

PRIMARY ABSCESS OF THE SPLEEN

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THESIS FOR DEGREE OF M.D. 17

PRIMARY ABSCESS OF THE SPLEEN

CASE OF PRIMARY ABSCESS OF THE SPLEEN

BY

I was called on 5th April 1908 to attend a patient

aged 38, who was complaining of abdominal pain in his

THOMAS ORR SPEIRS M.B., C.M. (Glasgow)

abdomen and of feeling faint, his illness having commenced

the previous evening. His temperature was 101.3° I advised

rest and soda only, and prescribed a mixture containing

small doses of opium. The pain decreased and vomiting

subsided so much that on my visit on the 11th I found him

1st JUNE, 1911.

enjoying a good deal of rest and he said he felt much better. As the

bowels had been unacted I left off the opium and gave

him a mixture containing gr.ij of Magnesia. On 17th I

called to see him on 18th. His temperature was 101.0°, pulse

110, and respiration 24. He did not seem so well and the

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## PRIMARY ABSCESS OF THE SPLEEN

Abscess of the Spleen is a somewhat rare disease and is generally secondary to some other primary lesion. In very isolated cases abscess of the Spleen occurs for which a primary cause cannot be found. I came across a case, in my practice, of Abscess of the Spleen for which no primary cause was found, and as I had the opportunity of seeing the case until the fatal issue and of being present at the autopsy, I thought the case was of sufficient interest to form the basis on which to write a Thesis with the above appellation.

## CASE OF PRIMARY ABSCESS OF THE SPLEEN

I was called on 8th. April 1909 to see B. J. a carman aged 32. He was complaining of sickness, pains in his abdomen and of feeling faint, his illness having commenced the previous evening. His temperature was 99.6°. I advised milk and soda only, and prescribed a mixture containing small doses of opium. The pain decreased and vomiting subsided so much that on my visit on the 11th. I found him enjoying a smoke and he said he felt much better. As his bowels had been constipated I left off the opium and gave him a mixture containing sulphate of Magnesium. When I called to see him on 13th. his temperature was 101°, pulse 110, and respiration 30. He did not seem so well and the

Pain had moved to the left side of chest Diarrhoea had set in, Tongue furred, Teeth dirty, He had a slight cough and brought up a little black and white phlegm but not more (according to the patient) than his usual.

Examination of the chest showed it moved easily on respiration. There was marked hollowing above both clavicles The Vocal Fremitus was absent at left base, but present at right base. Percussion revealed dullness over base of left lung, and slight over base of right lung. The right apex was slightly duller than left apex. On Auscultation the breath sounds were greatly diminished at left base, and slightly at right base. The breath sounds at right apex were slightly louder and more tubular in character than left apex. The Vocal Resonance was diminished especially over the left base.

On examining the Heart the apex beat was palpated in the 4th. intercostal space internal to the nipple.

The Heart sounds were normal on Auscultation. The pulse was of moderate tension and regular. The eyes responded to light and accommodation. Knee Jerks and Plantar reflexes normal. Examination of the Abdomen revealed nothing abnormal. The Liver and Spleen were impalpable. The Urine was acid containing pink urates, but no albumen, sugar or blood.

#### FAMILY HISTORY

Unimportant, His father died of Pneumonia, Mother Alive and well.

#### PREVIOUS HISTORY

He had no illness previous to July 1908. At that time

He had diarrhoea and passed a little blood per rectum. A specimen of his blood was submitted to the Borough Bacteriologist for examination, who reported a positive "Widal" reaction, and the patient was removed to the South Eastern Hospital for Infectious Diseases, as suffering from Enteric fever. He was dismissed from Hospital after 12 days as not having Enteric. During his stay in Hospital his blood was tested with negative results. His chart and condition showed nothing to indicate Enteric. It is interesting to note in the Hospital report of the case that the spleen was found to be slightly enlarged and that the abdominal pains persisted.

COPY OF REPORT IN SOUTH EASTERN INFECTIOUS HOSPITAL of

B. J. admitted 16th. July 1908. as suffering from Enteric Fever.

HISTORY OF PRESENT ATTACK.

Retching in morning before breakfast for a few weeks. Woke up on morning of 14th. with abdominal pain, constipated stool with a little blood on the 14th.

STATE ON ADMISSION.

