most suitable case for removal of a carcinoma of the pylorus, and the liver, as far as it can be seen or felt before removal, presents a perfectly healthy appearance, and yet there are nevertheless, a few small nodules of growth on its upper surface, while in other cases of a much less promising appearance no secondary growth in the liver or other parts are to be found. This form of primary cancer of the liver, in which the cancer cells are uniformly diffused throughout the organ, and in which there is a great increase of fibrous tissue, closely resemble a coarse cirrhosis, and no doubt some cases which have been described as cirrhosis would have proved to be "cancerous" in nature if the microscope had been used.

In regard to Case 1 it is to be noted that small secondary nodules were found on the pleura, a rare condition in this class of case, but one which fixed the diagnosis in the *post-mortem* room, even without the use of the microscope. There are certain other points which may now be briefly alluded to.

Pyrexia.—It is stated that pyrexia is commoner in primary than in secondary carcinoma of the liver, and that therefore this fact might be of some use in diagnosis. In our case there was no elevation of temperature during the time the patient was under observation; it was at no time above 98° 6°.

Jaundice.—In recorded cases this symptom is sometimes absent, and when present generally slight. In our case it was well marked.

Enlargement of Liver.—The enlarged liver is generally painful and tender. In our case it was quite painless. In recorded cases the average weight of the liver is 120 to 130 oz., the largest recorded weight in primary cancer of the liver being 200 oz. The weight of the liver in this case was 272½ oz. As to its diagnosis during life from hypertrophic cirrhosis the following points may be noticed. The absence of pyrexia, the rapidly fatal issue, the presence of marked ascites, the increase of size while under observation, the size of the nodules on the surface of the liver, and, of less importance, the absence of any enlargement of the spleen. The absence of any history of alcoholic excess was not trustworthy.

Case 11 has been introduced for the purpose of illustrating two points:

1. The small size of the primary growth in the stomach, and, therefore, the importance of not assuming carcinomatous growth in the liver to be primary, especially if it be nodular, until after a most careful necropsy, as the primary source may be an insignificant one, and consequently apt to be overlooked.

2. The difficulties of diagnosis during life of some cases of carcinoma from alcoholic cirrhosis. In this case there was a very marked history of alcoholic excesses; there was no jaundice, but well-marked ascites; the liver was not palpable, and there was an absence of both pain and tenderness; the spleen could not be felt, and there were no other symptoms except slight haematemesis on one occasion.

CASE OF PRIMARY CARCINOMA OF THE OVARY.*

By MAY THORNE, F.R.C.S.I.

THE following notes on a case of primary carcinoma of the ovary are of interest, as they show two unusual points—intense localized pain due to salpingitis and absence of fluid in the pelvis or abdomen.

History.—M. L., single, aged 46, stated that she had had pain for several weeks low down on the left side of the body, that the onset of the pain had been sudden while doing a heavy wash, that she had never been free from the pain since, and that it was always worse when the bowels were moved. She had been treated by hot applications, but had not received any benefit. The bowels had been opened every two or three days. The menopause had been established fifteen months previously.

Condition When First Seen.—The abdomen moved freely, and nothing was felt on deep palpation. Bimanually the uterus and right appendages were felt to be normal and caused no pain on manipulation. The left ovary was enlarged to about the size of a walnut in its shell, was somewhat irregular in outline, and very tender. The patient was sent to bed and the bowels freely opened. There was much pain just before and during defaecation, but considerable relief from severe pain for three or four days afterwards.

Progress.—A week later the vagina was hot, and the swelling had considerably increased, so that there was now a rounded thickening at about the level of the internal os, running out to the pelvic wall. The part was so tender that a complete

bimanual examination was difficult, and the upper limit of the swelling was not well defined. No fluctuation was detected and the vaginal mucous membrane was freely movable. The swelling was so low and so close to the side of the uterus that it suggested being between the layers of the broad ligament. There was no vaginal discharge at any time, nor was there at any time tenderness over the uterus or right appendages. A week later the swelling was harder, and more irregular. It seemed probable that the case was one of pelvic cellulitis though the cause was uncertain. The history of the sudden onset of pain while doing heavy work seemed to point to the possibility of some slight rupture and leakage from a diseased tube into the broad ligament. The pain and tenderness were so localized that it seemed as if there must be some definite focus of infection. The temperature was about normal all this time, and the patient's general condition was somewhat improved by rest and treatment. At the end of three weeks the temperature began to rise at night, the mass in the left side increased, being now the size of a large orange, and as exquisitely tender as ever. I decided that an exploratory laparotomy must be done, and Miss Aldrich Blake, M.S., who kindly saw the case, agreed that operation was desirable.

