Report & Commentary
On Five Cases
Treated by
Dr. Fleming
In Wards 23 & 24 R.I.E.
1919 - 1920.

Thomas Ferguson.
NOTES & COMMENTARY

- ON CASE OF -

- ANNIE HENNIE -

T. Ferguson,
1920.

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Case No.
11.

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Patient complains of a constant sensation of thirst, not alleviated by drinking water.

This has continued, in varying degrees of acuteness, for 3 years.

While working in Ireland (to which she had emigrated) in domestic service, the patient became conscious of an ever-increasing desire to drink; for example, she had to take 4 quarts of water during every night. She was troubled with cramps in the muscles of the back and legs, and her eyesight, which had previously been good, began to fail. After these symptoms had persisted for a week, patient consulted a Doctor, who diagnosed the condition as Diabetes. He prescribed medicines which, the patient states, lessened the craving for water, and improved the cramps; at the same time he ordered her to take one tablespoonful of whisky per day. At this stage the patient found that she was losing weight to the extent of 3 lb per week. She also became conscious of a feeling of weakness, especially marked at erist and ankles; she often felt her ankles "go over with her." To combat this weakness she took a long course of red liver oil and meat. The desire to drink became less insistent, but continued on a rather modified plane for 2 years, during which period she attended her Doctor every week.

Acting on his suggestion, she returned to this country in March 1919, and was admitted to Ward 34 for treatment in May 1919. She was discharged "cured" in July 1919, and supplied with a diet-sheet which she strictly followed: but in the middle of September the old symptoms re-asserted themselves, and she was again admitted to Ward 24 P.V. Co. on November 1st, 1919.

The patient had scarlet fever in childhood, and was troubled for years with hay fever, recovery from which she attributes to the voyage.
Canada. She has also suffered from various veins. While in
Toronto she contracted influenza in 1918 after the onset of the present
condition. Her recovery was slow, and she suffered a relapse.

Surroundings Etc. During her stay in Canada, the patient was not sub-
jected to excessive work or strain, and was in happy, congenial surround-
ings, though naturally rather "home-sick" at times. She has always
had a good appetite, and did not, before the present illness, show any
abnormality in the amount of fluid taken.

Family History. Patient's mother, aged 60, is alive and well.

Patient's brothers and sisters are all alive and well, except that the youngest
suffers from hay fever. Patient's father died in 1923, aged 65, after a protracted illness from some lesion of the urinary tract.

State On Examination

Intelligence, good. Height, 5'4½ in. Weight, 4' at 1½ lb.

Development and muscularity, good. There are no obvious
abnormal appearances, and no evidence of previous disease or injury.
Except varicose veins. Temperature on examination, 97·4°F.

Urinary System.

The patient has experienced occasional pains in the small of the back,
usually appearing after sexual exertion. Micturition is very
frequent—often during the day, and 3 or 4 times during the night.
No pain with micturition.

Urine. (See also progress note)

Amber-coloured. Smells of acetone. Deposit of mucus.

Quantity in 24 hours, 5100. Sp. Gr. 1032.

Reaction, acid.

Sugar ++. - Quantitative, 20 mEq. 35.

Acetone +.

Blood, albumin, leuc., all absent.
Circulatory System.

No subjective phenomena.

Pulse: Regular in time and rhythm: frequency 72 per minute. No thickening of vessel wall.

Blood pressure: 105 mm Hg

Sphygmographic Tracing: showed no irregularity.

Heart: On Inspection, nothing abnormal to be seen. Apex beat neither visible nor palpable.

Percussion showed no enlargement of area of cardiac dullness. On Auscultation, no sounds were found to be heard in all areas; there was some slight raleulation of the pulmonary 3rd.

Haemopoietic System.

No subjective phenomena.

Blood Exam.: R. B. C. 3,850,000.

Hb. 75%

C.I. .97

No leucocytosis

Respiratory System.

No subjective phenomena.

Breathing clear nasal. Frequency 20 per minute.

Nothing abnormal on physical examination of the chest.

Inguinal System.

Patient complains of a burning itch.

The skin is dry and thin, and has a parched appearance.

Digestive System.

Patient complains of great thirst in the subjective phenomena.

The mouth is in good condition: patient had false teeth fitted at an early age.

The bowels act regularly.

Physical examination of the abdomen revealed nothing abnormal, except that the spleen is slightly enlarged.

Reproductive System: Normal.
**Nervous System**  
Normal.

**Locomotor System**  
Normal.

**Provisional Diagnosis**  
Diabetes

**Treatment**  
Carbohydrate-free diet: "starvation-days" as mentioned below.

**Progress Notes**  
During her stay in hospital patient remained cheerful and in apparently, good health: she assisted in the kitchen every day. She was forced to leave hospital on account of family troubles. Summarised report.

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"Starvation days"  
Weight 4 at 7 a.m.
Discharged from R.D. 6.
The diagnosis of a well marked case of diabetes, such as this, is easy, though unfortunately the prognosis is unsatisfactory, and the treatment often ineffective. The clinical picture presented in this case is very typical of the text-books, without, unfortunately, shedding much light on the blanks in their descriptions.

The etiology of the case remains obscure: the patient is unable to volunteer any suggestion as to the probable cause. In diabetes there is sometimes a hereditary factor, often associated with neurotic tendencies: in this connection it is interesting to notice the family history of hay fever, one element in the etiology of which is undoubtedly a neurotic constitution.

Another point raised by the history centers around the influenza attack of 1918. At that time influenza was almost pandemic, but in our patients case recovery was very slow, and attended with relapse—another evidence of the fact that the diabetic possesses little phagoctytic power with which to overcome infection—a factor on which Hearns made the assertion that "the pancreas is concerned with defending the body against bacterial infection."

The clinical findings are straightforward—the dry, thin skin, the itch, the loss of weight, the weakness, the cramp, failing eyesight, and anaemia are all what we might expect in such a case.

The circulatory system seems to be relatively free from embarrassment: this is important in connection with the possibility of a secondary nephritis. There is no accentuation of the arterial 2nd sound, while the blood pressure is only equal to 105 mm mercury—not certainly indicative of a nephritis. Again,
There was no albumen present; though, on the other hand, there was generally, in the urine, a small but definite amount of albumen, possibly to be regarded as an echo of the general unhealthy metabolism rather than of a more specialised renal involvement.

The urine examination yielded results typical of a severe diabetes - increase in quantity, high specific gravity, the presence of sugar (93 gr. per 24 hr.), acetone, and a little albumen.

The progress notes deal mainly with the quantity of sugar excreted, and its relation to alterations in the treatment adopted. It will be seen that three days starvation reduced the amount of sugar excreted from 2400 gr. per 24 hours to 285 gr., but that three days later, with a return to ordinary restricted dietetic diet, the amount had risen to 900 gr., while a week later - still on restricted diet - it had increased to 1440 gr. per 24 hours. The general

**Chart to show amount of sugar excreted per 24 hrs.**
inquiry, however, was towards reduction in the amount of sugar eaten -- to 8, before the "fast days" which immediately preceded his discharge from hospital, it had fallen to about 900 grs. per 24 hours, while the last readings taken -- immediately after these "fast days" -- showed a reduction to 260 grs. per 24 hours. Further, after each period of fasting there was absence of albumen from the urine, and towards the end of his stay in hospital, albuminuria was rarely present.

The Prognosis is grave. The patient is young, and the case is undoubtedly severe in type. The condition has already lasted two years, and "a patient under 40 suffering from a severe diabetes will not probably live for more than a few years." The patient's power of resistance, it is, as we have seen, impaired -- this suggests the possibility of fatal termination through intercurrent disease -- pneumonia, phthisis, nephritis &c. -- though this is, at present, no definite trace of any such condition. Then there is the probability of ultimate coma. If greater the intolerance to carbohydrates, the more certainly will ketone bodies appear, and already considerable quantities of acetone can be detected in the urine by ordinary clinical tests. In this connection, too, we notice his blood pressure (105 mm. Hg): if there be a low blood pressure, oxidation in the body must tend to be ineffective, and it has been said that when, in diabetes, the blood pressure falls below 85-90 mm. Hg, ketonuria sets in.

