirits, with every indication of keeping up the family tradition for longevity. Her parents had lived to over 80, and her grandfather died in his hundredth year.

CASE VII.

I. E., aged 71, was admitted to University College Hospital on December 16th, 1918. She had had two children, no miscarriage. She had been married twice. Her first child died of croup at three months of age; the second was alive and well, aged 41.

Three months previously she noticed a lump in her abdomen, which at first gave her much pain and had increased in size. The pain was now not so severe, being characterized by soreness and aching. She had suffered from a large left inguinal hernia for forty years.

Menstruation began at 12, was regular every twenty-eight days, lasting six days; it ceased at 50. There was no trouble with defaecation or micturition, and no vaginal discharge. Her father died at 74 of "old age"; her mother at 76 of bronchitis; one brother (aged 74) and two sisters were alive and well.

On admission the skin was very dry and the feet cyanosed; the patient was in good general condition. There was a left inguinal hernia nearly as large as a fist, and a very large tumour reaching up into the left hypochondrium, evidently a multilocular ovarian tumour.

Ovariectomy was performed on December 21st, 1918, one large cyst being tapped. The pedicle (left) was tied with silk. The omentum was found to be adherent to the margin of the inguinal sac, which was also occupied by omentum; this was withdrawn, the omentum severed after tying with silk, the opening of the sac, which admitted a forefinger, closed with a silk purse-string suture, and the stump of the adherent omentum tucked over the closed canal. The abdomen was closed with through-and-through stitches of silk-worm gut, fine silk (continuous for the peritoneum and interrupted for the fascia), and silk-worm gut for the skin. The operation lasted fifty-three minutes and was borne well.

The tumour was a multilocular cyst with no solid growth or papilloma.

The patient had no trouble after the operation; the wound healed by first intention. The highest temperature was 100.2° on the second day, and 99.8° after removal of the deep stitches on the eighth day. She left the hospital in excellent health on January 24th, 1919. The inguinal region was normal and free from pain, the abdominal scar sound. The patient was in good health in January, 1923.

CASE VIII.

L. A., a widow, aged 70 (eleven children, no miscarriage), was admitted to University College Hospital on May 2nd, 1919, complaining of an abdominal tumour which she had noticed for four years, and which had grown very rapidly since four months ago, when an attack of pleurisy confined her to bed for five weeks. Menstruation ceased at the age of 48. Her parents had both died at the age of 85.

On admission the patient was fairly strong, and had a considerable amount of dark grey hair. There was a small tumour at the umbilicus (thought to be probably an omental hernia, but actually a small fatty tumour). The abdomen was distended by a tumour reaching up to the costal margin on the right side, and to an inch below the costal margin on the left side. Below and on the left side it was clearly fluctuating; on the right side it was very firm. It was evidently a multilocular ovarian tumour. A large rectocele was present. The cervix was high up, the uterus small and retroverted; the lower end of the abdominal tumour could be felt indistinctly in front. The tumour was removed on May 8th, 1919, through a median incision, which was bifurcated so as to encircle the umbilical tumour. There were no adhesions. The main cyst was tapped and several pints of straw-coloured fluid were evacuated. The tumour was then withdrawn from the abdomen, and the pedicle tied with silk and stitched over with fine silk. The abdominal wound was closed with through-and-through stitches of silk-worm gut, silk for the peritoneum and fascia, and silk-worm gut for the skin. The operation lasted twenty-eight minutes. The left ovary, small and atrophic, was not removed. The patient made a simple

recovery. The temperature reached 99.2° on the second day, 99.8° on the third day, 99.2° on the fourth day, and then did not rise above 99° till the tenth day. On the eleventh day it rose to 100.2°, the highest point reached, and gradually fell to normal on the twentieth day.

The wound healed by first intention; the spirits of the patient remained good throughout. She got up on May 29th, and left the hospital quite well on May 31st, 1919; she was in fairly good health when seen on January 17th, 1923.

