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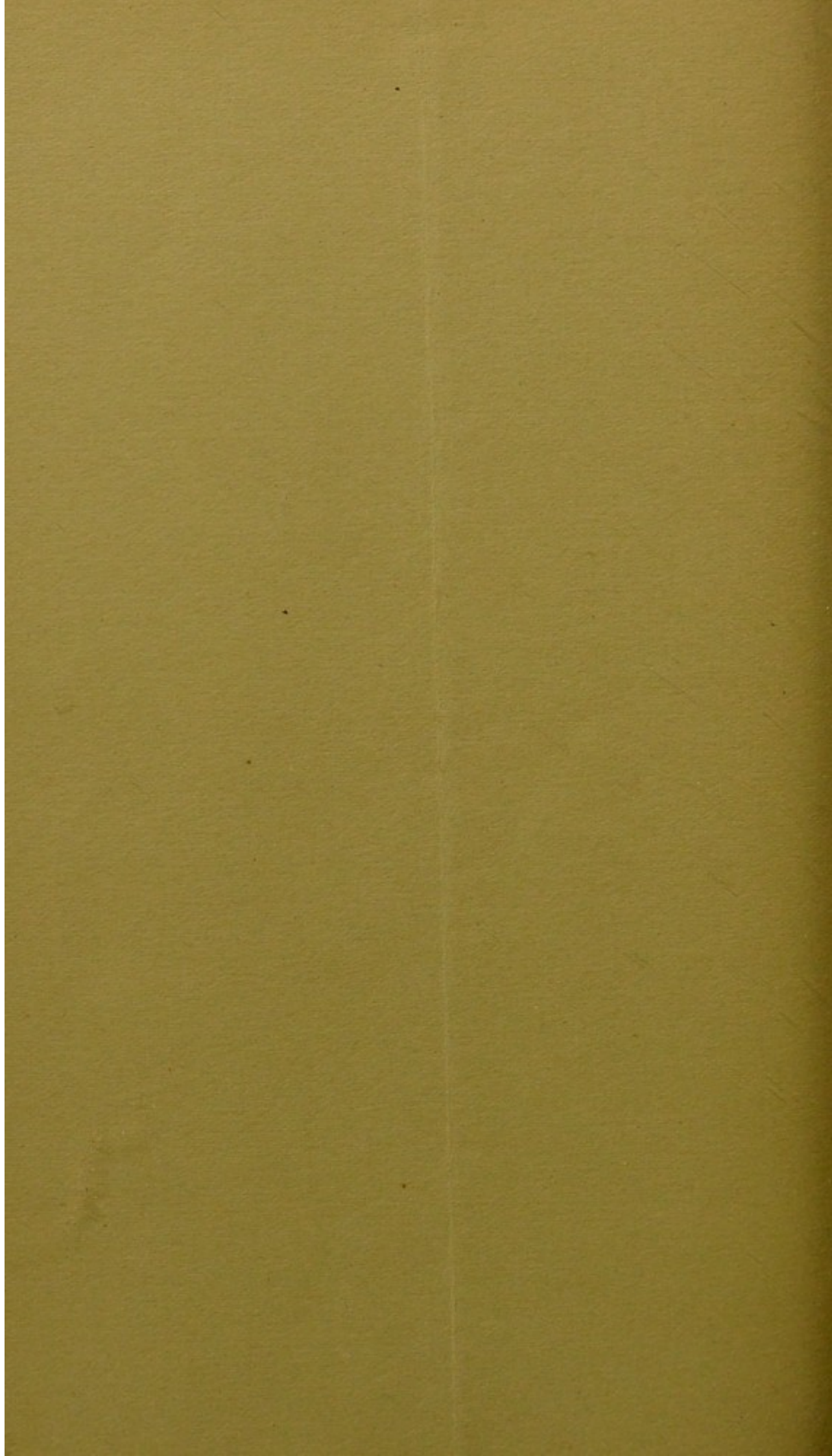


Stone in the Bladder
in Connection with Enlargement
of the Spleen.

