

that the disease is a chronic "infective granuloma" quite distinct from syphilis and tuberculosis, presenting certain histological peculiarities recalling the structure of frambœsia (yaws) but differing from this disease in its clinical course and general anatomical features and distribution. There can be no doubt that the disease described by Lieutenant-Colonel Maitland and Surgeon-Colonel K. Macleod in India is identical with the "groin ulceration" described by Dr. Conyers and Dr. Daniels in British Guiana.

Madras.

## SOME CASES OF MALIGNANT DISEASE ASSOCIATED WITH OVARIAN TUMOURS.

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In this paper I propose to record very briefly some cases of malignant disease associated with ovarian tumours. By "malignant disease" I mean either (1) that the tumours have been examined by competent microscopists and have been declared to be malignant in structure (carcinomatous or sarcomatous); or (2) that in addition to ovarian tumours growths have been found in the liver, peritoneum, or other organs when an operation has been performed; or (3) that such growths have developed later and have brought about the death of the patient. In most cases these secondary growths have been examined and found to be of malignant structure, but in some cases there has been no post-mortem examination. When I state the microscopic appearances of a tumour I do so on the authority of Mr. Targett or of Mr. Corrie Keep and I have to express my thanks to these gentlemen for permission to use their names.

It seems to me that the possibility of an ovarian tumour being malignant is not kept before the profession so prominently as its importance deserves. A large number of papers on ovariectomy are devoted to statistics of mortality, to showing how very easy and satisfactory the operation is, and to proving that the death-rate is very low. When these are the objects aimed at the papers may be published so soon after the patients have been operated upon that in a large proportion of the cases there has not been time for secondary growths to develop and, moreover, in discussing the mortality of an operation it is not necessary to bring forward other disagreeable sequelæ. Statistics having scientific value are most difficult to collect and on the question of malignancy in ovarian tumours it is almost impossible to obtain reliable figures. The number of cases which cannot be traced, the number of cases in which the cause of death is not verified by conclusive clinical or post-mortem evidence, and the long time which may elapse between the removal of a tumour and the development of malignant disease are difficulties which can hardly be completely overcome. The question requires many years of careful clinical and pathological work, every tumour being thoroughly investigated and every case being kept under observation for a long period—till death if possible—before even an approximate estimate of the percentage of malignant cases can be obtained. I regret that I have not paid special attention to this subject for more than a few years, its enormous importance having been gradually forced upon my attention. I therefore do not propose to record any statistics of my own. The following instances, are, however, sufficient to prove conclusively that in a number of cases the relationship between an ovarian tumour and malignancy is very intimate.

CASE 1.—On May 8th, 1888, I assisted Mr. Knowsley Thornton to remove a rapidly growing, very multilocular cystic ovarian tumour from a woman, aged 42 years. The growth was adherent to everything it touched. The uterus and left ovary were healthy. Mr. Thornton in his notes of the case wrote that the tumour "might be malignant." Three and a half months later (on August 23rd) I opened this patient's abdomen on account of obstruction of the bowels and I found several small round growths of from the size of a pea downwards and a mass of about the size of a Tangerine orange implicating two coils of small intestine. I was informed that this patient's father had died from

cancer of the gullet at the age of 68 years. The father's sister had died from a cancer and his mother had died from a tumour. The case is already published in full.<sup>1</sup>

CASE 2.—I have published<sup>2</sup> another case in which I performed an easy ovariectomy on June 6th, 1893, the patient's age being 35 years. There were a few slight pelvic adhesions and I noted that there was a small piece of solid tissue in the base of the tumour. The patient had no trouble for more than two years after the operation. She then became very constipated and this difficulty increased rapidly. On Jan. 28th, 1896, I explored the abdomen, the bowel being then almost completely occluded. There were numerous growths studded over the peritoneum and large masses on the under surface of the liver. I made an intestinal fistula which gave temporary relief. A great aunt of this patient was said to have had cancer of the breast.

CASE 3.—On Oct. 8th, 1895, I saw a patient, 47 years of age, from whom Dr. Pregaldino of Ghent had removed a tumour of the right ovary which, he kindly informed me, was an adeno-carcinoma. The patient recovered from the operation quickly, put on flesh, and felt very well until a short time before I saw her when she began to suffer from pelvic pains and a vaginal discharge. She had the appearance of being in excellent health. I found a tumour on the left side of the uterus, rising above the pelvic brim, involving the cervix and fungating into the vagina. It seemed to me to be semi-cystic. It extended so far into the tissues on the left side of the pelvis that complete removal was impossible. The patient died nine months later.

