place. The vessels in the hilum of the organ appeared healthy. On section the diagnosis of subcapsular haematoma was confirmed, and it was in addition seen that a considerable portion of the splenic substance had been ploughed up by the haemorrhage.

Microscopical Examination.—A portion of the spleen which appeared to be undamaged by the haemorrhage was submitted to microscopical examination. A normal histological picture was found. A portion of the splenic artery was also examined, but no abnormality was discovered.

As far as could be judged, therefore, apart from the damage caused by the haemorrhage, the spleen was a normal healthy organ of the usual size and with healthy blood vessels. The patient was repeatedly questioned as to whether he had received any injury, but this was denied. A diagnosis was therefore made of spontaneous rupture of a normal spleen.

Shortly after his discharge the patient was asked to attend in order that he might be further examined, and investigations were made to see if some cause could be discovered to account for the apparently spontaneous rupture. No abnormal signs were found in the heart, lungs, or abdomen. The urine was acid, and contained no abnormal constituents. The arteries were slightly thickened and the blood pressure was 140/85. While the examination was in progress the patient stated that he had lately remembered that at 10.30 a.m. on the day of the onset of his illness he was leaning over a ledge in order to open his shop window, when he slipped and fell on to his left side against the edge of the ledge. He had only slight discomfort, and, thinking nothing of his injury, dismissed it from his mind until our repeated questionings recalled the incident. Undoubtedly this forgotten trauma was the primary cause of the ruptured spleen.

Similar cases have been reported by T. S. Jackson¹ and J. L. Stretton.² Jackson's patient was a girl, aged 15, in whom the apparent spontaneous rupture occurred while she was sitting in a cinema. After her recovery he elicited the history that four weeks previously she had fallen against a desk, striking her left side. Stretton's patient was a pregnant woman, aged 37, in whom the lesion professedly followed the getting out of bed to pass urine. Subsequent careful inquiry elicited a story of violent coitus.

M. P. Susman³ reports, as a spontaneous rupture of an apparently normal spleen, a case the clinical features of which bear a close resemblance to the one recorded here, and in which the original diagnosis was also perforated gastric ulcer. He could find only six similar cases in the literature.

Admitting that spontaneous rupture of a perfectly healthy spleen can hardly occur, he suggests as an explanation that some lesion was present which was responsible for the rupture, though evidence of its existence was destroyed by that occurrence. In other words, we are dealing with examples of spontaneous rupture of pathological spleens. It seems simpler to believe that occasionally, in certain individuals and at certain phases, rupture of a normal spleen may occur following minimal trauma. If the capsule is intact the symptoms may be delayed for hours or days, and when eventually the patient collapses the memory of the original and causative injury has disappeared. The case here recorded affords a good example of this happening.

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A NOTE ON HAEMATOCOLPOS.

WITH A REPORT OF TWO CASES.

BY

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HAEMATOCOLPOS is a very uncommon affection, and is the result, generally, of cryptomenorrhoea, the condition in which the formation of the menstrual discharge goes on, but without the normal appearance of menstruation. Two cases which recently came under my notice and presented features of much interest prompt a review of the general points and symptomatology of the condition.

The patient is generally between 15 and 18 years of age,¹ and is usually brought to medical notice on account of one or other of three things: (1) non-appearance of menstrual periods; (2) swelling in the abdomen; (3) disturbance of micturition.²

In most cases subjective symptoms of the menstrual period are present, and these tend to be better defined in older girls. The obstruction to the escape of the menstrual discharge may be anywhere below the internal os, and its commonest site is the ostium vaginae, where a diaphragm is present, formed by the non-canalization of the lower end of the fused Müllerian ducts, and not by an imperforate hymen.³ In some cases the normal hymen may be seen external to the obstructing membrane, but in others there is no trace of the hymen whatsoever, and some observers have described this type as due to a true imperforate hymen.

De Sahn⁴ many years ago, in a review of the condition, stated that the error of formation is never very great, as it would then promote atrophy of the internal genitals, especially of the ovaries, and menstruation would not occur. He pointed out factors leading to stenosis of the vaginal canal, such as inflammatory or specific ulceration of the vagina, chronic vaginitis, cicatricial constriction following injuries during labour, or an attack of small-pox or typhoid fever, and, possibly, cancer obstructing the vagina. These latter cases must be very rare and may be considered separately from those under consideration now, which can be conveniently termed primary or membranous haematocolpos.

CASE I.

The patient, a girl aged 13 years and 8½ months, was admitted to Paisley Royal Alexandra Infirmary on January 17th, 1929, under the care of Mr. Hugh Donald.