In practically every case of diabetes, the degree of glycosuria as the result of a three day fast presents, under the test of a three day fast, present undergoing material, if temporary, reduction: around the test seems to center that element in the treatment of the condition about which authorities show some unanimity of opinion: and in treating a case of diabetes, dieting is the
primary consideration. "For months or years," writes Williamson, "in some cases the urine may be kept free from sugar." But dieting is not always very effective—seldom is its success more than partial—and dieting is apt to be attended with troubles peculiar to its own—the difficulty of providing sufficient food value, the risk of mental complications, and so on. In the case with which we are dealing, patient's careful observation of diet regulations did not prevent a recurrence of the symptoms, though, as pointed out in the progress notes, ordinary restricted diabetic diet, with occasionally, the more rigorous observation of "starvation days," caused considerable reduction in the amount of sugar excreted.

That the regulation of carbohydrate metabolism is intimately related to the internal secretion of the pancreas, there can be little doubt: we might therefore expect injection of extract of the pancreas to be beneficial in the treatment of diabetes, but a good deal of difference of opinion exists as to the efficacy or otherwise of this particular form of hormone (or thatone?) therapy. Schäfer writes that it is not found that pancreatic extracts have the effect of antagonising the results of pancreatic extirpation. Again, there is the possibility that glands other than the pancreas—e.g., the adrenals—may be involved in the case under consideration, for probably not all cases that are ex.

periences clinically are due to pancreatic disorders, in spite of the opinions of such Authorities as Van Noorden. On the other hand, Howarner writes that in his experience, pancreatic extracts have benefited several cases of undoubted diabetic mellitus, occasionally causing the
complete disappearance of sugar from the urine: but this must be regarded as an adjunct rather than as a sole form of treatment - it must be subsidiary to the somewhat inadequate principle of dieting.
NOTES & COMMENTARY,
- ON CASE OF -
- JOHN MARSHALL -

T. Ferguson, 1920.

Case No. V.
Complaint: Swelling of face and legs; shortness of breath.

Duration: These symptoms have been present in varying degree for 18 months.

History: On 9th July 1918 he contracted influenza, with, on top of this, a double pneumonia; this illness confined him to bed for 7 weeks. The pneumonia was accompanied by a severe left-sided pleurisy, which, however, cleared up without necessitating tapping. At this time he was delirious for 7 days, requiring injections of morphine. He states that after this he never felt able for his old work again, owing to shortness of breath on exertion, and some giddiness, with uncertainty of gait, which developed into a stumble when he attempted too much standing or walking. He noticed about this time that his abdomen had begun to swell, so he took up light work - that of a 'donkey-driver' - involving little exertion; he noticed, further, that he was losing flesh. The swelling thereafter began to affect other parts of his body. It was first noticed under the eyes, and soon appeared also in the right ankle. This swelling never completely disappeared. In October 1919 he suffered from congestion of the left lung. The swelling was then noticed to be creeping up the leg, involving the knee-joint and spreading to the thigh. The left leg was similarly progressively affected after a time. He states that the swelling seemed to increase during the course of the day, being worst at night.

During the last week of 1919 he appears to have participated in several drinking bouts, which greatly aggravated the condition. Patient was admitted to Ward 23, Rq. 3 No, on January 2nd 1920, his private doctor's diagnosis being "cirrhosis of the liver."
PREVIOUS ILLNESSES. Prior to the onset of the present condition, there had never been any respiratory difficulty. Apart from occasional "out-of-sorts", his previous health appears to have been good. The only previous illnesses worthy of note are:

July 1918. Influenza.
   "  Pneumonia (double).
   "  Pleurisy (left side).
October 1919. Congestion of left lung.

GENERAL SURROUNDINGS, Etc. His home surroundings do not represent the acme of hygienic perfection. Miners' rows are not usually built on garden city principles - and that part of the district in which he resides provides quite a prominent share of the local Police Court activity. His work as a "breaker" in the mines is ordinarily severe - he finds the environment of coal dust a great thirst-producer.

HABITS as to food, normal. He appears from his own statement to be a generous drinker. He says that his drink is chiefly beer - "whisky's too dear" - and that his daily consumption is "a glass and a pint." Though, according to his Doctor, it is considerably more.

FAMILY HISTORY. Patient's father died, at 54, from drink and hard work.
   "  mother ... 61. ... "concussion of the brain.
   "  7 children are all alive and well.

STATE ON EXAMINATION. Patient is not of very sprightly intelligence. He is rather stolid, listless in expression, and difficult to stimulate. Though still a man of good muscularity (even inclined to be obese), he says that he has lost much weight as the result of his various illnesses. He sits up in bed with 3 or 4 pillows propped behind him, to obviate his respiratory difficulty, but shows no jaundice or obvious anaemia.
TEMPERATURE ON EXAMINATION 97.6°F

ALIMENTARY SYSTEM. Patient complains of some heartburn after meals, but is never troubled by vomiting. He is not constipated; there is no complaint of abdominal pain, and no history of melena. On inspection, his gums are found to be spongy, suggestive of slight scurvy. The abdomen is distended, but there are no dilated veins, either in the region of the diaphragmatic line or round the umbilicus. No cracks are visible in the skin. There is some pigmentation in the region of the groin. On palpation, a sense of resistance is noted over the whole abdomen. There is no point of tenderness on deep palpation. The abdominal wall shows considerable edema. On percussion, it was found that there was some fluid in the abdomen, though not a great deal. The upper border of the liver was in its normal position, but the lower border extended fully 1" lower down than usual. Some distension of the transverse and descending colon was noted, while the other organs, so far as could be determined in the distended state of the abdomen, were normal in size and position - the spleen, in particular, was not enlarged.

HAEMOPOIETIC SYSTEM No subjective phenomena.

Ht. 90%.
R.B.C. 4,700,000.
C.I. 95.
W.B.C. 7,500.

CIRCULATORY SYSTEM No pain in the precordium; no history of hypertension; no hemorrhoids. Patient complains of marked dyspnea, and a tendency to faintness and giddiness on exertion. There has been no palpitation.
Pulse. The vessel wall is thickened; the beat is normal in character and regular in rhythm. Frequency, 70. Blood pressure = 130 mm Hg. The sphygmographic tracing was very poor—it was difficult to trace the rise of the needle of the instrument at all; as far as could be seen, the result showed no other abnormality.

Heart. Inspection: Any beat not visible. No intra-cardiac pulsations. No dilated veins. On

Palpation. The apex beat, which is not easily detected, is found to be situated in the nipple line in the 5th interspace (left).

Percussion confirmed the cardiac dilatation, and showed the left side of the organ to be much more involved than the right side. (For action cease see end of case).

Auscultation revealed no murmur in any of the four areas, though the heart sounds, as a whole, are markedly enfeebled; the 1st sound being particularly weak in the mitral area. The 2nd sound in the aortic area was relatively accentuated.


Thorax. Inspection revealed nothing abnormal. On

Palpation movement and vocal murmurs were found to be normal.

Percussion showed some dulness at the left apex, and in the left infra-clavicular region. Changes in resonance led suggested also the possibility of some slight hydrothorax; and a well marked oedema at the bases—results which were all confirmed by

Auscultation, which also demonstrated with the pronounced prolongation of expiration, with numerous rhonchi, heard at various parts of the lung.

/Integumentary
**Inguinal System.** Very pronounced general oedema, involving specially legs, abdomen, and face. Patient also complains of a generalised sweating. The skin in the region of the groin is pigmented: that of the legs is hard,- probably another evidence of slight scurvy-like tendency. On the left leg is an old blist, surrounded by a little hemorrhagic fluid.

**Urinary System.** Some pain, referred to the region of the umbilicus, used to follow micturition: this has now disappeared.

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<td>Spec Gr.</td>
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<tr>
<td>Albu.</td>
<td>+ (though in small quantity - by cachexia, less than 0.1%</td>
<td>Sugar</td>
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Microscopically, a few hyaline casts were found.

**Nervous System.** Mental functions slow; reflexes normal; no tremor.

No sign of organic mischief.

**Locomotory System.** Patient complains of a stumbling gait. He also states that there is some muscular wasting - but not more than is to be expected from prolonged illness.