Abdomen distended, not tender, resonant all over, no rash, mental condition clear. Diet Milk 5 ozs. Barley water 2 ozs. every four hours.

17th. July. Nothing made out in abdomen.

18th. " Has vomited three times, green fluid. Two light brown liquid stools. Dull on percussion over Splenic area to about two inches below costal margin.

DISEASE

Enteric Fever ?

South Eastern Infirmary, Toronto, Hospital

NOTES OF CASE

B. G.

NAME { Carnan

AGE 36

DIET

CASE BOOK N°

DATE DAY OF DISEASE TIME	16		17		18		19		20		21		22		23		24		25		26											
	MORNING	EVENING	MORNING	EVENING	MORNING	EVENING	MORNING	EVENING	MORNING	EVENING	MORNING	EVENING	MORNING	EVENING	MORNING	EVENING	MORNING	EVENING	MORNING	EVENING	MORNING	EVENING										
R P T	3	7	11	3	7	11	3	7	11	3	7	11	3	7	11	3	7	11	3	7	11	3	7	11								
42	155	107°	59	145	106°	36	155	105°	33	125	104°	50	115	103°	27	105	102°	24	95	101°	21	85	100°	18	75	99°	15	65	98°	12	55	97°
PULSE,																																
RESP.																																
BOWELS.																																
URINE.																																
Normal																																

DATE OF ADMISSION

16 July 1908

Result Received 24 July 1908

Entered at Stationers' Hall.

21, 23, 25, Throgmorton Street, London, E.C. 4.

20th. July. Nothing in abdomen. Diet Soup, thin bread and butter.

21st " A normal stool. Diet Fish.

22nd " Condition normal. Diet meat.

24th " Walks well. Still complains of abdominal pain.

27th " Discharged.

BACTEROLOGICAL EXAMINATION. Blood taken on 17th. Examined on 18th.

Negative  $\frac{1}{20}$  in 30 mins.

Negative  $\frac{1}{50}$  in 45 mins.

In November 1908 (the first occasion on which I saw the patient) he had an attack of sickness which I considered was due to his having eaten pork and fried fish the night previous. He recovered from the attack in a few days.

In health he generally drinks 2-3 pints of beer daily and occasionally some spirits. He smokes 10-15 cigarettes daily and sometimes has morning retching.

He is a well built muscular man.

15th. April. Patient's condition did not improve. I explored the left pleural cavity, but was unable to withdraw any fluid. Temp. 101°. Pulse 112. Resp. 30.

18th. " Vomiting returned and diarrhoea continued, There was a similarity between vomit and faeces and the vomit had a faeculent smell. Temp. 101°. Pulse 112. Resp. 32.

As the patient was evidently getting worse I sent him into Guy's Hospital where he was placed under the care of Dr. Hale White, by whose courtesy I was allowed to visit the patient daily.

20th. April Patient was given fish and farinaceous diet but he continued to vomit about six times daily. He was given iced water and brandy and one minim dose of Tinct. Iodi in fluids. He was also given saline injection but vomited half an hour after injection. The vomit was of a yellowish colour, acid, contained no pus, but multitudes of bacteria some of which were obviously motile.

21st " Patient was given-

Ox Acid. Hydrocyanic Dil. M II.  
Spt. Ammon. Aromat. M XV.  
Aquac Chlorof ad  $\frac{1}{2}$  oz.  
and Veronal gr VII

He vomited five times. Saline injection.

22nd. " Patient vomited up a membranous substance which was shreddy in appearance as if partially digested Some white stuff present which had the appearance of fat necrosis which certainly was not lung, but might be part of stomach. Soda water in small quantities was given by the mouth. Saline per rectum he vomited four times to-day.

23rd " Vomited five times. Saline omitted.

24th " Saline injection per rectum. Two hours after saline patient vomited up what looked like a cast of large intestine though no tubular glands or villi