History.—Four months before admission to hospital the girl complained of slight pain in the abdomen. This persisted for an afternoon, during which her mother detained her from school. Between three and four weeks later slight pain recurred, and lasted for about three hours; it was not severe enough to keep her from attending school. Another mild attack appeared between three and four weeks later, and, like the others, was referred to the "middle of the stomach and low down." A similar interval elapsed until the next attack, which was more severe than the others, but only lasted about four hours. The next spasm occurred three weeks later, and was sufficiently severe to make her seek medical advice, and to be detained in hospital. Five days before admission she had a sharp and moderately severe epistaxis, with no accompanying symptoms. The following morning she was given Epsom salts at home, and in the evening complained of slight pain in the abdomen, similar to that which she had previously been experiencing, but which her mother attributed to the purgation. The next afternoon she was crying with the pain, which persisted all the evening. On the following day the pain was still more severe; it was situated just below the umbilicus, and for the first time necessitated her remaining in bed. Her mother stated that the pain seemed to be cramp-like, as, at short intervals, the girl would cry out as a painful spasm occurred. This persisted until the next day, when pain on micturition became an added feature. The painful micturition and spasmodic attacks of evidently severe pain, causing her to roll about in agony in bed, made her family doctor suspect urinary calculus, and he sent her to hospital.

On examination the patient was found to be a well-nourished and well-developed girl, the secondary sex characters being well formed. Deep tenderness was elicited in the middle line of the abdomen between the symphysis pubis and one inch below the umbilicus, and this tenderness was also present, extending for about two inches from the mid-line on the left side, but not on the right. A distinct mass could be felt in this situation through the abdominal wall, but its outline could not be defined. Rectal examination proved excessively tender, but a large, soft swelling was readily made out, bulging into the anterior rectal wall, and haematocolpos was diagnosed. When the condition is kept in mind, diagnosis is simple. While in the ward before operation she had one severe spasm of pain, which was relieved by 5 grains of aspirin. There was no albuminuria.

Treatment.—Under anaesthesia, examination of the hymen revealed it to be bulging, deep red in colour, and quite imperforate. A very freely movable tumour was palpated through the abdominal wall with its upper border about one inch from the umbilicus. The abdomen was opened in the mid-line and the tumour found to be the uterus distended with blood; the ovaries and tubes were examined and found normal. Laparotomy was justified to observe the condition of the Fallopian tubes, as haematosalpinx would most probably have necessitated their removal. The hymen was vertically incised under scrupulous asepsis, and one pint of dark red, jelly-like fluid escaped. The external os of the cervix admitted one finger readily. The condition was, then, haematometra. The vulva was swabbed with spirit and iodine, but no vaginal cleansing was employed. The vulva was swabbed with spirit daily, and the patient made an uninterrupted recovery, being dismissed on February 26th. Menstruation, to that date, had not yet reappeared.

CASE II.

This patient, aged 14 years and 2 months, was admitted to the Royal Samaritan Hospital for Women on February 17th, 1929, under the care of Dr. John Gardner.

History.—Seven days before admission she complained of a low backache, which she ascribed to sitting on a high stool at piano practice. This continued slightly and intermittently until the evening before admission. She retired to bed at the usual hour, but was awakened at 2 a.m. with severe colicky pain in the lower abdomen. This continued almost continually throughout the night, but there was no sickness or vomiting. About 7 a.m. she complained of a strong desire to urinate, but passed only a small quantity of urine (amount unspecified). From that hour until admission to hospital at 6 p.m. on the same day there was marked vesical tenesmus and complete inability to micturate.

On examination the patient was found to be well nourished. She was obviously in great discomfort and the lower abdomen was markedly distended, the percussion note being dull to within an inch of the umbilicus. Twenty ounces of urine were withdrawn by catheter, and the patient immediately and spontaneously declared her great relief and comfort. There was no albumin or any abnormality in the urine. The temperature was 97.6° F. and the pulse rate 92. The ostium vaginae was occluded by a reddish bulging membrane, which showed a marked impulse on coughing. Rectal examination revealed a fairly firm mass, palpable through the anterior rectal wall. No tumour could be felt through the anterior abdominal wall, and there was only slight suprapubic tenderness. The case was diagnosed as simple haematocolpos.

Treatment.—The hymen was incised vertically, and each edge sutured to the adjacent skin. About five ounces of thick menstrual fluid escaped. No douching was employed, but daily swabbing of the vulva with mild antiseptics, and recovery was uneventful.

Comment.

The features of special interest in Case i are: (1) the unusually early age of the patient to have haematocolpos and haematometra—13 years 8½ months; (2) the predominant symptom that caused the girl to be sent to hospital—severe abdominal pain, probably caused by spasmodic contractions of the uterus; (3) marked epistaxis on the day before the onset of pain.

The feature of note in Case ii is undoubtedly the very acute retention of urine; and, of course, the absence of any previous monthly disturbance or premonitory symptom, except the slight backache of one week's duration.

I am much indebted to Mr. Hugh Donald for permission to publish Case i, and to Dr. Gardner for Case ii.

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A CASE OF ALEUKAEMIC LYMPHATIC LEUKAEMIA.

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THE case here recorded revives the controversy as to the existence of really acute lymphatic leukaemia to which one of us, in conjunction with L. E. H. Whitby, refers in a paper, "Some difficulties in the diagnosis of leukaemia," published in the *Lancet* of June 18th, 1927 (p. 1279). The present patient was in good health until October 1st, 1928; the duration of her illness was six and a half weeks; cases of acute myeloblastic leukaemia, it is true, may terminate even more rapidly. The degree of haemorrhage no doubt largely controls the period of survival.