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STONE IN THE BLADDER IN CONNEXION WITH
ENLARGEMENT OF THE SPLEEN.

had a semi-myxoedematous condition of the tissues. The urine contained a large amount of albumen. The face, hands, and abdomen were œdematous. The spleen was found to be much enlarged and very hard ; the liver was also enlarged. The account he gave of this condition was that two months prior to this attack he had suffered from acute bronchitis, and that the dropsical symptoms had appeared about a week previous to his admission. He remained under treatment in the hospital several weeks, and when he left his health had greatly improved. The general swelling had disappeared, but the spleen still remained large and hard, and the liver slightly so.

On readmission in March of this year, he informed me that the symptoms of stone showed themselves about a year previously. They began by a frequency of micturition, which became more urgent as time went on ; this was succeeded by an inability to retain the smallest quantity of urine, which was, indeed, constantly dribbling away, and he noticed how severely it scalded him. He had passed sand and gravel in the urine for six or seven months ; occasionally there was blood in it. About one month before admission hæmorrhage took place into the conjunctivæ and eyelids of both eyes, caused no doubt, as he said, by straining conjointly with the efforts made by the bladder to expel the stone, rather than to expel any urine, which was evidently not permitted to accumulate.

He had always been a most temperate man, taking occasionally mild beer, but no spirits. He had never suffered from ague, or syphilis, or fever of any kind. He had a good deal of colour in his cheeks and lips. One could hardly imagine him to be very ill ; he certainly had not the appearance of being so, although his skin generally was of a yellowish colour, and looked like wax. The sight was good ; appetite bad ; tongue pale and lightly furred. The heart

sounds were feeble, but normal; the lungs resonant on percussion; but the breath sounds coarse at the right base.

The spleen was greatly hypertrophied; it extended inwards an inch to the right of a line drawn from the ensiform cartilage to the umbilicus, and downwards two inches below the level of it; its surface was smooth and particularly hard. The liver was plainly felt a little below its normal line. The urine was intensely acid; it contained a small quantity of albumen, and the specific gravity 1015. Œdema of the legs and feet usually made its appearance towards evening. On sounding the bladder, a hard calculus of large size was readily detected. An attempt was made to measure it; this could not be accomplished, inasmuch as the bladder was felt to be firmly grasping the stone, and, as this viscus had not retained any quantity of urine for several months, it was not considered prudent to dilate suddenly with water an organ that had been so long in a contracted condition.

The general aspect of the patient, and the peculiar symptoms he was labouring under, made it evident enough that he was not only affected by this irritant in his vesical organ, but that he was the subject of splenic leukæmia. Examination of his blood showed that the leucocytes were greatly in excess of the red corpuscles. This unfortunate state of his system precluded the idea of an operation for the relief of the stone until the general condition of his health should be in a more improved state, and for the next seven weeks he underwent several kinds of medical treatment, but without any beneficial result. He now became impatient and clamorous to be relieved of the calculus, which was causing a large amount of distress and discomfort. In the end I yielded reluctantly to his wish; I still considered him to be in every respect a most unfavourable subject on which to perform any operation, but that under the circumstances litholapaxy would be perhaps the best and safest procedure

to adopt. This was accordingly performed on May 11th, after he had been placed fully under the influence of ether. The stone was hard and tough; the débris, when dry, weighed 256 grains, and was composed almost wholly of uric acid.

The next day he complained of much pain over the region of the bladder and along the urethra. He passed a good deal of blood as well as several pieces of stone, and he perspired freely for several days. On the fifth day the patient was well enough to undergo completion of the operation, again under the influence of ether, which he inhaled badly, and recovered from with difficulty. The débris weighed 435 grains, and with the former amounted to 691 grains. Shortly afterwards he had a severe rigor, which lasted several hours. Three days later he complained of a violent pain in the hypogastric region; a colliquative diarrhœa set in, consisting of thin yellow motions. His temperature was 102° ; pulse 120; tongue dry; no sickness; features pinched; and great prostration ensued. These symptoms became daily more marked, and were not alleviated by any form of treatment; to them he succumbed on the eighth day, the diarrhœa persisting to the end.

