

quicken; he had crepitations at his right base, and he died in twenty-four hours. A limited *post-mortem* examination only was allowed.

Post-mortem Findings.

The lower lobe of his right lung was found to be in a state of acute congestive engorgement.

Commencing at the ileo-caecal junction the collapsed ileum was traced proximally. A length of 1½ feet of collapsed ileum lay free in the peritoneal cavity between the lower right side of the sac and the collapsed caecum, and then passed through an aperture into the hernial sac; this aperture admitted two fingers, was situated on the right side of the sac, and faced to the right; it was at the level of the third lumbar vertebra; through it passed only this one piece of bowel. The rest of the small intestine and the mesentery had been all contained in the sac. The entering piece of bowel into the sac was found to consist of the uppermost part of the jejunum; the duodeno-jejunal flexure had not emerged into the general peritoneal cavity as usual, but had been, or rather its peritoneal covering had been, involved in the upper anterior sac wall; for a distance of two inches it was part of the wall, and then gradually became freer and freer, until it finally emerged free into the interior of the sac. About this level the transverse mesocolon arched horizontally over the sac; a finger could be easily passed under this, between it and the sac wall, and swept from side to side, a distance of three inches; it had a free, rounded, thickish edge; it looked like, and had acted as, a band constricting the sac—the more distended the sac, the greater the constriction. The fingers in the sac, passed upwards beyond the level of the duodeno-jejunal flexure (in the wall of the sac), showed that the sac cavity extended upwards behind the pancreas, which, like the duodeno-jejunal flexure, was an integral portion of the anterior sac wall in this region; at the upper margin of the pancreas the sac cavity ended, the peritoneal covering of the posterior surface of the pancreas fusing with that of the posterior abdominal wall. When the hernial sac was removed for preservation as a specimen, the duodenal flexure and a portion of the pancreas had to be removed also. In the developing pancreas, when it is completely covered with peritoneum, and after it has completed its rotation to its final position, the posterior surface of the pancreas, with its peritoneal covering, lies against the posterior abdominal wall covered by its peritoneum; normally these two layers fuse together, and the intervening space is obliterated; in this case, for a distance of three inches across its middle, fusion had only taken place at the upper border, the remaining unobliterated space going to make part of the hernial sac.

Tracing the anterior wall of the sac downwards it extended as low as the promontory of the sacrum, where, after curving round its contents, it passed upwards, lying on the posterior abdominal wall and its covering peritoneum, until it reached the mesentery, to which, half an inch from its base of attachment, it was fused in a very definite thickened white line of fusion. The mesentery had a smaller line of attachment than usual; the margins of the sac were spread out on each side to the sides of the spinal column; the inner surface of the sac was smooth and shiny; the posterior abdominal wall, covered by its peritoneum, was the posterior wall of the hernia.

Remarks.

Thus the small intestine with its mesentery was not, as is normally the case, free in the general peritoneal cavity, but was confined in a space at the back of the abdomen. It would appear that through an error in development an adventitious fold of peritoneum extended down from the duodeno-jejunal flexure and became fused below to the peritoneum covering the inferior leaf of the mesentery. The small intestine, mesentery, and posterior abdominal wall had their usual peritoneal covering; this space was a closed cavity, except for the aperture giving exit to the ileum; the duodeno-jejunal flexure, instead of emerging from behind the peritoneum into the general peritoneal cavity, emerged into this compartment. The posterior wall was a fixture, and could not expand; the anterior wall could, and did so, in every direction except at its upper end; but here the pressure of its contained bowel kept open the space between the left central portion of the pancreas and the corresponding portion of the posterior abdominal wall, each being covered with its own layer of peritoneum. These normally fuse together. In this region, also, the normal development of the transverse mesocolon was interfered with; it remained in its central portion as a bridge passing over the sac.

For sixty-six years the small bowel had functioned satisfactorily, enabling the patient to carry on his arduous duties without any great disability; but, finally, an indiscretion in diet had fired the mine and converted the potential stricture into an actual one, and a vicious circle was set up between an ever-increasing distension of the sac and an ever-increasing pressure of the bridge.

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

BY

LESLIE WILLIAMS, M.D., M.S., F.R.C.S.,

SURGEON TO OUT-PATIENTS, QUEEN CHARLOTTE'S HOSPITAL, AND THE SAMARITAN HOSPITAL FOR WOMEN; CHIEF ASSISTANT TO THE OBSTETRIC UNIT, UNIVERSITY COLLEGE HOSPITAL.

OWING to the comparative rarity of the operation of ovariectomy in women over 70 years of age the following two cases which were under my care in the "unit" beds of the new obstetric hospital, University College Hospital, seem worthy of publication. Including the 10 cases published by Dr. H. R. Spencer¹ in 1923, 147 such cases of ovariectomy had been recorded up to that date. Since then the records of the following 8 cases have been found in the literature. For assistance in this search I am indebted to Mr. Malkin, the second assistant on the obstetric unit.

In the following list I have not included the 4 cases of malignant ovarian tumours in women over 70 years of age found among 13,259 cases admitted to the University Hospital, Philadelphia,² for it is not stated whether they were operation or *post-mortem* specimens.