A single woman, aged 25, employed as a monotype operator, was first seen professionally in 1925. She was then found to be chlorotic. She took but little outdoor exercise, and was advised to play games and go walks. The adoption of this advice led to rapid improvement, and she enjoyed good health until the beginning of October, 1928. The conditions under which she worked were quite satisfactory, but she had always had a "delicate throat," was very sensitive to the smell of smoke, and could not tolerate gas fires. Her previous medical history revealed nothing of importance.

Present Illness.

On October 1st, 1928, she developed a "feverish chill" and was sent to bed; a week later the symptoms were chiefly gastric, and by October 15th she was up and about again. On October 22nd she was referred to a throat specialist on account of a complaint of foul-tasting discharge from the nose, but nothing was found in the nose, nasopharynx, or sinuses to account for her symptoms. On October 27th she developed what appeared to be a typical attack of rheumatism, the pains flying from joint to joint and yielding to sodium salicylate. On November 2nd she was seen on account of bleeding from the gums and the passage of tarry stools; no evidence of valvular disease of the heart was found. The haemorrhage continued, uninfluenced by calcium—by the mouth and intramuscularly—or haemoplastin.

On November 9th enlargement of the spleen was detected, and some discomfort was complained of in that region. Petechiae on the buttocks now appeared, and diarrhoea with dark stools and haematemesis occurred. Her condition rapidly deteriorated. She was admitted to the Cirencester Memorial Hospital on November 12th; from that time until her death, two days later, her temperature ranged between 100.6° and 103° F.

On November 13th a blood examination was made. The blood was extremely thin, and with the Dare haemoglobinometer the haemoglobin value was found to be about 9 per cent.; the red cells 1,050,000 per c.mm.; colour index 0.5; leucocytes 1,100 per c.mm. A differential count of 250 leucocytes gave:

	Per cent.
Polymorphonuclears	0.4
Neutrophile premyelocytes	2.4
Neutrophile metamyelocytes	2.4
Eosinophile myelocytes	0.4
Myeloblasts	1.6
Lymphocytes (mostly small forms)	84.4
Türk's cells	1.6
Lymphoblasts	6.0
Large mononuclears	0.0
Eosinophils	0.0
Unclassified	0.8
	100.0

No nucleated red cells were found. There was a moderate degree of anisocytosis and slight poikilocytosis. A few basophilic red cells were present. A film stained by Graham's oxidase method gave: oxidase granule containing leucocytes 8 per cent., non-granulars 92 per cent.—a finding which agrees closely with the differential count from a Leishman-stained film described above.

Post-mortem Examination.

At the necropsy on November 15th, twenty-one hours after death, small subcutaneous haemorrhages were noted on the left upper eyelid, on the buttocks, and one on the right thigh; rigor mortis was present. The body was not emaciated. Subcutaneous fat was fairly abundant and of normal colour. No enlarged superficial glands were detected. There was no excess of free fluid in the abdomen.

The spleen was enlarged, about 8 in. long, and of normal consistence. Malpighian bodies were visible; on section nothing noteworthy was found. There was much perisplenitis, but only slight thickening of the capsule. The liver was of normal size; on section it was greasy-looking and pale. The pancreas was normal, as also were the kidneys.

In the great omentum and in the portal fissure were a number of enlarged glands, mostly about the size of filberts; they were pale pinkish on section, and some showed haemorrhages. There were several small subperitoneal haemorrhages in the course of the intestinal tract, and two large ones, one extending over about two inches in the mid small intestine and another about the caecum.

There was slight excess of free fluid in the pericardial sac, yellow in colour; several petechial haemorrhages on the visceral pericardium. There were no valvular changes. The lungs were pale, with no adhesions; two or three subpleural petechiae were present. The marrow in the ribs appeared red.

Portions of the liver, spleen, a gland from the mesentery, and of a rib were fixed in Helly-Maximow fluid and sections stained by Ellermann's method, as described by Piney in *Recent Advances in Haematology*; other portions from the same sources were fixed in formal saline and stained by haematoxylin and eosin. The report on these was as follows.

Liver.—The portal canals are everywhere infiltrated with leucocytes which, in places, penetrate a little way into the outer parts of the lobules, some liver cells being cut off, as it were, by them. A similar invasion is seen in the deeper part of the capsule of Glisson. Some of the liver cells round the hepatic venules show vacuolation (fat globules, dissolved in dehydration).

Gland.—There is but little indication of lymph nodes and germ centres, lymphocytes being fairly evenly distributed throughout cortex and medulla, though they are somewhat denser under the capsule. Besides lymphocytes there are many larger rounded or oval cells with large round nuclei; some of these cells contain two or three nuclei. Some of the trabeculae are thickened, and the larger cells are, in places, disposed along the trabeculae.