Clinical records from the Glasgow Royal Infirmary / by Geo. S. Middleton.

CLINICAL RECORDS

FROM THE

GLASGOW ROYAL INFIRMARY.

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GLASGOW:
PRINTED BY ALEX. MACDOUGALL.

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GLASGOW ROYAL INFIRMARY.

BY

GEO. S. MIDDLETON, M.A., M.D.,

FELLOW OF THE FACULTY OF PHYSICIANS AND SURGEONS, GLASGOW;
PHYSICIAN TO THE GLASGOW ROYAL INFIRMARY.

WITH ELEVEN ILLUSTRATIONS.

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PREFACE.

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These records of somewhat rare cases have been published in the pages of the *Glasgow Medical Journal* during the present year. Several of the patients, and the heart with tricuspid stenosis, were shown at meetings of the Medico-Chirurgical, and Pathological and Clinical Societies, Glasgow.

In the observation and reporting of the cases I have been greatly indebted to Drs. P. C. MacRobert, J. J. Boyd, J. Barr Stevens, and George M'Feat, my successive Resident Assistants in the Infirmary.

G. S. M.

Glasgow, *December, 1894.*

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CLINICAL RECORDS.

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I.

A CASE OF MARKED TRICUSPID STENOSIS WITH GREAT DILATATION OF THE RIGHT AURICLE, COMPLICATED WITH MITRAL AND AORTIC STENOSIS.

CASES of marked tricuspid stenosis are of such extreme rarity that the one now to be recorded is the first that has come under my own observation. As in the great majority of the other recorded cases, the lesion in this instance was not confined to that valve, but was associated with others in the mitral and aortic valves. Though not a case of pure tricuspid stenosis, the facts are such as to render it advisable to put the case on record somewhat in detail.

Mrs. A., age 44, housewife, was admitted into the Royal Infirmary on 2nd May, 1893, complaining of swelling of the abdomen and breathlessness.

While, on direct enquiry, she admitted that she had suffered from breathlessness and palpitation for some eight years, she herself dated her illness from July, 1892, when swelling of the right foot and leg attracted her attention, followed in a week or so by a similar affection of the left. The swelling, for a long time, did not extend beyond the knees, and she continued her household duties till October, 1892, when the

abdomen began to swell, and she had to take to bed. The abdominal swelling was uniform, and increased so rapidly that two or three weeks after being first noted, it had to be tapped. This operation had to be repeated three times, and on each occasion very large quantities of fluid were removed. At one time she had a cough with expectoration (never blood), but that disappeared after the last tapping, six weeks before admission.

On admission she was thin and anxious-looking, and extremely livid. Orthopnœa was constant. The abdomen was enormously distended, measuring 48 inches in circumference, about 3 inches above the level of the umbilicus. The skin was tense and glazed, and the superficial veins were prominent. There was some difficulty in feeling sure that the distension was due to ascitic fluid alone, for the whole of the abdomen was dull to percussion, with the exception of a small band in the gastric region and in the position of the descending colon, and there was no change in shape or in percussion on alteration of the decubitus. The legs presented only a slight amount of œdema, which scarcely pitted on pressure; they were very livid, and pressure caused pain.

The lungs were all but unaffected. There was no dulness anywhere, not even at the bases, and the respiratory murmur was everywhere good. Over the upper lobes of both a few moist râles were heard.

The apex beat of the heart was well marked in the sixth left intercostal space, $2\frac{1}{2}$ inches outside the nipple line. Over it a thrill was felt. There was no very marked præcordial heaving, and little impulse in the epigastrium. The cardiac dulness was very greatly enlarged; the upper border of dulness on both sides of the sternum lay on the second rib; the right border was 2 inches outside the right nipple, while the left was $2\frac{1}{2}$ inches outside the left nipple, giving an appearance as if the cardiac dulness had been duplicated (see Fig. 1). A prolonged auricular-systolic murmur was widely heard over the cardiac area, but with greatest intensity in the apex region, where there was also a suspicion of a ventricular-systolic murmur.

The urine, high-coloured, of specific gravity 1027, contained no sugar, and but a trace of albumen. Its sediment was considerable, consisting mainly of epithelium, but with a few hyaline casts.

The patient was too ill for detailed examination when the above note was made on 3rd May, and, as the distress was very urgent, she was tapped, and 500 oz. of a characteristic ascitic fluid were removed. Although the abdomen was by no means emptied of fluid, there stood out prominently in the epigastrium an irregular tumour about the size of the

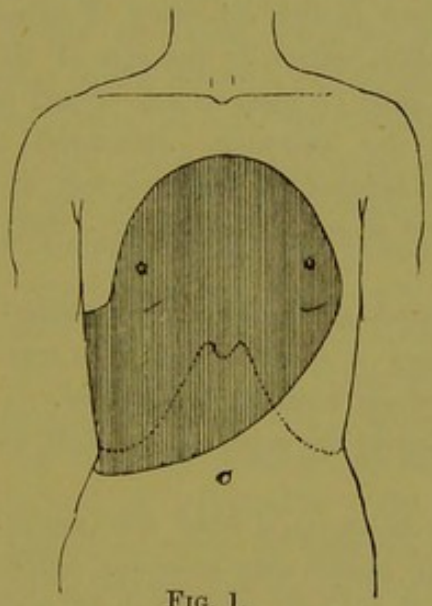


FIG. 1.

Cardiac and hepatic dulnesses.

closed fist. This was regarded as hepatic, the liver being greatly enlarged, its lower margin being traced almost down to the umbilicus with a very irregular outline. There was slight tenderness on pressure, both over the epigastrium and elsewhere in the abdomen.

Relief to the distressing symptoms was obtained from the tapping, but there was a rapid reaccumulation of fluid, the administration of digitalis, diuretin, calomel, and other diuretics failing to increase the excretion of urine, which amounted to only about 20 oz. per day.

On 16th May paracentesis was again performed, and 315 oz. of fluid removed. Further examination of the prominent mass in the epigastrium discovered marked pulsation, believed to be due to the aorta lying below; there was no hepatic pulse. Palpation further showed that the mass was probably not all hepatic, as it gave to the hand the impression that there was some thickened tissue lying between the liver and the abdominal wall, and not adherent to the latter; there was also an indistinct sense of fluctuation.

On 7th June it was noted that the fluid was not reaccumulating so rapidly as before, and that there was a slight tendency to increase in the quantity of urine passed. There was also a slight diminution in the size of the heart, the apex beat being found only 1½ inch to left of left nipple line.

On 21st June the abdomen measured 40 inches. The cardiac dulness extended 1½ inch to left of left nipple line, and 1 inch to right of right nipple line. 270 oz. of fluid were removed.

Dr. T. K. Monro, acting in my absence on holiday, on 17th July detected a short rough murmur over the aortic cartilage, synchronous with the apex beat.

Paracentesis had to be repeated on 21st July, 330 oz. being removed.

On my return to duty, a note was made on 19th August to the effect that there was now no œdema of the legs or feet. The cardiac dulness extended 2¾ inches to the left of the left nipple line, and 1½ inch to the right of the right nipple, while the upper margin was within half an inch of the episternal notch. The auricular-systolic murmur remained the more prominent, but at times a prolonged ventricular-systolic murmur was heard at the apex. The rough murmur noted by Dr. Monro at the aortic cartilage was also audible, but seemed to me to be the auricular-systolic conveyed. Over the dulness to the right of the middle line nothing but auricular-systolic murmur was heard, and the question was raised whether there might not be a tricuspid stenosis. The lungs were now slightly involved, for while there was practically no dulness at the bases, the respiratory murmur

was feeble and accompanied by small, moist râles. She had no expectoration. After removal of 330 oz. of fluid, it was noted that the mass in the epigastrium was larger in size and more fluctuant, and that the apex beat had receded at least 1 inch towards the middle line.

The murmur was again under observation on 25th August, when it seemed to fill the whole space between the second and the first sounds, with, however, a difference in quality between the earlier and the later portion, so that it was described as ventricular-diastolic and auricular-systolic. On listening with the binaural stethoscope with a single bell, it was noted that, as is not infrequently the case, inspiration caused a very considerable increase in the volume of the murmur.

On 13th October, 360 oz. of fluid were removed, more turbid than that obtained on previous tappings, and presenting a slight sediment of red blood corpuscles and leucocytes. For twenty-four hours thereafter she was much relieved, but on the 14th October she was seized with pain in the abdomen in the right lumbar region, and with vomiting, evidently peritonitic. On 15th October, her temperature, which had hitherto been normal, rose to 102°, while the pain was subsiding. This was the first occasion on which paracentesis was distinctly followed by peritonitis. On the morning of the 17th October she complained of pain in the right lumbar region, which was very tender on pressure, and associated with this was hæmaturia. This was clearly due to a hæmorrhagic infarction in the right kidney. These symptoms, as also the fever, passed off in a few days.

Tapping had again to be resorted to on 10th November, when 450 oz. of pale straw-coloured fluid were drawn off. This was again followed by some abdominal pain, but without rise of temperature. The pain recurred on 16th November, and on the 17th it was noted that she was more livid than she had been for a long time. She complained now of pain in the right side of the thorax, and over the base of the right lung there was found dulness, with impairment of the respiratory murmur and large and small moist râles. There was no blood in the spit.

To relieve distress, on 21st November 260 oz. of fluid were removed. It was darker in colour, and more fibrinous than formerly. She was then in an exceedingly weak state, and had evidently been gradually losing ground. The hands and feet now became œdematous, the lividity increased, and she had a somewhat troublesome cough. The breathing gradually became more and more laboured, and she died on the 25th November, retaining consciousness up till shortly before death.

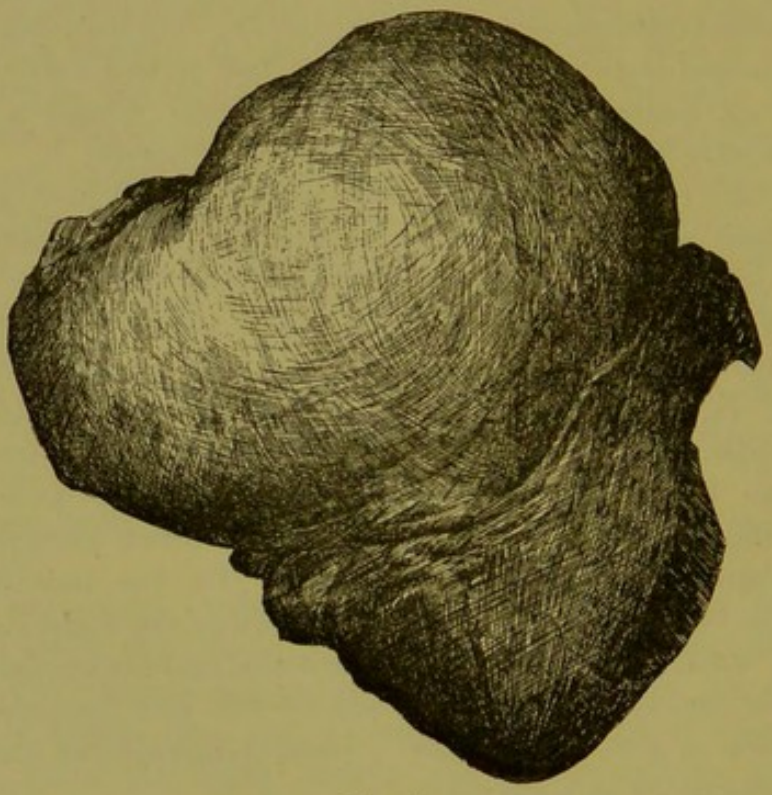


Fig. 2.

Posterior view of heart, showing enormously dilated right auricle.

During her long residence in the hospital this patient was seen by many medical friends, who confirmed the above facts. The case was regarded as one of mitral stenosis, with possibly a similar lesion at the tricuspid valve, but the latter possibility was never insisted on. It was frequently remarked as curious that the lungs and the general subcutaneous tissues had practically escaped, while the whole incidence of the secondary symptoms seemed to have been on the liver.

An examination of the body was made on 28th November. On removing the sternum, the pericardial sac was very prominent, and palpation of it gave the impression that there was a large accumulation of pericardial fluid. On opening it, however, this was found not to be the case, the presence of a pericardial effusion having been suggested by an enormously distended right auricle full of fluid blood

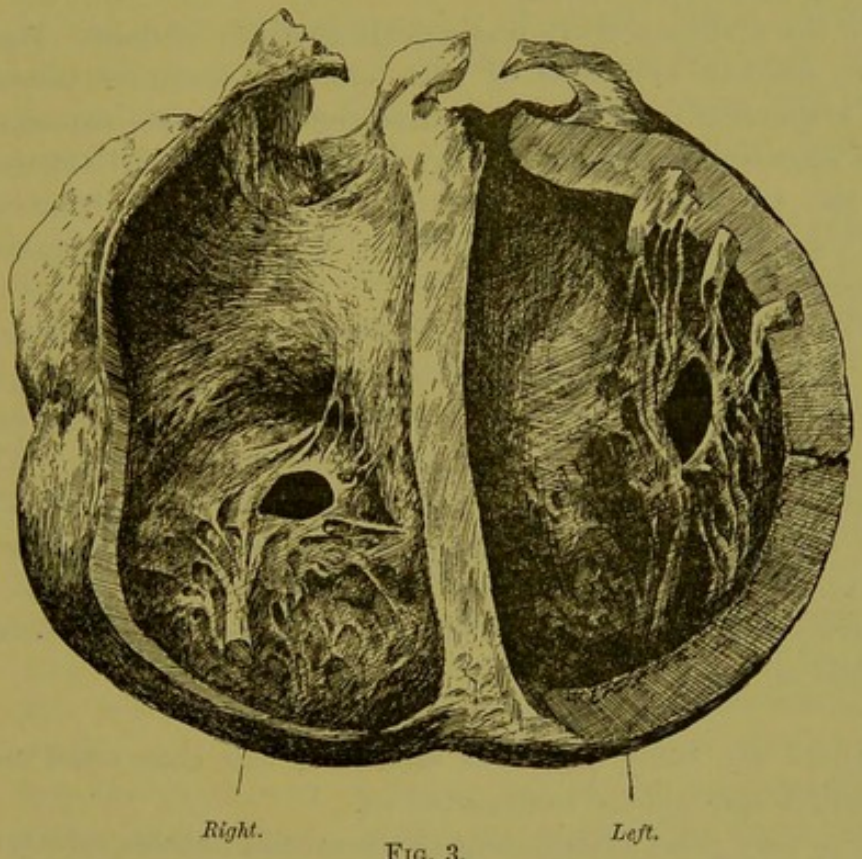


FIG. 3.

Section through ventricles, showing auriculo-ventricular orifices.

(see Fig. 2).[1] It was this auricle which had given rise to the extreme amount of dulness to the right of the middle line. Indeed, it was almost solely right auricle and right ventricle which had been in contact with the thoracic wall. The heart weighed 17 oz. The tricuspid valve was much contracted, and its segments were adherent, but there was not much thickening, the coalesced segments having much

[1] Figs. 2 and 3 are from drawings made by Mr. Alexander Macphail.

the characters of a membranous diaphragm. The mitral valve was in the same condition; the tricuspid orifice had a circumference of 2 inches, and the mitral of $1\frac{3}{4}$ inch (see Fig. 3). The curtains of the aortic valve were thickened, and the orifice narrowed, while the pulmonic valve was normal. Both aortic and pulmonic valves were competent. The lungs were practically normal, showing only some congestion and slight œdema.

In the abdomen there was a large quantity of fluid. There were marked evidences of both old and recent peritonitis, the abdominal organs being matted together by old adhesions. The omentum was gathered together into a mass and adherent to the anterior surface of the liver and to the abdominal wall, and it was that which had given rise to the epigastric tumour.

The intestines were matted together, and presented numerous hæmorrhagic spots. The liver was somewhat enlarged, weighing 58 oz., and presented the nutmeg characters in a very high degree, so as to appear almost cirrhotic. The spleen contained an old infarction, and was very hard. The left kidney presented evidences of interstitial nephritis, and contained an old infarction. The right kidney was full of infarctions, one of which was large and recent; it contained almost no renal tissue.

There are many points of interest in this case, a few only of which can be here commented on.

The very great enlargement of the cardiac dulness, especially to the right and upwards, raised the question of pericardial effusion, but that condition was held to be negatived by the position of the apex impulse in the sixth intercostal space, and by the character of the sounds and murmurs all over the dull area. At first, it was also suspected that all the dulness might not be cardiac, but some of it pulmonary, as we sometimes meet with a localised pulmonary dulness giving rise to apparent increase of the cardiac dulness, especially to the right. But this seemed to be negatived by the persistently symmetrical outline of dulness, as well as by the absence

of any abnormal pulmonary signs. The conclusion, therefore, was arrived at that the dulness was due to a great enlargement of the right ventricle. As the *post-mortem* examination showed, however, it really arose from extreme dilatation of the right auricle. In this connection, it is interesting to note that several of the more common signs of the dilated ventricle were absent: in particular, there was no considerable general heaving over the præcordium; there was little epigastric impulse, and that apparently of aortic origin; there was only slight engorgement of the veins of the neck, and no marked pulsation in them; and general œdema was never a prominent symptom. Lividity, on the other hand, was extremely well marked.