Operation. The peritoneum was healthy. On the left side of the uterus the pelvis was filled with an irregular mass with numerous small cysts on its surface. The mass was hard and densely adherent to the pelvic wall. The growth was felt to extend between, and to distend, the broad ligament. The left round ligament was enlarged to the size of the little finger, and intensely congested. The right appendages were slightly thickened, but quite free. The uterus was not enlarged, quite smooth, and movable to some extent, being anchored on the left side. The anterior layer of the left broad ligament was adherent to the bladder, obliterating the utero-vesical pouch in that area, and the growth had infiltrated through the posterior aspect of the broad ligament. There was very little bleeding throughout the operation, and no fluid was found in the abdomen or pelvis.

Description of the Growth.—It consisted of a mass the size of a tangerine orange, together with the intensely inflamed left Fallopian tube. The surface of the mass was irregular from the presence of numerous small cysts, the largest of which had ruptured during the manipulation of the tumour. On section the growth was pale, yellow, and dense. No area of suppuration was seen. Mrs. Flemming, M.D., kindly examined the growth, and reported "Solid growth of ovary, carcinoma, groups and masses of cells in a fibrous stroma. The cells are in parts arranged around a lumen (adenomatous type), and in parts form solid masses. The Fallopian tube shows small-celled infiltration throughout the coats, but no new growth seen."

After-history.—The patient made an uneventful recovery, and for a couple of months was relieved. Then a plaque of growth appeared on the abdominal wall, beginning at the lower angle of the scar, where a gauze drain had been placed for twenty-four hours. There was rapid emaciation, and she died four months and a-half after the operation.

Necropsy.—The report kindly supplied to me by Dr. Myler, of the Middlesex Hospital, was as follows:

A large carcinoma of the left ovary; there was also a deposit in the right ovary. To the primary growth the ileum was adherent and had ulcerated through, so that even during life gas had been escaping from the upper part of the growth which came through the abdominal wall. There was some localized peritonitis leading to matting of the coils of the ileum. There were several secondary nodules in the liver.

A CASE OF PRIMARY SARCOMA OF THE LUNG, SIMULATING EMPYEMA.

WITH REMARKS ON THE NATURE OF PRIMARY MALIGNANT DISEASE OF THE LUNG.

By

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History.

A LITTLE girl, aged 13, "caught cold" and suffered from sharp pain in the right side of the chest, which was made worse on inspiration, about March 14th, 1902. Under medical advice she stayed in bed for three weeks, and improved so much that she got up and went out. About April 10th she caught another cold, and the pain returned with greater severity than before, and she came into St. George's Hospital.

* Read before the Association of Registered Medical Women.

Condition on Admission.

On admission the case appeared to be a clear one of empyema. The temperature was 101° in the morning, the pulse 140, respirations 48. The whole of the right side of the chest was dull on percussion, the dullness extending well to the left of the sternum. There was a limited area of bronchial breathing over the right bronchus in front and behind, but elsewhere breath and voice sounds and vocal vibrations were deficient or absent. The intercostal spaces were bulged, and there was slight oedema in the right axilla; the subcutaneous veins were somewhat dilated, especially on the right side, and the measurement of the right side was more than that of the left. The heart's apex was displaced outwards into the anterior axillary line in the fifth space, the liver was displaced downwards. Neither on admission or at any time were there any enlarged glands in the axillae or above the clavicles. The urine contained a trace of albumen, but never any albumose.

After-history

On April 26th, the day after admission, an exploring syringe was introduced in two places, but nothing was withdrawn; two days later the chest was aspirated, but only a little blood was obtained. At the time it was mentioned that the only condition other than pleural effusion which could produce these signs was a new growth of the lung, but it seemed so much more likely that it was a pleural effusion, probably purulent, which the exploring needle and aspirator had failed to reach, that Mr. Marmaduke Shield was asked to resect a rib and open up the pleural cavity. This he did on May 1st, and found a solid growth. The wound healed, and the patient lived until June 4th, with gradually increasing weakness and dyspnoea, the latter being relieved by comparatively frequent doses of tincture of opium and belladonna. There was a good deal of pain over the right hypochondrium, which was prominent and resistant, but did not present any definite nodular tumour. There was never any expectoration. The whole duration of the illness was twelve weeks.

Necropsy.