The tumour was a multilocular cyst of the right ovary consisting of a large cyst measuring 12 inches in diameter, and a series of small secondary loculi containing inspissated yellowish-white mucus. There were no papillary growths or solid growth in the tumour. A microscopic section of the smaller cysts showed them to be lined with a single layer of columnar epithelium which was thrown into a number of papillary processes mostly simple, in some places branched.

CASE IX.

E. S., aged 70 and two months, was admitted to University College Hospital on June 29th, 1921, complaining of a lump in the lower abdomen which she first noticed four months previously. At first the lump gave rise to no pain, but lately there had been aching in the abdomen. There had been slight bleeding from the bowel at about weekly intervals. There was no vaginal discharge. The patient had had seven children and three miscarriages. The menopause occurred at 45.

The patient has a sister living aged 75. Her mother died at the age of 77, her father at 64 of "dropsy." A sister died at the age of 24 of consumption. There was no history of tumour in the family.

The patient was well preserved for her age, healthy and cheerful. The abdomen was distended and contained a moderate quantity of free fluid. A hard, freely movable tumour could be felt in the lower abdomen lying with its long axis transverse. It could be raised up out of the pelvis, but owing to rigidity and tenderness it was impossible to make out its pelvic attachment. The vagina was senile and was narrowed by bands at its upper part. The cervix was atrophied; the body could not be felt, but the tumour did not appear to be attached to the uterus.

The case was diagnosed as an ovarian fibroid with hydroperitoneum. This was confirmed at the operation on July 2nd, 1921. The tumour weighed

2 lb. 10 oz. and affected the left ovary. The left tube was not removed and was used to cover in the stump of the pedicle. The wound healed by first intention, the highest temperature being 99.6° on the second day.

On the tenth day a small patch of skin under the upper through-and-through stitch (tied over gauze), which had been a little discoloured, showed signs of sloughing. The wound itself remained healed and the surface left by the separation of the skin slough had cicatrized by August 5th. This is the only occasion on which I have seen this occurrence, which was probably due to the stitch having been tied a little too tight. The patient left the hospital quite well on August 5th, 1921.

The tumour was an ovarian fibroid showing two cavities due to degeneration (Fig. 1). One of them, as large as a duck's egg, had ruptured and given rise to free fluid in the abdomen. Microscopic examination showed the tumour to be a very cellular fibromyoma, oedematous in places.

CASE X.

S. S., aged 71 (born on April 25th, 1851), had been married at the age of 21 and lived a married life for thirty-three years, but had never been pregnant. Her father died at 70 in a fit, her mother at 80 from old age. She had had two brothers and seven sisters, two of whom had died of cancer of the breast, and one of cancer "inside."

She was emaciated and very ill when admitted to University College Hospital on October 5th, 1922. She complained of falling of the womb since the previous January, of great frequency of micturition (every ten minutes by day and every hour at night), also of great pain during the act. The abdomen had been swelling lately and there was great pain and tenderness over it. The patient was sick nearly every day and the legs were oedematous. Menstruation began at 17, was regular, slight in amount, and lasted seven days with much pain. The menopause occurred at the age of 40.

On admission the patient was bright and cheerful, considering her grave condition. The breasts were wasted, the tongue dry and glazed, the chest and arms were very thin, the buttocks emaciated, the legs very oedematous and shiny. The abdomen

FIG. 1 (Case IX).—Sector showing remains of ovary and smooth-walled cyst; to right the ruptured cyst. (Three-fifths natural size.)

FIG. 2 (Case x).—Showing a few adhesions and collapsed cyst wall perforated at one spot. (Three-quarter natural size.)

FIG. 3 (Case x).—Section of tumour, showing several cysts; below, partly filled with blood clot, the ruptured cyst. (Three-quarters natural size.)

was considerably distended, and there was a large amount of free fluid in the abdomen. Through this a firm mass could be felt three inches to the right of the left anterior superior spine; another mass could be felt by dipping on the right side, the whole mass reaching nearly up to the umbilicus, and being covered in front by free fluid. A very large rectocele protruded from the vulva and rendered examination of the vagina difficult; but a hard irregular mass fixed to the left pelvic wall was felt to the left of the cervix and in Douglas's pouch. The glands in the groins were not enlarged. The urine (sp. gr. 1010) was free from albumin and sugar.

