A few cases of Sacchara Ventriculi
by
John T. T. Malcolm. 1862.
Professor Gooden was the first to detect Sarcina ventriculi in a case of chronic vomiting which came under his observation in 1842. At first it was supposed that these curious forms were habitants of the human stomach only, a short time only was sufficient to show the fallacy of this supposition, for as the attention of observers became aroused, one find in quick succession of their being being found in the urine by Haller, Mackay, Johnson, Dale, and Regnier; in the sputum frequently by Bennett and Hasse; in an abscess of the lung by Vicbow, and once by Jenner in the fluid of the ventricles of the brain. Professor Gooden's classification is:

Sarcina - Plants commune, transparent, consisting of 16 or 64 four celled fustules, arranged parallel to one another in a square transparent medium.
Species I Sarcina ventriculi. Fustules 16, colour light brown, transparent matrix very perceptible between the fustules, lies in between the edges, size 800 to 1000 of an inch. Habitat the human stomach.
The generation is five. Each individual divides into four. A perfect sacina consists of sixty-four ultimate cells. Neither mouth, oral appendages or visceral cells can be detected, and its cells are clear transparent as if empty and have that consistency of cell walls characteristic of vegetable structures. It approaches nearest to the Gonium Hyalinum. M. Robin has placed it under the genus Alaeimposieida and calls it Alaeimposieida Ventriculi. With reference to Professor Goodei's case of sacineous vomiting it appears to me to have been one of those anomalous ones which have several times met with, where we find sacinae in the ejected matter without any well marked symptoms of disease. These remarks offer because in comparing the case above alluded to, with the one I append, there appears to be a great discrepancy of symptoms. I may add that these cases of mine were written out before I read Professor Goodiei's paper on the subject.
Prof. Goodair's case
Attacks came on night and morning without reference as to whether it was before or after food, had been taken.

McSwan
Has pain before meals, which is relieved as soon as food has been taken.

No pain on pressure.

Pain increased on pressure.

Bowels regular.

Bowels very constipated.

Appetite not affected.

Appetite unimpaired.

Usual articles of diet agreed.

Food such as porridge and broth cause great pain and distension of the stomach; whereas beef and more solid kinds of food cause little inconvenience.

No distension of the abdomen.

Distension of the abdomen.

at times causing the bowel spacial veins to swell out to a great extent.
Darg.  Hunter.

Felt uneasiness after taking food.  Pain augmented after taking food, her sensation of weight in stomach.

Tenderness and pain increased on pressure.  Pain not increase on pressure.

Bowels very constipated.  Bowels constipated.

Appetite diminished.  Appetite impaired.

Stomach rejects all kinds of food, cold water even being rejected.

Abdomen sometimes swells.  Involuntary contractions of the abdominal muscles.

Tongue clean.  Tongue somewhat furry.
If Sacchari were found in the stomach only, and if when found, there was always a fermenting state of the maltus in that organ, then we might reasonably conclude, that they were either the cause of that fermentation or its result. That they most frequently occur when such is the case cannot for a moment be denied, and however it is not invariably the rule. We ourselves have seen them often present in vomit which gave no indication either by its odour or appearance of being, or having been in a fermented condition. When moreover we know that these forms have been detected in the urine, fæces, sputum, and the fluid contained in the ventricles of the brain, places where no such fermenting process could ever take place, we must conclude that such a process is not essential for their production.

D’Itzigsohn directs attention to the fact that this (i.e. Sacchari) in common with all Physoschizomata, so-called unicellular algae are neither a true species nor genus, but only a stage in the development of
some very cellular, filamentous algae, particularly one or another of the sarcinae, or, in fact, the free life, gonidia or spores of some such algae. Their independent growth is no barrier to this view, as they have that in common with many other species as those of various lichens, which often form large subterranean masses on stones, wood, etc.—and also with those of many other algae—the case, also, that these gonidia are so minute as to be easily taken up by the absorptive and carried bodily the blood vessels to the bladder, bronchi, etc. in a dry state, they may even be inhaled by the air and subsequently grown. D'Esjügheim's theory appears a rational solution of this problem, namely what sarcinae are, and how developed, and I shall for want of a better one adopt. In conclusion giving a case which came under my own observation as somewhat supporting his view.