**Provisional Diagnosis.** Hypo-cardio-sclerosis.

**Treatment.**
- 2/1/20: Tinct. digit. & v. t. i. d.
- 4/1/20: Guaiane pill 1 t. i. d. Stopped 5/1/20
- 5/1/20: Disodium pro. & v. t. i. d.
- 29/1/20: Sod. acid potash. 3 t. i. d.

**Progress Notes.**
- 6/1/20: The hemorrhagic fluid surrounding the blist referred to under "Inguinal System" has disappeared, after the local application of a solution of soap, sulphur.
- 7/1/20: Urine showed no cystin, though a little albumen was still present.
- 8/1/20: Physical signs of hypo-cardio-sclerosis can no longer be recognised.
- 10/1/20: The oedema at the base of the lungs seems to have disappeared.
16/1/20. Urine still has a little albumen. Heart sounds clear, but weak.

21/1/20. The oedema, under the action of diuretic, has gradually subsided, and has now almost completely disappeared.

25/1/20. Patient was allowed out of bed - no symptoms were produced.

1/II/20. The urine still contains a little albumen, while the liver continues to be enlarged.

7/II/20. Heart paceless. The rhythm of the heart seems now to have a suggestion of the 'tic-tac' rather than the normal.

Albumen (Kossack) less than 0.1%.

Heart rhythm now satisfactory. Oedema and general condition markedly improved.

Discharged.

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Fig. 1: Skeleton Outline Of Borders Of Heart

Fig. 2: Showing variations in amount of urine passed per 24 hours.
Commentary

"The symptoms of myocarditis, when present, are, almost without exception, untrustworthy for diagnostic purposes."

— Anders.

The last few years have seen the execution of much work on the subject of cardiac disease; they have seen the energetic application of the most modern aids to diagnosis and to treatment: they have seen, too, a great deal of controversy on the matter—yet most Authorities still agree that the symptoms of myocarditis are little more than the accentuation of symptoms pre-existing.

In view of such uncertainty, it is, perhaps, a little daring to venture such a diagnosis in this case: but the whole train of findings points to a general impairment of bodily power, reflected here, to an extent greater than elsewhere, in degenerative changes in the myocardium.

The history of the case is very definite—the dominant note is alcoholism. His work was heavy; he found it an effective thirst-producer. and, doubtless, he did his best to drown his sorrows. His father did the same work before him, and his father died of 'drink and hard work': the patient seems to be doing his best to follow his example. He contends that all his troubles date from July 1918, when he contracted influenza, with consequent pneumonia, as the result of a cold caught at his work, but it seems likely that this was an effect and not the real cause—which was probably to be found in 20 years' vigorous drinking. Nevertheless, it is generally admitted, is a potent factor in predisposing to pneumonia, and his weakened state doubtless left him an easy victim to the prevalent scourge. It was, according to the Physician who then attended him, a very severe attack, involving especially the left lung: it was his opinion, too, of a well marked attack of delirium tremens. The congestion of his left lung from
which he suffered in October 1919 was probably due, in part, to the
weakening of this organ by the pneumonia of the previous year — it
occurred coincidently with a particularly violent drinking bout. Of the
immediate cause of the condition which rendered necessary his removal
to hospital there can be no doubt — the elevation of the coming of
the New Year proved too severe a strain for even his tolerant mecha-
nism.
The evidence of scurvy noted in the case go to complete a picture
which prepares us to expect to find profound pathological change.

The chief interest of the examination seems to reside round four
points:

1. the nature of the Edema:
2. the condition of the liver:
3. the albumuria:
4. the state of the circulatory system:

The order in which the various parts of his body began to swell is
interesting — first his abdomen was affected; then his face; then his right
ankle, gradually ascending to involve the whole of the right limb; finally,
through time, the left limb also was involved.

Just before the swelling began to appear, patient suffered from a
severe attack of pneumonia, and it seems justifiable to assume that
the toxic effects of this attack, acting on a heart already greatly embarr-
sased by long continued alcoholic intemperance, suffice to overcome its
efforts to maintain an adequate circulation, with the production of sym-
ptoms — shortness of breath on exertion, giddiness, etc. “Edema” says
MacKensy, “is often a definite sign of cardiac dilatation.” There
would be produced some secondary passive congestion of the liver,
with, soon, a transudation of serum into the peritoneum, producing
ascites — probably, too, into the pleural space, bringing about the slight-
hydrothorax found on examination. Of course, many things may cause
ascites — e.g. enlarged spleen, pericarditis, pururating liver, large pleurae
effusion, anaemia — none of them present in the ease under consider-
tation; then there are the several luminous, of which no trace could
be found, while the general appearance of the patient was not-
suggestive of their presence; and a group of conditions like cystic
liver and tuberculous peritonitis, which we can also exclude. But
when all these have been dismissed, there still remain some possibilities
—curtains of the liver, renal insufficiency, and cardiac mischief which
will, later, call for a differential diagnosis.
At this stage we can only remark that the distribution of the oedema,
though not absolutely typical, seems to be rather suggestive of a
cardiac origin.

ii. The liver, on examination, was found to be enlarged; and it remain-
ed so after its week stay in hospital. No pain was referred to the region
of the organ, nor was there any jaundice. The general appearance of the
patient, the absence of emaciation or any palpable swelling, seem to
negate the possibility of malignant disease of the liver. The alcoholic
history suggests the possibility of hypertrophic cirrhosis, and as such
the case was sent into hospital. Our reasons for accepting the
diagnosis of cirrhosis will be given later; meantime we confine
ourselves to the consideration of two other possibilities which might
account for the hepatic enlargement — is it simply due to a passive
hyperaemia, or is there, in addition, the element of fatty change?
Taking into consideration the general condition of the patient, it
seems certain that there must be some chronic venous congestion;
and on the clinical features of “fatty infiltration” of the liver — its
(relatively) frequent occurrence in chronic patients, especially when,
still, there is a history of some chronic intoxication; the general
malaise, the large rounded liver with no marked jaundice — we base
the assumption that there is some, probably considerable, fatty change
present.
The albuminuria is persistent, but slight in amount. Are we, or account of its presence, to argue the existence of a definite nephritis? Such a nephritis, in view of the history, must we now have produced some circul-
atory interference—certainly a marked rise in blood-pressure, while that of 130 mm Hg recorded in the case cannot be regarded as excessive.

Further, the amount of albumin present is sufficiently small to be ascribed to a more general interference with metabolism. The degree of albuminuria present showed no reduction during his stay in hospital, but the actual state of his heart showed little or no improvement either, so that we can scarcely apply the doctrine that "in determining whether given symptoms are primary cardiac or primary renal, the treatment is diagnostic— as the heart condition improves, the amount of albumen present is diminished."

The general picture is one of circulatory inadequacy—the dyspnoea, the fatigue on slight exertion, the tendency to headache and giddiness, the peculiar tic-tac system, the weakness of the cardiac impulse, the poor sphygmogram, the relatively low blood pressure, the atheromatous arteries—all these factors indicate the deleterious effects of the old infection, effects involving chiefly the heart muscle (see evidence of muralles disease could be found) producing the condition which Sir James Mackenzie has called 'depressed tonicity'.

Why should this not be a case of hypertrophic cirrhosis of the liver? or of chronic kidney mischief?

In a pure cirrhosis of the liver, there should not be oedema of the legs, while it is a broad principle that, in cirrhosis, the larger the liver, the more marked the jaundice, and the smaller the liver, the more marked the ascites; in this case, with an enlarged liver, we have much ascites and no jaundice. Then, common in cirrhosis of the liver are heemorrhoids, gastric catarrh, and possibly eczema or melena; there is often some pain referred to the liver, and the spleen may be enlarged; the veins
an dilute, while a well-marked nephrotic edema may be present — and of none of these characteristic signs is there any record.

The diagnosis from chronic renal conditions is fairly easy: there is not much albumin, no anemia, and no gastric symptoms, which we might have expected in parenchymatous nephritis; much more likely than is usual in an Interstitial Nephritis; and not the high blood pressure associated with cirrhotic kidney.

It is more difficult to differentiate between the various forms of myocardial disease. In this case we have evidence of an over-pressurized circulation, together with weak cardiac impulse and sounds: these facts, according to Price, enable us to diagnose fatty infiltration.