The case was diagnosed as malignant disease of the ovaries and peritoneum, probably secondary to cancer of the stomach, which was suggested by the wasting and the vomiting, and by the pain and tenderness in the epigastrium. The patient was kept under observation in the ward, and gradually the oedema of the legs disappeared. At the same time the vomiting gradually ceased, and the amount of free fluid in the abdomen lessened, though it still was so considerable as to render palpation difficult. The tongue was rather dry, but fairly clean, and the patient remained cheerful. The temperature, which was 99.6° on the day of admission, and 99.4° the next day, was afterwards usually about 98°, and only reached 99° on one occasion during her long stay in the hospital. The pulse beat was about 93. The patient had been in the hospital for two months, but except for the extreme emaciation she had improved; especially the disappearance of the oedema of the legs was regarded as a good sign. She weighed 7 st. 7 lb. on admission, 7 st. on November 9th, and the same on November 28th. On that day, on examining the abdomen, I thought the hard abdominal tumour moved as one large mass from side to side, floating in the fluid though anchored below; and, as such a tumour could hardly be malignant, I diagnosed it as an ovarian fibroid which had probably ruptured.

At the operation on December 2nd, 1922, this was found to be the case. On incising the abdominal wall several pints of free fluid escaped and the large tumour was found to be free from adhesions except in Douglas's pouch, where two cystic portions had ruptured and led to adhesions there. They were separated without difficulty, leaving a layer of mucoid exudate at the bottom of Douglas's pouch, and the tumour was removed. It occupied the right ovary and its pedicle was adherent to the mesentery of the appendix, which lay in the small pelvis, but was apparently healthy. The pedicle was tied and stitched over with silk; the adhesion to the meso-appendix was also ligatured, and a string-like band which passed from the small intestine towards the fundus of the bladder was tied and excised. The uterus and left ovary were atrophied and were not removed. The wound was stitched with through-and-through stitches of silkworm gut, silk (continuous for the peritoneum and interrupted for the fascia) and silkworm gut for the skin. The operation lasted forty minutes. The anaesthetic was open ether.

The recovery after the operation was ideally simple. The wound healed by first intention and the temperature was normal or subnormal throughout the convalescence. The patient got up on December 27th and left the hospital quite well on January 3rd, 1923.

The tumour was hard, rounded, somewhat triangular, and flattened, measured 7 in. by 7 in. by 3½ in. and weighed 3 lb. 6½ oz. It had some small prominences on the surface and was irregularly depressed where the larger ruptured cyst lay. The tumour

was dusky red in places, especially below (where it had ruptured), and had several large veins coursing over its surface. At two places near the surface it had become cystic, one of the cysts being as big as a duck's egg, the other as big as a grape. Both these had ruptured, causing adhesions which were visible in the neighbourhood (see Fig. 2). The collapsed wall of the larger cyst lay in a depression of the tumour, and the rupture might have escaped notice on superficial examination; but the collapsed cyst could be picked up with the point of a needle, and by introducing a fine hollow needle into the cyst through the solid part of the tumour and injecting fluid the cyst and the hole in its wall were easily demonstrated.

On section through the tumour it was found to have the typical structure of an ovarian fibroid, degenerated in several places; the degeneration had advanced to the extent of forming a considerable irregular cavity in the middle of the tumour filled with jelly-like contents and having an irregular wall with bridges of tissue crossing it (Fig. 3). Another cyst near the surface as big as an almond had a smooth and slightly blood-stained wall. In addition the large cyst which had ruptured was partly filled with blood clot and the smaller ruptured cyst exuded clear yellow fluid. A section at the hilum showed the tumour sharply demarcated from the normal ovarian tissue. There was an accessory ostium in the Fallopian tube.

Microscopic examination showed the tumour to be a fibromyoma, being mostly composed of bundles of muscular tissue which had undergone hyaline degeneration and in places was oedematous or liquefied into cysts. The ovarian tissue at the hilum had also undergone marked hyaline degeneration.

Frequency of Ovariectomy in Women over 70 Years of Age.