CASE 4.—On Aug. 16th, 1892, I saw a patient with Mr. Crew of Higham Ferrers. She was 25 years of age and was supposed to be quite well on July 30th when she left her home on a visit to friends. She had noticed an enlargement of the body before this but had not spoken of it. On August 1st she was seized with severe pain in the abdomen and on the 11th a medical man said that she was so ill that she could not travel. It was, however, very desirable that she should go home and Mr. Crew therefore had her moved on the 12th. On the 16th she was very anæmic with a hectic temperature, profuse perspiration, and an extremely feeble and rapid pulse. There was a very tender pelvic swelling rising nearly to the level of the umbilicus. An opinion had been given that the swelling was a large abscess. I thought that it was most probably an ovarian tumour with a twisted pedicle, or possibly an inflamed dermoid ovarian tumour. If nothing were done the patient's death was certain, so I advised that the abdomen should be opened, although the conditions were most unfavourable for such treatment. On operating I found two ovarian tumours, each solid throughout, but they were both so soft that they broke up under the fingers and had to be removed piecemeal. There were extensive adhesions and much thickened omentum was cut away. The tissue of the broad ligaments was fairly firm where I tied them. After the operation the patient passed through a period of extreme feebleness, but I was able to send her a good nurse and under Mr. Crew's guidance a gradual improvement took place. The temperature was normal 12 days after the operation and the strength very slowly increased till November when she began to lose ground. I saw her on Nov. 17th. She then had a swelling in the right side of the pelvis which was very difficult to define on account of great intestinal distension. The breathing was rapid and there was a slightly impaired percussion note over the base of the left lung. No further symptoms developed and the patient died on the 24th. There was no post-mortem examination. The tumours were not examined microscopically, but I have no doubt that they were malignant and that infection had already passed beyond their margins before I operated.

CASE 5.—On Oct. 14th, 1892, I removed a multilocular ovarian tumour from a woman 60 years of age. The tumour contained much solid tissue and was firmly adherent to the anterior abdominal wall. I saw this patient eight months later and she was then dying with large masses of hard growth in her liver.

CASE 6.—On March 1st, 1892, I removed a tumour<sup>3</sup> which had every appearance of a simple ovarian cyst and contained no solid tissue except the cyst wall. This tumour was not adherent anywhere. The patient had also malignant disease

<sup>1</sup> THE LANCET, July 18th, 1891, p. 113.

<sup>2</sup> Twenty-six cases in which an abdominal section has been performed a second time, Case No. 7, Transactions of the Medical Society, vol. xx.

<sup>3</sup> THE LANCET, Sept. 8th, 1894, p. 573.

of the head of the pancreas. Her father's sister had died from cancer.

CASE 7.—Early in June, 1893, a patient was admitted under my care into the Samaritan Free Hospital for Women and Children with an ovarian tumour. She had been tapped a month before I saw her and again three weeks later. I arranged to operate on June 6th. The tumour refilled very quickly and on June 4th and 5th the patient vomited frequently and could take little food. The pulse which had been of good character and beating 84 to the minute rapidly rose to 120 and became very weak. There was no rise of temperature. The patient was so feeble that on the 6th I aspirated the tumour instead of operating. An immediate improvement followed, the pulse falling to 90 on the same day and the highest temperature after the tapping being 99·2° F. in the vagina. The patient seemed quite well and I decided to perform ovariectomy on June 13th. She was kept in bed and on the 10th she wrote several letters of a very cheerful tone. In the afternoon whilst reading a novel she was suddenly seized with pain in the chest and difficulty of breathing and she died within a quarter of an hour. There was much solid matter in the tumour which was firmly adherent to the anterior abdominal wall and there were two nodules of cancer in the liver.

CASE 8.—On May 19th, 1896, I removed an ovarian cystoma from a woman aged 37 years. There were considerable adhesions and there was much solid matter in the tumour. Three months later (in August) I saw this patient with large masses of growth in the upper part of the abdomen. She died in November of the same year.

CASE 9.—On Oct. 9th, 1897, I removed two semi-solid ovarian tumours from a woman, 53 years old. In the following August she had a recurrence in the upper abdomen and she died from obstruction of the intestines in October, 1898.