The same authority states that a thickened vessel wall and accentuated systolic sound (such as are present in this case under consideration) usually indicate fibroid rather than fatty degeneration. But the main point is that the myocardium is primarily involved, possibly more or less seriously, while the changes occurring in the other organs are secondary to this involvement.

The Prognosis is very guarded. It is scarcely likely that the patient will abandon his fondness for alcohol: it is much more likely that the train of degenerative changes will be progressive. In addition to this possibility of gradual cardiac failure, there is the risk of sudden death, from syncope or other cause, while the enfeebled state of his lungs would seem to render him prone to the attack of intercurrent disease.

The Treatment calls for little comment. In hospital it was confined to rest in bed — away from alcohol — and the relief of the distressing symptoms due to the edema (diuretics): it seems fairly certain that, at home, the classical treatment — careful regulation of diet, etc. — will not be carried out. In hospital, a small dose of digitalis was given. Much controversy has arisen in recent years over
the action of digitalis in such cases as this, and the
general opinion seems to be that it should not be ad-
ministered. Cushing writes of digitalis — "In cases
of dilatation of the heart, with a weak and in-
sufficient systole, its action is almost specific. This is
true whether one or both ventricular chambers are affected,
so long as the cardiac muscle has not undergone de-
generation. Suggestions, however, continue to be made
on the subject, and Forrest Burdick has recently
stated that myocardial degeneration may be favourably
influenced by the use of digitalis which has been
previously subjected to the action of Herzian waves!
Finally, there is the question of ergane-therapy. The
hard dry skin, the subnormal temperature, the heavy
expressionless face, together with the obesity and general
draggishness of the patient, suggest that the exhibition
of extract of ergains of the organs of internal secretion
might be attended with beneficial results. The heart-
condition rather restrains the advocation of thyroid
extract alone, but probably some good might accrue
from the joint administration of small doses of
extracts of thyroid and pituitary glands — though here,
again, we are treading debatable ground.
NOTES & COMMENTARY

- ON CASE OF -

- Mrs. JESSIE McURDO. -

T. Ferguson, 1920.

Case No.
IV.
Mrs. Jessie M. Murdo.

Age: 39  Married  Occupation: Housewife.

Date of Admission: 2/12/19  Date of Examination: 17/12/19.

Complaint: Swelling of face, hands, and feet, together with failing memory
and general "uselessness."

Duration of Illness: 15 months.

History:

About the end of September 1918, the patient or, rather, her husband
first noticed swelling of her face and hands, along with inability to
concentrate on ordinary household duties for any length of time,—she
frequency started to cook food, then quite forgot that she had
left it on the fire. She is unaware of anything that might have
caused the condition. On the advice of her Doctor, she remained
in bed for most of the time between then and January 1919,
when her last child was born. She showed no signs of
improvement after her confinement, and had to abandon the
breast-feeding of her baby. For six months she continued to
perform her work in a somewhat unsatisfactory manner,
spending a good deal of her time in bed: and on July 3rd, 1919
she was admitted to the B.I.E. and, for a fortnight, remained
under the observation of Dr. Chalmers Watson. On leaving
the Infirmary she was told by her friends that she had im-
proved considerably, though she did not feel any better
herself: her whole recollection of this period is very dim.
Her memory soon got worse than ever, and she remain-
ed swollen. After a few more months her husband prevailed
upon her to return to hospital, which she did, "though
scarcely knowing why she did so." She was admitted
to Ward 24 on 5th Dec. 1919.

The patient has had no previous illness or accident; her
home circumstances are quite satisfactory. She has a good appetite, and does not indulge in alcohol.

**Family History**

Patient's mother died, aged 61, after a long illness, the nature of which is unknown; her father died, aged 47, cause of death unknown. One brother died, aged 5, cause of death unknown; the other brothers and sisters are in good health.

Patient has had 6 children; 4 of these 5 are alive and well, though the youngest—that born in January 1919, was not at birth, expected to live. The other child was always weakly and was jaundiced from birth. He often took fits, and died at the age of 5, two days after the onset of an attack which was paid to be leishmanic.

There have been no miscarriages; the labours have been quite normal.

**State on Examination**

Intelligence rather inclined to be defective: cerebration slow.

Memory hopelessly bad. Weight 5'3½". Height 9 ft. 0 lbs.

Development and muscularity fair. Features coarse and heavy;

facies expressionless and dull. No apparent cyanosis or jaundice;

but gums and conjunctiva seem somewhat anaemic. No evidence of previous disease. Temperature 96·6 °F.

**Haemopoetic System**

Patient says she has always been bloody.

The thyroid gland is somewhat atrophied, especially the left lobe; the patient complains of occasional "catching" pains over this left lobe. Lymph glands not enlarged.

Blood Exam. Hb. 73%. R.B.C. 4,000,000

C.I. = 0.83.

No leucocytes.

Film showed no abnormalities.
Circulatory System

No palpitation, faintness, dyspnea or cough: patient complains of occasional pain over the region of the apex of the heart.


Sphygmographic Tracing showed no irregularity.

Heart: Apex beat not visible. No extra-cardiac pulsations.

Percussion showed the heart to be slightly dilated, the left border being about 1/4" further out than usual. On Auscultation, the 2nd sound was accentuated, especially in the pulmonary area. No murmurs were heard in any of the areas.

Respiratory System

No subjective phenomena. No expectoration.

Breathing clear, vesicular. Frequency 20.

Voice thick and slurred (though patient always had something in the nature of a hoak).

Inspection, Percussion, and Auscultation all yielded normal results.

Alimentary System

Appetite normal. No excessive thirst. No discomfort after eating.


No trouble in swallowing: bowels regular.

Abdomen: No prominence, tenderness, or fluctuation. No abnormal dullness.

Integumentary System

Patient often feels a sensation of chilliness.

Skin is very dry and hard, except over the palm of the hand, where it tends to be moist. There are no eruptions. The face is swollen (no lower eyelids particularly): so, too, are the hands and fingers, so that she cannot now remove a ring which used to slip off quite easily. The nourishment of her hair does not seem to have been greatly interfered with.
TREATMENT.

2-12-19. Pet Ama.
16-12-19. Thyroid extract; gr. if t.i.d.
19-12-19. . stopped (pulse 104).
21-12-19. . re-started gr. j t.i.d.
3-1-20. . stopped (pulse 104).
5-1-20. . re-started gr. j twice a day.
13-1-20. . gr. j per day.
19-1-20. On leaving R.I. no patient was instructed to continue Thyroid treatment at home, taking gr. j twice a week.

Progress Notes.

<table>
<thead>
<tr>
<th>DATE</th>
<th>WEIGHT</th>
<th>REMARKS</th>
</tr>
</thead>
<tbody>
<tr>
<td>2-12-19</td>
<td>10 a.m</td>
<td>Swelling of face not so marked; urine free of albumen.</td>
</tr>
<tr>
<td>8-12-19</td>
<td>9 a.m.</td>
<td>Tingling of fingers no longer felt.</td>
</tr>
<tr>
<td>15-12-19</td>
<td>9 a.m.</td>
<td>Blood count: R.B.C. 4,100,000 Ht. 70%</td>
</tr>
<tr>
<td>19-12-19</td>
<td>9 a.m.</td>
<td>Patient febrile; complained of headache; urine normal.</td>
</tr>
<tr>
<td>21-12-19</td>
<td>8 a.m.</td>
<td>Skin much better; no headache.</td>
</tr>
<tr>
<td>2-1-20</td>
<td>8 a.m.</td>
<td>Blood count: R.B.C. 4,100,000 Ht. 75%</td>
</tr>
<tr>
<td>5-1-20</td>
<td>8 a.m.</td>
<td>Health apparently completely restored.</td>
</tr>
<tr>
<td>12-1-20</td>
<td>8 a.m.</td>
<td>When she left R.I. to on this date, patient</td>
</tr>
<tr>
<td>19-1-20</td>
<td>8 a.m.</td>
<td>seemed to be completely cured—she was in good</td>
</tr>
<tr>
<td></td>
<td></td>
<td>spirits. She quite normal; her general outlook</td>
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<tr>
<td></td>
<td></td>
<td>showed great improvement. Her entire mental</td>
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<td></td>
<td></td>
<td>appearance was absolutely normal—in fact she</td>
</tr>
</tbody>
</table>
|          |        | looked about 10 years younger than on admission.
Mrs. Jessie McMurdo.