The case I allude to was one where in a ward containing a dozen patients (one of them at the time being affected with sarcinuous vomiting) five of these suddenly and without any known cause began to vomit mucus which when
examined were found to contain Sarcoica. How this state of matter came about remains still a mystery. That they could have got a hold of the one patient vomiting and mixed it with is a probability slight at the very most, but possible no doubt. In every case however the appearance of the rejected matter differed from one another to such a degree, that each & supposition could not for a moment be entertained. In every case the vomiting ceased after one or two days. From Sarcoica came to be present in those vomiting can only be explained I think by D. Strugeon's theory, that living in the same room, and their diet consisting near the one of the same or any food they must have inhaled the floating spores of some algae which subsequently became developed into Sarcoica. Thus being almost invariably construction of the pylorus thereby causing the food to be retained in the stomach for a longer period than is necessary for the accomplishment of the digestive process is strongly in favour of the fermentation theory.
Dr. George Wilson's Analysis of the
Imported Matter in Pest Gardens Case—
Gave a copious precipitate with AgO N03—
When acted upon by a red heat till the
liquid was driven off an ash containing
a large quantity of N03 remained behind.
Litmus paper was strongly reddened and
powerful effervescence took place when the
alkaline carbonates were added. A portion
of the diluted fluid was evaporated
to dryness in a porcelain capsule and strongly
heated; distilled H2O was poured upon the
residue, it then precipitated AgO N03, showing
the presence of some fluid metallic chloride. To
remove this the liquid was filtered from
the animal matter it held in solution, and
slowly distilled a second time in a capacious
retort. The product of this distillation was
colourless and transparent and possessed
a strong acid reaction, but gave not the
slightest hue with AgO N03. It retained
the aseptic smell and along with it a faint
acid odour. To ascertain the nature of this
acid 6 ounces of the twice distilled fluid
were neutralized with lime water t vapors
ated to dryness. The urine salt was then transferred to a tube retort and dilute \( \text{H}_2\text{SO}_4 \) added, a colourless liquid collected in the receiver, which was at once recognised as acetic acid by its odour. When the acid was digested in the cold on recently pre-

precipitated oxide of lead, it formed a soluble salt, have a sweet sugary taste, and possessing an alkaline reaction. The acquire-

ment of the latter property, depending on the formation of a subsalt of lead, has been shown by Lilloy to be distinctive of acetic acid.
John M. Swan aged 39
Was admitted on February 4th 1863.
He has been employed for the last 20 years in a dredging machine at Leith
and has been very much exposed to cold and wet. He was in excellent health
till about 12 months ago when he felt an
increasing or burning pain in the epigastric
region confined to one spot at first, his
appetite however continuing good. In
September last he had an attack of
diarrhoea for a month. Two months
ago the pain in the epigastrium (which
is increased on pressure) became much
more severe, and his breath had a very
foetid odour for about a month, after
that his stomach became distended
after taking food, causing severe pain
to relieve which he produced vomiting
to relieve by tickling his fauces with
his finger. The rejected matter had a
very sour taste, occasionally he has been
annoyed by mouthfuls of hot sour water
coming up. His diet consisted of tea or
coffee and bread in the morning, bread
and milk and sometimes beef at noon, and tea at night. Food such as porridge causes distension of stomach and great pain, whereas beef and more solid kinds of food cause little uneasiness. His tongue is foul, and appetite much impaired, the pain in epigastrium is worst when the stomach is empty, and is relieved when food has been taken. He has a pale, anaemic appearance and anxious expression. He was ordered a dose of castor oil.

Feb 5th Patient vomited last night a quantity of dark thick matter resembling yeast in a state of fermentation, mixed with a large quantity of water, which, on standing sinks and supports the yeasty looking mass. On microscopic examination bacillae in very great abundance are found, also blood cells and haematin.

6th Last night he had a very severe paroxysm of pain in the abdomen, which is very much distended as far down as the symphysis pubis and
quite hard and tense. He was ordered an enema of rectum, and Turpentine stipes to be applied to his abdomen, also a powder consisting of

\[ \begin{align*}
\text{Calaminos} & \quad 9p. \\
\text{Pulv. Salicyl} & \quad 9p. \\
\end{align*} \]

The powder was omitted soon after being taken, about midnight he had an enema containing castor oil, and turpentine, his bowels were only slightly moved by these means but the abdominal pain was considerably relieved. Today the abdominal pain continues to come on in severe paroxysms, and turpentine stipes are ordered to be constantly applied, also to have two compound colchicum pills, and another purgative enema similar to that of last night - "Purified again today."

"Patient's bowels have not yet been well opened, reduced two ounces of castor oil. The abdominal pain continues but not so severe as before.