The above 10 cases occurred amongst 625 cases of ovarian tumour operated on by me, the frequency being 1.6 per cent. They are the only cases I have seen—that is, every case seen has been operated on.

Amongst Spencer Wells's¹ first 500 cases there was no patient over 70; amongst his second series of 500 two cases (aged 70 and 77) occurred; one of them died from the operation. No doubt a selection of cases for operation had been made, as was not unusual in the early days of ovariectomy. Spencer Wells's percentage of frequency, as the figures stand, is 0.2 per cent., or a little more, for in 15 cases of his second series of 500 the age is given.

Howard Kelly² published 5 cases of ovariectomy in women over 70 years of age which occurred amongst 150 cases; one of these, however, was only an exploratory operation, was operated upon on May 2nd, 1896, and was published as a "recovery" ten days later; there were thus only 4 cases in which the patients were over 70 years of age in 150 ovariectomies (2.6 per cent.).

At the Würzburg clinic³ amongst 100 cases of ovariectomy, and at the Jena clinic⁴ amongst 257, making together 357 cases, there was no patient over 70 years of age.

Ten Cases of Ovariectomy in Patients over 70 Years of Age.

Initial.	Age.	Children.	Abortions.	Duration in Minutes.	Date.	Side.	Drainage.	Fascia Stitched.	Adhesions.	Operation.	Recovered.	Remarks.
M. A. F.	82	5	0	17	Dec. 19, 1891	L.	No	No	A few shreds on right side	L. ovariectomy	Yes	L. ovarian tumour, pedicle twisted 1½ turn; R. ovary normal, not removed. Anaesthetic, gas and ether.
E. F.	71	15	2	34	July 11, 1896	R.	No	Yes	No	R. ovariectomy and hysteropexy	Yes	Enormous R. ovarian cyst with procidentia uteri; pedicle tied to abdominal peritoneum and a ligature passed through abdominal wall around L. round ligament. Anaesthetic, gas and ether.
L. B.	70	2	—	14	May 28, 1908	L.	No	Yes	No	L. ovariectomy	Yes	Patient very feeble; operation very easy. Tumour size of ostrich egg. R. ovary normal, not removed. Anaesthetic, chloroform.
B.	74	2	0	45	May 4, 1914	L.	Tube three days	Yes	Dense to abdominal wall and bladder (opened)	L. ovariectomy	Yes	Patient had severe attack of cerebral apoplexy 3 years before; was ill for 5 months and thought on many occasions to be dying. R. ovary normal, not removed. Anaesthetic, ether. Died of haematemesis, Oct. 15th, 1920.
C. G.	71	0	0	20	Feb. 20, 1916	L.	No	Yes	No	L. ovariectomy	Yes	Virgin. Large left multilocular cyst size of uterus at term noticed 6 months; no solid growth, no papilloma. R. ovary small, not removed. Anaesthetic, ether. Living in fair health in February, 1923.
C. D.	70	4	0	25	July 20, 1918	L. R.	No	Yes	No	Bilateral ovariectomy	Yes	L. multilocular cyst size of uterus at term; calcified fibroid in uterus. R. ovary small, cystic, removed. Anaesthetic, ether. In good health, January, 1923.
I. E.	71	2	0	53	Dec. 21, 1918	L.	No	Yes	To omentum and abdominal wall; of omentum to sac of hernia	L. ovariectomy and herniotomy	Yes	Large multilocular cyst with no solid parts or papilloma; omentum in left inguinal canal reduced, adherent to mouth of sac (closed by purse-string suture). Anaesthetic, chloroform and ether. In good health, January, 1923.
L. A.	70	11	0	28	May 8, 1919	R.	No	Yes	No	R. ovariectomy	Yes	R. large multilocular cyst (no solid growths or papilloma). L. ovary normal, not removed. Anaesthetic, chloroform followed by (closed) ether. In fairly good health, January, 1923.
E. S.	70	7	3	32	July 2, 1921	L.	No	Yes	No	L. ovariectomy	Yes	L. ovarian fibroid (2 lb. 10 oz.), ruptured, free fluid in abdomen. Patient in good condition, cheerful. Anaesthetic, ether. In good health, February, 1923.
S. S.	71	0	0	40	Dec. 2, 1922	R.	No	Yes	To Douglas's pouch and mesentery of appendix	R. ovariectomy	Yes	R. ovarian fibroid (3 lb. 6½ oz.), ruptured, free fluid in abdomen. Patient very emaciated, cachectic, but cheerful. Anaesthetic, ether.