Commentary.

Newspaper men seem to realise that things medical make good copy. Some time ago it was thyroidism: the most recent field to be exploited for the fashionable amusement centres round the thyroid gland. "Sclera of life crowd fast upon us," and snatches of scientific truth lend themselves very readily to distortion: a little knowledge is a dangerous thing. The case at present under consideration is based on the deficiency of this new marvel: it is a typical case of Hypoplasia.

The condition was insidious in its onset: there is no history of anxiety or overwork, while patient never has been unduly constipated, so that we can scarcely apply the assertion of Lane that "one of the effects of intestinal stasis is atrophy of the thyroid gland." The state of patient's mouth, it must be conceded, was very unsatisfactory, and it is possible that the element of auto-intoxication may have been partially causal. There is the possibility, too, of some hereditary thyroid arraignment; for from information obtained, it would seem that patient's mother's symptoms were somewhat similar.

Hypoplasia is one of those interesting clinical studies which are diagnosed rather by the summary of the effects produced by the individual symptoms than by any one predominant factor: the loss of memory, the slow circulation, the coarse and heavy features, the face expressionless and swollen, the voice thick and stammering, the atrophy of the thyroid, the dry, hard skin, and the evidences of a general lowered standard of metabolism - chilliness, tingling of fingers, etc. - all these features are consistent with the symptom complex hypoplasia. Further, this is the Anaemia.
- "amine or diminution of thyroid secretion," writes Cobb, "produces, or helps to produce, a condition of secondary anemia."

The muscular symptoms - cramps, etc. - are probably to be attributed to the hardening of the muscles with fat, and mucinous infiltration.

Contrary to general experience, the case under review showed no improvement during pregnancy.

The urine was slightly increased in amount (3.53), a fact which is probably to be explained, in part at least, by the absence of sweating, reflected in some slight increase in kidney function. There was a trace of albuminuria present, due doubtless to the involvement of the kidney in the general metabolic error.

This case does not agree with the statement of Perdelle Short - "in cases of myxedema, arteriolar sclerosis is early and severe." for no undue thickening of the arterial wall could be detected, while the blood pressure was only 90 mm Hg.

The case seems to be purely one of thyroid deficiency; there are no symptoms present indicative of the condition which Leopold Levi and He and Rothschild have called thyroid instability, i.e., disturbance in the direction of excess secretion as well as that of deficiency.

The progress notes illustrate the beneficial results of administration of thyroid extract in such a case as this. They show, in the first place, the very marked reduction in weight, which seems to precede any marked alleviation of the symptoms complained of: and they show the stages in the change from what someone has called "a peddler's phlegm" to a rejuvenated being.

Before the suitable dose of thyroid extract had been ascertained, it was pushed rather energetically, with production of tachycardia and some febrile disturbance, necessitating the
suspension of treatment till these had subsided.

The treatment was essentially the administration of thyroid extract, in sufficiently small doses to avoid reaction. The first dose was given at night, to prevent the occurrence of symptoms from any undue cardiac depression. The question of how long treatment must be persisted with after apparent cure has been attained is one regarding which there does not seem to be complete unanimity, though probably small doses of thyroid are required over a protracted period; in this case patient was directed to continue taking 1 grain twice a week for an indefinite interval.

Thus seem to be the chief points raised: but the case is typical of its kind, and interesting more on account of its typicality than on account of the possession of any peculiarities which might call for comment.
NOTES & COMMENTARY

- ON CASE OF -

- Mrs. MARY TULLOCH -

T. Ferguson, 1920.

Case No. 111.
Mrs. Mary Tulloch

Aet 27
Married
Housewife
Admitted 17th Dec 1919
Examined 24th Dec 1919
Complaint: Headache: general weakness: "bloodlessness"

History

(a) Present Illness: Patient never fully recovered after the birth of her baby three weeks ago; she remained very weak and could not walk. Five days after the birth she lost her speech, but this soon returned; as quickly as possible her Doctor sent her to R. I. C. for treatment for "anaemia."

(b) Previous Illnesses: Healthy before her marriage six years ago. Patient has, since then, been persistently weak and anaemic. Five years ago she had an attack of 'inflammation of the bladder' and, at the same time, suffered from 'eating diabetes.' Her Doctor treated the diabetes by a carbohydrate-free diet, and she was cured of the condition, which has never recurred; but the bladder trouble remained, and she had a bad miscarriage shortly afterwards. After this her weakness became still more pronounced, and she was eventually compelled to give up her household duties and go to reside with her mother. Some time ago she was admitted to R. I. C. and remained for 3 months under the charge of Prof. Boyd in Ward 24. At that time it was thought that her decayed teeth were, in part, responsible for her condition, and these were removed. But she did not show any marked improvement, and after she left hospital the weakness continued; despite her frequent use of "table wine." During her last pregnancy, patient's mind gave way entirely, and she had to be removed to an asylum, where she remained for 2 months. After the birth of her child three weeks ago, she was re-admitted to Ward 24 as above described.
Family History. Patient's mother, at 50, has always been "bloodless" and is now bed-ridden through her weakness. She has had four miscarriages. Patient's father has always enjoyed good health; her three sisters are all rather weak and bloodless.

Patient has had 3 pregnancies:

(1) a miscarriage (at 4 months), in 1914
(2) a full-term child in 1916, both said to be healthy, and showing
(3) an 8-months child in 1919, no infants or malformations at birth.

State On Examination. Development and musculature, fair.

Expression listless; face showed a waxy pallor; gums and conjunctivae very anaemic. No evidence of previous injury. Temperature, 97º F.

Haemopoietic System. Patient complains of weakness and bloodlessness.

Blood:

- R.B.C. 2,190,000
- Hb. 43%
- W.B.C. 6,000 differential count revealed no disproportion.
- C.I. 98

Film: At date of examination no nucleated reds were present. The film showed alterations in shape and size of the corpuscles, which looked thin, and had central clear areas appearing larger than usual. The film also showed some unevenness of staining reaction, some corpuscles being distinctly tinted by the basic element of the dye.

No haemorrhage could be distinguished.

The lymph glands, generally, showed no obvious swelling, though some in the neck could be distinctly felt as hard nodules.

Circulatory System. Patient complained of dull pain over the region of the cardiac apex. (This pain had never troubled him before date of examination, nor has it since recurred.)

Pulse. Vessel wall somewhat thickened. Frequency 98.
Blood pressure = 110 mm. Hg.

Sphygmographic Tracing showed no irregularity.

**HEART:** Open but not visible; no extra-cardiac pulsations.
no dilated veins.

Percussion showed no cardiac dilatation. On
Auscultation a faint musical systolic murmur was heard:
sounds in other areas closed.
Cardiac action regular.

**RESPIRATORY SYSTEM.** Patient complains of a recurring sore throat —
examination revealed nothing to account for this.
Breathing clear, vesicular. Frequence, 24.
No abnormal dulness.
A few moist sounds to be heard at the bases of both lungs.

**INTEGUMENTARY SYSTEM.** Normal. No eruptions or history of eruptions.

**URINARY SYSTEM.** No subjective phenomena.

Urine: Clear, straw coloured. No deposit.

Quantity in 24 hours, 3 30. Sp. Gr. 1022.
No albumen, blood, sugar or bile.

**REPRODUCTIVE SYSTEM.** Menstruation began at the age of 17, and occurs
regularly at intervals of (about) 3 weeks, lasting for anything,
from four days to a week. Abnormal discharges have never
been noticed.

**NERVOUS SYSTEM.** Memory rather weak; phonation good.

The patient appears to be especially subject to delusions, more or
less associated with war conditions. Air raids seem to be her pet
annoyance, and very little suffices to set her off on vivid descriptions
of imaginary air raids and bombs. She was resident in Edinburgh
during the Zeppelin raid of 1916, and, though she was not part
ricularly exposed to danger at that time, the incident seems to have
left a vivid memory, for details of a similar raid suggest.
themselves to her very readily, and are subsequently described with amazing reality. Her sleep is somewhat disturbed, and frequently she awakes with a start during the night under the impression that she is being attacked by Mexicans. Her whole mentality is in a bad state, and she is subject to deep fits of depression during which she refuses to speak to anyone except to remark that she is being neglected. From these fits she often starts up, clutching at some memory, or at some trivial incident, while the pain of her neighbours seems to afford her considerable amusement. Yet through it all there runs a certain uncanny shrewdness—she knows how to feign sleep—and a power of observation scarcely suspected: one cannot help thinking that there is method in her madness.