An examination of the abdomen was made after death. A good deal of pus was seen over the bladder, which was matted posteriorly to the pelvic fascia. The bladder was contracted to a size just large enough to contain the stone; its walls were extremely thick; several small fragments of stone and some turbid urine were found in it. The mucous membrane was congested, and presented a few white patches; the rugæ were very prominent; the prostate not enlarged. The kidneys together weighed 14 oz.; they were pale. On section the cortex seemed to be somewhat diminished; the papillæ were enlarged and well marked; the pelvis of the right one was dilated. On the whole they looked remarkably

well and healthy. The liver weighed 6 lb., and was firm on section. The spleen weighed $4\frac{1}{2}$ lb., and had contracted firm fibrous adhesions to the diaphragm. The surface was mottled, and on making a section its structure was seen to be dense and firm. The application of tincture of iodine gave a well-marked reddish-brown reaction ; it presented, indeed, a good example of amyloid degeneration.

My reason for bringing this case before the notice of the profession is that it presents several features of considerable interest, and especially one which I may venture to say is, so far as I can learn, new to surgery.

The number of diseases the patient had in a short space of time is singular. He first of all suffered from an attack of acute bronchitis ; after his recovery from this, acute albuminuria supervened, from which he appears to have recovered, or nearly so. He was then found to have enlargement of the spleen. This was followed by a condition of leukæmia and the formation of a stone in the bladder.

It was a difficult matter to ascertain for how long a time he had been the subject of splenic disease. He was known to have had the enlargement certainly for two years, inasmuch as this condition was noticed when the man was in hospital in 1886, but for how long a period before that is uncertain. The connexion, therefore, in point of time, between the commencement of the enlargement, and the formation of the calculus cannot be accurately made out. When under treatment in 1886, he made no complaint whatever of bladder trouble ; in all probability he had no stone in his bladder at that time, or else a very small one. Anyhow, the calculus was of not more, or very much more, than two years' growth, during which time it attained the weight of not less than twelve drachms, and it consisted almost entirely of uric acid with a small amount ofurate of ammonia. I need not say that this is an unusually rapid formation of a vesical calculus, but it is to be explained

by a singular fact—namely, that in cases of enlarged spleen, especially in those who suffer from anæmia, a large amount of uric acid is usually found in the urine. On this point, Senator, in Ziemssen's *Encyclopædia of Medicine*, vol. xvi., observes : "There is much reason to believe that the spleen is, if not the only, yet a very important source of uric acid, and when the spleen is enlarged uric acid is produced in larger quantity than usual ; we see this in splenic anæmia." Ranke found that in such cases uric acid was increased by one-half—from 0·648 to 0·915 part in 1000 ; Pettenkofer and Voit found the average of five normal men to be 0·872, while that of a leucocythæmic patient was 1·424, an increase of 64 per cent. Ossikoosky also found an increase, the excretion being on an average about twenty-two grains in the twenty-four hours. A similar increase was noticed by Schmuziger and by Berrell. In the case of the latter, a boy aged seventeen excreted 18·28 grains daily—1·50 parts in 1000,—the average for a boy of the same size and weight, on scanty diet, being, according to Parkes, only six grains. Bartels found an enormous increase in one case, the daily excretion being 4·2 grammes, or about sixty grains. The formation of so large a stone, consisting of uric acid, in so short a space of time in my patient, may thus be reasonably accounted for, the usual rate of growth in ordinary cases being about two drachms in the year. In Bartels' case, if only one grain of uric acid daily out of the sixty had gone towards the formation of a calculus, two years would have sufficed to produce one twelve drachms in weight.

