Double Ovarian Cystoma and Uterus affected with Melanosarcoma; whole Abdominal and Thoracic Viscera studded with innumerable Melanosarcomatous Tumours.*

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S. M'L., aged 30, was admitted to the Glasgow Royal Infirmary on June 30th, 1904, complaining of an abdominal swelling and gastrointestinal symptoms. Her health seemed to have been good till November, 1903, when she began to suffer from epigastric pain with a feeling of nausea after taking food. This continued, accompanied by such a progressive loss of strength that about the middle of March, 1904, she was compelled to give up her daily work. In May she had, in addition, attacks of vomiting, which persisted for a month, when, as a result of treatment, some improvement took place. This improvement, however, did not last long, as during the two weeks prior to admission to hospital her general condition became worse; she felt very weak, was fevered, and had severe sweatings. Although on admission the abdomen was found markedly distended by a large cystic tumour, yet the patient had only been conscious of its presence for a few weeks. She had also suffered from abdominal pain, which, however, was never severe. Menstruation, which began at the age of 14, had always been regular, of the four week type, lasting three or four days, and accompanied by sacralgia, which lately had become more severe. During the inter-menstrual periods there was leucorrhœa. Since March she had suffered from increased frequency of micturition, and the bowels were habitually costive.

On admission to hospital the patient looked ill and anæmic, with a temperature of 101·6° F., pulse 112, and respirations 22. The tongue was dry and furred. Both feet and legs showed slight œdema.

Examination. The abdomen was distended in its lower half to the size of a six months' pregnancy, and showed a faint linea nigra as high as the umbilicus. Percussion elicited dulness extending

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upwards for six and a half inches from the symphysis pubis to the level of the umbilicus, and laterally for three inches from the middle line towards each flank, the tumour being six inches broad. A noticeable feature in connection with percussion was the variation in the area of dulness at repeated examinations. There was considerable tympanites, and the bowels overlapped the right side of the tumour to a varying extent, so that at one of the examinations the area of dulness, even on deep percussion, was only three inches broad. By palpation a tense ovoid cystic tumour could be felt arising from the pelvis, and resembling a six months' pregnant uterus, both in size and shape. Auscultation was negative.

Vaginal Examination. The vulva and vagina were those of a virgin. The cervix was low down, and pushed close to the symphysis pubis by a cystic tumour, which filled the whole pelvis, and could not be moved. Bimanually, the uterus was found pushed against the anterior abdominal wall, a little to the right of the middle line.

The tumour was diagnosed as a large multilocular cystoma, but from which ovary could not be determined. Subsequent *post-mortem* examination, however, proved that both ovaries were affected, one cystoma overlapping the other in such a manner as to make them apparently one tumour. It was evident that the ovarian tumour could not account for the general condition of the patient, so that operation was out of the question.

There was at first a suspicion of typhoid, rendered more so by the presence of several rose-coloured spots on the abdomen and some enlargement of the spleen. The tongue, however, though dry and furred, was not like that of typhoid, and the bowels when moved by an enema, following on a dose of castor oil, showed a stool, which, though foetid, was not suggestive of this fever. Widal's reaction was also negative. In view of the possibility of typhoid the urine was tested for Ehrlich's diazo-reaction, but also with negative results. Simon (quoted in Butler's *Diagnostics of Internal Medicine*) says that if this diazo-reaction is not found in the second or third week of a supposed case of typhoid, it is probable either that the case is very mild or that the diagnosis is wrong. A positive reaction, besides being seen in the majority of enterics, is also obtained in various forms of tuberculous disease, septic conditions, etc.

The urine was acid, sp. gr. 1030, with a trace of albumen, but no sugar or bile. After standing for some time exposed to the air it acquired a darkish-brown colour, not unlike what is seen after absorption of carbolic acid. At first I understood the urine was this colour when passed, and did not attach sufficient importance to it,

merely contenting myself with excluding bile and phenol. It was not till the *autopsy* revealed melanotic sarcoma that the true nature of the pigment in the urine was suspected and proved to be melanogen or melanin. V. Jaksch, in his *Clinical Diagnosis*, writes that the most sensitive test for melanogen is bromine water, which gives a yellow precipitate that gradually blackens. Another test is to add a few drops of a fairly concentrated solution of iron perchloride which causes the fluid to turn grey, and if more be added a precipitate of phosphates falls, carrying the colouring matter with it. This, again, dissolves with an excess of the solution.

The presence of melanogen in the urine, although a useful aid to diagnosis, is not always obtained in cases of melanotic sarcoma, and this pigment may be seen in large quantities in wasting diseases. At the same time, an earlier recognition of its presence might at the least have raised a suspicion as to the cause of the patient's symptoms.

From July 1st to July 4th the patient's condition got steadily worse, the temperature ranging erratically between 101° and 103° F., and the pulse from 124 to 140 per minute. On the evening of July 4th she had an attack of dyspnœa. Though nothing definite was found in the lungs on admission, examination now showed the presence of râles, especially in the left base, with slight dulness to percussion and a diminution of the respiratory sounds. Respirations were now 30 per minute.

One of the physicians saw her in consultation on the morning of the 5th, but would express no opinion as to the nature of the obscure disease. Later on in the day the patient became collapsed, the pulse-rate rising to 168, with a falling temperature, and at 9 p.m. she died without a diagnosis having been made as to the cause of her general condition.

On July 7th a *post-mortem* examination was made by Dr. Workman, with the result that the thoracic and abdominal organs were found studded with countless melanotic sarcomata of various sizes. There were no external evidences of these.

The detailed report is as follows:—

Heart. Normal in size, wall studded with small melanotic tumours.

Lungs. Voluminous, emphysematous, and studded throughout, but especially immediately beneath the pleura, with melanotic tumours of various sizes, from that of a pin head to that of a bean.

Liver. Enlarged by the presence of numerous melanotic tumour nodules, some of which are as large as a Tangerine orange (Fig. 2).

FIG. 1.

Nodule
from
liver

Left
suprarenal
gland

uterus
and
cystomata

FIG. 2.

Spleen. Large and soft, and has a general pigmented appearance, but no definite tumour.

Suprarenal Glands. The left appears transformed into a melanotic tumour mass about the size of a Tangerine orange (Fig. 2).

Kidneys. Show numerous small nodules under the capsule and throughout its substance (Fig. 1).

Bladder. Has a few nodules only in its wall.

Mesentery, Intestines and Omentum. Are studded with innumerable small nodules.

Lymphatic glands seem remarkably free from tumour formation. There is a multilocular cystoma of each ovary, the left one being fixed in the pelvis, while the right lies in the abdomen.

Both cystomata, as also the uterus, are studded with numerous small melanotic nodules, but one in the right cyst is the size of a walnut (Fig. 2). The cysts contain a watery brownish fluid, due to the presence of melanin, and the inner walls are deeply pigmented with the same substance.

Microscopical sections show that the cell protoplasm is first invaded, then the nucleus, when the whole cell is destroyed. Granules and needle-like crystals were seen in the sections, which may be some compound of melanin as it did not seem to depend on the staining reagent used.

As regards the seat of the primary growth it is difficult to be certain, but I am inclined to the opinion that it originated in the left supra renal gland, as this organ was completely transformed into a large tumour mass. The external surface of the body, as already stated, was entirely free from any growth or pigmented spot.