Until ovariologists publish the whole of their cases it will be impossible to give the frequency of ovariectomy in women over 70 years of age. Its rarity may be inferred from the fact that Wiel⁵ was (in 1905) only able to collect 130 published cases.

Age of the Patients.

The age of my 10 patients varied from 70 to 82.

In 1851 Bland-Sutton⁶ published a list of 22 cases of ovariectomy performed by various operators on patients over 70 years of age. In 1895 Remfry⁷ published a case and collected a list of 10 cases of ovariectomy performed on patients over 80 years of age. The oldest patient operated on was Thornton's at the age of 94.

These lists have been enlarged by Wiel⁸ (in 1905) to 130 cases for women over 70, including 14* (all successful) for women over 80. The cases now recorded will bring the list for patients over 70 up to 139 (my first case, aged 82, appeared in Wiel's list of women over 80).

In the museum of University College Hospital (Gynaecological Specimen No. 452) is a multilocular ovarian tumour which was removed by Dr. Blacker from a patient aged 92½ years; the patient died of acute bronchitis on the eighth day. This case, with the 7 additional cases mentioned below under the heading "Nature of the Tumour," brings the total list for patients over 70 to 147. Amongst these additional operations are Pfannenstiel's⁹ (for fibroma) at the age of 83, v. Mars's¹⁰ and Peadeleu's¹¹ (post-mortem specimen) at the age of 82, Küstner's¹² at the age of 86, making in all 17 cases of ovariectomy in women over 80 with one death (5.8 per cent.).

The small number of the cases on record at the advanced age of over 80 does not permit us to obtain the true percentage mortality, which is probably not less than that for patients over 70; but it is satisfactory to find that even at this advanced age the operation can be undertaken with a good chance of success.

Seventeen Cases of Ovariectomy in Women over 80 Years of Age.

Author.	Patient's Age.	Tumour.	Result.	Reference.
Schroeder ...	80	Multilocular cyst	Recovery	Handb. der Krank. d. Weib. Geschlechtsorgane, 1889, p. 512.
Richardson...	80	Ditto	Ditto	British Medical Journal, 1894, i, p. 523.
Pjippingeköld	80	Ditto	Ditto	Finska Läkares. Hand., 1884.
H. Smith ...	81	Cyst	Ditto	Lancet, 1891, i, p. 1618.
Edis ...	81	Multilocular cyst	Ditto	Brit. Gyn. Journ., 1892, p. 162.
Cartledge ...	81	Ditto	Ditto	Trans. South. Surg. and Gyn. Assoc., x, 153.
H. R. Spencer	82	Ditto	Ditto	British Medical Journal, 1893, ii, 1271.
Homans ...	82	Ditto	Ditto	Boston Med. and Surg. Journ., 1888, cxvii, 454.
v. Mars ..	82	Ditto	Ditto	Frommel's Jahrb., 1901, p. 230.
Remfry ...	83	Cyst	Ditto	Trans. Obstet. Soc., xxxvii, 155.
Pfannenstiel	83	Fibroma	Ditto	Veit's Handb., Bd. IV, i, 318.
Kraft ...	84	Cyst	Ditto	Hospitalskunde, Copenhagen.
Bush ...	81	Ditto	Ditto	British Medical Journal, 1891, ii, 67.
Owers ...	86	Ditto	Ditto	Lancet, 1895, i, 542.
Küstner ...	86	Ditto	Ditto	Deut. med. Woch., 1902, 285.
Blacker ...	92	Multilocular cyst	Died*	Univ. Coll. Hosp. Catalogue of Gynaecological Specimens, 1911, No. 452.
Thornton ...	94	Cyst	Recovery	Trans. Obs. et. Soc., xxxvii, 152.

* Death from acute bronchitis on the eighth day.