Cranial Nerves, all sound.

Cervical Sympathetic. Shows no sign of lesion. Pupil reacts to light and to accommodation: no excessive sweating.

Motor Functions. No tremors; muscles rather flaccid; co-ordination unimpaired.

Reflexes. Slightly exaggerated, both superficial and deep. Closus absent.

Sensory Functions. Patient complains of occasional:

- Headache
- Acrid throat
- Ringing ears
- Dizziness

Wassermann Reaction. ++.


Alimentary System. No subjective phenomena.

The top teeth, prior to their removal, were all bad; of the lower set remaining, many are decayed. The gums are very
**Provisional Diagnosis**: Perierythrocitosis; secondary anaemia.

**Treatment**:
- **17/11/19**: Koebbe: light diet; pit. alac.
- **25/11/19**: Iron and Ascorbic Acid 10 gr. 2 t.i.d.
- **7/1/20**: Injection Novarsenobillon.
- **8/1/20**: Ammon. Brom. et Pot. Brom. 2 gr. X., 8 p.m.
- **9/1/20**: " " " Sod. " 2 gr. X., 5 p.m.
- **10/1/20**: " " " Pot. " 2 gr. X. 11.45 p.m.
- **11/1/20**: Removed to Ward 3, B. J. B.

**Progress Notes**

<table>
<thead>
<tr>
<th>Date</th>
<th>Blood Exam</th>
<th>Other Notes</th>
</tr>
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<tbody>
<tr>
<td>24/12/19</td>
<td>Hb 43% R.B.C. 2,140,000 C.I. 98%</td>
<td>Slightly furred; urine</td>
</tr>
<tr>
<td>26/12/19</td>
<td>Hb 45% R.B.C. 2,160,000 C.I. 108%</td>
<td>Slight pyelitis; urine</td>
</tr>
<tr>
<td>31/12/19</td>
<td>Hb 45% R.B.C. 2,120,000 C.I. 105%</td>
<td>Very depressed; no albuminuria</td>
</tr>
<tr>
<td>2/1/20</td>
<td>Hb 45% R.B.C. 2,120,000 C.I. 106%</td>
<td></td>
</tr>
<tr>
<td>5/1/20</td>
<td>Hb 49% R.B.C. 2,100,000 C.I. 106%</td>
<td></td>
</tr>
<tr>
<td>7/1/20</td>
<td>Hb 49% R.B.C. 2,100,000 C.I. 106%</td>
<td>Film showed nucleated cells.</td>
</tr>
<tr>
<td>8/1/20</td>
<td>Hb 54% R.B.C. 2,090,000 C.I. 106%</td>
<td>No obvious bad effects of injection, 7/1/20.</td>
</tr>
<tr>
<td>9/1/20</td>
<td>Hb 54% R.B.C. 2,090,000 C.I. 106%</td>
<td></td>
</tr>
<tr>
<td>10/1/20</td>
<td>Patient very depressed; removed to Ward 3, B. J. B.</td>
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</table>
Mrs Tulloch

Additional Notes

A. 13/2/20.

Patient's home in Portobello was visited, and the following information gained: - Her friends first noticed signs of mental change about 8 months ago. At that time, it seems, she had something in the nature of a fright. Her eldest child, born in 1910, suffers from congenital syphilis. Examination of patient's mother's blood: - R.B.C. 3,800,000 Hb 75% C.I. 98. Film showed no marked abnormality.

Patient's mother has long suffered from heart trouble.

B. 16/2/20.

Patient, in Ward 3 R.3.6, was found to be very depressed, and under the impression that everyone was neglecting her. She thought she was dying, and complained of pain over the region of the heart, with great shortness of breath. She was very pale and haggard. Her pupils were widely dilated (leukocoria). For the most part quiet, she sometimes rises up in bed and utters that she is dying.

C. 31/2/20.

Patient was certified insane, and removed to an asylum. (Kerrynfield)

Chart to Show Relation Between Hct, R.B.C., and Colour Index.
At first sight this case appears to centre round three separate factors - the element of syphilis as such, the mental condition, and the alteration in the blood - but doubtless these three features are inter-related, and probably the syphilitic state dominates the whole clinical picture.

In the first place, we must try to localise the period of primary syphilitic infection. There is no evidence of congenital syphilis. All her troubles were dates from her marriage 5½ years ago - before that time she was "very healthy". About 5 years ago, too, she had an attack of (?) inflammation of the bladder. Shortly afterwards, she had a severe miscarriage of her eldest child, born in 1916, suffer from congenital syphilis. This fact would seem to justify us in fixing the probable date of primary infection as fully 5 years ago.

The mental condition we shall dismiss briefly. How far is it directly syphilitic in origin, and how far due to anaemia? In intra-cranial syphilis, the vascular changes appear earliest - usually about 5 years after the primary infection; the principal symptoms are headache, indications suggestive of a multiple lesion, without increase of blood pressure or coma. This seems to agree with the case under consideration; but, on the other hand, there is no hemiplegic condition such as is often encountered in this type of mental involvement. Of course, any profound anaemia would produce symptoms similar in nature, but mental change was first detected five months before examination - i.e., before the confinement alleged to have pronounced the most profound secondary anaemia: this
suggests that the nervous state is syphilitic rather than anemic in origin. In Additional Test A it is recorded a history of some upsetting fright occurring about 5 months ago; this is rather suggestive when taken in conjunction with the statement of Sir George Savage ('Practitioner,' January 1918) - "I have been struck by the occurrence of specific brain symptoms which have developed after absence within a few years of the syphilitic infection."

The main interest of the case lies in the blood phenomena. In the first place we note the general family 'bloodlessness', which might possibly be due to some underlying degree of untreated chlorotic tendency.

The blood examination, in this case, showed an anaemia fairly severe, with the film changes which we expect to find under these circumstances: and, while, during the stay in hospital, the red blood corpuscles diminished slightly in number, the │%■%■%■| haemoglobin showed a considerable increase, so that the colour index rose above unity. At the same time nucleated red corpuscles appeared in film preparations, and the slight leucopenia persisted; in fact, the case, which at first presented the appearance of a 'secondary anaemia', seemed to assume a 'pernicious' cast.

A secondary anaemia may result from any severe hemor-rhage - it may, for example, follow a confinement where there has been much loss of blood; it may result from any prolonged drain on the circulation, as in an unusually profligate menstrual flow; or it may be toxic in origin, and the toxic producing it may be that of syphilis. Any of these alternatives might suffice to explain the causation of the present case. Again, the 'red' count - approximately 2,000,000 -
indicate that the condition is fairly severe, and it is a gen-
erally accepted statement that "an unusually profound type of
any other anaemia may ultimately take on a pernicious tendency."
Are we to assume that, during her 24 days stay in hospital, we
have seen the change from a 'secondary anaemia' to the 'per-
nicas' type, with the difference in prognosis which such a change
entails? The Colour Index may at times, even in a well-marked
case of pernicious anaemia, fall below unity, and there is the
possibility that the case with which we are dealing, may, before the
last confinement, which was attended with great loss of blood, have
shown a high colour index, undergoing reduction at the time of
this severe hemorrhage.

While it is futile to generalize on the results of one case, it is
interesting, at this stage, to consider, for a little, some of the theory
of Pernicious Anaemia. Most authorities are agreed that the condition
is, in essence, a toxic disease; many theories have been constructed to
account for its cause - oral poisons, direct interference with marrow, and so on.