DISEASE

Abcess of Spleen  
Guy's Hospital

NOTES OF CASE

B. J.

NAME

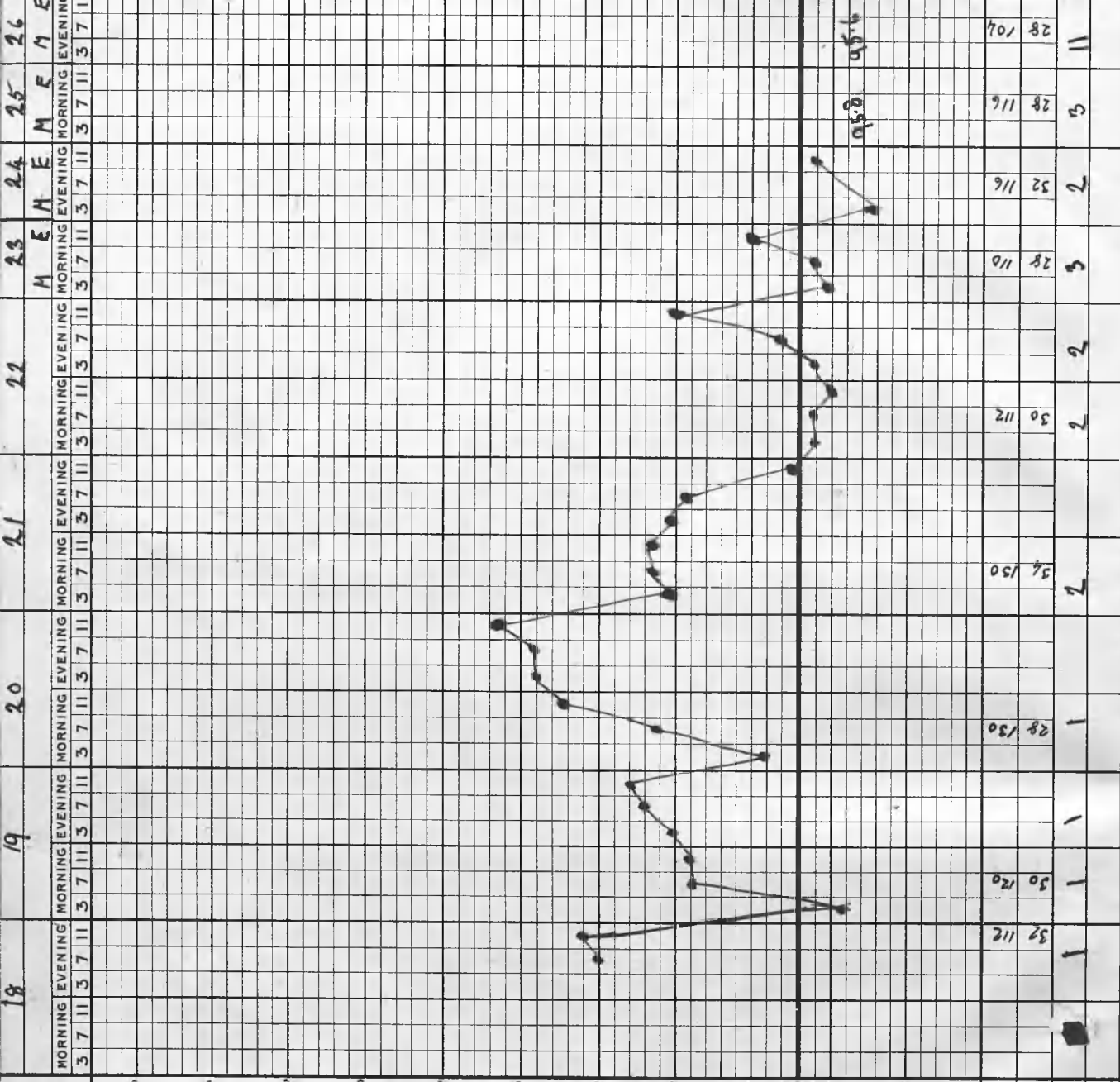
AGE

DIET

CASE BOOK No

DATE	DAY OF DISEASE	
	MORNING	EVENING
42	155	107°
39	145	106°
36	135	105°
33	125	104°
30	115	103°
27	105	102°
24	95	101°
21	85	100°
18	75	99°
15	65	98°
12	55	97°

Normal (Temperature of body)



PULSE.

RESP.

BOWELS.

URINE.

32 112

30 120

28 130

34 150

30 112

32 116

28 110

32 116

28 116

28 104

DATE OF ADMISSION

18 April 1909

been formed in or round the spleen, so that its walls could be seen microscopically; the other tissue were formed by the stomach and the diaphragm and were degenerated. Acid to litmus. A blood count pending with this, the cavity was partly lined by mucous membrane and partly not. Projecting into the cavity

was a fold which LEUCOCYTES RED BLOOD CORPUSCLES

ligament.	15,400	per	c.c.	4,500,000
	15,000	"	"	
	20,000	"	"	
	25,000	"	"	

25th. April Vomited three times to-day.