At the necropsy, performed by Dr. Trevor, the whole of the right lung, except the apex of the upper lobe, was replaced by soft growth of the consistency of gruel. It was variegated in colour, the white growth being mottled with haemorrhagic areas. The growth was very firmly adherent to the ninth and tenth ribs in the axillary region, the ninth rib showing a solution of continuity with growth between the ends of the bone. It may be mentioned that this rib was not the one which had been resected five weeks before death. The right lung together with the trachea weighed 5 lb. 1 oz. There were no growths elsewhere in the body; dissection of the cervical glands showed that there was no enlargement of any of them. The liver was pushed down and showed evidence of chronic venous engorgement. Microscopic examination showed that the growth was a small spindle-celled sarcoma with numerous haemorrhagic areas.

Clinically the interest of the case is in the close imitation of an empyema as shown by the physical signs on the right side of the chest, the oedema of the chest wall in the right axilla, the displacement of the heart, and the raised temperature.

Primary malignant disease of the lung is a very rare disease, as will be shown later, and the signs present are neither constant or characteristic (Hilton Fagge and Pye Smith),¹ while the symptoms are usually compatible with the existence of some comparatively common intrathoracic disease such as pleural effusion, chronic interstitial pneumonia, or chronic tuberculosis. The resemblance to pleural effusion is by no means rare, and we have seen several cases where exploration with a needle was undertaken. But though a raised temperature may occur, empyema is rarely diagnosed. Taylor² reported a case where the growth was described as suppurating, which very closely imitated an empyema.

In addition to those already mentioned we have seen two conditions which clinically closely resembled a primary new growth of the lung. The first, observed at St. Bartholomew's Hospital while one of us (R.) was house-physician for Dr. (now Sir William) Church, was a very large aortic aneurysm which stretched the lung over it, rendered the whole side of the chest dull, did not pulsate, and only yielded a little blood on exploration with the syringe. In the second case, examined after death at St. George's Hospital and diagnosed during a brief stay in the hospital as primary malignant disease of the lung, a squamous-celled carcinoma of the oesophagus had completely occluded the left bronchus.

In the absence of any external growths or enlarged glands the diagnosis of primary malignant disease of the lung is most difficult. In one such case examination of material withdrawn in an exploring syringe showed the presence of large cells such as are met with in an endothelioma, but in our experience examination of fluid withdrawn in such cases is not conclusive. Stress has been laid on the occurrence of expectoration of a mucoid red-currant-jelly-like character, but this is by no means constant.

From the standpoint of morbid anatomy, primary malignant disease of the lung may be classified as follows:

Primary malignant disease (1) of lung, (a) carcinoma, (b) sarcoma; (2) of bronchi, (a) carcinoma, (b) sarcoma.

It must, however, be borne in mind at the outset that there are many cases in which such a distinction, if not impossible, is at any rate extremely difficult.

Speaking of primary carcinoma of the lung, Pässler³ concludes from a careful criticism of the literature that, in the majority of cases, it can be shown that the new growth has its origin in the bronchial system; and, further, that no incontrovertible proof is forthcoming as to the existence of carcinoma arising from the alveolar epithelium of the lung proper, though the existence of such, in view of published cases, cannot be regarded as impossible. On the other hand, West, in his recent work on *Diseases of the Organs of Respiration*, vol. i, p. 97, definitely states that primary tumours of the bronchi are of two kinds—enchondroma and carcinoma, but gives a detailed description of primary sarcoma of the lung.

It may be that these varying views have their explanation in differences of nomenclature—as, for example, whether the adventitial tissue of the bronchi, intimately connected as it is with the interlobular septa of the lung, should be regarded as wholly belonging to the bronchi or as part of the general lung structure; or, again, whether the terminal bronchioles, with their change in structure and blood supply, should be considered part of the bronchial tree or part of the lung proper. Be this as it may, there are undoubtedly cases in which the new growth can be seen to implicate the lung substance more especially, and to only affect the bronchi secondarily, and vice versa.

Before going into details, and as germane to the subject of differences in nomenclature, it may be mentioned that some of the statistics show apparent inconsistencies. This is, in all probability, due to the fact that primary malignant disease of the lung is no longer vaguely described as "cancer," but is spoken of according to its microscopic structure as sarcoma, endothelioma, or carcinoma; and further, that many alveolar growths which would formerly have been spoken of as carcinoma are now called endothelioma and classed with the sarcomata.