Others again, prefer to regard it as a deficiency disease, and success is
claimed for its treatment, on similar lines to the treatment of scurvy;
by the supply of vitamin C - here, in the form of raw meat. In any
case, there is great interference with the number of red blood corpuscles
in circulation, whether by actual haemolysis or by some unrestricted
phagocytosis, with the result that the marrow, in its effort to main-
tain an adequate supply, passes into the blood stream heuristically-
end, consequently, badly formed, abnormal corpuscles - very
much as is the case in any severe anaemia: if the colour index rises
above unity, the condition is usually called "pernicious", while if it
remains below unity, especially if there is a history of some possible cause,
the diagnosis given is "secondary anaemia." So pernicious anaemia really
a thing apart, or is the difference between it and any other severe...
anemia not only a question of degree? Oral reflux, and all the alleged causes of pernicious anemia, are also capable of producing secondary anemia; and a simple anemia may, if sufficiently severe, assume pernicious tendencies. Cannot we read into the connection between pernicious anemia and secondary anemia some parallel to conditions obtaining in other fields—between, for thame, measles and ’malignant measles’?

That pernicious anemia sometimes occurs after pregnancy is a matter of common knowledge—it is usually attributed to the toxemia present: the case under consideration may have been influenced by some fibres of the placenta remaining after parturition. Dr. Hemming has described a case in which pernicious anemia developed and proved fatal ten days after the confinement; here, as in the case we are studying, there had been some previous ’bloodlessness,’ in a subject as 33. A somewhat similar case was seen in the Medical Out-Patient Dept. (R.I.O.) on 23/7/20, – in this, too, there was a pure hemorrhage after delivery, producing a profound anemia, which was, at that of examination, ’pernicious’.

The initial systolic murmur heard is probably the typical fruit of anemia.

The Prognosis is not satisfactory. We might expect anti-syphilitic treatment to bring about some improvement; for the mental condition almost certainly, and the blood condition, very probably, are due to the syphilitic condition. Escaping from pernicious experience, there may be some remission of the nervous symptoms, but it is to be feared that such remission will only be temporary. Then there is the condition of the blood. Treatment failed to elicit any improvement during the stay in hospital, and an efficient metabolism cannot be maintained with only 30% of red blood corpuscles. In addition, there is
The probability of further relapses, moving, slowly it may be, to a fatal termination.

Treatment in hospital was along the usual lines—general measures regarding diet &c., iron and arsenic to combat the anaemia; ultimately, when the mental symptoms became acute, the administration of bromides. She had also an anti-epileptic intravenous injection of Novarsenobillon, which is of some interest in its relation to the anaemic condition.

On the evening of the following day her mental state became much worse, while there was some fever. This would seem to bear out the teaching "If, in treating anaemia, inorganic arsenic fails, try the organic preparations of the palvaean series, but never give them intravenously in fever cases, because then they always produce a marked temperature reaction, and may bring about collapse."
NOTES & COMMENTARY

- ON CASE OF

- JOHN DALGETTY -

T. Ferguson, 1920.

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Case No. 1.
Complaint: Shortness of breath; fullness in chest; choking sensation in throat; pain in shoulder joint.

History: One week before admission, patient had to stop work and take to bed, on account of an attack of rheumatism, the pains being first experienced in ankle, knee, and hip joints; subsequently in the left shoulder and left elbow. The ankles became so swollen and painful that patient was unable to put his feet to the ground. For a week before this severe rheumatic attack came on, the least exertion on his part produced a troublesome attack of palpitation, especially if the effort was made at night.

There is a history of two similar attacks:

1) In the summer of 1910, when the patient was 13½ years of age. During this attack, which extended to last for 6 weeks, there was pain in the joints, but no swelling; he had a high fever, and was delirious during the second week.

2) While he was in the Army, in 1916. On the Somme front, he lay out in rain for 14 days in reserve, feeling at that time pain in his joints, and fullness in his throat. As they were due to attack on the 5th day, he did not “go pick”; but next morning he awoke stiff and fevered, with a severe headache, and palpitation. He was taken to a dressing station, and ultimately reached an hospital in Liedo, where he remained from October—December, 1916, when he was discharged from the Army as unfit for further service.

After a holiday, he took work with the North British Railway Co., but the fumes troubled him, and he had to give it up. Then he was with the Edinburgh Cable Co., and drove one of their products for six months, but he found the application of his brakes too tenacious, and had to give
This up to. After a spell of 6 months with the Puget Sound Co, he transferred to the North British Railway Co, remaining with them from April 1918 to October 1919. He found the work increasingly severe, and was often exposed to cold, wet cuttings. He was made to lift the heavy rails; his rheumatic pains began to trouble him greatly, and he had to stop work. He was admitted to Ward 23, No. 3. No. on Nov. 3rd 1919.

He suffered for 2 months from trench fever while in France.

He has never had scarlet fever or diphtheria.

His surroundings are satisfactory; he does not indulge in alcohol.

His family history contains nothing specially indicative; there is no rheumatic tendency.

STATE ON EXAMINATION. Patient is very intelligent, and well-developed. He is bright and cheery, and, in bed, adopts any attitude without discomfort.

His color is good, and there are no obvious morbid appearances.

Temperature, 97.4°F.

CIRCULATORY SYSTEM. Patient complains of pain in the precordium; palpitation, especially at night; considerable dyspnea; fulness and choking in the throat.

Pulse. The pulse rate is slightly thickened. Frequency, 98. The pulse is regular, but not well maintained. A fairly typical Waterhammer pulse.

![Fig 1: Reproduction Of Sphygmographic Tracing](image)

**Blood pressure** (maximum systolic), = 150 mm. Hg

Heart Inspection. Diffuse pulsation is seen all over the precordium; there is marked epigastric pulsation, and both arterial and venous pulsation in the neck. No bulging of the chest can be detected; there is no pronounced in-drawing of the 4th, 5th, and 6th intercostal spaces.
The apex beat was seen in the 5th left inter-space, 3 1/2" outside the nipple line - it was diffuse, and marked over a circular area of radius 1 1/2". On palpation, the situation of the apex beat was confirmed; it was found to be rapid, thrusting, and fixed, even when the patient was turned on his left side. There was a systolic and diastolic thrill over the apex, and a diastolic thrill over an area just to the left of the sternum.

Percussion mapped out the borders of the heart:

- 2nd rib
- 3rd rib
- 4th rib
- 5th rib
- 6th rib
- 7th rib
- 8th rib
- Mid-sternal line
- Right clavicular line
- 4 1/4"

 Auscultation: In the mitral area, presystolic and diastolic murmurs heard.

There is a well marked double aortic murmur.

In the pulmonary area, the 2nd sound is clear and accentuated.

All over the praecordium, but specially marked in the tricuspoid area, where it masks the sounds completely, is a 6 and 7 fricative rub, not synchronous with heart sounds.

Electrocardiogram:

Respiratory System: Dyspnea: no other subjective phenomena.

The breathing is clear, muscular, and regular: frequency, 20 per min.

Physical examination revealed no abnormality.
ALIMENTARY SYSTEM

Auricular - Inspection, showed marked epigastric pulsation. There was
indrawing of an area below the rib margin on the
left side. On
Palpation, nothing abnormal could be felt; there was no tenderness.

Perception, The spleen was very slightly enlarged; the stomach
reached down to the umbilicus; the liver dulness was normal

INTEGUMENTARY SYSTEM

No oedema or sweating present at date of examination.

though both of these were present on admission.

Urinary System

No subjective phenomena.

Urine

Straw-coloured. No deposit.
Amount per day 360. Sp. Gr. 1020.
No albumen or other abnormal constituent.

Nervous System

Patient is liable to headaches and giddiness.
Intelligence very good. no sign of, normal.

Locomotor System

Joint pains as recorded in history.

Hematopoietic System

No enlarged glands.

R. B. C. 3,300,000
Hb. 95%.
W. B. C. 6,000.

Provisional Diagnosis

Adherent pericardium: endocarditis

following rheumatic fever.

Treatment

6/11/19. Sodium salicylate gr. XX every 4 hours; stopped 30/11/19.
6/11/19. Sodium bicarbonate gr. XXX
10/11/19. Aspirin gr. X.
25/11/19. Aspirin gr. X.
6/12/19. Whisky, 3f.
11/12/19. Ad Calamine.
13/12/19. Tastor 6cl.
22/12/19. Aspirin gr. X.
The relative intensity of the various murmurs present changed greatly from day to day. The friction rub, too, was sometimes more marked than others.