Fertility of the Patients.

One of the patients was a virgin; another had never been pregnant, though living a married life for thirty-three years from the age of 21. The other 8 patients all had children—43 in all, an average of over 5 children; one (Case ix) in addition to 7 children had had three miscarriages; Case ii had had 15 children, Case viii 11 children. The sterile married patient (Case x) had (like Case ix) a large ovarian fibroid. It is probable that this had nothing to do with the sterility, for I have published three cases of pregnancy

* Owens's first case has been erroneously included amongst the octogenarians by Wiel; she was 73 years and 10 months old at the time of operation. The age of Owens's (second) case is given by Bland-Sutton, Remfry, and Wiel as 87; it should be 86.

complicated with ovarian fibroids.¹³ One of these had bilateral tumours; this controverts Pfannenstiel's¹⁴ statement that ovarian fibroids when bilateral "naturally are associated with sterility."

Complications.

Three of the patients suffered from procidentia or rectocele, one from inguinal hernia, two from ruptured cyst in an ovarian fibroid.

Adhesions were met with in four cases. In one of these (Case iv) they were very dense, and in separating them the bladder was opened. This patient had recovered from a severe attack of cerebral apoplexy, and is an instance of tolerance of a severe operation by a woman of 74. A much more remarkable instance of this tolerance was published by I. Boeckel¹⁵ of Strasbourg. His patient was 73 years of age and had ovariectomy and resection of intestine performed for a suppurating tumour which had been tapped fifteen times: partial gangrene of the bladder resulted in a fistula, which was operated on and cured.

Nature of the Tumour.

All the ten tumours were benign. Eight were multilocular cysts: one of these (No. 6) had small patches of papilloma on its inner surface; the others were free from papilloma or solid growth. The ninth and tenth cases had an ovarian fibroma, which in each was degenerated and ruptured. Adding my nine unpublished cases to the table of Wiel's cases we get:

	Cases.
Multilocular cysts ...	12
Unilocular cysts ...	24
Papillomatous cysts...	9
Fibroma...	6
Parovarian cysts ...	4
Carcinoma ...	4
Dermoid cysts...	2
Sarcoma ...	1
Tuberculosis ...	1

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If we add 7* cases omitted from Wiel's list or appearing since its publication (of which 2 were fibroma and 3 were cysts, and in 2 the nature of the tumour is not ascertained) it will be seen that no less than 108 of the 130 cases were ovarian cysts; 4 were parovarian cysts and 2 were dermoids, 8 were fibromata, 4 were carcinomata, and 1 was a sarcoma. Thus only 5 tumours were malignant, or about 4 per cent., which contrasts with a percentage of malignancy about six times as great in ovarian tumours generally. The lower frequency of malignancy in women over 70 years of age is of importance in enabling us to decide more confidently on removal of the tumours. It will be noticed that the frequency of fibroma is very high (over 6 per cent.), while the frequency of dermoids is very low (under 2 per cent.).

List of Eight Cases of Ovariectomy for Fibroid of Ovary in Women over 70 Years of Age.

Author.	Patient's Age.	Remarks.	Reference.
Löhlein ...	70	Fibroma of right ovary size of man's head; ascites	Kelly and Sherwood, Johns Hopkins Hosp. Rep., iii, p. 530.
McCann ...	73	Fibroma of right ovary; no ascites	British Medical Journal, 1913, i, 127.
Terrier ...	77	Fibroma both ovaries; ascites	Prog. méd., 1888, p. 466.
Morison ...	72	Multilocular cyst of right ovary, fibroma of left ovary size of walnut	Lancet, January 21st, 1893, p. 135.
Pfannenstiel	83	Fibroma removed under local anaesthesia	Veit's Handb. d. Gyn., 1918, Bd. IV, i, p. 318.
Löbl ...	73	Fibroid ossified; had a cyst reaching to navel*	Arch. f. Gyn., Bd. VI, p. 191.
H. R. Spencer	70	Fibro-myoma, cystic, ruptured; ascites	Present publication.
H. R. Spencer	71	Fibro-myoma, cystic, ruptured; ascites	Present publication.