The persistent absence of pulmonary symptoms, especially of hæmoptysis, in a case of mitral stenosis going on towards a fatal termination, was surprising; but the explanation is now apparent, as, with a greatly constricted tricuspid valve, there was practically little reason for stasis taking place in the pulmonary circulation.

The peculiar incidence of the secondary symptoms on the liver is not easily explained. There is little doubt that the size of the liver varied under observation, and that it became smaller than it was on admission. The great congestion which was present might account for the origin of the ascites, and, along with the peritonitis set up by frequent tapping, would tend to keep up the tendency to such effusion of fluid into the peritoneum as led to our having removed 2,815 oz. during her residence in the Infirmary. The liver tissue did not present the characters of a primary cirrhosis, and there was no evidence anywhere of syphilitic disease. The woman had been a very respectable person and strictly temperate.

It is noteworthy that there was no trace of that somewhat rare sign, the hepatic pulse.

The causation and duration of the disease were not established. She never had rheumatism or chorea, but she had scarlet fever in childhood. Her statements seemed to show that cardiac symptoms had been present for at least eight years, and the condition of various organs, particularly of

the kidneys, was not consistent with a disease of only about one year's duration. In this connection it is interesting to note that she had been married for twelve years, and had had three pregnancies. The first pregnancy terminated in a miscarriage at two and a half months, some ten years ago; the second went on to the full time, but the child died in a few hours; and the third, about seven years ago, again terminated in a miscarriage at two and a half months. She was perfectly well up to the date of the first miscarriage, when she had a severe flooding, from which, she believed, she never properly recovered. There was no flooding on either of the other two occasions. Since the first miscarriage she had altered very irregularly, often at long intervals, and never profusely. She had ceased to menstruate for several years. For many years she had suffered from leucorrhœa.

Treatment by drugs was of little, and only temporary, value; the only thing that gave her relief was paracentesis. This is not what we are accustomed to see in a case of pure mitral stenosis.

Lastly, attention may be directed to the epigastric tumour. Had such a tumour been met with in a patient who had no other disease than an enlarged liver, no doubt the aid of a surgeon would have been called in, under the idea that there was an abscess present.

II.

THREE CASES OF FÆCAL TUMOUR, IN ONE OF WHICH DEATH OCCURRED FROM FÆCAL POISONING.

It is an almost every-day experience to meet with cases in which masses of scybala or hardened fæces can be felt in some portion of the colon. In most of these attention to a prescribed regimen, and the use of enemata and purgatives, serve to remove such masses in a comparatively short space of time. Of the three cases whose history is about to be given, two differ from the above mainly in regard to their chronicity and the size of the fæcal tumour; while the third seems to belong to a different category.

Case I.—John M., two years and ten months old, was admitted into the Children's Hospital in June, 1891, on account of a great swelling of the abdomen. The history bore that his belly had been swollen since birth, but that the amount of swelling varied from time to time. The present aggravation of the swelling had lasted for three weeks, during which there had been diarrhœa, vomiting, and drowsiness. The motions were described as not very loose and not offensive, but very black in colour, and the vomited matter was said to have contained blood. The vomiting was not connected with the taking of food. He never complained of pain in the belly.

The child was found to be somewhat thin, the general appearance contrasting very markedly with the enormous distention of the abdomen, which measured fully 27 inches

in its greatest circumference. The whole abdomen was tympanitic on percussion, and no thickening or tumour could be felt. There was no tenderness on pressure. The peristaltic movements of the intestines were very readily observed. On admission there was neither vomiting nor diarrhœa. Tongue furred. The cardiac apex beat and dulness were greatly displaced upwards.

About the month of August a mass, considerably larger than a man's closed fist, was discovered in the umbilical region, the abdomen having become much more flaccid than on admission. The mass was doughy, and could be modified in shape by squeezing, pressure causing no pain. It being evidently fæcal, copious enemata were ordered, as also massage and the administration of small doses of aloin. This treatment, however, failed to completely discharge the mass, but the child was dismissed improved on 6th October. The temperature was at no time febrile. The child was apathetic, but made no complaint, and during his residence in hospital had little or no sickness.

Case II.—James D., 8 years of age, was admitted to the Royal Infirmary under my care on 28th August, 1893, complaining of distention and pain in the abdomen. Since birth he had been exceedingly costive, his bowels never moving without medicine. Sometimes he had gone for a fortnight at a time without a motion, although purgatives were being administered regularly. Distention of the abdomen had always been a prominent feature, but generally disappeared after the use of an enema. For the past two months the distention had been continuous. For the last fortnight he had had great difficulty in passing water, sometimes passing none for 24 hours, and then only a very small quantity. With the motions there was always much flatus.

The greatest circumference of the abdomen was $27\frac{3}{4}$ inches, about $4\frac{1}{2}$ inches above the umbilicus. Percussion note was highly tympanitic all over with the exception of slight dulness in the left inguinal region. The peristaltic action of the bowels was very marked. There was no tenderness on

pressure. A gurgling sensation could be felt on firm pressure, but no abnormal resistance, the abdominal wall being very tense. The apex beat of the heart was displaced upwards so as to lie half an inch above and to the inside of the nipple. Lungs normal. Urine, sp. gr. 1022, contained no albumen.

After copious enemata had been frequently administered for several days, with the result of bringing away a few small fæcal masses, a fæcal tumour was discovered lying in the right iliac region behind the rectus muscle, which was very tense. The left abdominal rectus being comparatively lax, the edge of the tumour could be got at best by palpating deeply to the left of the middle line and directing the hand towards the right side. In this way the mass was made out to be of large size and very hard, so that some of those who felt it questioned whether it could be fæcal.

The mass was very slow to move, but after several weeks' treatment by enemata, aloin, massage and electricity, it ultimately reached the rectum. Being unable to pass the anus, it then for the first time caused the child suffering; he had pain over the belly with great peristalsis, sickness, and vomiting, and a slight rise of temperature. Digital examination discovered a hard mass like the fist in the rectum, and after this had been scooped out the child was relieved. Treatment was continued till early in November, and on the 18th of that month he was dismissed well, daily action of the bowels having been maintained for a week or more without assistance of any kind.

These two cases belong to the same category, the salient features being obstinate constipation, great flatulent and painless distention of the abdomen, presence of one large fæcal tumour, absence of fever, and absence or at least non-obtrusiveness of vomiting as a symptom. The very marked peristaltic movements proved that the bowel in great part was not paralysed, but in all probability in both cases the colon was in a state of atony and dilatation from habitual neglect since early infancy. Both also show the extreme obstinacy of such cases. I have thought it well to record them, to contrast with the third case.

Case III.—Mrs. M., age 32, was admitted to the Royal Infirmary on 11th February, 1893, suffering from persistent vomiting. She had been in good health up till twelve weeks prior to admission, when she had an attack of vomiting, relieved by treatment. Vomiting, however, recurred, and had been persistent for nine weeks. She was quite unable to retain any solid food, and even liquids were frequently rejected. The vomiting came on at various times after taking food, sometimes immediately, and often not for one or two hours. The vomited matter was greenish, had a sour taste, and never contained blood. There was no pain. She was habitually extremely constipated, the bowels seldom moving without medicine. Otherwise she had been a perfectly healthy woman, with a good digestion.

She was much emaciated and very weak. Pulse 108, small, and regular. Tongue red. The abdomen was somewhat retracted, and its walls flaccid, so that examination could readily be made. At and around the umbilical region there was a sense of increased resistance and indefinite doughy tumour, movable more or less under the hand, to which it gave the impression of a fæcal mass. There was almost no tenderness on pressure. Percussion of the abdomen was generally clear, but the note was somewhat impaired over the area above described. There was no evidence of tumour of the pylorus or of dilatation of the stomach. The heart, lungs, liver, and kidneys were normal.

Although the diagnosis of malignant disease could not be altogether negatived, the case was regarded as in all probability a neurotic one with fæcal accumulation. She was accordingly ordered copious enemata.

Such enemata were given, and the bowel was said to retain a large quantity of fluid which presently came away with a considerable amount of fæcal matter. One such motion was reported on 13th, 14th, 15th, 16th, 17th, 18th, and 19th February, the last of these being without the aid of an injection. On 20th February she had four motions, and thereafter enemata were discontinued. During this time little or no change took place in the indefinite tumour in the

umbilical region, and, consequently, the suspicion of malignant disease was strengthened.

At the time of her admission vomiting was so persistent that only a little brandy and water or Valentine's meat juice was given by the mouth, an endeavour being made to feed her by meat suppositories. For a short time she seemed to improve somewhat, but on 26th February the suppositories were reported to be causing diarrhœa to the extent of two or three motions daily, and they were accordingly discontinued. To allay the tendency to vomiting she was now ordered 15 grains of carbonate of bismuth and half a grain of opium every three or four hours, and she was fed on koumiss in tablespoonful doses. The latter suited her, and she was able to take about an ounce of it every hour without vomiting; and, while she was doing so, the abdomen, which was more retracted than on admission, became more full, so that a feeling of tumour about the umbilicus was made out with difficulty.

The temperature, which had been normal or sub-normal, rose on the 23rd February to 99°, and on the 24th and 25th to 100°, falling on the 26th to 99°, rising again on the 27th to 100·6°, and reaching a maximum of 104·2° on the evening of 1st March. From that date it fell gradually, with oscillations, till it became normal on 7th March. During the period of high temperatures she was quite delirious, but she had no vomiting. On 7th March the vomiting recurred and was most obstinate, the bismuth even being rejected. Since 2nd March the bowels had been spontaneously moved twice daily. Just about the time when the temperature began to rise she had an attack of parotitis on the left side, which subsided without suppuration.

During the febrile attack emaciation became extreme, and the gradually increasing weakness terminated in death on 9th March, the temperature suddenly rising to 102° a few hours before the end.

On examination of the body, the large intestine, from the ileo-cæcal valve to the anus, was found to be full of hard fæcal masses, of a somewhat dark slate colour. The weight of its contents had dragged the transverse colon downwards, so

that it lay coiled about the level of the umbilicus. The colon was contracted upon these masses, and was nowhere dilated, although, as proved by the introduction of a large quantity of water, it was capable of dilatation. The small intestine contained little or no solid matter, but was partially distended with gas. The stomach was small, but normal in appearance. There was some staining of the subcutaneous and other tissues, as if from bile. No other lesion was discovered anywhere.

The conclusion drawn from this examination was that she had died from the absorption of some ptomaine or fæcal poison, which was also responsible for the vomiting, high temperature, and parotitis. There was no true obstruction.

Familiar as we are with the evil effects of constipation, I believe it is a rare thing for fæcal absorption, *per se*, to cause death. This case seems to me, therefore, to be of considerable interest. The total absence of flatulent distention was a noteworthy feature of the case, and forms a marked contrast to the condition in the two cases recorded above. From the condition met with at the *post-mortem* examination, it is quite apparent that the contents of the small intestine were finding their way into the colon, and in part escaping from the latter alongside of the fæcal accumulation there. The absence of distention of the colon seems somewhat remarkable, if the cause of the accumulation were, as is most probable, atony of the colon, due to long-continued and habitual neglect of the bowels.

The case is further of value from its emphasising the necessity for digital examination of the rectum in all cases where there is a suspicion of fæcal accumulation. Had such an examination been made here, the issue might have been different.

III.

A MARKED CASE OF ACROMEGALY WITH JOINT AFFECTIONS.

SINCE 1885, when Dr. Pierre Marie published his thesis on "Acromegaly," and more especially since 1891, when the New Sydenham Society issued a volume on the same subject, embracing Marie's original thesis and a second and more elaborate one by Dr. Souza-Leite, attention has been directed to this affection, and a considerable number of cases have been reported in this country and on the Continent. The disease is, however, sufficiently rare to warrant the publication of new cases, especially when, as in that to be recorded, new features are present.

Charles S., 49 years of age, came under my care in the Royal Infirmary in February of this year, having been sent in by my then resident assistant, Dr. John Barr Stevens. He presented the typical deformities of acromegaly in an extreme degree, as will be seen from Figs. 1 and 2, taken from photographs by Dr. Barclay Ness, and from the following notes from the ward journal:—

"His face is much lengthened, its most striking feature being the projection of the lower jaw and the protrusion of the lower lip. As tested by the incisor teeth, the lower jaw protrudes 1 inch beyond the upper one; but this applies only to the anterior portion, as the upper and lower jaws very nearly correspond in their lateral portions. The central portion of the body of the jaw is deepened, but the lateral portions of the body are somewhat shallow. The angle of the jaw is unduly obtuse. The superior maxilla is not enlarged; its

alveolar margin is much atrophied. He has had a great many teeth extracted, having been a sufferer from toothache for thirty years. Among other teeth remaining are the lower central incisors, and these are separated from each other by a wedge-shaped interval. None of the teeth are hypertrophied.

FIG. 1.

Charles S., age 49—Front View.

"The forehead is somewhat small. There is thickening of the temporal ridge of the frontal and parietal bones, especially on the right side, and the various sutures of the skull present well marked ridges. The eyes are small, and the palpebral fissures small in comparison with the apparent size of the

orbits. There is a marked puffy appearance round both eyes without any œdema. The bones forming the upper margin of the orbit are unduly thickened and rounded, but they are not unduly prominent. The zygoma is large on both sides. The nasal bones do not seem specially enlarged, but the nasal

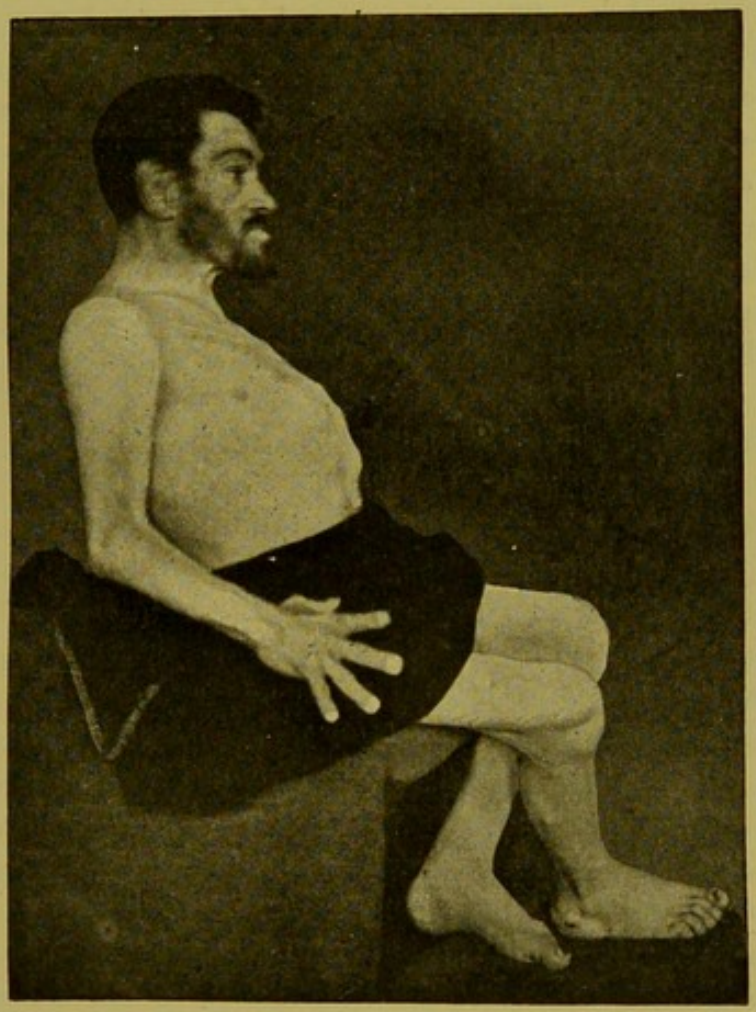


FIG. 2.

Charles S., age 49—Side View.

cartilages are thickened and somewhat harder than normal. The soft tissues of the face are atrophied rather than hypertrophied.

"The lower lip is very considerably everted, but he has no difficulty in lying with his lips closed and breathing through

the nose. The tongue is very greatly enlarged in length, breadth, and thickness, and its surface presents many irregular fissures. The arch of the palate is flat and very broad. The uvula is not apparently enlarged, and the tonsils seem normal.