The lungs and bronchi are but rarely the seat of primary malignant disease. The *post-mortem* records of St. George's Hospital from January 1st, 1890, to July 8th, 1902, comprising 3,983 cases, furnish only 8 instances. Of these 8 cases, 3 were primary sarcomata of the lung, 2 were primary sarcomata and 2 primary carcinomata of the bronchi. There was no case of primary carcinoma of the lung. The origin of the remaining case—a sarcoma—could not be definitely decided. Thus:

Primary carcinoma of the lung occurs a time in 3,983 cases				
"	sarcoma	"	"	1,328 "
"	carcinoma	"	bronchi	1,991 "
"	sarcoma	"	"	1,991 "

Pässler⁴ finds in the records of the Breslau Pathological Institute out of 9,246 necropsies, in which there were 1,000 cases of malignant disease, namely, 130 of sarcoma and 870 of carcinoma, 16 cases of primary carcinoma, and only 4 cases of primary sarcoma of the lung; but no distinction is made between cases primary in the lung and those primary in the bronchi. In Breslau, at any rate, primary sarcoma of the lung is exceedingly rare, for, including cases primary in the bronchi, it only occurs once in 2,312 cases. On the other hand, the same author's figures, 16 cases out of 9,246, or 1 case per 578, are too high for primary carcinoma of the lung in the strictest sense; for in his paper on this subject he includes in the cases he has collected many which, as he himself states, would be considered by others as pure bronchial carcinoma.

With other observers primary cancer of the lung is much rarer. Fuchs (quoted by Pässler) found it once in 1,538 cases, and Reinhard⁵ once in 1,743 cases. As we have mentioned, there was not one case among 3,983 necropsies in St. George's Hospital.

In order to obtain a more complete picture, and one embracing a wider range of detail, we have put together and analysed the following material:

1. *Primary Carcinoma of the Lung*.—Fifty-eight cases out of 74 collected by Pässler, which, in our opinion, may fairly be considered as originating in the lung.
2. *Primary Sarcoma of the Lung*.—Three cases from the St. George's Hospital records, and 5 cases collected by West (loc. cit.)—8 in all.
3. *Primary Carcinoma of the Bronchi*.—Two cases from the St. George's Hospital records, and 14 from Pässler's collected cases—16 in all.
4. *Primary Sarcoma of the Bronchi*.—Two cases from the St. George's Hospital records.

The results of this analysis are set forth for better comparison in tabular form:

Analysis.

	Number of Cases.	Sex.		Age.		Side Affected.		Nature of Growth.	Sites of Metastases in order of Frequency.	Remarks.					
		Male.	Female.	Stated in— Over 40 Years.	Under 40 Years.	Limits.	Side Affected.								
							Right.				Left.				
		Stated in—													
Lung : Primary carcinoma	58	53	41	12	52	46	6	19-86	27	12	5	4	(a) Of body of lung, soft in consistency. (b) Of root of lung, hard in consistency. Cells: Cylinder and polymorphous and polyhedral cells occur with equal frequency. Flat epithelial cells are described in 5 cases	Bronchial and mediastinal glands; liver; lung; pleura; kidneys; bones; suprarenals; spleen and brain; cervical glands; axillary glands, thyroid, dura mater, muscles of diaphragm; skin, pancreas, gall bladder, peritoneum	
Lung : Primary sarcoma	8	7	6	1	8	4	4	13-65	4	3	—	1	In the 3 cases from St. George's Hospital records: (1) M., aged 34; large round-celled sarcoma undergoing mucoid degeneration. (2) Case described. (3) M., aged 65; endothelioma of root of right lung. Weights of affected lungs: 10 lb. 7 oz., 5 lb. 1 oz., and 1 lb. 3 oz respectively	Present in one case only: bronchial glands, abdominal lymphatics, portal glands extending into liver	In cases 1 and 2 the growth had involved the lower ribs by direct extension, possibly owing to fixation of the diaphragm to the affected lung, which would permit extension along it to its point of attachment on the chest wall.
Bronchi : Primary carcinoma	16	15	8	7	15	12	3	27-73	11	3	2	—	Large polygonal cells, 6 cases; cylinder cells, 2 cases; partly small polyhedral and partly cylinder cells, 3 cases; pavement epithelium, 1 case	Bronchial glands; lungs; liver; mediastinal glands, kidneys; pleura, mesenteric glands	The origin of the growth with pavement epithelium in the right main bronchus—one of Füssler's own cases—is attributed by him to some fetal inclusion at the time of the splitting off of the alimentary and respiratory tracts.
Bronchi : Primary sarcoma	2	2	1	1	2	2	—	41-53	1	1	—	—	(1) Large-celled sarcoma showing myxomatous degeneration of the intercellular substance. (2) Small spindle-celled sarcoma	Posterior mediastinal glands, infra-tracheal glands, liver	