8. Bowels well opened by Castor oil.

Abdominal pain considerably abated, and tenuity of abdominal muscles
10th. Continues in much the same state and has had no return of vomiting.
11th. Tenderness of abdominal muscles and pain on pressure over epigastrium.
12th. Was given an enema which opened his bowels fully.
13th. Vomited this afternoon a considerable quantity of brownish matter which in about an hour had fermented to about twice its size, resembling yeast exactly in colour and odour, ordered sulphate of soda and infusion of quassia in half drachm doses, and the turpentine sticks to be continued.
14th. Pain still severe across the whole stomach, onset so immediately before meal.
This diet consisted yesterday of tea and bread morning and evening, beef-tea and bread for dinner. Still has attacks of hypnosis occasionally, ordered
R. Bismuthi Soln.
Magneesia Carb a.q. grad.
Pulv. Aromatics gr. V
Flat fulcers nitric aq.
Sig. One three times a day.
The tenderness of the abdominal muscles much less today.

16th Vomited this morning a quantity of yeasty looking black matter, tannin in large lumps were seen under the microscope.

19th Tenderness of abdominal muscles has disappeared, swelling of epigastrum continues, but is diminished below the umbilicus. Has vomited every night since last date, the pain in abdomen is most severe during the night. Bowels are very constipated or hard

R.  Hee Ricini Zz
Hee Castorium

21st Patient has continued the same as reported at last date till after supper tonight when he had a severe pain in his epigastrum, which was considerably relieved about 8 o'clock by the vomiting of a quantity of black semi-fluid matter: when seen about an hour after being rejected the fermentation process was not so well marked in it as in most of his previous stools. This suffer
22nd Swelling not so well marked and pain considerably relieved.

24th Does not complain of much pain today and there is no abdominal swelling.
Ordered an Implastrum Zypic to Spigastrium.

25th Had a severe renunciation of pain in the middle of the night, and vomited a quantity of greyish, fermenting matter and mucus, the grey mass floating on the top. He was not much relieved by vomiting, and complains of great pain in Spigastrium today, the superficial veins of the abdomen are greatly distended.
She has been taking a teaspoonful of peptic wine since the 18th.

26th Patient had another paroxysm of pain about 2 O'clock this morning, but felt better after vomiting a large quantity of blood, strongly looking matter which floated on the surface. Pain not so severe today, ordered to stop the Rhenish and Magnesia mixture and to take the following:

Pills, 24.

Tales 1/2 - To take one twice a day.
27. Patient avoids every morsel of food he takes. He has tried all sorts of solid food, as well as kept tea, chicken soup, milk, meat juice, coffee and all with a like result — their speedy rejection. Nothing seems to relieve the interminable pain in the belly, which is always most severe during the night. Extreme constipation continues and great abdominal distension.

28. Little change, the same abdominal pain as before. Has just vomited some tea and biscuit which he had taken shortly before. Face is evidently growing much weaker: face is acquiring a pinched and anxious expression, often distorted owing to severe pain. Brandy increased to 40 ounces.

28. Continues as before, but the severity of the pain is now almost unbroken. All food is now instantly rejected from the stomach. Great abdominal fullness and distension of the cutaneous veins. The upper part of the abdomen, epigastrium, and left hypochondrium feel hard and
resistant on palpation; below this the
distension is due apparently to flatus
alone.

March 17. Called to see patient at 5.30 A.M.
And found him in a state of severe pain.
This pain at this time was complained
of chiefly at the lower part of the
abdomen, although it extended all over
also. He fancied that his severe pain
in the hypogastrum was owing to in-
ability to make water. On percussion of
hypogastrum no humoral sound at all
could be detected, the bladder appeared
to be empty; but owing to the flatulent
distension of the abdomen palpation and
percussion alone were not relied on but
a catheter was passed fairly into the
bladder, when not a drop of urine escaped.
A turpentine enema was also administered.
While sitting on the night stool shortly
after the enema he suddenly became
faint. Said he saw the lights grow dim,
made a motion as if clearing something
from before his eyes and then fell over.
The was placed in bed and rapidly
received, and had a glass of hot brandy
and water which seemed to revive him.
9. A.M. It is in the same condition but the
lower pain is less severe, he is evidently
weaker however. The continued in much
the same state, gradually sunk and
died at 11 A.M.