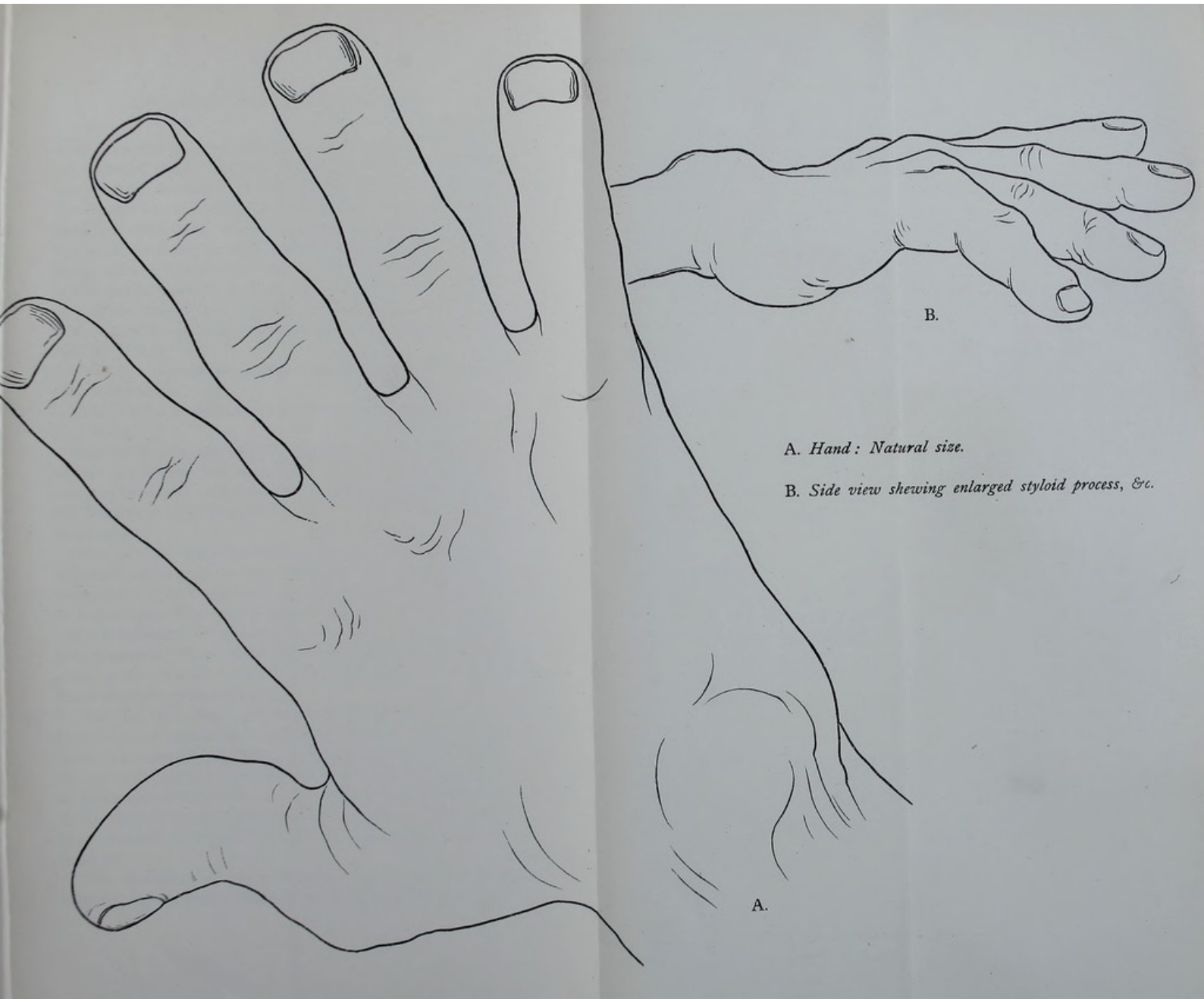
"The ears are large and flat, and the cartilages are so hardened as to give the impression that they could very easily be broken. There is no such hardening of the cartilages of the nose or of the eyelids. [This hardening of the aural cartilages was supposed to be due to infiltration with calcareous salts, but it is very doubtful if that is the cause; for the pinnæ of the ears are translucent, and Dr. Coats informs me that, according to his wide experience, tissues infiltrated with lime salts are not translucent.]

"The head is well covered with a thick growth of hair, somewhat harsh in character, originally dark brown, now mixed with grey. The hair of the beard is thin and short, but otherwise apparently normal. The eyebrows are somewhat thin.

"When he is made to sit on the edge of his bed, there is a general rounding of his back with a slight degree of lordosis. The neck is somewhat thickened.

"The thorax is very greatly deformed, which is perhaps best seen when he lies on his back. In this position the trunk forms a sort of pyramid—the base formed by the shoulder and pelvic girdles, and the apex by the xiphoid cartilage. The sternum is carried forwards so that the xiphoid forms a very marked prominence. The latter measures 2 inches transversely, and feels as if ossified. The margin of the costal arch is very prominent, thick, and rounded, and almost all the ribs are thickened and broadened. At the junction of the costal cartilages with the osseous ribs there is some thickening, but very different from the rachitic rosary. The clavicles are large and thick, and their sternal ends seem unduly movable.

"The hands present typically the broad, spade-like character, and the fingers are broad and flat, without tapering or anything of rheumatic deformity or of the nature of clubbing (see Plate). The palmar aspects are well padded with soft cushiony tissues, and the skin presents a markedly furrowed



A. *Hand: Natural size.*

B. *Side view shewing enlarged styloid process, &c.*

appearance, the furrows passing in all directions. The nails are flattened, rough, and with longitudinal striæ; their free margins tend to crack. In both thumbs the metacarpal bone is extended, the first phalanx is flexed, and the second over-extended. The joints of all the fingers are very loose, and a degree of crackling is very readily elicited on movement. There is very considerable atrophy of the muscular tissues in the hands, specially well seen in the inter-osseous spaces and in the thenar and hypothenar eminences. The grasp of the hands is very feeble, registering with the dynamometer, right 42, left 32.

"The feet present an exactly corresponding deformity to that of the hands.

"There is no lengthening and no curvature of any of the long bones.

"Speech is slow and deliberate, partly no doubt due to the size of the tongue, but apparently in part due to the time occupied in mental processes. He is perfectly intelligent, and his memory is very accurate, but he is very slow in replying to questions."

Such were the main features of the case, and they clearly indicated acromegaly as the diagnosis. In addition there were, however, well marked joint affections which, according to Marie, Souza-Leite, and Jonathan Hutchinson, are not only not characteristic of acromegaly, but even almost exclude that diagnosis. These affections were bilateral, and all but alike on the two sides, and involved the elbows, wrists, and knees chiefly, but the hips also.

"He has not free movement of the elbow-joints, and pronation and supination are greatly restricted. The elbow-joints are enlarged, partly due to enlargement of the end of the humerus, partly to increase of the soft tissues, and partly to displacement of the head of the radius, which lies in front of the external condyle just beneath the skin. It appears to have become displaced through erosion of the annular ligament.

"The movements of the wrist-joints are greatly interfered with by an enormous enlargement of the styloid processes.

It is doubtful whether this enlargement has not led to some dislocation of the parts.

"The knees are greatly deformed and enlarged. All the bones entering into the formation of the joints seem to be involved in the enlargement, but the latter is also in great measure due to an accumulation in the joints of a soft, semi-elastic tissue. There is great contraction of the hamstring muscles, so that the legs are permanently greatly flexed, and he has almost no power of movement at the knees. The legs are also in a position of strong adduction, so that a cushion requires to be kept between the knees.

"It is somewhat difficult to make a proper examination of the hip-joints, but the bones entering into both seem to be enlarged, especially on the left side.

"The ankles and the shoulders do not seem to be abnormal."

These deformities strongly indicate a trophic origin, and at once suggest a similarity to Charcot's joint affections in locomotor ataxy. They are a further indication of the profound nature of the trophic disturbance which must be regarded as at the root of acromegaly.

This patient is of special interest to me because in 1885, when Marie was observing the two cases on which his description was based, he was an inmate of Ward I in the Western Infirmary, under Dr. Gairdner's care. The case was indexed as "Chronic Bright's Disease," but the report bears that he was even then suffering from his present complaint, and both Dr. Gairdner's and my own recollections of the man are that in respect to his hands and face he has changed very little since that time. The Western Infirmary report is reproduced with Dr. Gairdner's consent:—

Note by Dr. Gairdner—"15th January, 1885.—Patient has been subject during the past five years to swelling of the face, trunk, and extremities, and it does not appear from his statement that he can assign precedency in the swelling of the lower extremities to the swelling of the face. At present there is slight puffiness below the eyes and a very moderate or slight amount of swelling of the lower limbs, but nothing in degree at all approaching what has been. Patient

is a very thick-set man, who states himself 5 ft. 8½ in., and has weighed 13 st. 4 lb. His hand is very peculiar in respect of the breadth and thickness of the fingers, and of the whole hand as compared with the length of the bones, and it is worthy of note that the nails, with the exception of that of the forefinger, are remarkably straight and flat, this description applying peculiarly to the nail of the middle finger.

"He has evidently been a very muscular man, and conveys to Dr. Gairdner the impression of having lost flesh, though he does not think himself that this is the case. He has been subject for a long time to vomiting and 'sourness' of the stomach, but this has so long antedated his present illness, having been one of his troubles from childhood, that it is difficult to connect it in any way with the existing disease.

"The only more severe or acute inter-current illness that he remembers was an attack of erysipelas of the head about ten years ago, and it would seem probable that this attack, severe and nearly fatal, attended also by delirium or unconsciousness for ten days, may have weakened his general health more or less permanently, as he has always been under the impression that it did so. As regards, however, the existing symptoms, it is remarkable that, in his evidently sober-minded and intelligent statement, he is not able to give exact definition to the beginning of the symptoms, and even says that he does not think he noticed the beginning of the swelling, his explanation of this being that, ever since the erysipelas, there may have been a little puffiness of the eyelids. His impression is that the urine has been depreciated in quantity, as compared with its former amount, during the last five years, and within the last eighteen months he has noticed a tendency to pass it oftener, but in small quantities. He has also complained for five years past of pain in the back, but this is questionably a renal pain, as on several occasions it has been more of the character attributed to lumbago, and these attacks seem to have been associated with high coloured urine and a certain sense of heat in the small of the back and also in making water.

"He seems to have been entirely devoid of symptoms

connected with the chest, unless it be palpitation, of which he has had a good deal. There is a moderate degree of hypermetropia or presbyopia which leads him to wear glasses, and this has existed for a considerable time, and he says he has had weak sight more or less all his days, and he does not recognise any increase of it as associated with his present symptoms."

Report by Mr. Joseph Scanlan—"1st February, 1885.—Patient's personal appearance is very striking. He has very large coarse features, large head, extensive and prominent brow, and a full, puffy, pale, and pasty face. His abdomen and chest are large and well covered with soft tissue. His limbs are of considerable thickness—the forearm more so than the upper arm—the hands are large and swollen-looking, and the fingers are several times as large as those of an ordinary person, having a short stumpy appearance. The thumb is particularly large. His whole appearance is that of a swollen puffy person whose breadth is greater in proportion to his height than an ordinary person. There is no protrusion or swelling of the abdomen. He is slightly deaf in the right ear, and his eyesight is also somewhat impaired. Teeth are irregular and bad. Skin soft and moist. Patient has been troubled with his stomach more or less all his life. Feels pain and swelling in the stomach about half-an-hour after taking food, which last for about an hour. Sometimes there is no trouble with his food. Eructations of a sour watery fluid very common after and occasionally during food. Vomiting is very rare. Is much troubled with flatulence. These symptoms have increased much in severity within the last five years, and at times have necessitated patient giving up work and attending a physician. They are by no means constant, though within the last two years they have been of much more frequent occurrence, and patient has been forced to completely change his diet, using milk, rice, a little brown bread, and tea at dinner instead of the potatoes, beef, and broth he has been in the habit of taking, and which he found by experience disagree with him. His appetite, which was once very good, has become impaired of late.

"Patient has noticed changes in his water dating from between four and five years ago. At odd times, and without any assignable cause, it became less in quantity and much deeper in colour. These changes are of much more frequent occurrence now than formerly. Immediately after micturition patient is sensible of pain in both iliac regions extending backwards to the lumbar spines, and there is occasionally pain in the neck of the bladder and at the point of the penis. He is compelled to make water very frequently, sometimes as often as eight times during the working day, but sometimes only twice. He does not rise during the night, though before admission he felt considerable desire to do so. The quantity passed at each time is variable. It may be nearly as much as in health, while at other times it is half a teacupful. The quantity is much less when urinating twice daily. A specimen of the urine examined to-day is deep amber in colour, acid, sp. gr. 1025, no albumen, and a doubtful tube-cast. Albumen has been reported at various times, with picric acid, and on more than one occasion tube-casts have been found.

"During the past year he has suffered much from cold, dead hands and feet. (While taking the report the hands were very cold and blue.) This is specially apt to come on after washing in cold water, when the fingers get white and stiff, and somewhat blue, and lose their sensation. Sensation as tested with a pin is somewhat impaired in the finger, patient not recognising the point of a pin till very firmly pressed in, and he is unable to distinguish the head of the pin.

"Patient thinks he is losing strength of late; he finds himself unable to work with his previous vigour. He says, however, he is gaining in weight, and that he has shown a considerable and steady increase in different weighings within the last two years.

"He has been temperate for the last ten years; before that he drank rather much beer and whisky.

"*Examination of the Chest.*—Percussion reveals nothing abnormal. Respiratory murmur is weak all over the chest, especially over the left lung. There is a tendency at both apices to prolongation of the expiration, and the inspiration is

somewhat "wavy," more marked over the left front. At the base behind, more particularly of the right side, there are probably a few moist râles.

"*Heart.*—Præcordial dulness limited above by the fourth rib, on the right by the left edge of the sternum, and on the left by a line half an inch inside nipple line. The apex beat is scarcely visible. Careful palpation, combined with auscultation, locates it in the fourth space, one inch inside the nipple line. There is no murmur with the cardiac sounds. Over the apex impulse the sounds are not so loud as might have been expected in a patient such as this. At the base and down the sternum the second sound is sharp, but it cannot be said to be stronger over the aortic than over the pulmonic cartilage. It is equally well heard at the xiphoid.

"Pulse is small and regular; no increased resistance; no twisting of the vessel, nor any tortuous arteries visible anywhere; no arcus senilis.

"*Liver.*—The upper border corresponds with the fourth rib at the nipple line, and the fifth cartilage at the sternum. The lower border is within the edge of the hypochondrium. Transverse measurement in mid-line is barely 1 inch, in nipple line 3¼ inches, in axillary line 3½ inches.

"*Stomach.*—No evidence of dilated stomach. No pain on pressure. Bowels very irregular. Tongue clean. Appetite impaired. Temperature has never reached 99° F.; occasionally as low as 97° F."

Note by House-Physician—"27th April, 1885.—Seven days ago this patient appears to have caught a somewhat severe 'cold,' which seemed chiefly to affect his ears and tonsils. On the morning of 20th April he felt a great pain in his right ear. This did not subside, and he was examined by Dr. Barr, who discovered a minute perforation of the tympanum, and ordered the ear to be syringed with lukewarm water, and powdered boracic acid to be applied by means of an insufflator to the ear.

"In his general condition he has become considerably improved, not having had any pain in his back over the loins for ten days or more, which was his chief complaint on

admission, and which has been troubling him almost continually since up to the present time.

"Dismissed 1st May."

During his residence in the Western Infirmary his temperatures, taken twice daily, varied from 97° to 99°, but were generally just a little below or above 98°. His urine was somewhat variable in quantity, giving a minimum of 32 ounces and a maximum of 64 ounces. Ten consecutive days, taken at random in each of the months January, February, March, and April, gave as the average daily quantity 54, 44, 56, and 50 ounces. The urea appears to have been estimated on only one occasion, 29th January, when, in 54 ounces, there were 492 grains. As stated in the above report, albumen was noted on several occasions, and also a few tube-casts were seen. Judging from what I have seen of him since his admission to my ward, I should say that the urinary condition is much as it was, and the diagnosis of ordinary chronic Bright's disease is probably somewhat doubtful.

Since he left the Western Infirmary he has never been able to do any work at his trade, that of an iron-moulder, but up till two years ago, with the assistance of his wife, he carried on a small shop. After his wife's death, in 1892, he gave the shop up, as, even with the assistance of his daughter, he was unable to carry it on.

About four years ago, he became unable to walk without the assistance of a stick, and about the end of 1892 he had to replace the stick by a pair of crutches. Since October, 1893, he has been quite unable to walk, even with his crutches, and has been mostly confined to bed.

During the past nine years his chief complaint has been of weakness, special symptoms not having been at all marked. Prior to his admission to the Western Infirmary, he suffered frequently from headaches, which he says is common among moulders from their stooping at their work. Along with headaches he frequently had epistaxis while engaged at his work. Since he gave up work as a moulder he has had no headache to speak of. Of other pains, such as those in the back which he formerly complained of, he has had very little

experience. He has, however, had pains in both legs, more especially the left, from time to time, and these have grown more severe within the last two years—that is to say, since the knees became very stiff. These pains have been most severe in the ankle, knee, and hip-joints, and also down the front of both legs, and he connects them in some way with an attack of "sciatica" he had twenty-two years ago. Since

FIG. 3.
Charles S. at 26 years of age.

that time, pains have occasionally been felt in the left leg, the right having become affected only in the last year or two. For several years past he has been liable to attacks of pain in both elbow-joints; even before his admission to the Western Infirmary these joints had to be painted with iodine. At times these pains have been excessively acute. They are now felt mostly on movement.

He has been particularly careful as to his food, and his stomach has now ceased to trouble him.

He has had several attacks of erysipelas of the face during the past nine years, but none so severe as the original attack. He has had no palpitation of late.

During the past year he has twice had hæmorrhage from the left ear, on the first occasion rather copious.