CASE 10.—On Nov. 4th, 1878, Mr. Knowsley Thornton removed an ovarian tumour from a woman 49 years of age. It consisted mainly of two cysts with a very thick septum. In one of the cysts there were "some small secondary masses sprouting up from the lining membrane." 19 years later (on July 24th, 1897) I removed a tumour of the left breast which was shown to be an ordinary carcinoma by microscopic examination. On May 8th, 1899, this patient had no recurrence and she said that her general health was better than it had been before the removal of the breast.

CASE 11.—On May 5th, 1899, I saw a patient with a tumour of the breast which clinically was a typical cancer. Mr. Knowsley Thornton had performed a double ovariectomy in 1880. I advised removal of the breast but I do not know the subsequent history.

CASE 12.—On Feb. 8th, 1893, I removed from a woman, aged 39 years, a tumour of the left ovary which was not adherent and which did not appear to show any signs of malignancy. Six years later (on March 10th, 1899) I removed a very adherent semi-solid tumour of the right ovary from the same patient. This was shown by microscopic examination to be a soft glandular-celled carcinoma. The vermiform appendix was very much swollen and hypertrophied, and so ragged after it was separated from the tumour that I removed this also. The patient died and no secondary deposits were found. This patient had suffered from much difficulty with the bowels for a long time after her first operation, due to adhesions about the colon which were found when the abdomen was reopened. She got better of this and married. She suffered from severe pelvic pains for fifteen months before the second operation and would not permit her medical attendant to examine her till she was compelled to do so by her serious condition.

CASE 13.—On Nov. 1st, 1897, I performed double ovariectomy on a patient, aged 44 years. There were already secondary growths in the peritoneum of the abdominal wall and in the omentum. The patient died with hard masses in the abdomen on Nov. 16th, 1898.

There is another way in which ovarian tumours are malignant and that is by direct extension of growth into neighbouring tissues.

CASE 14.—On March 22nd, 1898, I cut down on a very nodular ovarian tumour which was firmly fixed in the pelvis. It was held down by an enormously hypertrophied broad ligament which was tightly stretched across the upper surface of the growth. I divided this and shelled out the tumour. The rectum was opened in doing so. The patient died and it was found that the new tissue had infiltrated the

wall of the bowel. Under the microscope the tumour was an adeno-carcinoma.

CASE 15.—On Feb. 4th, 1898, I began an operation which I thought would be a fairly simple ovariectomy. The tumour, which was ovarian, had a very broad base on the left side and there was a smaller cyst of the right ovary which had also a very broad base. I had to divide the tissues through new growth in removing these tumours. I could have got more away by taking the uterus also and by this means possibly all the primary growths might have been eradicated, but there also existed sub-peritoneal deposits quite separate from the ovarian tumours and uterus and I therefore did not think it right to do more than the double ovariectomy. The patient recovered from the operation but died about six months later.

CASE 16.—I operated on Jan. 14th, 1895, in another case in which there were two ovarian tumours. That on the left was closely incorporated with the uterus and deeply buried in the broad ligament, but seemed otherwise free. The right tumour was also deeply buried in the broad ligament and there were many adhesions on this side. A coil of intestine was adherent to and firmly stretched over the front of the tumour, the adhesions to it being thick and fleshy. I began to separate this coil, and in doing so exposed a piece of intestine into which a hard mass was growing from the tumour. This could not have been separated without a resection of the gut, and as there were many extensive adhesions behind and probably other resections would have been required I did not think it justifiable to persevere in removing the growth. The patient recovered from the operation. I have not been able to trace her subsequent history.

Such cases as this last one never, so far as I am aware, get into the statistics of ovariectomy, but these exploratory operations on ovarian tumours are very important whether from a scientific point of view or simply as a guide to the risk run by a patient who is told that she has an ovarian cystoma. The omission of such cases as this and the custom of putting the incomplete cases in separate lists or omitting them also from statistics of ovariectomy reduce the mortality of the operation, as sometimes published, much below the average risks run by a patient with an ovarian neoplasm.

There is another and still more difficult side to the question of malignancy in ovarian tumours. There can, I think, be no doubt that a complete and early removal of a cancerous growth—for instance, a scirrhus of the breast—does sometimes effect a permanent cure. There is no organ which can be more completely removed than an ovary which has developed a tumour and has a long pedicle but has not formed any adhesions, and very many ovarian tumours have sufficiently long attachments to allow of their complete extirpation. Under such circumstances it would not be remarkable if a tumour should be structurally and essentially malignant and yet should not return after removal.