The next point presents a circumstance of great interest and significance, especially to the operating surgeon. In splenic leukæmia the blood is found to be deprived to a great extent of its red corpuscles, and the number of leucocytes is very much increased ; in such cases there is a tendency to hæmorrhage, and the consequence is that those unfortunate

persons who are afflicted with this affection are bad subjects on which to perform any kind of operation, major or minor. The low vitality of the blood and a tendency to disintegration of tissue scarcely render recovery possible. No operation therefore, unless of urgent necessity, ought to be attempted. Even the operation adopted in my patient does not seem to be a particularly safe one. This singular fact, that leukæmic subjects usually succumb to fatal hæmorrhage after operations, has not been recognised by the profession, certainly not by authors on practical surgery. A large number of surgical works and periodicals have been searched, and no information bearing on the particular question could be found. The only allusion to the subject occurs in a paper by Sir Joseph Fayrer in the MEDICAL TIMES for 1874, in which he refers to the anæmic inhabitants of malarious climates, and observes that "in such cases the slightest wounds have been followed either by gangrene or by hæmorrhage." Again, he says, "Surgical operations, excepting such as are immediately necessary to save life, should be avoided in this state, the tendency to hæmorrhage, gangrene, or embolism being very great." These remarks are exceedingly valuable, although they apply more especially to the natives of India. The unfortunate result of my patient fully bears out the truth of Sir Joseph Fayrer's remarks. There was, indeed, a great disposition to hæmorrhage, as shown by the effusion of blood into the conjunctivæ and eyelids, as well as from the bladder. It was only as a matter of urgent necessity that the attempt was made to relieve him, and it ended fatally.

With the hope of obtaining further information on this deeply interesting subject I appealed to my professional brethren in the pages of THE LANCET in May of this year. The only response was on the part of my colleague, Mr. Cadge, who kindly forwarded notes of two very instructive cases that had fallen under his observation. Mr. Cadge says: "In

1861 I assisted a medical friend with a troublesome case of stone. The man, aged fifty-four, was corpulent and asthmatic. Three years previously an ineffectual attempt had been made to do lithotrity. The stone was broken, but not removed. The man continued to suffer, and had constant and great bladder irritation and cystitis. Two large stones were removed. The operation was tedious from repeated slippings of the forceps. There was free but not serious hæmorrhage. No plug was used. The patient died two days after the operation. The prostate was freely divided. The bladder was contracted; the mucous membrane thickened and congested; the muscular coat thickened. The ureters, pelves, and tubes of the kidneys were much dilated. The spleen was of an enormous size—nearly as large as the liver.

The next case, which occurred in 1866, was that of a gentleman aged sixty-four, a florid, almost purple-faced gouty man. The stone was removed by median lithotomy; the operation was easy and quick, and no bleeding occurred at the time. In a few hours hæmorrhage came on, apparently from the prostatic veins; it did not escape externally, but filled the bladder, and clots were frequently extruded. It ceased in twenty hours; the urine then became clear, and he seemed in every way doing well for four days. On the fifth day he ate an indigestible meal; this was followed by oppression, and in a few hours by a sharp rigor and perspiration; rigors followed every day or two. He became delirious, and died a fortnight after the operation. At the post-mortem examination the bladder was seen to be healthy; the mucous membrane pale; the parts about the prostate rather congested. No pus was found anywhere. The kidneys were large and congested. There were two or three small stones in one, and some pyelitis. The liver was large and very congested; the spleen four or five times its normal size, tinged with blood, soft, and easily lacerable."

Mr. Cadge remarks : "I have always felt uncertain as to the exact cause of death in this case. The symptoms were those of pyæmia, but the pathology was certainly not consistent with that view."

These two cases go far to establish the fact that those persons who may happen to be subjects simply of enlargement of the spleen are as liable to serious risks, should any operation be performed on them, as are those who suffer from splenic leukæmia, in which condition the tendency to hæmorrhage is so great as to render an operation of any kind scarcely justifiable. In corroboration of this view, Sir Joseph Fayrer, in a private communication to me, says : "In cases of splenic enlargement I would avoid all operations not absolutely necessary to save life and relieve suffering, even although there be no leucocythæmia or apparent anæmia."