5/1/20. Patient's nose bleed for 3 hours; after this his headache symptoms were much relieved. He was put on a course of calcium lactate, given by the mouth - this was continued until 12/1/20.

15/1/20. For the first time, a good precordial paradoxic was obtained.

10/2/20. It was observed that the diastolic thrill mentioned in the case notes was being felt just to the left of the sternum (especially in the 5th interspace), was very well marked, and apparently quite distinct from the thrill felt at the apex.

29/2/20. For the first time, patient was allowed out of bed for a few minutes - no symptoms were produced.

10/3/20. On examination of the back, there was more pronounced systolic relaxation of some of the lower intercostals on the left side (Bruckenthal's sign) - the spaces involved did not vary with respiration.

24/3/20. Patient had a very severe attack of palpitation, which lasted only a few minutes. He felt as if his heart was "jumping in his throat"; there was considerable pain, and a severe headache was produced. Next day patient was kept in bed, and there was no sign of a recurrence of the attacks.

27/4/20. There was another attack similar to that recorded on 24/3/20, again passing off in a few minutes, and leaving a severe headache. There were no further attacks: and on

18/5/20. Patient was discharged, in apparently, fairly good health.
"The diagnosis rests chiefly on enlargement of the heart, and retraction of the structures surrounding the heart at ventricular systole — a retraction which, alone, is not distinctive."

— Sir James Mitchell (on adherent pericardium)

It is difficult to determine exactly the extent to which the features of this case are related to the several aspects of circulatory embarrassment present. The endocardium and the pericardium are, as can be shown, involved; it is generally recognised, though more difficult of demonstration, that when these two are affected, the myocardium must also be implicated; and the whole case is a striking illustration of the fact that the differences in symptomatology of these three conditions are, after all, little better than shades of one colour, or degree of one whole.

The rheumatic history is very definite, and a rheumatic history is taken as predisposing to all three types of cardiac disease. There have been three attacks of rheumatic fever — in 1910, in 1916, and in 1919–20; we know from the doctor whose patient he was that pronounced cardiac symptoms followed the first attack. Doubtless the efficiency of the heart was impaired still further as a result of the subsequent fevers; but we know definitely that we are dealing with a condition which has been in existence for ten years, and which is of rheumatic origin.

Two of the "signs" said to be characteristic of adherent pericardium we may note — Friderich's sign (the diastolic collapse of the central veins), is not well marked in the case under consideration; but Broadbent's sign (the systolic retraction of some of the
left intercavities posteriorly), is definitely present. Sallant and Cooper have shown that Broadbeck's sign may arise in enlargement of the heart, (with consequent compression of the lung), without the presence of pericardial adhesions: but in such cases the intercavities affected vary with respiration, which is not so in the case with which we are dealing, so here we may accept the phenomenon as evidence of a pericardium adherent to the diaphragm.

The condition of the heart forms an interesting study. The pain in the precordium, dyspnea, edema, and peculiarities of the apex beat might all be due, in part at least, to the pericardial condition; but along with these are the physical signs of co-existing heart disease.

The openings of the large vessels leaving the heart might, conceivably, be contracted by pericardial adhesions, with the production of circulatory interference, and, perhaps, an obstructive murmur. Within this, or the mere roughening or deformation of the valve segments might produce the systolic element of the double aortic murmur heard, but the diastolic element is undoubtedly due to aortic regurgitation - as so confirmed by the typical water hammer pulse. In this connection it is interesting to note that the diastolic thrill felt just to the left of the sternum might be directly associated with the aortic incompetency - this seems the only feasible explanation - a phenomenon sufficiently uncommon to be worth recording. Before deciding that the signs encountered in the mitral area are due to stenosis of that valve, we must eliminate two other possibilities:

1. Although a mitral presystolic murmur is usually due to stenosis, in some cases it may be the result of aortic...
incompetent - the so-called "mild murmur".

Theodore Fisher and other writers have been adherent pericardium often produces a marked preystolic murmur in the mitral areas. In the case under consideration we have the physical signs of both aortic insufficiency and adherent pericardium, but the rough, persistent nature of the murmur, occurring as it does with a diastolic thrill, together with the accentuation of the pulmonary 2nd sound, seem to prove the existence of a definite mitral stenosis.

The electrocardiogram, however, is not typical of mitral stenosis, for though P is somewhat increased in amplitude, its summit is neither flat nor bifurcated. It is rather remarkable that patient's heart should be little conspicuous abnormality might be pointed out that the deflection T is very slight, and appears to be inverted - though the interpretation to be placed on this is not quite clear. Further, the interval between P and R is variable, and, generally, rather prolonged - this would seem to indicate some insufficiency with the conductivity of the A-V bundle.

The pule, as seen in the phonocardiogram, is essentially the pule of Aortic incompetence, slightly modified - perhaps by the mitral condition, though along with this was afterwards detected a "pulmonary paradoxes", which is regarded as typical of adherent pericardium.

The bleeding from the nose recorded was probably a direct result of the cardiac condition, encouraged by the relative fulness of the blood - the "red count" was 5,000,000.

The diagnosis of adherent pericardium is based chiefly on the marked cardiac impulse, the systolic retraction at the apex, together with the thrill; the increase of cardiac dullness; the pulmonary paradoxes; the presence of Broadbent's sign; an
the slight diastolic collapse of the renovascular strain. How far the
subjective phenomena — giddiness, thirst — are the results of pericarditis
and how far the result of the actual heart conditions it is
difficult to say — probably they are mainly consequences of the
latter. The diagnosis of endocarditis is, in this case, founded
mainly on auscultation, revealing the murmurs, and on
palpation, demonstrating the thrill, together with the confirmation
obtained from a study of the phonogram.

Next we pass to what Sir James Mackenzie calls 'the reason
ability of prognosis.' In adherent pericarditis, this Authority
states, the prognosis is bad, though there may be intervals of
sustained recovery: acute incompetence is regarded as the cause
of the chronic valvular lesions, with mitral stenosis a good
sound. These pronouncements are not particularly cheerful: are we
justified in adopting this ominous outlook? What are the dangers
arising from his pericardial condition? The most threatening
of them are based on a hypothetical spread — spread to the
mesentery, to the pleura, or to the region of the liver, setting
up a peritonitis, causing portal interference, ascites,
and, possibly, death. Against this we can cite the history
of ten years duration of the condition. Further, there is no
evidence, up to this date, of the involvement of the
surrounding viscera, so that obviously the condition
cannot be actively progressive, and there does not seem to
be any particular reason why it should become so.

In trying to estimate the danger of the Endocarditis, we
must bear in mind the rheumatic history. There have
been three attacks of rheumatic fever, all of them severe;
this probably indicates a certain susceptibility to further attacks,
with still further cardiac impairment, involving ultimately,
the inability of the heart muscle to maintain an adequate supply, in addition to the possibility of embolism.

All this may happen; but for the present we are no failure of compensation, the pulse is strong, fairly slow, and regular, while now, in his convalescence, the patient is free of cardiac symptoms, and may remain so for years. One rather disquieting feature is the occurrence of the attacks of paroxysmal noted in the progress record, when he seemed to be back to normal health, though still under the supervision of hospital regime. Finally, eliminating all these considerations, is the personal factor, and this, so much as anything else, inclines us to a more optimistic prognosis, for it is eminently satisfactory. To sum up: the case is fraught with dangerous possibilities - to deny that would be futile - but moderate care on the part of the patient can reduce the danger to a very considerable extent. The ultimate prognosis is not nearly as grave as it would be in, say, a case of diabetes in a patient of the same age.

The Treatment, on his first admission, was directed to the rheumatic attack. Later, the essential factor, as might be expected in such a case, was rest, with the general measures adopted in all advanced heart cases. To relieve the cardiac embarrassment, one subsequent operation pericardium, Brauer, in 1902, advocated the operation of pericardial, excision of parts of the 2nd, 5th, and 6th ribs, but this course does not seem to be indicated in the present case, partly because, as one result of a ten years history, the structures involved must have become fairly tolerant to the new conditions, and partly because the heart lesions present would render such an operation particularly dangerous. The results of the subsequent treatment must be careful moderation - in fact, the patient must learn to cut his coat according to his cloth.