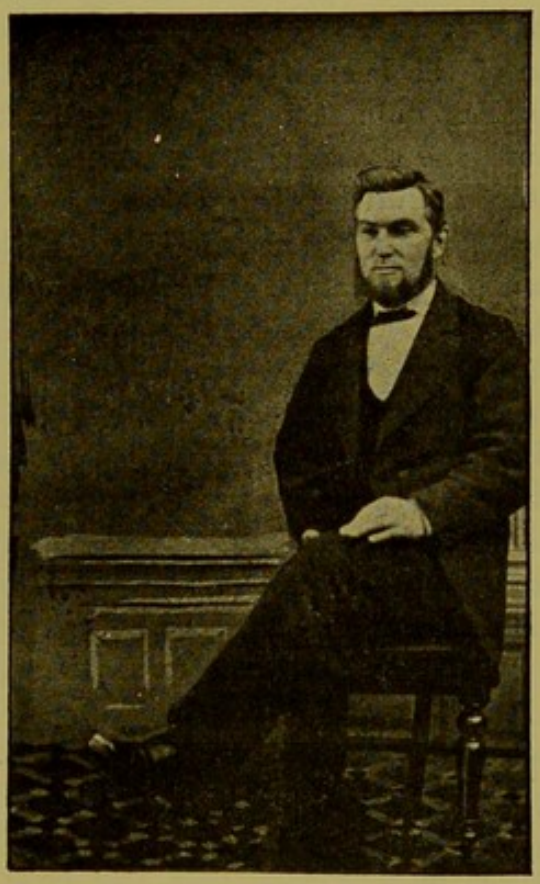


FIG. 4.
Charles S. at 34 years of age.

Thirst has not been a marked symptom, unless after taking purgative medicine. His appetite has never been excessive, but is good. His bowels have been constipated, more especially since he has been confined to bed. The skin tends to perspire. He is under the impression that he passes too much water, and he has now to pass it much too frequently, including several times by night. He not uncommonly suffers from hiccough.

He states that his hands were always large, and he had always difficulty in getting boots to fit him, and of late years has had to get them specially made. He is not conscious of any difference in the size of the hands or feet since he was in the Western Infirmary. Fortunately he possesses two portraits of himself, taken at the ages of 26 and 34, which are here reproduced (Figs. 3 and 4); and from the second of these I think it will be apparent that the disease had even then commenced.

Examination of the heart fails to detect any enlargement; indeed, the cardiac dulness is rather small. There are no cardiac murmurs, and the sounds are rather feeble.

The respiratory murmur is everywhere comparatively feeble, especially at the bases of the lungs. Occasionally a little râle is audible of a catarrhal nature. He has practically no cough. On many occasions a well-marked deep sighing respiration has been noticed.

The ears, throat, and nose were very carefully examined by Dr. Robert Fullerton, who found a general pallor of the mucous membranes. In each membrana tympani there were evidences of old disease. But there was in none of these organs anything that could be regarded as related to acromegaly. The thyroid gland could scarcely be made out.

Dr. Francis Napier examined the eyes. Both were hypermetropic, but in neither was there that limitation of the field of vision which has been noted in some cases. Vision for colours was good. There was no evidence of optic neuritis or of atrophy.

Various arteries present hardening and twisting. This is best marked in the brachials, which are large and hard, feeling like pipe-stems.

There is a very marked pallor of the skin and mucous membranes. The blood corpuscles run normally into rouleaux; there is no excess of white corpuscles; the red number 96 per cent of the normal, and the hæmoglobin is fully 70 per cent.

When he sits on the edge of his bed with his feet hanging down, the skin of the feet and legs shows in a marked form

purple and red mottling, with some spots which might almost be described as the "red plaice spots" of Jonathan Hutchinson. For many years he has suffered from cold hands and feet. While formerly immersion of his hands in cold water caused them to become white and dead, this now happens much more commonly after their immersion in hot water.

On many occasions it has been noted that on awaking from sleep he is somewhat confused. He not only looks dazed, but he begins to speak and forgets what he wished to say. This state lasts only for a very few minutes.

It has also been made occasion of frequent remark that he emits a peculiar cry when he awakes, as if he were in pain. On being questioned as to this, he recognises the fact, and accounts for it by referring to the pains in his knees and legs, induced by his movement of these just as he is awaking.

From 21st February till the present day (17th May), his temperatures have been taken every three hours. It is unnecessary to give these records in detail. In general there has been a daily range of about a degree and a half, with a minimum about 97°. On four occasions there has been a rise to 100° or more; the first three of these lasted only for a day or a couple of days, and nothing was discovered to account for them. The fourth, which took place on 14th May, was the most pronounced, reaching to 103°, with rigors, and it was accompanied with a reddened swelling of the nose, on which, within twelve hours, there formed a very large bulla filled with clear serum. This was another attack of erysipelas.

During his residence in the Royal Infirmary numerous observations of the urine have been made by Drs. Barr Stevens and George M'Feat, which may be summarised as follows:— The urine has been invariably acid, generally pale amber in colour, and the specific gravity has varied from 1014 to 1042, but has most commonly been about 1020 to 1025. The quantity has been very variable, having been as low as 14 ounces and as high as 73 ounces, without any periodicity in the variation.

The following table shows the average quantities of urine and of urea:—

	Observations.	Quantity in Ounces.	Urea in Grains.
February, . . .	5	25	353
March, . . .	23	38	301
April, . . .	27	32	467
May, . . .	13	36	340

The quantities both of urine and of urea have varied so much from day to day, that it is not easy to speak with certainty of the influence of treatment, but my general impression is that the administration of thyroid tabloids had, if anything, the effect of increasing both. There has generally been a faint trace of albumen. Sugar has never been present. The sediment has always been scanty, and has generally contained oxalate of lime crystals. On many occasions a few hyaline tube-casts and renal cylindroids have been noted.

Patient was married twenty years ago. There was only one child of the marriage (a daughter, now 19 years of age), but he says the fault did not lie with him. There is nothing abnormal in the genital organs.

Without much hope of benefit he was early in March put upon thyroid treatment, one tabloid daily, gradually increased to three. It is his own impression that this has done him good; he feels somewhat stronger, but he appears to be as helpless as ever. The only changes that I have noticed are a slightly brighter expression in his face and less hesitation in speaking.

In conclusion, it may not be out of place to recapitulate some of the points of special interest in this case, viz.:—

1. The early description by Dr. Gairdner.

2. The extremely marked character of the typical deformities.

3. The unusual combination of these with trophic lesions of the joints, suggestive of analogies with Charcot's joint lesions.

4. The presence of a degree of atrophy of the muscles of the hands, analogous to that met with in progressive muscular

atrophy, a disease which, in a case recorded by Duchesneau, preceded the development of the acromegaly.

5. The occurrence of Raynaud's phenomena in a minor form.

6. The condition of the aural cartilages.

7. The condition of the urine, which contains traces of albumen and hyaline casts, and yet leaves in my mind a doubt as to whether there has at any time been a genuine chronic Bright's disease.

8. The tendency to erysipelas.

IV.

ACUTE ATROPHIC SPINAL PARALYSIS IN AN ADULT.

THE points of special interest in this case are (1) The infrequency of this form of paralysis in the adult; (2) the clearness of the history of its acute onset; and (3) the success of the treatment employed.

Andrew G., æt. 42, a fisherman, was admitted to the Royal Infirmary on 13th December, 1893, complaining of loss of power and wasting.

Prior to the onset of his present illness he had been a very healthy man. He had not been given to alcoholic excess, though he took drink at times. Some fifteen years ago he had suffered from gonorrhœa, followed by a suppurating bubo, but he had never had syphilis.

On Thursday, 9th November, 1893, he was in perfect health, and did a hard day's work filling barrels with herring. He was on board a steamer, and it was his duty to carry the baskets of herring, handed up to him from the boat alongside, to the barrels, and empty them there. Each basket weighed about 84 lb., and he carried on that day about a hundred of them. He is perfectly certain that at that time both his arms were in sound condition.

On the evening of Friday, 10th November, he and some other fishermen were drinking together in a public house. Somewhat under the influence of whisky, he left before the others, and went down to the boat to wait for them. While waiting, he fell asleep, not under cover, but lying on the nets on deck. It was a very cold night and some snow fell.

The others did not come for over four hours, and when he was awakened, although he had been perfectly strong and healthy when he lay down, he was "so stiff," that he could not help himself in any way. He was carried below and laid beside a fire, and in the morning, although he had a somewhat more natural feeling in his right side, he was quite helpless. On 13th November he was carried ashore and driven (lying in a long waggonette) to his home at a considerable distance. For at least ten days the complete paralysis persisted, and then slight improvement took place. He had no paralysis of bladder or rectum. He has had no difficulty in swallowing or in speaking.

Pain was not a marked feature either at the onset or since. During the first night he had some discomfort in the wrists, the shoulders, and the back of the neck, but it was more a feeling of stiffness and coldness than an actual pain.

On 13th November he noticed that the muscles of the upper arm and of his toes were becoming very thin. He is quite sure that the wasting did not begin in the hands, and that, since the date of its onset, it has been progressive.

On admission, muscular atrophy was the most striking feature of his case, affecting all four limbs as well as the muscles of the trunk.

The muscles of the left arm and hand were more affected than any others. The thenar and hypothenar eminences were much wasted, and the interossei were so affected that the metacarpal bones stood prominently out. There was slight contraction of the flexors, but not such as to produce anything like the "claw" deformity. He had little power over the fingers; he could not separate them, and his grasp was scarcely perceptible; he could, however, move the thumb pretty freely. The muscles of the forearm were so wasted that it was almost possible to make the thumb and forefinger meet between the radius and the ulna. He could perform the movements of pronation and supination fairly well. The biceps was very small and the triceps was all but gone, so that, though he could slowly flex the arm, he had absolutely no power of extension. All the muscles about the shoulder

were involved, especially the pectoralis and the latissimus dorsi, and the supraspinatus and subspinatus.

On the right side the movements of the hand and forearm were much more free, but there was little difference to be made out in the degree of wasting at the shoulder and in the upper arm.

The muscles of the neck and the trapezius were affected on both sides, so that he had difficulty in holding his head up.

There did not appear to be any implication of the muscles of the face. The tongue was protruded in the middle line, and at its tip delicate tremors were noticed.

The intercostal muscles seemed to be affected.

The legs, from the gluteal region downwards, showed well marked atrophy, greater on the left side that on the right; but the difference was not so marked as in the arms. He could stand even with the feet close together and the eyes shut, but it was evidently something of an effort for him. In attempting to walk he slowly shoved his feet in front of him, the one after the other, without lifting them from the ground. Considering the atrophy, a fair degree of knee-jerk was obtained on both sides. There was no ankle clonus.

On tapping or pinching any of the affected muscles, tremors and contractions started in them. This was specially marked in the upper arm and in the pectoralis. Erb's reaction of degeneration was present.

Sensation was good all over the body.

There was nothing abnormal in the lungs or the heart, except that the sounds of the latter were rather feeble. The pulse numbered 96. The temperature was normal, or sub-normal, and remained so. The urine contained neither albumen nor sugar.

He was treated by rest in bed, massage, electricity, and Easton's syrup. After a very short time he began to show improvement, and during the first two months he rapidly progressed; but, during the past two months, the rate of progress has been slower. He can now (May) walk about with perfect ease, and he can perform all movements, even many delicate ones, with his fingers. He has not yet, however,

regained his former condition, and it is noted that the remaining wasting is irregularly distributed—*e.g.*, on the right hand the hypothenar eminence and the interosseous muscles on the ulnar side are most affected, while in the left hand it is the thenar eminence, and the first and second interossei which show most wasting.

The history of this case clearly shows that paralysis preceded wasting, and that, with its acute onset, serves to exclude progressive muscular atrophy. There can be no doubt that the lesion occurred in the anterior grey cornua, as high as the cervical portion of the cord, and that the case must be classed as acute anterior polio-myelitis. The nature of the lesion is not quite so clear. The suddenness of the onset practically confines us to the diagnosis of hæmorrhage or inflammation. I do not think that the former was the cause, for it is not likely that hæmorrhage would have occurred simultaneously in both anterior cornua, and been confined to them. It is much more likely that the lesion was of an inflammatory nature, for it has throughout been limited to the one "system" in the cord, and the severe exertion and prolonged exposure to which he was subsequently subjected seem quite adequate to account for an inflammatory affection, while the sense of discomfort or pain about the shoulders felt near the onset tends to confirm that diagnosis. The result will help us to take a more favourable view of such cases than we are apt to do.

V.

CASE OF PURULENT NECROTIC MEDIASTINITIS, WITH PERICARDITIS AND DOUBLE EMPYEMA, RESULTING FROM SUPPURATION OF A SUB-MAXILLARY GLAND.

ACUTE inflammation of the mediastinum rarely comes under notice, and is still more rarely diagnosed. Of the cases recorded most have been traumatic, but a few have been referred to rheumatism, some have been secondary to caries of the sternum, or to tubercular disease of the bronchial glands, and others have been of pyæmic origin. In a few instances, after tracheotomy, inflammation has extended from the wound in the throat down into the mediastinum. The best article on the affections of the mediastinum with which I am acquainted is that by Dr. William A. Edwards in Keating's *Cyclopædia of the Diseases of Children*, and in it there is no mention of any case similar either in origin or in its pathological anatomy to that about to be narrated.

James H., 11 years old, was admitted to the Royal Infirmary on 18th December, 1892, complaining of pain in the front and left side of his chest of one day's duration. He was sent in as an urgent case by my friend, Dr. James Dunlop, Dennistoun. The history bore that about a week previously the boy had been taken to consult Dr. Dunlop on account of a small swelling under the lower jaw on the right side, supposed to arise from a bad tooth. On the evening of 16th December Dr. Dunlop was sent for to see him, and

found him sitting up at the fireside, but complaining of not being well. Examination at that time failed to detect anything beyond an increase of the swelling in the neck and some fever. On getting up on the morning of 17th December, the boy for the first time felt pain in his breast, and on the evening of that day Dr. Dunlop discovered pericardial friction. There never was any rigor.

On admission the boy was seen to be very seriously ill. He had marked dyspnœa, the nostrils dilating with each inspiration. The respirations numbered 50 per minute, and caused great pain, especially when deep. The temperature was only 100·2°, but the pulse was 132, irregular, small, and easily compressible.

The pain in the breast he described as griping, while that in his left side, at the lower margin of the ribs and extending round to the back, was stabbing in character. Both were aggravated by deep breathing, by movements, and by pressure. He could not lie on his back without pain; he was easiest when lying on the right side.

His face was pale and expressive of pain. Under the lower jaw on the right side there was a swelling of considerable size, extending quite down to the level of the clavicle, fluctuant, red, and inflamed-looking. This had gradually developed with very little pain, except on pressure. Continuous with this swelling in the neck, there was marked œdematous swelling over the upper part of the thorax on both sides of the middle line, with dulness on percussion. Over this area, on the day of admission, an emphysematous crackle was said to have been made out on pressure. He was so ill that only a hurried examination could be made. Pericardial friction was audible all over the præcordial area, and in the left lateral region and back pleural friction was also heard.

"*19th December.*—The temperature rose after admission to 103°, and during the night the boy was delirious. Though his temperature has now fallen to 101·6°, he is much worse than he was yesterday, his pulse varying from 132 to 158 per minute, and his breathing from 42 to 50. He has an ashy-grey look about the face, and the finger tips are livid.

Since his admission, dulness over the lungs has rapidly increased; it is well marked at both bases, and well up the right side of the chest. Pericardial friction still persists." The boy died on the afternoon of 19th December, having been in hospital only some twenty-four hours.

A *post-mortem* examination was made on 21st December by Dr. Lindsay Steven, whose report is as follows:—

"The body is fairly well nourished; decomposition is advancing in the front of the chest, abdomen, and neck. There is a moderate degree of swelling beneath the right side of the lower jaw in the region of the submaxillary gland. Pupils are slightly dilated and equal; lips very livid.

"On reflecting the soft tissues from the front of the neck and chest, they are observed to be markedly œdematous. There is no subcutaneous emphysema. The tissue lying in front of the trachea is thickened, opaque, and vascular, as if from the near presence of inflammatory change; and it is obvious, on cutting into the region of the right submaxillary gland, that a foul-smelling abscess has been opened.

"Both pleural cavities contain from 6 to 10 ounces of fœtid pus, and the loose connective tissue of the mediastinum, from the suprasternal notch to the diaphragm, is infiltrated with pus, and practically in a condition of slough. This sloughy condition is abundantly present on the external surface of the anterior layer of the pericardium; but the pus-infiltrated tissue can with tolerable ease be separated from the underlying pericardium. On opening the pericardium a very recent and very moderate generalised pericarditis is discovered, which has been sufficient to cause only a slight roughening of the surface.

"In the right pleura there have evidently been old connective tissue adhesions. These are found to be infiltrated with purulent material. The thoracic organs and the contents of the neck are removed *en masse*, and on dissecting the structures in front of the trachea a direct channel of communication is found, behind the sterno-thyroid muscle and directly in front of the trachea, between the submaxillary abscess already described and the mediastinum. The walls of this channel,

which is fully a finger's breadth in diameter, have the same sloughy character which has been described in connection with the mediastinum.

"The lower jaw is carefully felt, but no roughness or other evidence of disease can be made out.

"The liver, spleen, kidneys, and other abdominal organs present healthy appearances.

"On opening the larynx and trachea the mucous surface has an intensely congested appearance, and is covered with blood-stained mucus."