* Died of septic peritonitis; the remaining seven cases recovered.

The Prognosis of the Operation.

All my ten cases recovered.

Wiel¹⁶ gives a list of 130 cases of ovariectomy in patients over 70, with 16 deaths from the operation. He gives the

* Löbl's (73, a fibroma), quoted by Macan, BRITISH MEDICAL JOURNAL, 1903, i, p. 127. Wechsberg's (73), Wien. klin. Woch., 1904, xvii, 24. Pfannenstiel's (83, a fibroma, and 73), v. Mars's (82), Küstner's (83), loc. cit. Peadeleu (82), Marneille méd., 1903, xi, 756. Of these Löbl's (a fibroma) died; thus the mortality rate of "1 in 8" is not appreciably altered by these additional cases.

mortality rate as 12.3 per cent., but, as the result was not mentioned in 4 cases, there were really 16 deaths in 126 cases = 12.6 per cent.; adding my 9 hitherto unpublished cases and the patient of 92½ mentioned above, gives 136 cases with 17 deaths, or 12.5 per cent.—that is, 1 patient in 8 died from the operation.

If all the cases operated on had been published it is possible that the mortality would be higher; for if we take Kelly and Sherwood's table¹⁷ of those ovariectomists who have published at least 5 cases and add my cases we get the results shown in the following table:

Operation.	Cases.	Deaths.	Remarks.
Halliday Croom ...	6	2	One had cancer of uterus; the other was a parovarian cyst.
I. Homans ...	12	3	One was a sarcoma, the other benign.
A. Martin ...	5	1	Embolism.
Werth ...	5	0	
H. R. Spencer ...	10	0	
Together ...	38	6	A mortality rate of 15.7 per cent.

The mortality is shown in Wiel's table¹⁸ to be very high in malignant cases (which are fortunately rare), 4 out of 5 cases having succumbed; and in parovarian cysts, 2 out of 4 having died. One of the 8 cases of fibroma died (12.5 per cent.). The low mortality of the 17 recorded cases over 80 years of age (5.8 per cent.) has been already mentioned.

Remarks on Ovariectomy in Old Women.

These patients having outlived the allotted span of life show in their own persons a constitution of more than usual strength and in their family histories a tendency to longevity. If their organs are sound and the patients are not too fat they are good subjects for operation, especially if they are of a cheerful temperament.

The special points to be borne in mind in operating are their waning strength, their tendency to mental disturbance, and their liability to bronchitis and pneumonia. With regard to the anaesthetic, I think infiltration and spinal anaesthesia are generally unsuitable, as liable to upset the patient's mental equilibrium, though Igel,¹⁹ Wechsberg,²⁰ and Pfannenstiel²¹ have published very successful cases operated on under local anaesthesia, which offers many advantages for a simple ovariectomy in a courageous patient. I think ether is usually preferable to chloroform unless bronchitis be present. I should prefer to postpone operation if the weather were severe. The operation should be performed as rapidly as possible, with due regard to careful suturing. In case of urgency the abdominal wall may be sewn up with through-and-through stitches of silkworm gut by what I call the "reversed-B" suture, the loop of the B apposing the cut edges of the sheath of the rectus. This shortens the operation by several minutes, ensures good apposition of the fascia, and leaves no buried stitch. The head of the patient's bed should be screened from draughts, and the bed should be warmed. Old patients bear cold badly. When King David was old and stricken in years, though they covered him with clothes, yet he got no heat.²² The patient should be propped up in bed to prevent hypostatic pneumonia, and sedatives (not morphine) should be given, preferably by the rectum, if sleeplessness occurs.

It is fortunate that malignant tumours are rare in these patients, and a consideration of the results of ovariectomy for benign tumours in women over 70 years of age shows that the operation may be undertaken without selection of cases with every prospect of success, and the patients may survive beyond the fourscore years of the psalmist, and yet their days may not be "but labour and sorrow."