26th " The case was diagnosed as Gastro Colic Fistula due to Malignant disease of the stomach. The sloughing of part of the intestine was probably due to thrombosis of the blood vessels. Vomited twice.

27th " The Patient died to-day.

POST MORTEM REPORT.

On opening the abdomen the pathologist incised a large distended piece of intestine which more particularly filled up the left hypochondriac region. On putting the hand into this, the cavity was seen to communicate by openings in four directions. Thus the finger could be inserted into-

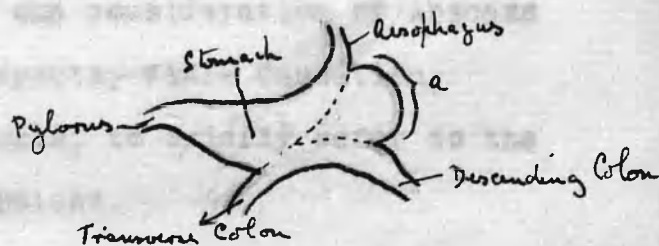
- a. Oesophagus (this with the greatest difficulty).
- b. Pyloric canal.
- c. Transverse Colon.
- d. Descending Colon.

The cavity was formed apparently by the stomach in communication with an abscess cavity which had

the pus having been discharged before the wall was examined,

been formed in or round the spleen, so that its walls were formed by the stomach and the diaphragm, and corresponding with this, the cavity was partly lined by mucous membrane and partly not. Projecting into the cavity was a fold which apparently represented the lieno-colic ligament.

At the part marked "a" in the figure was a large mass of fat connective



tissue, and the diaphragm, but of the spleen no trace could be found. This had apparently been destroyed and partly sloughed into the stomach. (Probably this was what was vomited on 22nd. April). The splenic flexure had also been involved and destroyed, and so formed part of the cavity.

The left Lung was covered with a layer of fibrin and the left side of the chest contained some non-purulent fluid. The left lower lobe was compressed and had a wrinkled surface, a slatey colour, and sank in water. The right pleura was adherent to pericardium. Beyond some old adhesions round the gall bladder, some fibrous bands among the upper coils of small intestine, and a small retention cyst in left kidney, there was nothing abnormal found in the other organs.

The state of affairs was considered to have arisen from a splenic abscess which had burst into the stomach and colon,

the pus having been discharged before the vomit was examined, as no pus was found in vomit.

The obscurity in which the functions of the spleen are involved and the position it occupies in the body, present when diseased some difficulties in regard to diagnosis which are not shared by many other organs. It would therefore seem desirable before proceeding in the consideration of Abscess of the Spleen in its various aspects, viz:- Causation, Diagnosis, Treatment and Prognosis, to briefly refer to the Anatomy and Physiology of the Spleen.

#### ANATOMY OF THE SPLEEN.

It is generally described<sup>1</sup> As an irregular tetrahedron possessing Phrenic, Renal, Gastric and Basal surfaces. It is almost entirely covered with peritoneum, and is situated behind the stomach being covered by the lower ribs.

The Phrenic surface is the most extensive, it is convex and lies against the diaphragm which separates it from the 9th, 10th, and 11th. ribs its long axis, 5, or six inches ~~apart~~ coinciding with their direction. In its upper part it is also separated from the costal wall by the left pleura and lung.

The Gastric surface is concave and rests on the fundus of the stomach. It is separated from the Phrenic surface by the anterior border which presents usually one or more deep notches. In this surface is situated the hilum for the entry and departure of the blood vessels.

The Renal surface is applied to the upper and outer part of the anterior surface of the left kidney and usually.

overlaps the summit of the supra renal capsule.

The Basal surface bears a varying relation to the splenic flexure of the colon and the tail of the pancreas.

#### BLOOD SUPPLY OF SPLEEN

The Splenic Artery is a branch of the coeliac axis. It breaks up into 5 or 6 branches, between the layers of the lino-renal ligament, which enter the hilum of the spleen. The blood returning from the spleen is poured into the portal system through the splenic veins.