There is one remarkable fact in connexion with primary malignant disease of the lung in general, namely, that, of the recorded cases, the vast majority are described as cancer or carcinoma, and only a few as primary sarcoma. Since, as has been shown, primary carcinoma of the lung is not in reality more common than primary sarcoma, the conclusion is forced upon us that some of the older writers at any rate have wrongly named their cases. From the few cases which we have collected from the St. George's Hospital records, and of which the microscopical appearances in every instance have been examined either originally or subsequently by one or other of us, it may be concluded (1) that primary malignant disease of the lung proper, whether of the body or of the root, is of the nature of sarcoma; (2) that primary sarcoma of the body of the lung is of the spindle-celled variety; (3) that primary sarcoma of the root is of the nature of endothelioma. The very close morphological resemblances between endothelial and epithelial cells, and the similarity in the amount and disposition of the stroma, account for the confusion between endothelioma and carcinoma. Further examination of root "cancers" from this point of view is needed.

REFERENCES.

¹ A Textbook of Medicine, vol. ii, p. 159. Edition 4, 1902. ² Quoted by Pye-Smith, *ibid.* ³ Virchow's Archiv, Band cxlv, s. 191, 1896. ⁴ Loc. cit. ⁵ Arch. f. Heilkunde, xix, s. 369, 1878.

SCIRRHUS CARCINOMA OF THE MALE BREAST.

By W. BLAIR BELL, M.D.LOND., M.R.C.S.ENG.,
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SCIRRHUS of the male breast is a sufficiently rare condition to make a report of any fully-established case interesting, not only because of the rarity of this disease in the male breast, but also because it is probable that, in the study of these more or less anomalous cases and of such malignant conditions as deciduoma malignum, we shall find the secret of the origin of cancer, since many hundreds of thousands of eyes have examined an even larger number of sections of more typical forms with no definite result.

The history of this case is as follows:

J. O'B., aged 56, of no occupation, consulted me in November, 1900, for an "ulcer on the right breast." He said that he had first noticed a small hard lump, the size of a pea, behind the

nipple, four and a-half years previous to the date on which I first saw him. This had gradually enlarged, he said, until it was the size of a hen's egg. He then consulted a doctor, who told him that it was nothing serious, and gave him some ointment—evidently intended to produce counter-irritation, for it blistered him.

Shortly afterwards, it being then two and a-half years from the time he had first noticed anything, the growth commenced to ulcerate on the surface. On questioning he was quite certain that there had never been any discharge of blood from the nipple. Further, up to this time he was certain that the growth was freely movable, and that, beyond occasional shooting pains, he had suffered no discomfort. From this time onward the ulceration gradually extended, causing the pain to be more frequent and severe. Apparently he saw several doctors, but, according to his own account, the condition was not recognized—a statement I am unwilling to believe, as the growth was, when I saw him, obviously malignant. To complete his story, I may say that he had done no work for many years, but had amused himself with amateur carpentry, and when so occupied he had been in the habit of pressing heavy chisels against his right breast. This I presume set up chronic mastitis, to which the cancer was a sequel. Mr. F. T. Paul has shown how commonly breast cancer follows chronic mastitis.

The patient had been a fairly heavy drinker, but was then (November, 1900) in good health, and did not think that he was losing weight very rapidly, although he had been gradually getting thinner. He was unaware of any cancer in the family.

On examination, a large excavating ulcerated surface was seen involving the right breast (Fig. 1). The area of ulceration was 4 by 3 in. The edges were hard, raised, and everted. There was a foul discharge from the surface, which bled easily. The surrounding skin was oedematous, but no glands could be detected in the axilla or above the clavicle. Further, a careful examination failed to reveal any metastasis. I therefore decided to remove the growth in spite of the fixation.

The patient was admitted to the Wallasey Hospital, and on December 7th, 1900, I excised the growth widely, removing at the same time all the underlying fascia and muscle, together with a few small glands from the axilla, which were, as far as one could judge, unaffected. The uncovered area after operation was formidable; it measured 9 in. by 7½ in. I treated this surface with 20 per cent. formic aldehyde. It afterwards occurred to me that this proceeding may have