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- ¹¹ Loc. cit.
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- ¹³ Tumours complicating Pregnancy, etc., 1921, and Proc. Roy. Soc. Med., 1909, 11, p. 231.
- ¹⁴ Veit's Handbuch d. Gyn., 1908, Bd. IV, p. 319.
- ¹⁵ Congrès de Gyn., d'Obstet. et de Pédiat., Bordeaux, 1895, p. 71.
- ¹⁶ Wiel: Loc. cit.
- ¹⁷ Kelly and Sherwood: One hundred cases of ovariectomy performed on women over 70 years of age, Johns Hopkins Hosp. Reports, vol. iii, 1894.
- ¹⁸ Loc. cit.
- ¹⁹ Journ. Amer. Med. Assoc., September, 1905, p. 852.
- ²⁰ Wien. klin. Woch., 1904, xvii, 1244.
- ²¹ Loc. cit.
- ²² 1 Kings i, 1.

Hunterian Lectures

ON

MAN'S POSTURE: ITS EVOLUTION AND DISORDERS.

GIVEN AT THE ROYAL COLLEGE OF SURGEONS OF ENGLAND

BY

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[Abstracts.]

LECTURE IV.—THE ADAPTATIONS OF THE ABDOMEN AND OF ITS VISCERA TO THE ORTHOGRADE POSTURE.

VERY early in my inquiries I became impressed by the fact that in the anthropoid or orthograde apes the viscera of the abdomen were very human in shape and arrangement, and that they were fixed to the walls of the cavity in almost the same manner as they are in the abdomen of man. On the other hand, a distinctly different pattern prevailed in the bellies of pronograde monkeys, even in the higher kinds, which are most akin to the gibbons in point of structure. It became apparent, then, as we have seen to be the case with the spine and with the thorax, that the chief of these features in the human abdomen which we recognize as postural adaptations came into existence at that remote period when the gibbon type of anthropoid was evolved; these postural adaptations became further perfected with the appearance of the great anthropoid type, and reached their culmination in the human body with the evolution of the plantigrade mode of progression.

HOW ARE VISCERA SUPPORTED?

At the time I was making these inquiries my conception of the mechanism which supported and kept the abdominal viscera in place was crude and mechanical. I supposed that when we stood up the organs within the abdomen were suspended by their mesenteries much as our coats hang from pegs within a wardrobe. I accepted a belief, then widely current, that in the erect posture a negative pressure or suction arose under the diaphragm and that thus the pressure of the atmosphere assisted in visceral support. Soon after I went to teach anatomy at the London Hospital in 1895 a series of events happened which showed that the mechanism involved in supporting the abdominal viscera was infinitely more complex than had been generally supposed. My attention had been attracted by certain dissecting-room subjects in which the abdominal organs were placed at an abnormally low level, as if their supports had given way. Of 71 subjects I found 10 in which the diaphragm and the organs within its domes were 2 inches or more below what was the usual level; in 15 other subjects there was a partial dropping of the viscera. My friend Dr. Christopher Addison, who had not then taken on the cares of statesmanship, had published very exact observations on the position of the abdominal viscera of 40 subjects; in 2 of them the upper abdominal viscera had dropped downwards to a marked extent, in 10 there was present a condition of partial prolapse affecting one or more organs. Then, when I was regarding this matter as one of merely anatomical interest, there appeared, in 1899, Dr. Franz Glénard's great volume entitled *Les Ploies Viscérales*; he had become interested in the sagging of the abdominal viscera from a clinical point of view as early as 1885; in the patients who crowded to Vichy for the cure of dyspepsia and neurasthenia he found the condition of enteroptosis to be very common. In seeking for an explanation of how the dropping of viscera came about I turned to the out-patient department of the London Hospital, where an x-ray apparatus had been installed at an early date. It was possible then for all of us to examine the position of viscera in the thorax and abdomen of the living—particularly the organs which occupy the domes of the diaphragm. It became clear to everyone then that the viscera in the upper segment of the abdomen formed part of a respiratory piston. The upper end of the piston is covered by the diaphragm. When that muscle contracts during inspiration the upper end of the piston moves in a downward and forward direction; the piston is returned by a contraction of the muscles of the belly wall; the visceral piston is not only supported by muscles, it is delicately poised, in all phases of respiration, between the opposing