For nearly a week this case presented no *obvious* symptoms other than those we are accustomed to associate with an abscess in a submaxillary gland. During that time necrosis of the gland must have been going on, and the necrotic process must have been insidiously extending below the deep cervical fascia to the mediastinum. When, however, the pleuræ and the pericardium became involved, there was a sudden outburst of severe symptoms, with a rapid course towards death. To account for such a series of events, the cause must have been extremely virulent. The *post-mortem* examination did not reveal the origin of the glandular inflammation, and, through a misunderstanding, no proper bacteriological examination was made, the bacilli of tubercle alone being sought for, and without success.

VI.

NECROSIS OF THE PANCREAS WITH CYST FORMATION AND FAT NECROSIS.

On 19th December, 1893, being in Coatbridge, I was asked by my friend, Dr. J. S. Rennie, to see a case, as he believed, of enlargement of the liver, the cause of which he was in doubt about. I found the patient to be an extremely obese woman, but there was no difficulty in making out on palpation a large mass or tumour in the upper part of the abdomen, the greater portion of which seemed to be to the left of the middle line. From the left hypochondriac margin to the umbilicus, apparently in close proximity to the abdominal wall, there was felt a solid mass with a somewhat rounded margin, and over this area a light percussion stroke gave a dull note. On carrying the hand across the epigastrium into the right hypochondrium the solid mass ceased to be superficial, but could be felt by deep palpation. Overlying it was apparently the stomach, which gave a tympanitic note on percussion, and an undue amount of splashing when the body was shaken. The general impression left on my mind was that the mass was not hepatic, but probably splenic or peritoneal. As she could be better attended to in the Infirmary than at home, it was agreed that she should be sent into my ward, which she entered on 23rd December, where the following notes were made :—

Mrs. A., æt. 34, a housewife, was admitted complaining of "burning pain in the stomach and vomiting of food;" she dated her illness from her last confinement, at the end of July, 1893.

The labour was easy, but she never quite recovered her

health, although she was soon up and going about. She then began to suffer from pains in the gastric and hepatic regions, not of a very severe nature, and from excessive thirst. These were treated with ordinary hepatic stimulants, and she seemed to improve. Three or four weeks prior to admission the pain in the stomach became much aggravated, and she suffered so severely from these "cramps," as she called them, as to require treatment by morphia, which gave her temporary relief. For about the same time there had been excessive constipation and urgent vomiting. The bowels required to be moved by enemata, and the motions thus obtained were described as being dark in colour. She could take no food without vomiting, which occurred immediately after anything was taken into the stomach, and without any effort or straining. The vomited matter was said to be very abundant, watery, and of a green colour. Previous to this time she had never vomited.

She had had eleven children, having had twins three times. The twins all died in early infancy, but the other five children were alive and well. On the whole, she had been a very healthy woman. She was said to have suffered from palpitation for two or three years, and she had an attack of bronchitis a year ago, but with these exceptions she had never been ill. Her confinements were always easy.

On 23rd December, her urine was found to have a sp. gr. of 1010, and a neutral reaction, and to contain a trace of albumen. In the sediment were found hyaline casts and fatty cells. There is no note as to the presence or absence of sugar.

When I saw her on 24th December, the physical signs seemed more like those of enlarged liver with dilatation of the stomach, and in the right hypochondriac region there was felt an irregular mass, suggestive of disease of the pylorus. Just about and above the umbilicus there was tenderness on pressure. An enema was given, and a considerable amount of fæcal matter removed, without scybala.

On the morning of the 25th December, she was found suffering from high fever and collapse, and was so evidently

moribund that further examination was not attempted. She died on the afternoon of that day.

During her residence in hospital she had very little vomiting. On the first day she vomited twice; the vomited matter was watery and greenish, and the quantity was large on both occasions. There was no further vomiting till shortly before death, when large quantities of a fluid like "coffee-grounds" flowed from her mouth. She made no complaint of pain in the abdomen, but she had a feeling of "burning in the stomach" which led her to drink large quantities of water. She was rather anæmic, the pallor of the skin having somewhat of an earthy tint, but she was not jaundiced, and had never been so. The quantity of urine passed was large, especially during the last night.

On the first night of her residence she was restless, but quite sensible, and she slept a little. Her temperature, which, while under Dr. Rennie's care, had never been observed to be febrile, was at that time 100° F. On the evening of the 24th December, the temperature had risen to 103°, and that level was maintained during the night, when she was very restless and delirious. This condition had supervened without any marked aggravation of the symptoms, and was maintained throughout the early part of the 25th December, passing gradually into coma. Before death a temperature of 105° was recorded. The pulse varied from 124 to 136, and the respirations from 30 to 40, the observations being taken, however, only after the temperature had risen to 102°.

An examination of the body was made on 26th December by Dr. J. Lindsay Steven.[1] There was found no tumour in the ordinary sense of the term, but there were two conditions which might readily have given rise to a feeling of tumour during life—viz., (1) an enormous mass of fat in the omentum, measuring an inch in thickness and weighing 32 oz; (2) surrounding the pancreas a large cyst, the walls of which were formed by adjacent organs through adhesions which had

[1] Dr. Steven recorded this case from the pathological standpoint at the International Medical Congress at Rome. See *British Medical Journal*, 1894, vol. i, p. 796.

taken place. The cyst contained a large quantity of opaque black fluid, free from gangrenous odour, and in its interior there was found a black body, apparently the necrosed pancreas.

The stomach was moderately dilated, and contained a light brown fluid; its mucous membrane, as well as that of the intestines, was strictly normal; there was no pyloric obstruction or tumour. The liver was soft and pale from moderate fatty infiltration. The kidneys were pale and of soft consistence, without obvious renal disease. The spleen was somewhat enlarged, and of a dark red colour from congestion. The uterus and its appendages were quite normal. The thoracic organs were practically normal. In the heart there was a large quantity of fluid blood which showed no signs of coagulation.

The urine withdrawn from the bladder had a normal appearance, and its specific gravity was 1025. It contained a trace of albumen, and the sediment showed some hyaline casts. In addition, sugar was noted to the extent of 14 grains per ounce.

Lastly, in the fat of the abdominal wall, which measured two inches in thickness, as also in the fat in the omentum and elsewhere in the abdominal cavity, there were dirty white opaque patches of what has been described as "fat necrosis."

That this case had been diagnosed as enlargement of the liver did not in the least surprise me. The physical signs were so extremely like those of hepatic enlargement, that Dr. Rennie, who had made frequent and careful examinations of the abdomen, was convinced only by the *post-mortem* examination that the abdominal mass was not hepatic. On the other hand, the results obtained from that examination came as a surprise in many ways. I had expected that a large solid tumour would be found, connected either with the spleen or with the peritoneum, but there was nothing of the kind. It is interesting, therefore, to note that a very large accumulation of fat in the great omentum, combined with a large cyst surrounding the pancreas, gave rise to such a feeling on palpation.

It is difficult to be certain of the various steps in the pathological process revealed by the *post-mortem* examination, but I believe it is most probable that the disease took origin in an acute or subacute pancreatitis, arising from some unknown cause, and followed by hæmorrhage and necrosis; and it is not unlikely that the attacks of "cramps in the stomach" were associated with these latter. The hæmorrhage and necrosis probably did not occur till a certain amount of peritonitis and adhesion had taken place among the viscera surrounding the pancreas, and in this way general peritonitis was prevented from occurring.

Within the past few years a considerable amount of work has been done in regard to the diseases of the pancreas. The most notable communication on the subject of acute pancreatitis has been the Middleton-Goldsmith lecture,[1] delivered before the New York Pathological Society, by Dr. Reginald H. Fitz, Professor of Pathological Anatomy in Harvard University. In Dr. Fitz's words—"The common symptoms of acute pancreatitis are sudden, severe, often intense epigastric pain, without obvious cause, in most cases followed by nausea, vomiting, sensitiveness, and tympanitic swelling of the epigastrium. There is prostration, often extreme, frequent collapse, low fever, and a feeble pulse. Obstinate constipation for several days is the rule, but diarrhœa sometimes occurs. If the case does not end fatally in the course of a few days, recovery is possible, or a recurrence of the symptoms in a milder form takes place, and the characteristics of a subacute peritonitis are developed. The symptoms are essentially those of a peritonitis beginning in the epigastrium and occurring suddenly during ordinary health, without obvious cause." From this it is clear that the symptoms associated with disease of the pancreas are not such as conclusively to indicate the nature of the affection. In the above case, the history tells of a sudden aggravation which may have been of the

[1] *Proceedings of New York Pathological Society*, 1889; also printed in the *Boston Medical and Surgical Journal*, vol. cxx, p. 181. An abstract of this lecture will be found in the *Glasgow Medical Journal*, November, 1889, p. 395.

nature of an epigastric peritonitis, but the aggravation came on in the course of what was an illness already of some duration, and I do not think that in the circumstances a correct diagnosis could have been made. The specific gravity of the urine on the one occasion on which it was examined in the ward did not suggest the presence of sugar; but, even had sugar been present, it would have been a very slight ground for the diagnosis of pancreatic disease; indeed, Fitz makes but little reference to glycosuria in his analysis of cases.

The occurrence of fat necrosis appears to be common in association with pancreatic lesions, and especially with those of a necrotic or gangrenous form. This was pointed out by Fitz and others some years ago, and has more recently been made the subject of a communication to the *Transactions of the Pathological Society of London*, 1893, by Dr. H. D. Rolleston, from which it will be seen, that while some writers believe that the fat necrosis is the primary lesion and the pancreatic disease the secondary one, most are of opinion that their relationship is just the reverse of that. The arguments of those who hold the latter view seem to me to carry most weight.

VII.

A CASE SHOWING SOME OF THE PHENOMENA DESCRIBED IN MR. JONATHAN HUTCHINSON'S ARTICLES ON ACRO-PATHOLOGY.

READERS of Mr. Jonathan Hutchinson's *Archives of Surgery* must be familiar with the meaning of the term "acro" in the nomenclature of diseases. In a lecture on "Acro-Pathology (Raynaud's Phenomena and Allied Conditions)," in *The Medical Week*, 24th February and 3rd March, 1893, Mr. Hutchinson has collected some of his former cases, and added many others, illustrative of those peculiar phenomena met with in the extremities, one set of which is commonly known as Raynaud's disease. The case which is the subject of the present communication appears worthy of record as clearly coming within his category, while differing from any of the cases he has described in presenting distinct, though temporary, paralytic symptoms.

On 4th May, 1893, E. M., a girl 11 years of age, was sent to see me at the Royal Infirmary by my friend Dr. Scanlan. On that date the following note was made:—"The girl is unable to stand erect, the right heel being drawn up and the knee bent, while, when the right foot is put flat on the ground, the trunk becomes flexed on the thigh. She cannot walk without assistance. The right leg is extremely stiff, and, as she lies in bed, the whole body can be moved by moving the right foot alone. The rigidity is so great that the leg cannot be straightened on the thigh without the exercise of considerable force. The condition is strongly

suggestive of Erb's spastic paralysis. The rigidity of the right leg is said almost to disappear on rubbing. A similar rigidity to a less extent affects the left leg. The knee-jerks are not increased, and no ankle clonus is elicited.

"Both legs, but especially the right, have been subject from the onset to what her mother calls a rash. On standing, both become of a dusky livid colour, the lividity being more marked in the calves of the legs than elsewhere, but extending from the toes well up into the thighs. Along with the lividity there is marked coldness of the parts. There is no atrophy of the leg, but the muscles of the right calf are rather more flabby than those of the left. There is no pain on handling the limbs, but it is stated that she does complain of pain when the limbs are rubbed. There is no evidence of any affection of the hip-joints, of the vertebral column, or of the upper limbs. There is extremely well marked *tache cérébrale*. The cardiac dulness is slightly increased to the left, and is continuous with a dulness in the lateral region, probably splenic. At the base of the heart a brief ventricular-systolic murmur is heard, probably anæmic.

"She had whooping-cough in early infancy, measles at the age of 4, and scarlet fever when about 9 years old—all mild attacks, with complete recovery. She had otherwise been healthy and strong till about January, 1893, when she began to complain of "sourness of the stomach," bringing up mouthfuls of sour fluid from time to time. On 1st April she went to Mauchline for the spring holidays, and on 4th April, when out a message, she was suddenly seized with stiffness in the right leg. From that date there had been some disablement of both legs, which were said to have been swollen. Pain was complained of only on trying to walk. The blueness of the skin was present from the outset. She was brought home on 10th April, and when first seen by Dr. Scanlan her case was said to have been looked upon as erysipelas.

"The girl had never been regarded as nervous. She had not been subject to chilblains, did not complain of the cold of winter, and had always been able to join in games without breathlessness. She had always been well fed and clothed.

"Her father and mother are healthy, and no such case has occurred in either of their families. She has two brothers older and one younger than herself, and these have always been healthy."

I formed the opinion that the skin phenomena were analogous to those of Raynaud's disease, and that the nervous symptoms were purely functional. I, therefore, gave a good prognosis.

"*30th May, 1893.*—This girl has been getting worse since the above note was made, and was admitted to the Infirmary to-day. She is now quite unable to stand, and, even when supported on both sides, she cannot stand erect. On attempting to walk with the assistance of two people, she bears absolutely no weight on the right foot, hopping on the left alone. The legs both get very blue and very cold; this blueness has now extended considerably higher than when first seen. While she moves the left leg freely, she cannot move the right at all, but lifts it with her hands. The right leg is said to be getting smaller, but there is no very apparent difference. Sensation seems to be good. The knee-jerks are well developed, but rigidity is no longer present. There is no pain complained of, even on standing."

Taking the same view of her case as I had done before, I told her mother in her presence that she had better stay in the hospital, and she would come all right.

"*1st June.*—Her temperatures have been subnormal, the highest being 98° F. The bowels are regular.

"She can now not only move the right leg, but walk upon it without support, although with a tendency to stagger. The legs still become blue on standing. She has had absolutely no treatment beyond rest in bed.

"*9th June.*—As she lies in bed the legs present a normal appearance and a normal temperature, but immediately on being made to stand on the floor, the right leg shows a tendency to red lividity. This apparently begins in the calf of the leg, and does not seem to be preceded by any stage of pallor. It soon extends so as to involve the whole of the feet and the toes, and reaches as high as the gluteal region.

It affects also the left leg, but to a less extent than the right. The colour gradually becomes more and more livid and blue, and, in the right leg especially, there are soon developed the so-called plaice-spots of Jonathan Hutchinson, varying in size from that of a pin head to that of a haricot bean. These have been observed on various occasions. They vary in size and also in situation. The purple livid colour is readily displaced by squeezing and rubbing the part, by which means the blood is driven out of the subcutaneous tissues, but the pallor is immediately replaced by redness. This redness resembles the scarlet fever rash in consisting at first of minute red points, which coalesce so as to form a general redness. Coldness of the extremities is no longer at all marked. There is no involvement of the hands or fore-arms, and no very evident affection of the face, but just at the time she was first seen, a rash had appeared on the face and nose, which even now present a scurfy desquamation. She is a healthy-looking girl, without emaciation and without anæmia. The right leg, on measurement, is everywhere slightly less than the left:—

	Right.	Left.
At ankle, . . .	$6\frac{1}{2}$ inches.	$6\frac{3}{4}$ inches.
Calf, ...	$9\frac{1}{2}$,,	$9\frac{3}{4}$,,
Middle of thigh, . .	13 ,,	$13\frac{1}{4}$,,

There is no disturbance of sensation. She now walks perfectly freely, paralysis being entirely gone. The *tache cérébrale* is extremely well developed, the redness being very pronounced, and there being also well-marked elevation of the skin, the colour of which is pale; both of these phenomena persist for a considerable time. There is no enlargement of cardiac dulness, and no murmur. Her temperatures have been normal.

"*21st June.*—On hanging by her side, the arms now show a slight amount of the same phenomena as the legs.

"*10th July, 1893.*—Patient was dismissed to-day. Improvement has gone on steadily. For several weeks she has been up and out daily. All trace of paralysis has completely disappeared. There is no longer any coldness of the ex-

tremities; blueness with the red plaice-spots is very slowly produced, to a very limited extent, and only when she is made to stand with feet and legs bare. There is no blueness when she goes to bed at night after having been up all day.

"During her residence the average of the temperatures has been—morning, 97·7° F.; evening, 97·9° F."

After leaving the hospital she remained perfectly well till towards the end of the year, when for three or four weeks she suffered from weakness of the right leg without complete loss of power, with, at the same time, coldness and lividity of the limb. The weakness of the leg was recovered from quite suddenly.

On 7th April, 1894, when she was last seen, there was no loss of power in the legs, but, on standing, both legs presented lividity with red spots, without coldness. Sensation was normal. The right knee-jerk was defective. There was still a difference in the girth of the legs, the measurements being—

	Right.	Left.
Calf, ...	11 inches.	$11\frac{1}{8}$ inches.
Ankle, ...	$7\frac{1}{4}$ „	$7\frac{1}{2}$ „

The skin condition in this case corresponds very closely with that described by Mr. Jonathan Hutchinson, and is very suggestive of analogies to Raynaud's disease. The nervous phenomena, more especially in respect to the rapidity of recovery, would ordinarily be dismissed as functional or hysterical. Their connection with the skin symptoms, and the difference that was made out in the measurement of the legs, lead me, however, to believe that they must have had some organic change as their cause—probably of a nature similar to that giving rise to the affection of the skin. That the latter was due to some disturbance of the vaso-motor centres may be accepted as highly probable; this case, therefore, appears to me of special value, as tending to throw a little light on that large class of nervous diseases of the pathology of which we know so little that we class them as functional.