Cases found in the Literature since 1923.

Tixier, L., and Pollosson, E.: *Gynéc. et Obstét.*, 1925, tome xi, observation vii. Mme M., aged 73. Right ovariectomy, February, 1924.

Moulonguet-Dolérès, P.: *Gynéc. et Obstét.*, 1924, tome ix, observation v. Patient aged 70. Hysterectomy and ovariectomy; serous cyst of left ovary.

Reynes, H.: *Marseille-méd.*, 1924, lxi. Patient aged 74. Laparotomy; recovery.

Koucky, J. D.: *Annals of Surgery*, 1925, lxxxi. Mentions one ovarian dermoid occurring in the decade 70-79.

Pribram, E. E.: *Zeit. f. Geburtsh. u. Gynäk.*, 1924-25, lxxxviii. Three cases. (1) Frau Th. L., aged 70. Left ovariectomy, 1921. (2) Frau L. W., aged 70. Left ovariectomy, 1920. (3) Patient aged 70. Ovariectomy. (These three cases do not appear in Dr. Spencer's "extra cases.")

Isbruch: *Zentralbl. f. Gynäk.*, 1926. Frau L. F., aged 70. Right ovarian dermoid removed together with uterus and left appendages, December, 1923. (This case is also mentioned by R. Mayer: *Zentralbl. f. Gynäk.*, 1925.)

The Author's Cases.

CASE I.

E. S., aged 75. A married woman who had had seven children, the last confinement being at 39 years of age, was transferred from the surgical wards of University College Hospital to the New Obstetric Hospital on August 6th, 1926. There had been no miscarriages, and the menopause occurred at 50 years of age.

She complained of constant pain in the lower part of the abdomen for the past week. The pain first began at night, waking her up, and had recently been steadily increasing in severity. Up to five months before admission micturition had been normal, but during the last few months urine had frequently been passed involuntarily in small quantities.

The abdomen was distended, resonant to percussion in the flanks, but dull in the umbilical and hypogastric zones. A tender cystic tumour could be felt rising out of the pelvis and reaching to 1½ inches above the umbilicus. No fluid thrill could be obtained.

On vaginal examination it was found that the cervix had been pulled up to a high level, and the pelvis felt empty. The diagnosis of twisted ovarian cyst was made and ovariectomy recommended.

The patient, who was a cheerful and intelligent woman, asked for time to consider if it was "worth it" at her age, and to consult her husband; but the pain increased, and she soon decided to undergo the operation.

On August 10th ovariectomy was performed under chloroform anaesthesia. Some little difficulty was experienced owing to the friable nature of the pedicle, but the operation was completed in twenty minutes, the cyst being removed intact. Contrary to my usual custom, I used catgut in suturing the abdominal wall (I was trying catgut on a series of cases at that time)—continuous for the peritoneum and three sections of continuous suture for the fascia. The skin was united by clips and an anchored dressing fixed by deep "through-and-through" silkworm-gut sutures.

The specimen consisted of the left tube and mesosalpinx, together with an ovarian cystadenoma measuring 8 by 9 by 8 inches, which contained 4 pints 10 ounces of dark-coloured fluid. The cyst wall was mostly thin, but in one moderately large area the wall was heavily infiltrated with blood and measured 1 inch in thickness. The remains of broken-down septa could be seen on the inner surface of the cyst, but there were no papillomata.

The microscopic sections are of very little interest, and show chiefly fibrous tissue infiltrated with blood.

The patient made an uninterrupted recovery, the temperature never rising above 99.2°.

Without borrowing too much from the above-mentioned article by Dr. Spencer, it may be of interest that this case is similar in several points to some of those he mentions. Thus he points out that malignancy is rare (4 per cent.); that the cheerful woman who is not too fat is a good subject for operation despite her age; that no time should be wasted at the operation; and that the after-care is very important, for there is a liability to chest complications and mental disturbance in these old women.

CASE II.

J. W., a widow, aged 71, had never been pregnant. She passed through the menopause when 48 years of age. She was first seen in the medical out-patient department because she had had pain in the small of the back for three days. Some five and a half weeks previously she had had an attack of diarrhoea lasting for sixteen days. The importance of this symptom will be realized. Usually her bowels were opened regularly.

When the physician made his examination he found a "lump" on a rectal examination. I was asked to examine the case, and made the following note: "Sigmoid colon palpable and tender. Uterus rather large for patient's age. In close apposition to its right lateral border is a semi-solid tumour not quite as large as a tennis ball. High up in the posterior fornix is a solid wedge-shaped mass. No evidence of carcinoma of the breast or of the stomach. No ascites. On rectal examination no rectal growth can be felt."

The diagnosis of ovarian cyst—possibly a dermoid—was made and ovariectomy advised.

On August 25th I opened the abdomen and found a right ovarian tumour, the size of an orange, embedded in adhesions. The adhesions were separated and the cyst—which on section proved to be a dermoid—removed. Further exploration revealed the real cause of the trouble. High up in the rectum was a carcinoma. It would have been out of reach to rectal examination, but was probably the "wedge" described in the "present state." Unfortunately the growth was inoperable, as it had become adherent to, and had invaded, an adjacent coil of small intestine. There were no obstructive symptoms and no distension of the bowel. Colostomy was not performed.