It is sometimes said that an ovarian tumour arises simply from a dilatation of the Graafian follicles. In a few cases this may be so and in others the appearances might be considered as due to a dilatation of follicles together with a hypertrophy of the cyst walls. But in a large number of ovarian tumours there is an obvious development of new tissue which is of an adenomatous or papillomatous type. I believe it is quite hopeless to attempt to decide definitely from the naked-eye appearances whether a tumour of the ovary is malignant or not. Under the microscope adenomatous new growth is frequently found and this does not seem to tend to spread beyond the ovary or to recur when removed. In describing the structure of adeno-carcinoma Mr. Marrant Baker and Mr. Bowlby<sup>4</sup> state that in these tumours the tissues may be found arranged "after the manner of a simple tubular gland" and also "after the manner of a scirrhus cancer." They add that "between the latter typical carcinomatous structure and the adenomatous growth all intermediate steps may be readily traced." In his book on Tumours Mr. Bland Sutton<sup>5</sup> says that "cancer is best described as malignant adenoma." From the foregoing it seems to me that in the ovary there is no absolutely definite separation possible at present between innocent and malignant tumours, whether they are looked at from the standpoint of the surgeon or from that of the microscopist. I have for a short time endeavoured to get a report on the microscopic characters of every tumour which I have operated on,

<sup>4</sup> Heath's Dictionary of Surgery, p. 226.

<sup>5</sup> Tumours, Innocent and Malignant, p. 487.

and I hope that in this way interesting information may be obtained. I feel sure that every tumour should be examined. The case above recorded of an apparently simple ovarian tumour and cancer of the head of the pancreas would seem to indicate that even the most innocent-looking tumours of the ovary may be associated with cancerous formations. I do not discuss the question of the possibility that the ovarian tumour and the cancer may be independent phenomena occurring coincidentally. The points which I wish to emphasise are that ovarian tumours are malignant in a considerable number of cases and that the gradations from innocent to malignant tumours are so insensible that it is not always easy, and perhaps not always possible, to separate them definitely.

A consideration of the foregoing cases leads to one conclusion so obvious that it might almost be considered unnecessary to state it—viz., that the removal of an ovarian tumour should be advised whenever its existence is diagnosed. This is undoubtedly the proper course to pursue and yet I sometimes see cases in which the existence of an ovarian tumour has been recognised for months or years and operation has been delayed until urgent symptoms have arisen. The dangers of the formation of adhesions, of twisting of the pedicle, of the occurrence of pregnancy, of the development of suppuration, &c., should urge the surgeon to immediate action. But of all the arguments in favour of early operation the possibility that the tumour may be malignant, or that it may become malignant, seems to me to be the most forcible and urgent and at the same time the least considered.

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## ON THE DANGER OF HIGH ALTITUDES FOR PATIENTS AFFECTED WITH ARTERIO-SCLEROSIS.

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WE are living in days when the struggle of life and therefore the strain on our nerve power grow more and more intense. To counteract these detrimental conditions changes of scene and air at seaside and Alpine health resorts have to play their part and no one better than the weary practitioner can estimate the value of even a couple of days' rest thus indicated as a necessity to prevent a breakdown. But the practice of patients going up to Alpine heights without medical advice has its grave dangers which year by year come more clearly to my view and into which a long practice at Alpine health resorts has given me a good insight. The public are careless, almost reckless, in this matter; they often disregard judicious medical advice, with the result that serious or even irreparable damage may be done, and sometimes death ensues—a catastrophe easy to be predicted by a careful family physician.

The public, and sometimes the inexperienced physician—inexperienced not in general therapeutics but in the physiological effects of altitude on a weak heart—make light of a danger they cannot understand. But if an altitude of from 4000 to 5000 feet above the sea-level puts a certain amount of strain on a normal heart and by a rise of the blood-pressure indirectly also on the small peripheral arteries, must not this action be multiplied in the case of a heart suffering from even an early stage of myocarditis or in the case of arteries with thickened or even calcified walls?