IX.

CASE OF GENERAL BILATERAL PERIPHERAL NEURITIS, WITH RECOVERY.

On 11th May, 1893, there was admitted under my care in the Royal Infirmary a man, D. M'D., 23 years of age, a worker in a distillery, who was suffering from more or less general paresis.

The history bore that on 8th April, 1893, he travelled from Glasgow to Fort George to undergo a period of training in the militia service. On that evening he went to bed all right, but he perspired profusely before rising in the morning, and during the next day he was exceedingly cold and shivering. About 6 P.M. on 9th April he was seized with a severe pain in both ears, which soon afterwards extended across the neck from ear to ear. He described the pain as "boring" in character. A few hours later his speech began to fail, the affection being simply one of articulation, as he always knew the words he wished to use; and, by the 12th April, he was unable to articulate a single word.

On 10th April he lost the power of mastication. He not only could not masticate solid food, but he had difficulty in swallowing fluids even, and for seven days he took nothing but a little water. This water never seems to have found its way into the larynx, nor to have been regurgitated through the nose. On the same day he also noticed a lump about the size of a hen's egg in front of his neck immediately under the jaw, and a number of smaller ones between this and each ear. There was no sore throat, and no soreness in

the mouth. These swellings received no local treatment, and gradually disappeared about 15th April.

On 12th April he suddenly lost power over both arms and legs, this loss of power being preceded by no abnormal sensations other than those to be mentioned below. For a week all his limbs remained practically powerless; although he was occasionally able to move them a little, he was generally quite unable to do so. From 10th to 20th April in his palms and soles he had burning sensations, which, on the latter date, gave place to absolute anæsthesia of these parts.

"Since his present illness began he has occasionally suffered from the girdle sensation. He has also had pain in the chest, principally in the præcordial area; he has suffered more or less from this for three years, but it is now worse than it has ever been. Since 12th April he has also had some difficulty in breathing, particularly when he lies on either side. He has had two attacks of gastralgia, followed by vomiting, the last on the day of admission. On that day also he fainted in the receiving room, and seems to have remained only partially conscious for over an hour, the receiving physician being afraid that an apoplectic seizure was coming on. His bowels have been obstinately constipated; he had no motion from 8th April to 7th May. Micturition has not been affected. He never had any shooting pains in the arms or legs, and never any tenderness on pressure of the limbs. He has had no headache. He states that the sense of taste was impaired, if not lost. Vision is said to be unaffected, and he has never had diplopia. The sense of hearing has been impaired ever since the pain in the ears commenced. The sense of smell has been unimpaired. He says he felt feverish, but he had no sweating except on the night of 8th April. Sleep has been interfered with by the pain, first in the neck and afterwards in the breast.

"He was in the hospital at Fort George from 10th to 21st April. When he left, he was able to walk with the assistance of a person on either side of him. He arrived in Glasgow on 21st April, but he was not seen by a doctor till 30th April, when Dr. John Lindsay was called in, who

found him 'complaining of sore throat and great general weakness. He had come from Fort George Hospital, where pellets of chlorate of potash had been prescribed for him. Of the previous history, I remember only that he had suffered severe pain running down the sides of the face from both ears, but from what he told me I formed the opinion that he had had influenza, and was then suffering from the prostration following it. A few days afterwards my attention was called to his mouth, when I found that he could not close his lips, though he could move his jaw. I have no doubt this had been there from the beginning, as I had noticed that he spoke in a thick and slovenly fashion, which I set down to his usual habit. At the same time he complained of a feeling of constriction round the waist. I found the knee-jerk and ankle clonus absent from both legs. He said there was a want of feeling in his feet. He could not walk in a straight line, nor stand with his eyes shut. He said there had been no pains in the limbs. The pupils reacted to light and near distance. I saw no change in him during the week I attended.'

"*14th May.*—There is evident want of expression, affecting both sides of the face, the naso-labial and other lines being absent (Fig. 1). His lips are kept open about a quarter of an inch. The visual aperture is, perhaps, small. The pupils are normal in size, and respond both to light and to accommodation. The muscles of the eyeballs are all apparently normal in their action. There is a trace of lateral nystagmus, but the oscillation is possibly not greater than may be met with in a normal subject. There is no diplopia. As tested with printed matter, there is no defect of vision. There is no suffusion of the conjunctivæ, and no protrusion of the eyeballs. There is no ptosis, but he is unable to close the eyelids, apparently from inability to lift the lower eyelids. The conjunctivæ are much less sensitive to touch than normal, and, on bringing an object suddenly before his eyes, there is absence of the normal reflex closure of the lids. There is complete inability to wrinkle the brows; there is also complete inability to close the lips, so that he cannot

even attempt to blow out the cheeks or to whistle. The buccinators are apparently completely paralysed, but, on passing the finger further backwards in the mouth, the masseters are found to contract rather forcibly, and, as

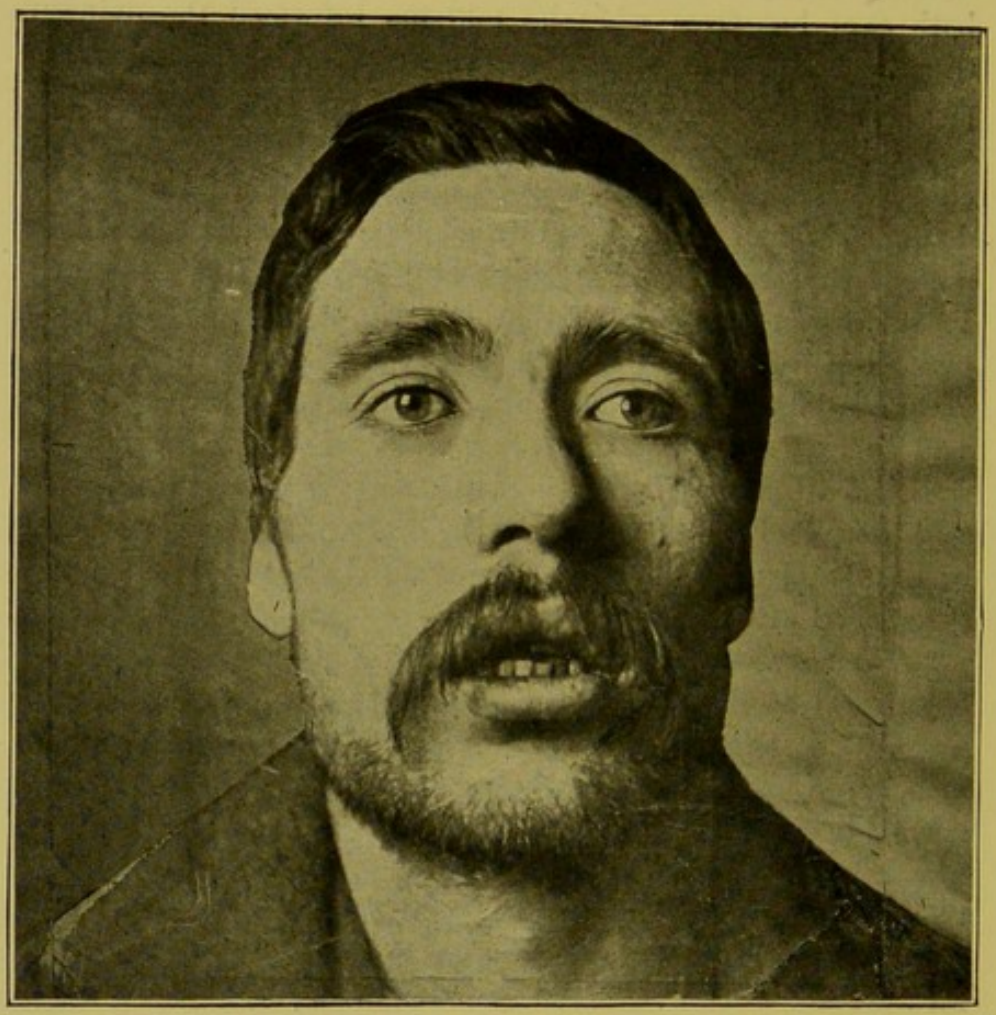


FIG. 1.

D. M'D., May, 1893.

Showing Double Facial Paralysis.

tested by the action of the teeth on a cork, the muscles of mastication are now apparently acting normally. He can protrude the lower jaw, but not far, and he can move it from side to side. He protrudes the tongue readily, and with only a slight deviation towards the right side. The right side

of the tongue looks a little smaller than the left, but there is no wrinkling of its surface, and on palpation it cannot be said to be definitely smaller on that side. There is no deviation of the uvula, and the soft palate moves with

FIG. 2.

D. M'D., September, 1894.

perfect freedom, but the arch on the right side droops a little as compared with that on the left. The senses of smell and taste are perfect. He can drink fluids, but in doing so he supports the chin and lower lip with his hand so as to prevent dribbling. This action he has been taught

by experience. His power of hearing as tested by the watch is perfectly normal. He admits having had noises in his ears when the pain was severe, and even still, although not so markedly as before. The movements of the larynx and trachea in swallowing are normal. There is no tremor of the lips, and only slight tremor of the tongue on protrusion. During conversation it is evident that his speech is markedly affected, mainly owing to loss of power in the lips. On testing him with the various letters of the alphabet, 'b' is pronounced 'e;' 'd' and 'l' are indistinctly articulated; 'm' is slurred, and has a nasal sound; 'n' is more clearly enunciated, but not properly; 'p' sounds like 'he;' 'v' is also slurred, sounding like 'e' with a trace of 'f' sound before it; 'w' is apparently affected solely because of the 'd,' 'b,' and 'l' in the word 'double;' 'y' also is somewhat slurred. His voice, as a whole, has also a nasal twang.

"On testing the power of common sensation in the tongue, he fails to distinguish two points as such at a distance of one inch apart when rapidly applied; but when the points are allowed to remain in contact for some time, he distinguishes them at a distance of half an inch apart. On the forehead he fails to distinguish two points as such at a distance of little more than half an inch, while on the cheek he readily distinguishes them. In the finger-tips of the right hand he recognises two points at a distance of half an inch, while in the fingers of the left hand he is not accurate up to an inch and a half. There is no distinct anæsthesia of any part of the skin of the face or scalp, but sensation of the skin of the posterior half of the face and head is slightly less acute than that of the forehead and cheeks. In the finger-tips he is not very accurate in distinguishing sharp from blunt points.

"His grasp is feeble, the maximum of each hand with the dynamometer being 30. There is no absolute loss of power of any of the movements of the hands or arms; but there is distinct impairment, and there is slight tremor of the muscles when the hand and arm are extended. There is no paralysis of the intercostal muscles, but the action of the diaphragm is enfeebled, if not wholly lost. As he lies in

bed the movements of the feet and legs are properly carried out. He walks with some difficulty, staggering a little, and he is unable to walk with steadiness on a single plank. He cannot stand with the eyes shut and the feet close together. Sensation in the legs is apparently good; there is no analgesia and no decided anæsthesia. The superficial and deep reflexes are entirely absent. There is no ankle clonus.

"Respiration is entirely thoracic, the epigastrium being drawn in on inspiration.

"He believes he has lost a considerable amount of flesh, but this affects generally all the muscular tissues.

"On testing for the *tache cérébrale* there is a very striking reaction. A broad band of redness immediately shows itself in the course of the track of the pencil point, and out of the redness there gradually rises a white elevation like the wheals of nettle-rash. Both redness and wheals persist for a considerable time, the redness for at least half an hour, and the wheals for an hour and a half (Fig. 3).[1]

"The internal organs are all healthy, and there is nothing discovered about the heart to account for the pain spoken of.

"Since admission, desquamation about the fingers has been noticed."

He was put on nux vomica and the galvanic current, and he almost immediately began to improve. The improvement in regard to the paralysis was progressive, but he had several attacks of præcordial pain.

[1] This is the phenomenon known in this country as factitious or graphic urticaria, but perhaps better called by the non-committal name of dermography given to it by MM. Ch. Féré and H. Lamy, who published, in the second volume of the *Nouvelle Iconographie de la Salpêtrière* (1889) an article on the subject. The phenomenon is said to be common among the subjects of urticaria; but it is also met with, as in this instance, in those who have no tendency in that direction. Personally I would regard it, in the degree present here, as a very rare occurrence. It is even now (September, 1894) readily elicited in as marked a form as ever, and I doubt now whether it had any connection with the patient's illness, as it may have been a feature of his condition long before his illness came on. It is also very doubtful whether, in such a case as this, it really can in any way be connected with urticaria.

On 6th August it was noted that "yesterday night, after having felt better during the day than he had done since his illness began, pain in the præcordial area became exceedingly severe, and at the same time he was attacked by severe

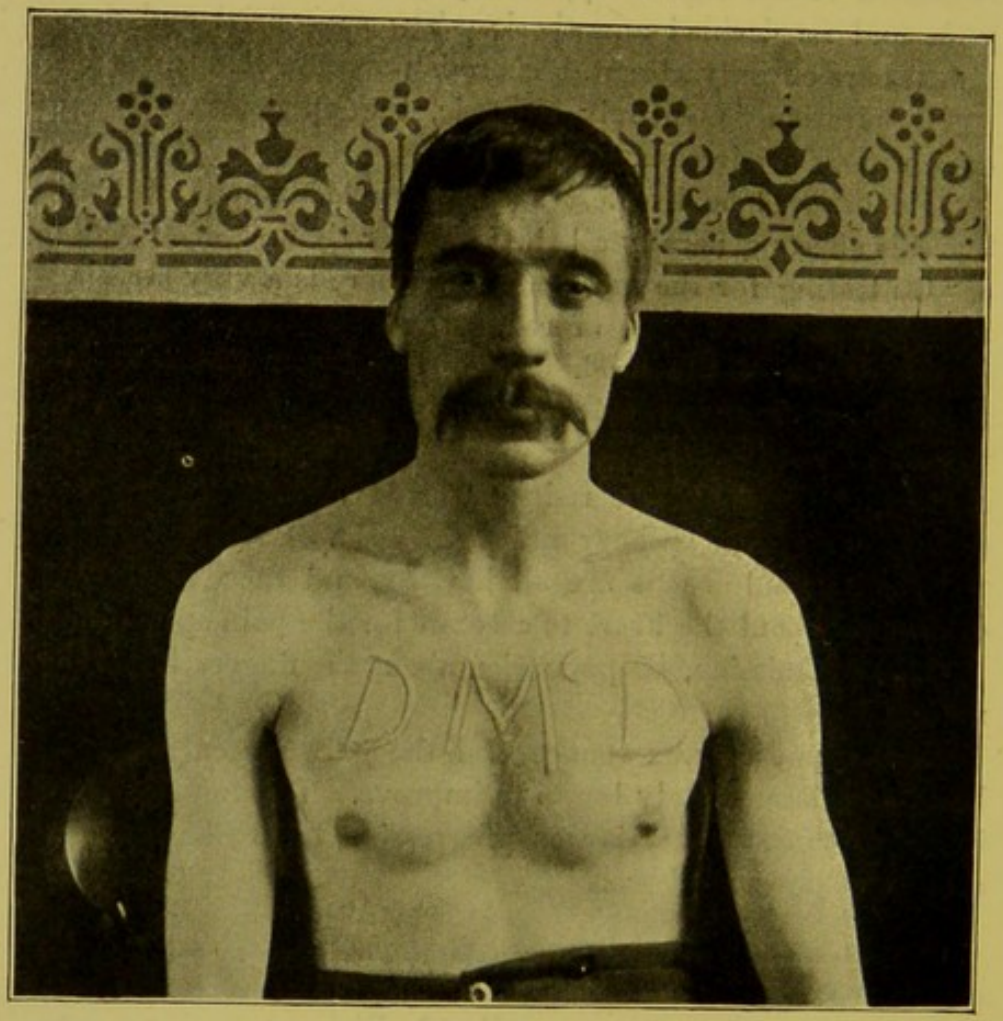


FIG. 3.

Reproduced from photograph of writing on skin.

pain across the front of the neck and boring into the ears, such a pain as was a feature of the beginning of his illness. He also directed attention to two small hard swellings behind the angle of the jaw on each side. In spite of the administration of antipyrin, he hardly slept at all last night on account of the violence of the pain."

"*9th August.*—After some improvement, pain again came on last night in great severity, almost entirely preventing sleep. His temperature, which had been practically normal since admission, only occasionally rising as high as 99·4° F., rose on the 6th inst. to 100·6° F., fell to normal on the 7th inst., and remained so till this morning, when it rose to 100·4° F. These attacks of pain have not been accompanied by any loss of the muscular power which had been regained."

Improvement thereafter was continuous and satisfactory, and there was no recurrence of pain or rise of temperature. The final note (11th September) bore that he was leaving that day to resume work. "The only paralysis now left is on the right side of the face, especially affecting the muscles supplied by the lower branches of the facial nerve, but even these are by no means completely paralysed. Sensation is now practically normal, both in the tongue and in the fingers. His grasp registers the maximum of the dynamometer on the right (130), and 125 on the left. His walking is perfect, and the knee-jerks have returned. The *tache cérébrale* remains as it was."