The operation took thirty minutes, the abdominal wall being closed as in Case I, except that interrupted sutures were used for the fascia.

The great interest of this case to me is the mistake—which I hope to profit—which I made in diagnosis. In the first place I suspected that the tumour was a dermoid from the peculiar consistency which one associates with these tumours when examined bimanually. Now I should have realized that it was unlikely that a dermoid would suddenly begin to give trouble at 71 years of age, and I should have paid more attention to the one attack of diarrhoea. Then, although no rectal carcinoma could be reached by the examining finger, the sigmoidoscope might have revealed the real trouble. One other point of interest is that dermoids form less than 2 per cent. of ovarian tumours removed after 70 years of age (Spencer, loc cit.).

The further history of the case is as follows:

Recovery from the operation was fairly satisfactory. The wound healed by first intention, but the patient began to feel abdominal pain some ten days after the operation. Flatulence became a troublesome symptom, her appetite failed, and her general condition deteriorated. Some time afterwards she was admitted to the surgical wards and colostomy was performed.

REFERENCES.

¹ *British Medical Journal*, April 7th, 1923, p. 582. ² Norris, C. C., and Vogt, M. E.: *Amer. Journ. Obstet. and Gynecol.*, 1925, vol. 10.

A NEW DAYLIGHT LAMP FOR ACTINOTHERAPY AND GENERAL ILLUMINATION.

BY

ALBERT EIDINOW, M.B., B.S.LOND.,
M.R.C.S., L.R.C.P.

THE principal sources of radiation which are employed in actinotherapy are natural sunlight, arc lamps, mercury vapour lamps, and incandescent tungsten filament lamps. Solar radiation, compared with that from any other source of light, has the greatest luminous efficiency. The distribution of the spectral intensity of sunlight is variable, and hitherto no artificial source of light has been comparable to the sun either in relative intensity or in the nature of the rays emitted. The lamp which is described has been designed to produce a balance of visible and ultra-violet rays comparable to that of sunlight in relative intensity of radiation and in biological action.

Solar radiation, as it reaches the earth at sea-level, emits a number of waves of light extending from 2,900 A.U. in the ultra-violet region to 30,000 A.U. in the infra-red region. The energy distribution may be summarized as in the following table, which approximately indicates the percentage energy in selected regions of the spectrum.

TABLE I.

Ultra-violet Region:		
2,900-4,500 A.U.	= 12%	= 12% total energy.
Visible Region:		
4,500-5,500 A.U.	= 20%	} = 51% total energy.
5,500-6,700 A.U.	= 17%	
6,700-8,000 A.U.	= 14%	
Infra-red Region:		
8,000-14,000 A.U.	= 25%	} = 37% total energy.
Over 14,000 A.U.	= 12%	

The absorption of ultra-violet rays by the layer of ozone situated some thirty miles high produces a very rapid fall in the intensity of rays shorter than 3,000 A.U. and limits the solar spectrum under best conditions to approximately 2,900 A.U. Coblenz has pointed out that it is difficult

to make an exact radiometric comparison between the radiations from the sun and those from other sources of light, because all the sources are at different temperatures and have different types of emission spectra. The experiments carried out by Professor L. Hill have shown that the high intensity of rays from 3,500 to 2,900 A.U. present in sunlight produces biological action and affects the living skin in the same way as the shorter ultra-violet rays of weaker relative intensity emitted by the usual artificial sources of light.

The incandescent tungsten filament gas-filled lamps emit a "continuous band" type of spectrum similar to sunlight, but have a greater relative proportion of red and orange rays, and the ultra-violet rays are limited to 3,300 A.U. They are efficient for visible ray therapy, but do not produce erythema action on the normal skin, this effect being mainly due to rays shorter than 3,100 A.U. Mercury vapour lamps made of quartz emit ultra-violet rays as short as 2,200 A.U.; they are of great intensity in the green, blue, and violet portions of the visible spectrum, and 60 per cent. of their total energy is due to ultra-violet rays. The great intensity of erythema-producing rays present restricts the use of these lamps. Dosage must be carefully controlled, and the specialized technique of "short ray" therapy should be employed. A vitreousil screen or a mercury vapour lamp made of frosted vitreousil instead of quartz cuts out all rays shorter than 2,500 A.U. and reduces the intensity of the ultra-violet rays from 3,500 A.U. to 2,500 A.U. to about one-tenth. At a distance of 30 inches the minimal erythema dose is produced by a quartz mercury vapour lamp in three to five minutes; with a frosted vitreousil lamp the same intensity of erythema is produced in forty-five to sixty minutes. The mercury vapour lamp is a cold lamp and does not contain visible red rays or any great intensity of visible heat rays, but by the combination of tungsten filament lamps and the vitreousil mercury vapour lamp a source of light rich in heat, visible, and long ultra-violet rays is produced. The effects produced are similar to the biological action of sunlight.