SPLENOMEGALY WITH EOSINOPHILIA. (FUNCTIONAL DESPLENISATION.)

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ENLARGEMENT of the spleen may be either acute or chronic. Of the former variety typhoid fever and acute miliary tuberculosis afford in these countries two of the commonest examples. As causes of chronic enlargement of medium size it will be sufficient to mention passive congestion due to cardiac disease or to cirrhosis of the liver, the diffuse variety of amyloid disease, Hodgkins' disease, pernicious anæmia occasionally and chlorosis. Considerable enlargement of the spleen in tropical countries is suggestive of repeated attacks of malaria or of kala-azar. Of this latter disease there have been two examples in Dublin during the past few years. Both of them were Anglo-Indians, and in one case the patient was sent home from India as suffering from a form of obstinate malaria not amenable to quinine. In patients who have never lived abroad, or have, at least, never suffered from malaria or kala-azar, extreme splenic enlargement is most commonly associated with myelogenous leukæmia.

The following clinical records afford examples of a great increase in the size of the spleen not attributable to any of the above-mentioned causes. These cases constitute a class which, from a diagnostic and prognostic point of view, must be most carefully distinguished from the more usual varieties of extreme splenic enlargement.

T. J., aged fifty-one years, was admitted into the Royal City

of Dublin Hospital under my care on March 22, and discharged June 16, 1906. On admission he complained of pain in the left side of abdomen when walking, standing, or even sitting up in bed. He also had swelling of the abdomen and a sense of dragging weight. Going up stairs produced breathlessness.

Previous History.—As a child he had scarlatina and measles. In 1884, when twenty-nine years of age, he emigrated to Queensland, and spent some years travelling through the country. About 1889 he got an attack of “colonial fever.” He had a high temperature, was put on low diet, and kept in bed for ten days. He was soon about again, but he thinks his digestion never got thoroughly right. Some twelve months later he got rheumatic fever; his joints became swollen and painful, and he was lame for a considerable time. He was advised to return home. He did so in 1894, and commenced a course of Turkish baths. On one occasion while in the bath he felt a swelling in the left side of the abdomen, and noticed that the left was harder and more prominent than the right side. The swelling which he detected this time, and confirmed on several subsequent occasions, was about half its present size. As it gave him no inconvenience he did not seek medical advice. Towards the end of 1895 he got severe pain one day after taking a walk, and then he consulted Dr. Denham.

In January, 1896, Dr. Denham exhibited the patient before the Pathological Section of the Academy of Medicine. There is no reference to the case in the Transactions of the Academy for 1896, but the medical journals in reporting the meeting refer to the case. The following extract is from the *Medical Press and Circular*, p. 109, Vol. I., 1896 :—“He (Dr. Denham) had made four examinations of the blood with Gower’s Hæmometer, at intervals of a week, with the following results—

	Red Corpuseles	White Corpuseles
1st	70 %	9 %
2nd	73 %	8 %
3rd	82 %	2 %
4th	85 %	2 %

Dr. McWeeney had made stained preparations, which were under the microscope. In these numerous eosinophile cells were to be seen, but Dr. McWeeney had been unable to find any myelo-

genic cells. It was remarkable that, notwithstanding the size of the tumour and the altered condition of the blood, the patient enjoyed very fair health, suffering little or no discomfort—slight constipation and breathlessness only on severe exertion. The fact that under treatment the number of the white blood cells had markedly diminished, and that no blood marrow cells were discoverable, gave the case decidedly a less hopeless appearance.”

In February, 1896, he went into the Adelaide Hospital under Dr. Little's care. He was treated with arsenic and electricity. He was in the hospital for eleven or twelve weeks. The spleen was unchanged, but his general health was better. He returned to the South of Ireland and continued taking arsenic. He had commenced with m5 of Fowler's solution, and gradually increased up to m9, thrice daily. In October he got so ill that he had to consult the local doctor, who stopped the arsenic at once, as he believed he was suffering from arsenical poisoning. In 1897 he was readmitted to the Adelaide Hospital. Dr. Little considered that the tumour had slightly increased in size, and recommended him to go into the Hospital for Incurables. This he did in 1898. His general health and weight improved till 1905, when he noticed that he could get about less than formerly, and that he was not so well able to walk a short distance as he had been. He also found it more difficult for him to sit up straight.

Family History.—His father is still alive. He is eighty-three years of age, and suffers from his heart. His mother died about a year ago, aged seventy years. His brothers and sisters are all alive and in good health, except one sister who died, aged thirty-three years, from internal complications.