#### NERVE SUPPLY OF SPLEEN.

The nerves of the spleen originate from a centre in the Spinal Medulla. From the Medulla the fibres run through the spinal cord passing through a series of ganglia between 1st. and 4th. cervical vertebrae. Then the fibres enter the left splanchnic nerve the semilunar ganglion and end in the splenic plexus.

From the above anatomical description it will be seen that the spleen is hidden from our view and put beyond the reach of our usual modes of investigation having the ribs and a portion of the diaphragm so placed as to prevent us approaching it on the one side, and the stomach and the colon on the other side. Under such circumstances the spleen is situated favourably for contracting adhesion to neighbouring viscera, and may either form a kind of shut sac by their assistance or ulcervate through into some hollow viscera as the colon and stomach, and thus affect

the discharge of an abscess without material injury to the peritoneum.

## PHYSIOLOGY OF THE SPLEEN.

Our knowledge of the functions of the spleen is meagre and unsatisfactory. (It can be removed without serious damage to the organism, and cases of congenital abscess with no abnormal consequences have been met with). It is an organ peculiar to red blooded vertebrates. It is in the spleen alone that the blood is brought directly into contact with the actual substance of the organ. There is a considerable difference of opinion with regard to the part the spleen plays in the formation of the (a) Red, and (b) White Corpuscles.

### (a) RED CORPUSCLES.

In the lower order of vertebrates, the fishes, Bizzozera and Torre<sup>1</sup> have shown that all the red corpuscles are made in the spleen, the bones contain no marrow. They always find red blood cells with dividing nuclei. In the Lower Reptiles the marrow of the bones is simply fat, the spleen being the only organ where red corpuscles are formed. In the Higher Reptiles the bone marrow begins to take a part in the formation of the red cells, and in Birds this function is fulfilled by both the spleen and the marrow. In man the bone marrow is the principal source of the red cells though it is generally agreed that the spleen produces red blood corpuscles during foetal life and early infancy. Kolliker and Ecker<sup>2</sup> consider the spleen is an organ in which

dissolution of the red cells takes place, in fact is a sort of scavenger for dead red cells because they found in the splenic blood large white protoplasmic cells possessing amoeboid movement which had taken red blood corpuscles into their substance. These red cell disintegrate and the liberated haemoglobin forms the mother substance of the splenic pigment which is similar to haematin. They also find a variety of highly oxidised products of albumen, e.g.- leucin, tyrosin, taurin, Xanthin, and salts of the red blood corpuscles.

(b) WHITE CORPUSCLES.

That the spleen produces white corpuscles is demonstrated by the constant presence of lymphoid cells in the splenic veins. It is generally considered the chief producer of white corpuscles though according to recent views (Ehrlich<sup>2</sup>) as a producer of white cells it plays a part subsidiary to that of the bone marrow and lymphatic glands.

The spleen is provided with a structure which affords it peculiar elasticity, so that it can accommodate itself to great changes in the volume of blood it contains. This power has reference to the varying quantity of blood with which it is supplied in the discharge of its duties. The volume of the spleen is changeable owing to the presence of unstriped muscle fibres. Irritation of these fibres on the nerves which supply them, by cold, electricity, or drugs e.g. quinine, ergot, leads to a contraction of the

spleen, and on the other hand if these nerves are severed the spleen enlarges.

Enlargement of the Spleen, frequently seen in Infectious diseases has been attributed to paralysis of these nerves by the specific toxins or invasion of the spleen proper by the bacteria. On the other hand reduction of the spleen, enlarged during infection, by the administration of quinine and other antipyretic is explained by Binz<sup>2</sup> as due to a reduced or inhibited production of leucocytes.

The spleen is considered by some as a regulator of the blood supply of the digestive organs because the spleen becomes enlarged several hours after digestion when the digestive organs after a period of great activity are no longer engaged with blood. The weight of a healthy spleen varies from 13 drachms to 2 pounds.

From the above physiological resume it will be seen there is still a considerable divergence of opinion with regard to the functions of the spleen, and it would seem to me our knowledge of its functions have not increased commensurate with the years since Dr. Bright<sup>3</sup> in the year 1838 lecturing on the spleen said, "We believe it affords important assistance in preparing the blood but, whether chiefly as accessory to the process of digestion or as having within itself the power of acting beneficially on the blood we shall not now consider it necessary to inquire".



In very rare cases, abscesses of the Spleen occur for which a primary cause cannot be found. In such cases some CAUSATION OF ABSCESS OF SPLEEN.