It is especially the rapidity of the change from one altitude to another with differences of from 3000 to 4000 feet which must be considered. There is a call made on the contractibility of the small arteries on the one hand and on the amount of muscular force of the heart on the other hand, and if the structures in question cannot respond to this call rupture of an artery or dilatation of the heart may ensue. In the case of a normal condition of the circulatory organs little harm is done beyond some transient discomfort, such as dizziness, buzzing in the ears, palpitation, general malaise, and this often only in the case of people totally unaccustomed to high altitudes. For such it is desirable to take the high altitude by degrees in two or three stages, say first stage 1500 feet, second stage from 2500 to 3000 feet, and third stage from 4000 to

6000 feet, with a stay of one or two days at the intermediate places. The stay at the health resort will be shortened, it is true, but the patient will derive more benefit. On the return journey one short stay at one intermediate place will suffice. Even a fairly strong heart will not stand an overstrain in the first days spent at a high altitude. A Dutch lady, about 40 years of age, who had spent a lifetime in the lowlands, came directly up to Adelboden (altitude 4600 feet). After two days she went on an excursion with a party up to an Alp 7000 feet high, making the ascent quite slowly in four hours. Sudden heart syncope ensued, which lasted the best part of an hour, though I chanced to be near and could give assistance, which was urgently needed. The patient recovered, but derived no benefit from a fortnight's stay, and had to return to the low ground the worse for her trip and her inconsiderate enterprise.

Patients between the ages of 45 and 70 years who are the subjects of arterio-sclerosis can often stand altitudes of 4000 feet and higher; this depends on the degree of the sclerotic process and especially on the localisation, though patients in advanced stages all do better at altitudes of not over 3000 feet, and the reason is fairly simple. Take Engelberg, for instance, which corresponds to this height; it is obvious that the patient will want to go for walks and that not only on level paths. He will soon get to altitudes of from 4000 to 5000 feet, even if warned to keep from climbing; if sent to a place already 4000 feet high he will take walks up to 5000 and 6000 feet and damage may ensue, for if in company one cannot always choose the pace one wishes. I have had patients with arterio-sclerosis coming year after year to Adelboden (4600 feet) and only after four or five years symptoms would ensue, and I was obliged, not actually to send the patients away, but to confine them to the level walks. In a couple of years the same patients will have to choose an altitude not above 3000 feet if they are to derive benefit. The question must in each case be answered separately and only general rules can be laid down. Patients with arterio-sclerosis should not attempt a residence at a high altitude without medical advice. The family medical attendant is the best judge of the possibility of danger, but sometimes nothing short of a trial will decide, and the patient must be put under the care of a medical man at the health resort in question.

In any case the patient should take medical advice if symptoms show themselves, such as sleeplessness, dyspepsia, giddiness, buzzing in the ears, palpitation, paræsthesia, shortness of breath, or definite slight angina pectoris. If I have to decide the question in Zurich the altitude of the place (1400 feet) comes to my assistance and by letting the patient ascend the hills around up to 3000 feet, combined with an examination of the blood-pressure by means of the Riva-Rocci sphygmomanometer, I can arrive at a safe opinion on the advisability of a stay above an altitude of 3000 feet. Rapid ascents to a high altitude are very injurious to patients with arterio-sclerosis and the mountain railways up to 7000 feet and 10,000 feet are positively dangerous to an unsuspecting public, for many persons between the ages of 55 and 70 years consider themselves to be hale and healthy and are quite unconscious of having advanced arterio-sclerosis and perchance contracted kidneys. An American gentleman, aged 58 years, was under my care for slight symptoms of angina pectoris pointing to sclerosis of the coronary arteries. A two-months' course of treatment at Zurich with massage, baths, and proper exercise and diet did away with all the symptoms. I saw him by chance some months later. "My son is going to St. Moritz (6000 feet) for the summer," said he; "may I go with him?" "Most certainly not," was my answer. The patient then consulted a professor who allowed him to go. Circumstances, however, took him for the summer to Sachseln, which is situated at an altitude of only 2000 feet, and he spent a good summer. But he must needs go up the Pilatus by rail (7000 feet), relying on the professor's permission, and the result was disastrous, for he almost died from a violent attack of angina pectoris on the night of his return from the Pilatus and vowed on his return to Zurich to keep under 3000 feet in future.

I may here mention that bad results in the shape of heart collapse, angina pectoris, cardiac asthma, and last, not least, apoplexy, often occur only on the return to the lowlands and that patients with cirrhotic kidneys are in the greatest danger. In the case of apoplexy it is generally the combined influence of a few things slight in