"*2nd April, 1894.*—Since he was last seen he has put on flesh and gained strength. The dynamometer now fails to register his grasp with either hand. Sensation is perfectly good. The knee-jerks cannot be elicited. There is still some paralysis of the lower portion of the right side of the face, and his speech continues to be slightly affected."

In September, 1894, his condition remained as in April. As will be seen from the photograph (Fig. 2), there is no appearance of facial paralysis; it is only when the muscles are tested that a trace of paralysis is discovered.

Enquiry as to the causation of his illness discovered nothing beyond the sweating and the chill noted in the beginning of the report. He was an intelligent man who seemed to give candid answers, and there was no reason to doubt his statement that neither alcoholism nor syphilis was to blame. He could give no history of influenza or other specific febrile condition prior to the onset of the attack, and he was not rheumatic. At his work he was exposed

to heat and cold, and he had often very heavy lifts; but during the four years he had been in Glasgow he had never lost a day's work. Prior to coming to Glasgow from Stornoway, when the pain in the breast first commenced, he had had a severe hæmoptysis, but this had never been repeated.

I have called this a case of general peripheral neuritis, and I think justly so. The paresis of arm, leg, and face on both sides, the involvement of the diaphragm, the sensory disturbances, and the loss of the reflexes, all point in the direction of that diagnosis, which to my mind is confirmed by the dyspnœa, fainting, gastralgia, and constipation—all these appearing to me to have had their origin in an inflammation of the nerves supplying the viscera affected. I cannot conceive of a central lesion of the brain giving rise to the complex of symptoms presented by this case. Had such a lesion been in operation, the order of development of the symptoms could scarcely have been that met with, and, besides, it would all but certainly have proved fatal.

It is noteworthy that the parts first affected were the last to recover, and in fact have not even yet returned to their normal condition.

It is not easy to explain the occurrence of the neuritis. I am satisfied that it was neither alcoholic nor syphilitic. I thought at first that it might be due to influenza, as I had seen, as a sequel to that disease, a general peripheral neuritis of a similar character which, however, proved fatal from paralysis of the muscles of respiration; but no history could be obtained of his ever having suffered from that malady. There was no reason to suspect that he had been recently affected by any of the specific fevers, or by any metallic or other poison. One was almost forced, therefore, to the conclusion that his illness had been due to cold and exposure, or that it was of rheumatic origin. Whatever the causation, the result was extremely satisfactory.

X.

HÆMOPTYSIS AND SURGICAL EMPHYSEMA ARISING FROM FRACTURE OF A NECROSED LARYNX.

JOHN M'I., aged 70, was admitted to the Infirmary on 15th August, 1894, sent in as an urgent case of hæmoptysis. The following report is from the ward journal:—

"At 3 A.M. this morning (nine hours prior to admission) the patient, on rising from bed, slipped on the kitchen floor and fell. He struck the right side of his head, above the ear, on the edge of the kitchen dresser, but he did not feel at all hurt, and thought nothing of the blow at the moment. He is not conscious of having struck any part of his body except the head. He got into bed again, and almost immediately was seized with cough, and put up about two teacupfuls of bright red blood. Five or ten minutes after the fall swelling was noticed in front of his neck and under the chin, spreading quickly up over the cheeks. This swelling was not observed to begin on one side, but seemed to be uniformly distributed over both sides of the neck. His breathing soon became laboured and wheezing, and the swelling increased over the neck, face, and upper part of the trunk.

"On admission, his face and neck are seen to be very much puffed up and of an ashy grey colour, and his breathing is so stridulous as to attract attention on the other side of the ward.

"The face and neck are greatly swollen, and the submental region bulged out so as almost to obliterate the division between the face and the neck. Swelling extends over the upper

part of the trunk and round the back of the neck. Pressure elicits a crepitant sensation as of air in the subcutaneous tissue. The swelling is easily indented by pressure, on the removal of which the depression speedily fills up, a wave-like movement being seen under the skin as the air returns. This crepitant sensation can be felt in front all over the face, neck, chest, and abdomen as far as the groins, but it does not extend down the thighs. Behind, it extends over the nape of the neck, and up under the scalp, over the shoulders, and down the back to the iliac crests. The right arm is also the seat of crepitus as far as the elbow, and on the left arm it extends to the wrist.

"Patient is cyanotic, and breathing is very much embarrassed. He can speak only in a hoarse whisper. Little or no movement of the thoracic wall is seen on respiration; there is merely a slight lateral expansion of the lower ribs. The breathing is stridulous and almost entirely diaphragmatic. He coughs, and expectorates frothy and blood-stained mucus. He complains slightly of pain on pressure over the lower ribs on the left side, but nothing like fracture can be made out. Palpation is, however, of little value, owing to the swelling and the crepitus. There is no dulness on percussion of the chest, the note being rather tympanitic, and auscultation discovers loud wheezing râles over both fronts, with perhaps some moist râles at the left base. The respiratory sounds are masked by the crackle produced by pressure of the stethoscope on the chest. For the same reason, nothing definite can be made out regarding the cardiac condition, the sounds being barely audible. Pulse is 110 and slightly intermittent."

He died in the early morning of 19th August, never having shown any tendency to recovery. Breathing became attended with increasing difficulty, and increased in frequency from 27 to 44 per minute. There was no serious hæmoptysis after admission. Cyanosis became extreme. The emphysema extended down to the finger tips, but it never involved the thighs.

His pulse varied from 90 to 120, but was generally over 100 per minute. The temperature, which, on admission, was

97·2° F., rapidly rose to 101° F., and then oscillated between 99·4° F. and 101·6° F., the last record being 100·6° F.

Death was preceded for several hours by twitchings of the hands and legs, and by unconsciousness.

During life the case was seen by several of my surgical colleagues, who agreed that, in all probability, the primary lesion was a fracture of one or more ribs, but none of them could detect its seat. On the other hand, the rapidity of the onset of the emphysema, its commencement about the head and neck, and the stridulous breathing and aphonia combined to raise a suspicion that the air was escaping somewhere high up in the respiratory tract. Palpation in the neck discovered nothing beyond the emphysema, and his condition was such that a laryngoscopic examination could not be made.

An examination of the body was made on 21st August by Dr. J. Lindsay Steven, whose report follows:—

"*Summary.*—Perichondritis and necrosis laryngis; surgical emphysema of wide-spread character; passive hyperæmia of the lungs; fatty heart; chronic rheumatic arthritis.

"Well nourished body. The right pupil is somewhat larger than the left, and it is irregular from old couching for cataract. The carpal bones of the right hand and the phalanges are much distorted by chronic rheumatism. Emphysematous crepitation of the skin can be made out practically over the whole front of the body from the temples downwards. Rigor mortis moderately pronounced. Subcutaneous fat abundant. In front of the abdomen, more particularly, the adipose tissue has an open, reticulated character, due to the filling up of the interstitial spaces with air. In some situations, the appearance of the affected fat slightly recalls the character of a honeycomb. Over the upper part of the sternum there is a moderate ecchymosis extending from about an inch above the supra-sternal notch to 3 or 4 inches below it, and measuring probably 2 inches in breadth.

"The pericardial fat, as well as that of the mediastinum,

is loaded with air, so that it has a swollen sponge-like appearance.

"The lungs are voluminous, and are practically non-adherent. On section, both present very marked engorgement of the lower lobes, the medium-sized vessels being loaded with thick, black blood, and the pulmonary tissue itself having a semi-solid character and a brown colour. On laying open the œsophagus, it is found to present healthy appearances. On exposing the interior of the larynx, a ragged cavity is discovered on the left side immediately below the ventricle. The walls of this cavity are composed of grey necrotic material, and projecting into it is necrosed cartilage from the left side of the thyroid cartilage. On the right side, the mucous membrane in the same situation is somewhat grey in colour, but there is no cavity. Externally, the laryngeal cartilages are exposed and dry in appearance, particularly on the right side. Over the left, beneath the left crico-thyroid muscle, there is a cavity the size of a hazel-nut filled with blood. The necrosis affects simply the thyroid cartilage. The appearances are suggestive of the lesion having been probably set up by some foreign body, which cannot now be found. The condition certainly has none of the characters of epithelioma, tubercle, or syphilis. The trachea elsewhere presents quite healthy appearances.

"The liver, kidneys, pancreas, and supra-renal bodies are all healthy. The external fat of the heart is slightly increased, but otherwise the organ presents nothing unusual."

It is so commonly taught that surgical emphysema, when associated with hæmoptysis, is due to fracture of one or more ribs that, as above stated, all who saw this case believed that such must be the cause here also. Nothing of the kind, however, could be discovered, but a lesion was found in the larynx, which readily accounted for both the emphysema and the hæmorrhage. This necrosis of the larynx must have been of some duration, but the most minute enquiry failed to discover any history of laryngeal symptoms prior to the accident. The patient believed himself to have been in the

best of health, and his friends had observed nothing in his voice or breathing, or otherwise to lead them to suppose that there was anything wrong with him. The exact nature of the lesion was not determined.

The noteworthy points in this case seem to be:—

(1) The latency of the laryngeal disease.

(2) The slightness of the accident which precipitated the fracture of the laryngeal cartilage.

(3) The rarity of such a lesion as a cause of hæmoptysis and surgical emphysema.

XI.

CASE OF MYXŒDEMA SUCCESSFULLY TREATED WITH THYROID GLAND; RELAPSE AFTER CESSATION OF TREATMENT; DEATH FROM TUMOUR OF THE MEDIASTINUM.

Robert S., 59 years of age, was admitted into the Infirmary on 30th June, 1893. He had previously been an inmate in May, 1892, suffering from what was diagnosed as xeroderma, and was dismissed in June "improved." On being readmitted, he was suffering from the same affection of the skin, and he complained of general weakness, and of swelling of the face and legs. The following notes are from the ward journal:—

"*6th July, 1893.*—The facial expression is very striking. The forehead is marked by deep wrinkles. The eyelids are much swollen, and present a somewhat translucent pale appearance. Neither in the forehead, nor in the eyelids, is pitting distinctly obtained, although the sensation conveyed to the finger on pressure is such that well-marked pitting might be expected to be left. The nose is broad, and the cheeks are full, and both nose and cheeks present a slight amount of redness, which is entirely absent from the rest of the face. The lower half of the face seems to protrude, so as to give a decidedly prognathous physiognomy. This is mainly due to thickening and eversion of the lower lip. The mouth is large and wide. While he sleeps, the mouth is open, and the tongue is seen to protrude, that organ being of large size and great thickness; but when he is awake, the tongue is kept well within the lips. The surface of the tongue is, perhaps, unduly cracked in front, and there is a slight amount

of white fur on it. The lips are pale, and somewhat livid. The skin of the face is dry and scaly. The hair of the beard and moustache is somewhat scanty, but apparently not brittle; it is turning grey. The eyebrows and eyelashes seem normal. He has no teeth, due, he believes, to salivation with mercury in 1865 for the skin disease which has troubled him for more than thirty years. The teeth gradually dropped out, without pain, and the gums are now atrophied to such an extent as to resemble the condition met with in infancy. The skin of the scalp is dry and scurfy, and the hair on the head is very thin, grey, and dry, but apparently not brittle. The supra-clavicular spaces are not unduly full, and the skin over them is quite lax, and in folds. The thyroid gland seems diminished in size.

"The arms have never been swollen, but they and the hands present a very curious appearance. The hands cannot be described as spade-like. From the tips of the fingers to a few inches above the wrists they seem to be encased in gloves many sizes too large for them, great deep wrinkles being everywhere visible except on the palmar surfaces. This baggy skin has a very glazed appearance, somewhat like waxcloth, and the creases in it look as if they would become absolute cracks if the skin were pinched up. On pinching up the skin on the back of the hand a fold of almost one inch in breadth is readily obtained, consisting almost solely of skin—*i.e.*, without any considerable thickness of subcutaneous tissue; it is quite translucent, and, instead of cracking, it becomes smooth and glazed, and feels decidedly soft. The skin on the palms is more or less leathery, and presents a few nodules of thick horny epidermis. The glazed condition of the skin extends nearly up to the elbows, at and above which the skin is dry, scurfy, and slightly suggestive of ichthyosis, a condition which is much more marked about the hips and calves of the legs.

"On admission there was slight œdema of the feet and legs, which has now all but disappeared. The skin on the front of the legs presents an appearance somewhat like that on the back of the hands, but less marked. The feet are not

broadened. Indurated, horny epidermis is abundant on the soles. The nails of both fingers and toes are somewhat stunted and brittle, and he recognises this as a change in their condition; some of the finger nails are so curved as to overlap the tips of the fingers. The feet are liable to become very cold, but the hands do not suffer in that way. The hair upon the body generally, and especially about the pubis, has largely disappeared.

"During the past year he has had occasional frontal headaches, never occipital; also severe giddiness, which has led to his frequently falling. He has had no prinkling or other abnormal sensations. Sensation in the finger-tips is delayed, but is fairly accurate. There is marked unsteadiness in his gait, which closely resembles that of ataxia, and he cannot stand steadily for any length of time with his eyes shut and his feet close together. He walks very slowly, with his chin bent upon his chest. When he is on his feet the hands, legs, and feet become of a brick-red colour. The knee-jerks appear to be deficient. In both hands the grasp is feeble, registering with the dynamometer (maximum 130) on the right 40, on the left 50. His memory, he is conscious, is by no means good, but there does not seem to be any abnormality of other mental processes. His sleep is much disturbed by dreams, and he tends to be very drowsy. He says he is more easily excited than he used to be, but it is quite evident that irritability is not a feature of his condition. He has apparently had hallucinations of both hearing and vision, but this is learned only on direct enquiry.

"His speech is very characteristic of myxœdema; it is very deliberate and somewhat thick or hoarse.[1] This character

[1] In the case of a woman suffering from myxœdema, recently under my care, the whole of the soft palate was apparently deeply infiltrated with mucoid tissue, so that it appeared as two large swellings, between which the tip of the uvula was just visible. A similar infiltration affected the tissues in the inter-arytenoid space, over the arytenoids, and on the false vocal cords. All these infiltrations disappeared under treatment, and were presumably of the same nature as the subcutaneous thickening. The characteristic speech of the disease is in all probability in part due to such infiltration.

has been present for at least four or five years, but has become much aggravated during the past two years—*i. e.*, he says, since he became toothless.

"Vision is good, except that spectacles are required for reading. The palpebral fissure is small; the pupils are normal; there is no arcus senilis. Hearing is somewhat impaired, and there are noises in the ears, but these conditions are not in excess of what is frequent at his age. The sense of smell is normal. Taste is at times interfered with owing to a salt taste in the mouth. Swallowing is slow, and is not infrequently interrupted by choking.

"The heart is normal. He has never had any hæmorrhages. He has had bronchitis for the past two winters, and there are now some small moist râles at the bases of both lungs; but he has very little cough, and only a slight mucous expectoration. The bowels are generally regular. There is some delay in micturition.

"There is difficulty in getting a sufficiency of blood for examination. Under the microscope the appearance it presents is normal. The hæmoglobin is from 70 to 80 per cent of the normal; the red corpuscles number 80 per cent of the normal; and the white are not in excess.

"From early manhood he has suffered from the skin disease above described; it has never entirely left him, but it has been subject to severe exacerbations, and during these the feet and legs become swollen. About six years ago he had a rheumatic attack, and for two years past he has suffered from bronchitis. He never had any venereal disease. He has used stimulants freely, but only rarely to excess. For thirty-seven years prior to 1891 he worked as a labourer in Australia, and his work was always hard."

The case was regarded by myself and by the medical friends who saw it with me as one of myxœdema, complicated with skin disease of the nature of xeroderma (a diagnosis afterwards confirmed by many others at a meeting of the Medico-Chirurgical Society of Glasgow). The patient was accordingly put upon thyroid treatment. The preparation used was the tabloids of Burroughs, Wellcome & Co., and

the dose ordered was two tabloids thrice daily. This was the first case of myxœdema that I had treated personally, and my inexperience led me to prescribe the remedy in too large a dose, as was soon apparent.

"*12th July.*—Ever since admission patient has expressed himself as feeling rather better; the giddiness, which was a prominent symptom, is much less. There is no longer any delay in micturition. The tabloids were commenced on 9th July; on the 10th and 11th diarrhœa was complained of, but only two motions are recorded for each of these days, and it may be mentioned that the same number occurred on the 8th. Yesterday patient said he did not feel so well as he had done, and complained of pain over the malar bones and across the forehead, and of a feeling of drowsiness. His pulse, which on the 6th had been 46 per minute, numbered 68, and is the same to-day. He says he feels better again to-day, and headache and drowsiness are not present.

"*13th July.*—Complaining of severe frontal headache and drowsiness, in spite of the fact that he slept well last night. Bowels now tend to be constipated. Pulse increasing in rapidity, 72. Temperature, which prior to treatment was subnormal, is 99·8° F.

"*17th July.*—Complaining of loss of appetite, dryness of the mouth and thirst, and of burning sensation in the stomach. These symptoms have been present for the last two days. Slight sweating on the forehead was observed yesterday for the first time. Headache has been absent since last note.