Abscess of the spleen is generally secondary to some primary infection, and its most frequent causes are:-

1. Septic embolic infarct arising from Ulcerative Endocarditis, in rare cases from Abscess of the Lung.
2. Metastatic infection arising from an inflammatory process in the body from which pyogenic organisms find entrance into the general circulation. i.e. pyaemia.

Typhoid fever on extremely rare occasions has abscess of the spleen as a complication and Chowdhorry<sup>4</sup> states that in treating 30,000 cases of Malaria he has only seen three abscess of the spleen.

Tubercular abscesses are frequently found in the spleen the result of a more or less general Tubercular infection.

Abscess of the spleen may arise from extension of inflammatory processes in neighbouring organs as Thoracic empyema, general, or local peritonitis. Pye Smith<sup>5</sup> reports a case as having originated from perforation of Gastric Ulcer. Bessel Hagen<sup>6</sup> reports two cases one of which followed appendicitis and the other Gangrenous chancre Spear<sup>7</sup> and Newton Pitt and Fagge<sup>8</sup> report cases as probably due to Influenza and Rodgers<sup>34</sup> reports a case following Dengue.

point. In very rare cases, abscess of the Spleen occurs for which a primary cause cannot be found. In such cases some indefinite cause has been made responsible, as cold, trauma, over exertion etc. The symptoms of Abscess of Spleen are Litten<sup>2</sup> regards such attempts at explanation as rather fanciful, but Osler<sup>9</sup> and Herrick<sup>10</sup> amongst others consider that local damage to tissue may so lower its vitality that accidental micro-organism circulating in the blood may lodge in the injured organ and cause suppuration. and Douglas,<sup>11</sup> while admitting that primary abscess of the spleen may occur without any recognised aetiology, considers it usually takes place in an organ predisposed by engorgement either from displacement with torsion of the pedicle or in hypertrophy from paludal or other systemic infection. the Harrison<sup>12</sup> records a case in which no cause was found, and I venture to think the case I have recorded above must be added to the same category. described above opened into

#### DIAGNOSIS OF ABSCESS OF SPLEEN.

Abscess of the Spleen is a rare condition clinically being usually discovered at Autopsy.<sup>9</sup> Many cases occur in which no special symptoms indicating the seat of the trouble appear. The symptoms vary according to the position and character of the abscess. Small deep seated, slowly developing abscesses probably would show no signs whereas abscesses developing with fulminating rapidity destroying the whole organ would most likely be attended by symptoms

pointing to the seat of the trouble.

In cases Embolic in origin the symptoms come on suddenly, but if Non-embolic in origin the symptoms may arise very gradually. The symptoms of Abscess of Spleen are when present those of suppuration elsewhere viz.- Pain, Sweats, Irregular pyrexia, Rapidly developing anaemia, Emaciation, Weakness, Disturbance of Functions of bowel, and Vomiting. In addition to these general symptoms you may have some local symptoms such as Pain, tenderness, and swelling causing increased splenic dulness. Fluctuation may also be detected if abscess is large and overlying oedema may also be present. If the abscess reach the periphery of the spleen causing adhesion to neighbouring organs the results will vary according to the positions of the adhesions, and their relations to the other organs should perforation of the capsule of spleen occur.

The case which I have described above opened into stomach and Colon.

Hickman<sup>13</sup> reports a case opening into Stomach and Umbilicus, Fantoni<sup>14</sup> and Fallen<sup>15</sup> each report a case opening through andominal wall, Bright<sup>3</sup> Jacquinelle<sup>16</sup> and Brown<sup>17</sup> report cases opening into Colon. Law,<sup>18</sup> Joukh,<sup>19</sup> Chowdhoory<sup>4</sup> Mantell<sup>20</sup> and Newnham<sup>21</sup> report cases opening into left lung, and Bull<sup>22</sup> reports a case opening into Stomach. The cases reported by Chowdhoory, Fantoni and Pallen recovered. If perforation of the capsule of Spleen occur where no solid

adhesions exist in most favourable cases a circumscribed intra-abdominal abscess may be formed, in less favourable cases a fatal general peritonitis results.