Personal Habits.—The patient is not a teetotaller, but he is abstemious. He has never had any venereal disorder.

Present Condition.—On inspection the patient is healthy-looking and well nourished. His teeth are almost perfect. His tongue is clean, and he says he can eat anything save meat, which constipates him. Thorax is normal, except that there is no well-marked differentiation between the pulmonary resonance on the right side and the hepatic dulness. There is only a slight modification of the pulmonary note in the fourth and fifth intercostal spaces, and a tympanitic note is audible from the level of

the sixth rib downwards. The cardiac dulness also begins a little higher than normal.

Abdomen.—On inspection it is full, rounded and prominent, the prominence being most marked in the left hypochondriac region and extending into epigastric and left lumbar regions. On palpation a solid tumour can be felt emerging from under the left costal arch near the middle line, and extending downwards and outwards to a distance of 9 c.m. to the right of the middle line at the level of the umbilicus. Its lower margin is a little below the line joining the anterior superior iliac spines. The tumour is smooth on the surface, with smooth, rounded edge, and no notch can be felt. It is slightly tender to the touch.

Percussion.—An area of dulness lies over the tumour, but it is not quite so extensive, as there is a resonant note along the right margin.

Urine.—Pale and clear; sp. gr. 1010. Reaction faintly acid. Albumen present. Sugar absent.

Blood Examinations :—

Hæmoglobin varied	between	78 %	and	89 %
Red blood cells	„	5,790,000	„	8,560,000
White blood cells	„	6,000	„	20,000
Differential Count—				
Polymorphonuclears	varied	between	56 %	and 52 %
Eosinophiles	„	„	0 %	„ 10 %
Lymphocytes			21 %	to 37 %
Hyaline			2 %	„ 5 %

Weight increased from 11 stone 6 lbs. 8 ozs. to 11 stone 13 lbs.

The patient came into the Royal City of Dublin Hospital to undergo a course of X-ray treatment to determine if it could produce any diminution in the size of the spleen. Dr. Charles Benson, X-rayist to the Hospital, gave him thirty sittings of fifteen minutes duration. The tube was placed six inches from the abdomen. The application produced no constitutional disturbances, and at best only a doubtful moderate diminution in the spleen was attained. During a month Dr. Alexander made a careful investigation into the urinary metabolism, which he found to be practically within normal limits. After nearly three months' treatment the patient returned to the Royal Hospital for Incurables.

CASE II.—G. K., aged fifteen years, a hairdresser, came to the Extern Department of the Royal City of Dublin Hospital in May, 1906, complaining of pains in his knees and left shoulder. His mother stated that he had been in the North Union Hospital in September, 1905, suffering from rheumatic fever. There was swelling of his ankles so that he could not walk. He was in the hospital five weeks, but he was confined to bed for only one week. As the examination of his shoulder was completed his mother mentioned incidentally that his stomach was always swollen. After examination he was admitted to hospital.

Family History.—Father alive, aged forty-six years, a miner by occupation, a healthy, well-developed man who, so far as can be ascertained, never had any venereal disease, but he is at times a hard drinker. Mother alive, aged forty-six years, health good. She has never been ill since her marriage. They had three sons and three daughters. The patient is a twin. His twin sister lived to be only seven months old. Her death was stated to be due to “something gastric.” Two sons and two daughters survive, and are in good health.

Previous History.—Three or four years ago suffered from abdominal pain and diarrhoea, which were occasionally so bad that they kept him from school. Two years ago he was apprenticed to the hairdressing. He felt well except that he had occasional attacks of pain in his knees. The pain became so bad in September, 1905, that he had to seek admission to the Union Hospital. As far back as he can remember his stomach had been too large, but it never gave him any inconvenience except the above-mentioned pains.

Present Condition.—He complains only of pain in his left shoulder, otherwise he feels perfectly well, and suffers no discomfort from his abdomen or knees.

On Inspection.—He is dark and a little sallow. He is fairly well nourished. His eyes are apparently normal, and his lips are a good colour. The back teeth are carious; tongue is clean; face is freckled.

Neck.—The glands along the posterior border of the sternomastoid are as large as grains of shot, and there is considerable pulsation at the root of the neck.

Thorax.—Shoulders are rather high. The chest looks deep,

and is too prominent in the lower portion. There is marked pulsation in the second and third intercostal spaces on the left side. On percussion the superficial cardiac dulness commenced on the second rib. On palpation the apex beat was felt in the fourth intercostal space inside the nipple. Auscultation disclosed no abnormal cardiac or pulmonary sounds.