"*19th July.*—Yesterday he complained so much of difficulty of breathing and general feeling of *malaise* that the dose of thyroid gland was reduced to three tabloids daily; and to-day, these symptoms being still marked, some vomiting of clear, green matter having taken place, and his pulse being 120 per minute and irregular, the administration of the thyroid tabloids was discontinued. This evening he expresses himself as feeling better and breathing more easily. There is marked flushing of the face, and the pulse is 100 per minute and quite regular. He had another attack

of vomiting in the afternoon, and coincidently with it there was profuse sweating confined to the forehead.

"*20th July.*—Breathlessness and weakness still complained of. Some vomiting this morning, and also profuse sweating on the forehead. Pulse 104, and regular.

"*21st July.*—Feels better, breathing being easier. Pulse 112, and weak. There has again been profuse sweating on the forehead. The swelling of the face seems slightly reduced. The tongue also appears reduced in size. Thirst great and appetite poor. During the last few days swelling of the legs has somewhat increased, perhaps because he has been sitting a good deal on the side of his bed owing to breathlessness; the swelling pits distinctly on pressure.

"*27th July.*—Has improved somewhat since last note. Breathlessness much less troublesome. He sleeps better than he did. Œdema of legs again diminished. Still complains of thirst, but his appetite is better than it was. He also complains of soreness in the chest and dry cough. The pulse now ranges between 90 and 100. The temperature is normal.

"*4th August.*—Thyroid tabloids again ordered, one thrice daily. Pulse now ranges between 70 and 80. Only slight thirst, and appetite pretty good. Has still a sore feeling in the chest, and a troublesome cough with very scanty spit. Œdema has almost disappeared. Complains of not feeling the ground under him when he walks. Facial expression, tongue, condition of skin, and speech, are the same as on admission, except that the face seems thinner, but this is in the cheeks, and not in the parts which were abnormally thickened. Sweating on the forehead has been very slight for the last few days. There is occasional water brash.

"*16th August.*—On returning after a month's absence, Dr. Middleton recognises a very great improvement in patient's appearance. The facial expression is very greatly altered; there is no longer any puffiness about the eyes or about the forehead, and, while the lower lip protrudes, it is much smaller in size, and not everted as it was. The skin of the face is quite supple. The hands are desquamating freely, the skin peeling off in large patches. The skin has practically

lost the waxcloth appearance that it had, and is now quite soft and supple. A scurfy condition of the skin of the legs is also present, but probably not more marked than on admission. His personal impression is that he has improved greatly. He has now no breathlessness, his main complaint being weakness which prevents him from walking. There is still some œdema of the feet and of the lower portion of the back, and a few moist râles are audible at the bases of the lungs.

"*25th September.*—The temperature began to rise on the evening of the 23rd, and by the evening of the 24th it had reached 102·4° F. It has since fallen to normal. Coincidently with the rise of temperature a rash began to appear, affecting the trunk and limbs. At the outset, it appeared as small red papules, which afterwards coalesced into large spots (giving, in general, the appearance of a measles rash), and, still later, uniting over the back to form a continuous red blush (like scarlet). The skin is very itchy, and on the arms the rash resembles urticaria. The face is very little affected. Thyroid tabloids discontinued.

"*7th October.*—Since last note, there has been another rise of temperature. On 29th September 101·2° F. was registered, after which there was a gradual fall, so that the temperature has been normal for the past few days. Along with this feverish attack there was a recrudescence of the rash, with itching and burning of the skin. The skin is again becoming thick, loose, and wrinkled, tending towards the state it was in on admission. Tabloids resumed to-day.

"*4th January, 1894.*—Improvement has been continuous, and his appearance is much altered from what it was on admission. His voice is much improved. He is still a frail, feeble man, but he is much stronger than he was, and able to walk about. The dynamometer registers on the right 50, and on the left 65. His hair has grown very much thicker, and is quite soft, and darker than it was. He leaves to-day. He has not been taking any tabloids since 11th November."

Details as to treatment, weight, temperature, &c., may here be given :—

July 9 to July 17, . .	Six tabloids daily.
July 18, ...	Three tabloids.
July 19 to Aug. 6, . .	No tabloids.
Aug. 7 to Sep. 25, . .	Three tabloids daily.
Sep. 26 to Oct. 5, . .	No tabloids.
Oct. 6 to Nov. 11, . .	Three tabloids daily.

From the following notes of his weight at various times, it will be seen that he lost considerably under treatment, and that weight was regained when the treatment was discontinued:—

	st.	lb.		st.	lb.
July 6, . .	11	10	Nov. 28, . .	10	2
Sep. 12, . .	9	11	Dec. 18, . .	10	7
Oct. 3, . .	9	2	Jan. 4, . .	10	7
Oct. 26, . .	9	4	Feb. 14, . .	11	2
Nov. 11, . .	9	8			

The effect of the thyroid treatment on the temperature was to cause a slight rise, but not to the extent of pyrexia. Prior to treatment the temperature only twice reached 98·4° F.; it was generally below 98° F., and sometimes even below 97° F. Within three days after treatment was commenced 99° F. was recorded, and during the first period of treatment a maximum of 100° F. was noted on one occasion, while the minimum was 98° F., also only on one occasion. During the rest of the course of the case it may, speaking generally, be said that the temperature was always lower when tabloids were not being given, and that it then tended to fall below 98° F., while during the administration it varied slightly below or above 99° F. This, of course, is excluding the pyrexial periods associated with rash above noted.

The rise of the pulse-rate that occurred under treatment has been already alluded to. There was only one note of its rate before the tabloids were commenced—viz., 46; afterwards it rose till it reached a maximum of 134 on 19th July. Thereafter it gradually fell to 72, and even 60, till treatment was resumed, when it immediately rose to 80 or more, tending to fall somewhat as he got accustomed to the tabloids. On each

occasion on which treatment was resumed after cessation for a time there was a slight rise in the pulse-rate.

The effect on the urine will be seen from the following averages, the details being too numerous to be given here:—

	Average Quantity in Ounces.
5 days prior to treatment (July 4 to 8), . .	62
7 „ on 6 tabloids daily (July 10 to 16), . .	39
7 „ without treatment (July 30 to Aug. 5), .	21
7 „ on 3 tabloids daily (Aug. 8 to Aug. 14), .	56
7 „ on 3 tabloids daily (Sep. 18 to Sep. 24), .	88
7 „ without treatment (Sep. 29 to Oct. 5), .	69
7 „ on 2 tabloids daily (Oct. 7 to 13), . .	95
7 „ on 2 tabloids daily (Nov. 4 to 10), . .	91
7 „ without treatment (Nov. 12 to 18), . .	103
7 „ without treatment (Dec. 28 to Jan. 3), . .	71

From this it would appear that in the excessive dose given at first the tabloids tended to diminish the quantity of urine, while, when they were given in moderate doses, they caused an increase in the quantity. The specific gravity was generally low, about 1,010, but rising to 1,016 or 1,018 or thereby, when the quantity diminished. The reaction was generally faintly acid, but occasionally alkaline or neutral. Sometimes albumen was present, generally in very small amount, at other times it was absent. Sugar was never present.

Urea was estimated only on eight occasions:—

Date.	Ounces.	Per Cent of Urea.	Total Urea in Grains.
July 5, . . .	63	1·1	303
„ 13, . . .	42	1·4	257
„ 23, . . .	47	4·5	925
Aug. 4, . . .	29	1·4	174
„ 10, . . .	48	1·1	231
Sep. 7, . . .	100	1·0	437
„ 25, . . .	97	1·1	467
Oct. 1, . . .	64	1·8	504

This is too small a basis for expressing an opinion as to the effect on urea, but the general impression it leaves on one is that the amount of urea was increased. The record of 925 grains corresponded with a period when no tabloids were being

given, and when the temperatures had been and were normal, while the 437, 467, and 504 grains were obtained when the temperature was febrile.[1]

He was readmitted on 3rd March, 1894, having been gradually falling back since he left the ward; but, with the relapse, there was a fall in weight, for on 9th March he scaled only 9 st. 12 lb. His general condition was much the same as on his first admission, except that the degree of swelling was not so great. When put upon thyroid treatment he responded at once, so that a note on the 15th March bears that he had already greatly improved in appearance, and that his feet and legs, which had been swollen and shapeless, were resuming their normal outlines. Just as on his former admission, the administration of the tabloids was followed by a slight rise in the pulse and in the temperature. Two tabloids daily were given from 10th to 29th March, when they were discontinued, as he was suffering from sickness and vomiting, loss of appetite, and drowsiness, and his pulse had become very irregular, and had risen to 104, while his temperature had reached 100° F. After cessation of the remedy, the pulse became quite regular and fell to the seventies and eighties, and the temperature also became normal. Desquamation commenced on 14th April, and proceeded vigorously.

Early in April cough became somewhat troublesome, and, after a week or two of a purely mucous spit, the expectoration began to show traces of blood, at first rather scanty, but afterwards more copious and bright red. From that date it may be said that he ceased to progress, and gradually, with little periods of slight improvement, became more and more feeble. For a considerable time after the cough first attracted attention, and even after the hæmoptysis had been present for some time, there was nothing abnormal to be detected in the chest, except occasional sibilant and sonorous râles over both lungs. These, however, tended to linger in the right apex, and by-and-bye the respiratory murmur there became

[1] In the other case recently under treatment, while there was no decided increase in the quantity of urine, there was a very decided increase in the quantity of urea after treatment by thyroid tabloids.

tubular, and small moist râles were heard; later still, dull percussion became marked in the right apex, both in front and behind. These changes, which extended over some three weeks, practically took place without any rise of temperature, except that for three days in the end of April there was a daily record of at least one temperature close up to or just over 100° F. Tubercle bacilli were looked for, but were not found, and the question of a tumour of the lung was raised.

About the middle of June both elbows were discovered to be swollen. This mainly affected the inner aspect of the joints, so that the elbows presented a very peculiar angular appearance. The swelling extended a little both above and below the elbows, and was evidently in part œdematous, but the impression conveyed to the hand was that the bones were also involved. Within a week or ten days the swelling had become general over the arms and hands, commencing abruptly in the middle of the upper arm, and extending to the fingers; it was then soft and highly œdematous. The swelling was always greater on the right side; *e.g.*, measurement at elbows—right, 13 inches; left, $9\frac{3}{4}$ inches (25th June). At this time there was also some swelling of the face, especially on the right side, and slight œdema of the chest wall. In the legs and feet swelling was also increasing, but it was much harder than in the arms. The œdema of the arms gradually extended to the axillæ, anæmia became pronounced, cough and breathlessness, with orthopnœa, were very troublesome, friction became audible over the right lung, and there was a considerable quantity of muco-purulent, brownish expectoration, and on 12th July, on rising out of bed, he suddenly expired.

During his second residence in hospital thyroid tabloids were administered as follows:—

March 10 to March 28, ...	Two daily.
March 29 to April 13, ...	None.
April 14 to April 28, ...	One daily.
April 29 to June 5, ...	None.
June 6 to June 13, ...	One daily.
June 14 to June 18, ...	Two daily.
June 19 to July 10, ...	Three daily.

So far as the myxœdema was concerned, this treatment appeared to be as successful as on the previous occasion. Its primary effect on the temperature has been noted, but ultimately the temperature became rather irregular, sometimes rising to 101° F., or a few points higher. From the end of April the urine became very small in quantity, sometimes reaching as low as 8 or 10 ounces daily. A trace of albumen was sometimes present. The quantity of urea varied, as will be seen from the following notes:—

Date.	Ounces.	Urea, per cent.	Urea, in grains.
April 4, . .	72	1·4	443
„ 7, . .	38	1·85	309
„ 10, . .	47	1·5	310
„ 11, . .	42	1·5	277
„ 16, . .	78	1·1	377
„ 20, . .	48	1·5	316
„ 22, . .	56	1·15	283
„ 26, . .	24	2·4	253
May 2, . .	10	2·35	103
„ 4, . .	26	1·75	200
„ 7, . .	16	1·8	126
„ 11, . .	44	0·75	145
„ 14, . .	52	0·85	194
„ 17, . .	38	0·9	150
„ 25, . .	14	2·3	141
June 1, . .	9	2·3	91
„ 17, . .	8	1·0	35
„ 24, . .	14	1·85	113
July 1, . .	24	0·9	85
„ 8, . .	12	2·3	121

An examination of the body was made on 16th July by Dr. J. Lindsay Steven, whose report follows:—

"Emaciated body of large frame. There is very marked œdema of both hands and fore-arms; in the case of the right arm the œdema extends up to the shoulder, while in the left it has not reached higher than the elbow-joint. The right elbow measures in circumference 11⅞ inches; the

left, $10\frac{5}{8}$ inches. There is a general harshness and scaliness of the skin, but œdema of the lower extremities is only moderate in amount. The configuration of the hands and feet is coarse, even approaching the elephantine in character.

"The skull is very thin. The dura mater presents quite healthy appearances; on removing it, however, a considerable amount of cerebro-spinal fluid escapes. Generally, the brain tissue is very soft, so that it gives way under the gentlest handling. The base presents perfectly normal characters, as do also the vessels. The pituitary body is not increased in size, and presents no specially abnormal characters. The pineal gland is perhaps slightly enlarged, but not markedly so. In appearance it is transparent and somewhat gelatinous, having on the whole a normal character.

"The right pleural cavity contains a large quantity of clear serum (50 oz.), and the whole pleural surface, costal as well as parietal, is thickened, and opaque white in colour. The lower lobe of the right lung is collapsed. At the lower margin of the upper lobe posteriorly, the organ is adherent to the chest wall at the level of the fourth and fifth ribs, and here there is a gangrenous cavity in the lung. The apex of this organ is in a condition of grey hepatisation, and sinks at once in water. On attention being directed to the root of this lung, a preternatural hardness is found surrounding it, extending to it from the bifurcation of the trachea and the superior vena cava. The left lung presents healthy characters.

"The pericardium contains about 4 oz. of serous fluid. Its parietal aspect is thickened all over. The surface of the heart is covered with a slightly thickened pericardium, which, on the posterior aspect of the right ventricle, has a very moderate fibrinous exudation. Aortic and pulmonary curtains are competent. Beyond considerable dilatation, due to its great flabbiness, the heart presents no abnormal features. In the first part of the aorta there are several atheromatous patches infiltrated with lime.

"There is a hard mass surrounding the superior vena cava, immediately above its entrance to the heart, and also the right

bronchus; both of these structures, especially the superior vena cava, have had their lumina very seriously diminished. The mass projects in a nodulated fashion into the upper part of the pericardial cavity, where it has caused some matting of the upper part of the ascending aorta. The growth extends slightly into the lung tissue, and at one point, where the pericardium and the pleura have been adherent, a white nodule, the size of a hazel nut, has invaded the lung. The bronchial lymphatic glands are considerably enlarged, presenting a dense black colour.

"With the exception of a considerable passive engorgement, the liver and kidneys present healthy appearances. The supra-renal capsules are also normal. The mucous membrane of the stomach and the intestines presents perfectly healthy appearances. About two feet from the ileo-cæcal valve there is a peculiar spongy thickening of the mesentery, where it joins the bowel; the mucous membrane opposite to this point is covered with a peculiar greyish membrane.

"The thyroid gland is carefully examined. It is considerably smaller than usual, and much paler in colour.

"The right elbow-joint is laid open, and is found to be quite healthy. The great brachial vessels are also normal, the lumen of the vein being occupied by loose red clot. Beyond œdema nothing unusual is noted in the arm."

Various parts were hardened for further examination, and Dr. J. Lindsay Steven's final report is as follows:—

"The hard mass at the root of the right lung, upon being cut into and isolated, is found to have the characters of a small sarcomatous tumour, evidently of glandular origin. On microscopic examination its tissue presents a combined fibrous and spindle-celled structure, which would justify the term fibro-sarcoma. It is found to have involved the wall of the superior vena cava, just below the junction of the innominate veins, and has so contracted the lumen of the vein that an ordinary penholder can scarcely be passed through it. The right vagus is also buried in the tumour tissue, but the recurrent nerve is quite free. The right branch of the pulmonary artery has been very much contracted by the pressure

of the growth. Immediately behind the ascending aorta two little nodules of the growth project from the surface of the pericardium. The bronchi going to the apex of the right lung have been involved; and, having regard to the results of dissection, there is little difficulty in understanding the occurrence of gangrenous excavation of the upper right lobe.

"On microscopic examination of the left lobe of the thyroid gland, the normal structure of that organ is found to have almost entirely disappeared, and has been replaced by a dense development of fibrous tissue. Here and there a few of the characteristic follicles of the thyroid are seen, but these are surrounded by a highly corpuscular interfollicular tissue which is evidently causing their rapid disappearance. The interior of the follicles is occupied by homogeneous gelatinous masses.

"Sections of the pituitary body reveal on the whole fairly normal characters, but at places it is thought that there is an undue development of spindle-celled tissue. Nothing particular is noted upon microscopic examination of the pineal gland."

The examination thus fully confirms the diagnosis, and accounts for the hæmoptysis and the œdema which were so marked terminal features of the case. There is nothing to show how long the mediastinal tumour had been in existence. It had probably begun in the glands long before the occurrence of hæmoptysis raised the question of the existence of a tumour in the lung, and it is not improbable that irritation, caused by its presence at the root of the lung, may have had something to do with the breathlessness and other symptoms which, on his first admission, were attributed to an overdose of the thyroid tabloids.