Leucocytosis was present in the case I have described above. This symptom has been noted by several observers. Black<sup>23</sup> records a case of Abscess of the Spleen with 35-45 leucocytes in the field. Richelot<sup>24</sup> mentions a case of Abscess of the Spleen in which an extraordinary marked leucocytosis occurred which almost concealed the red blood corpuscles. Bessel Hagen<sup>6</sup> records a case in which the leucocytosis was 20,000 to 30,000 per C.C. 80% were polynuclear neutrophile cells, 10% lymphocytes 10% transition forms, and a very small number of eosinophile cells.

Bessel Hagen<sup>6</sup> considers Leucocytosis an important point in the diagnosis of Abscess of Spleen by directing our diagnosis from the first into the right path without waiting for a puncture to inform us of the existence of pus.

Combined with the usual phenomena which lead to the conclusion of Acute Inflammation of the Spleen Leucocytosis will give an important clue as to the formation of pus.

Douglas<sup>11</sup> says, while there are no examinations recorded on which to base the statement, yet in Splenic Abscess perhaps more than in suppuration in any other part of the body there will be marked Leucocytosis.

If during Malaria or Typhoid the temperature rises,

Splenic Tumour increases and pain develops over spleen, and Abscess of the Spleen should be considered. A blood count would be of considerable assistance as Typhoid is not usually accompanied by leucocytosis.

Left Pleurisy with non-purulent effusion was present in the case I have reported, and in fact led me, although I was not able to draw any fluid, to think that possibly the case was one of Empyema. This non-purulent effusion has been noted by several writers including Bessel Hagen<sup>6</sup>, Lauenstein, Kerni, Parzenski<sup>25</sup>, Collier<sup>26</sup>, and Nolen<sup>27</sup>. This pleural effusion is probably due to the inflammation spreading from the upper pole of spleen to the diaphragm and basal portions of the pleura favouring obliteration of the pleural cavity.

The pus taken from a splenic Abscess has been found to be completely sterile both microscopically in the stained specimen and in culture by amongst others. Bessel Hagen<sup>6</sup>, Lauenstein<sup>25</sup>, Kolliker<sup>2</sup> and Monod<sup>2</sup>.

The disappearance of bacteria in the pus is certainly a striking phenomenon, but it cannot be considered characteristic of Splenic Abscess as in other cases of Abscess of the Spleen bacteria have been found. An analogous condition is found in suppuration in other parts of the body e.g. Pyo salpinx, and the presence or absence of bacteria may depend upon the nature of the causes of the disease

and the special behaviour of the spleen towards them, and possibly also the length of time which occurs in the formation of the abscess.

In the cases reported by Kollicher<sup>2</sup> and Lauenstein<sup>25</sup> which both followed Typhoid fever no Typhoid bacilli were found.

Thorough examination of the bladder would help to distinguish Splenic Abscess from Left Pyelonephrosis for in the former case one would expect to find a normally excreting ureter, whilst in the latter case pus would probably be found in the excretion.

Puncture of a swelling in splenic regions is sometimes resorted to for diagnostic purposes.

#### TREATMENT OF ABSCESS OF THE SPLEEN

The treatment of abscess of the spleen is necessarily surgical and consists either of incision of Abscess (Splentomy) or of removal of the diseased organ (Splenectomy) Tapping was at one time performed with most unfavourable results. Lyon<sup>28</sup> records two cases in which tapping was resorted to. The first case was tapped on two occasions and four pints of purulent fluid withdrawn at each procedure the patient died the day after the second tapping. The other case was tapped once, and two pints of purulent fluid withdrawn, the patient dying the following day.

#### SPLENOTOMY

I have been able to collect sixteen cases in which

splenectomy was performed, in two only of which (Collier<sup>26</sup> and Kollicker's<sup>2</sup> cases) a fatal issue occurred.

The cases successfully operated on are recorded by Black,<sup>23</sup> Treves,<sup>31</sup> Cromwell,<sup>32</sup> Chowdhury,<sup>4</sup> Pitt and Fagge<sup>8</sup> Wallace,<sup>33</sup> Harrison,<sup>12</sup> Rodgers,<sup>34</sup> Nolen,<sup>27</sup> Sandler,<sup>30</sup> Lauenstein<sup>29</sup> (2 cases) and Bessel Hagen<sup>6</sup> (2 cases).

If the abscess reaches below the ribs the evacuation of the pus is best done by a simple incision below the ribs. When the abscess is behind the ribs a piece of rib (9th or 10th or both) several centimetres in length should be resected backwards from the cartilaginous portion and the abscess opened with a knife or as Lauenstein<sup>29</sup> prefers a thermo cautery.