Abdomen.—Distention of upper part chiefly involving left hypochondrium and epigastrium. On palpation a hard, smooth mass with a well-defined edge can be easily felt. It extends across the abdomen towards the right hypochondrium, and transgresses the middle line by 7 c.cms. In the left lumbar region it extends downwards below the level of the umbilicus. On percussion, dulness begins on the sixth rib in the nipple line and on the seventh in the anterior axillary line, and extends all over the tumour. On the right side there is an ill-defined dull note on the sixth rib in the nipple line. Below this level the note is rather tympanitic. The shape of the tumour is not unlike a greatly enlarged liver on the wrong side. That this is not the case is shown by the fact that on deep inspiration the edge of the liver can be felt in its normal situation riding over the spleen.

Urine.—Normal.

Blood.—Numerous examinations of the blood were made while in hospital. The following may be taken as a fair example. It was made by Dr. Symes on May 30, 1906 :—

Hæmoglobin	...	48 %
Red blood cells	...	4,340,000
White blood cells	...	2,500 ^a
Differential Count—		
Polymorphonuclears	...	36 %
Eosinophiles	...	16 %
Lymphocytes	...	28 %
Hyaline	...	20 %

X-ray treatment produced no alteration in the size of the spleen. His weight increased from 7 stone 1 lb. on July 4, 1906, to 7 stone 8 lbs. on October 3.

During the month of November he became very feverish, and an abscess developed in the lumbar region, which was opened on November 23; one also formed on the shoulder, which was

^a This is exceptionally low; 5,000 to 7,000 was the usual figure.

opened on November 27. Both healed without any complications, and the temperature settled down to normal. The pus contained the *Streptococcus pyogenes*, and the pus cells were chiefly polymorphonuclears, with a considerable percentage of eosinophiles. A blood examination was made at the commencement of the attack, and showed a considerable leucocytosis, the white cells being 35,000 per c.mm. On differential estimation the polymorphonuclears neutrophiles had increased to 80 per cent., and the eosinophiles had fallen to 8 per cent. A second examination, made on January 11, showed that the white blood cells had fallen to 11,000 per c.mm. There was no alteration in the size of the liver or the spleen during this febrile attack.

On his discharge he was perfectly well, the enlargement of the spleen causing him no inconvenience.

The alteration in the white blood cells, especially the lymphocytosis, and, even more important, the eosinophilia, is comparable in striking fashion with the changes in the blood of guinea pigs after splenectomy described by Kurloff, who carried out a series of investigations in Ehrlich's laboratory in 1888.

The similarity in the blood suggests that in these cases of splenomegaly the spleen has ceased to discharge its functions, and that a hypertrophy of other hæmic organs has occurred. In other words, the cases may be described as examples of functional desplenisation.

The differential diagnosis, excluding malaria and kala-azar, is chiefly concerned with myelogenous leukæmia, which from a prognostic point of view is a much graver disease, and apparently always fatal. This condition of splenomegaly does not appear to be incompatible with a long life, and produces no discomfort except that due to the size and weight of the tumour.

DR. ROWLETTE said he had seen the case some years previously, and the spleen did not appear to have increased in size. During

observation the health of the patient had remained exceedingly good, apart from the discomfort through the weight and size of the tumour.

DR. PEACOCKE quoted a case which turned out a case of Hodgkin's disease. The splenic tumour was simply a mass of lymphoid tissue. An operation was successfully performed, and he suggested the removal of the spleen in the case before them as a curative method.

DR. HARVEY said he had seen cases of an ordinary type treated with X-rays with apparently very different results from those in the present cases. Such treatment was likely to have altered the pathology of the spleen considerably. The effect in animals was to destroy the lymphocytes in considerable degree.

DR. PARSONS, replying to questions by Drs. Moorhead, Kirkpatrick, and Smith, said the patient at no time had syphilis. He did not consider the cases identical merely because they had eosinophilia. The cases were on the same level. There was no deterioration in health, no threatened shortening of life, and no inconvenience except in the weight of the tumours. Lymphocytosis was not very marked; exactly the same was found in the case of splenectomised animals, which tended to confirm his view that the two patients were functionally splenectomised. Several examinations of the blood had been made before the X-ray treatment was commenced, and there was found to be no diminution in the number of the lymphocytes. Anxious as he was to know the pathology of the spleen he did not feel justified in recommending its removal, as no inconvenience was caused, and no further enlargement was threatened.