The adhesion which forms rapidly in the neighbourhood of a splenic abscess, make it generally possible to lay open the seat of the pus without opening the abdominal cavity or the Sinus phrenico-costalis.

### SPLENECTOMY.

I have been able to collect eight cases of abscess of the spleen in which splenectomy was successfully performed. The cases are recorded by Bessel Hagen<sup>6</sup> (4cases) Ferrerius<sup>25</sup> Myers,<sup>25</sup> Czerny,<sup>35</sup> and Spear<sup>7</sup>.

Splenectomy should not be undertaken unless the spleen is swimming in pus or free from special adhesion, and in a condition in which it can be removed without the danger of a purulent infection of the peritoneal cavity.

The incision is generally made in the middle line of abdomen, but if the superficial veins are much dilated pointing to a collateral circulation due to an obstruction of

the portal system they should be avoided, and the incision made in a part of abdomen where injury to the veins can be avoided. Haemorrhage must be very carefully controlled by using a blunt instrument for separating the adhesion and by doubly ligaturing the blood vessels and cutting them through between the ligatures.

### PROGNOSIS IN CASES OF ABSCESS OF SPLEEN.

Abscess of the Spleen may possibly heal spontaneously<sup>2</sup> but probably only in those cases of secondary abscesses in which small infarcts caused by bland emboli had been converted into pus.

Expectantly treated the prognosis in cases of Abscess of Spleen is fatal with the exception of those cases just mentioned, and of those cases in which the very rare accident of spontaneous evacuation and natural drainage occurs as in the cases recorded by Fantoni<sup>14</sup> and Pallen.<sup>15</sup>

In Fantoni's case the patient recovered, bore a child and died five years after. At the postmortem examination not a vestige of spleen could be found, the neighbouring parts being united by cicatrices in the usual situation of the missing organ.

Bessel Hagen<sup>6</sup> says the prognosis in Abscess of the Spleen is favourable if the operation is undertaken early and if the disease causing the complaint does not disturb your reckoning.

It has been shown by experiments on animals, and observations on Patients<sup>36 & 37</sup> that the removal of the



greater part of the spleen or even its entire removal in an otherwise healthy individual is not recognisably prejudicial to health even although <sup>they</sup> should become at a later period the subject of infectious disease. The changes which as a rule take place after removal of the spleen namely increase of white corpuscles, decrease of red corpuscles, decrease of Haemoglobin with the occasional swelling of Thyroid and Lymphatic glands generally disappear in a few weeks or months at most with the exception perhaps of a slight non-injurious increase of lymphocytis .

Bessel Hagen collected 360 cases in which Total extirpation of the spleen was performed for vari<sup>u</sup>ous diseases, and of these 222 recovered and 138 died, a mortality of 38.3%. He further states if we omit those cases e.g. leukamic disease, <sup>A</sup>Atrophu Amyloid liver cirrhosis in which splenectomy is not indicated the mortality falls to 12%, in 131 splenectomies performed from 1890-1900. These results are very encouraging and should stimulate our efforts to diagnose Abscess of the Spleen when in an operable condition, and before it has ruptured the splenic capsule, and caused complications which generally prove fatal.

The literature of Abscess of the Spleen is comparatively slight, but it has entailed a considerable amount of time looking it up, as it is so much scattered.

I have read the reports of sixty cases of Abscess of the Spleen, but the case I have recorded seems to be unique.

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The Patient was doing the arduous labours, lifting sacks of flour, which his duty as a carman entailed, and he died in three weeks from the day of his illness commenced.

The only attempt at explanation of the state of affairs I can offer is that the patient was suffering from an enlarged spleen (vide report when in South Eastern Hospital) and met some injury to it during his laborious work. This injury lowered the vitality of the spleen and some organism circulating through the blood settled in the injured organ producing a slow suppuration which caused no inconvenience until the capsule was reached. Perforation of the capsule occurred and then followed the symptoms I have given in the report.

The writing of these notes has occurred at irregular intervals (as it must necessarily be when the writer is a general practitioner) and the results may seem somewhat disjointed, but it has afforded me considerable instruction and pleasure, and if it should refresh the reader's memory with regard to a very rare disease my Thesis has not been written in vain.

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