Appearances presented at the Post Mortem.
Simple ulcers of the stomach producing
striction of the pylorus - Limited Peritonitis.
On opening the body the transverse colon
was seen to be a good deal distended.
No part of the stomach was at first
visible. The transverse colon was adherent
to the anterior surface of the left lobe of
the liver at one point moderately recent by
pretty tough lymph. A coil of small intestine
(about three feet below the duodenum) was
also adherent to the liver. The posterior
of the stomach to the left of the cardiac
surface was somewhat distended and was in
contact with the spleen. On raising the
liver its posterior surface was found to be
adherent to the stomach near the pylorus.
by pretty firm lymph. The omentum
much thickened was also adherent to
the anterior surface of the pylorus.
When the finger was introduced into
the stomach the pylorus was found
to be thickened and contracted so that
only the point of the finger could be
passed through it. When the stomach
was laid open two simple ulcers situated
opposite each other were found in the
pylorus. One of these was of a rounded form,
about as large as a half crown was on
the anterior wall of the pylorus. Its edge
was hazy and smooth, and was perfectly
eratized and quite inactive. The other
was of an oval form and of rather larger
size. Some matted resembling coffee grounds
was found adherent to its surface.
The base of this ulcer was somewhat
irregular, slight projections arising
from its base, and giving it what appeared
at first to be an almost fungating
appearance. At the end of two of these
projections the open mouth of a dilated
pilory was found. The columnar and
muscular coat was increased to nearly half an inch in thickness, it was examined microscopically but the thickening was of quite a simple character. There was a dilatation of the stomach just beyond the pyloric in the situation of the great curvature. The lesser curvature was somewhat puckered up: the distance between the nearest ulcer and the cardiac orifice was only 2½ inches. The fundus of the stomach was dilated. The stomach contained some yellow-coloured partially digested aliment of a very sour smell. No other lesion was found.
Joseph Darq aged 34.
Admitted January 23rd 1862.
Patient was in good health till about 4 years ago, when he began to have bilious attacks about once in six weeks attended with more or less vomiting and sickness. Each attack generally lasted about three days at first, but they have been gradually increasing in severity till September last, when he had to give up work on account of pain in the gastric region, and vomiting after every meal. For the last 5 months he has vomited at least three times every day, except for about three weeks in the end of last November and beginning of December when he felt somewhat better and resumed work, but the vomiting returned with increased severity, his stomach excised that time rejecting all kinds of food, and even cold water being rejected. During the former part of his illness his diet consisted of tea with bread every morning and evening, but for the last three weeks a biscuit, tea and a little
Sine daily have been all he dared to take, the wind always afforded him temporary relief. He had a feeling as if the food was moving about in the stomach and causing annoyance until vomited. The vomited matter in their passage upwards produced a hot feeling in the oesophagus and throat. Tongue clean, his appetite diminished. His tenderness and pain in epigastrum increased on pressure, more especially at the junction of the epigastric and left hypochondriac regions. Bowels are very constipated. dinner is dry, has been losing flesh and is thin and somewhat emaciated.

24. Vomited once since admission, the rejected matter being thick like powdered chalk, with a good deal of fluid, the whole being of a pinkish hue. On microscopic examination nothing of importance was seen. Has taken scarcely any food since admission, as his stomach will not retain it.

Dr. Aned P. Bismuth Albi 3p
Phaenin 3f
Sul. Nux. Macth 3p
Aquæ 20 3/4

Big Two tablespoonfuls every three hours.
February 3rd. The pain and tenderness in epigastrium is less severe on pressure. Patient is now able to eat up nearly all day without feeling much fatigue. His appetite has vastly improved, takes beef tea, rice pudding and bread without feeling much increase of pain or uneasiness in the stomach. Sleeps well at night, and his skin has lost the dry character it had on admission. He vomited last night and on examination the rejected matter was found to contain Tarecia in considerable quantity. No blood cells could be seen.

6th. Patient has continued in almost the same state as last reported, he vomited twice in the interval and Tarecia were again detected. He has had repeated attacks of physic, ordered

R.

Soda sulphite 3 dr
Infuse Quinina 3 x

2 spoonsfuls to be taken three times a day.

Also to have lime water along with his food.
8th. The pain over epigastric region rather more severe today. Ordered to take the Bienneth mixture, and to have a fly blister applied over the stomach.

13th. Patient has continued pretty well since last date, and has not vomited any food or other matter till today. The rejected matter has still the peculiar sour smell, and was in a state of fermentation. Vomiting was as before detected, but appeared less in size.

15th. Does not feel any pain today. Slept well during the night. Has occasionally attacks of pyrosis. Bowels have opened without medicine for the last two days. Continues to take the sulphite of soda mixture.

17th. Patient is now perfectly free from any pain. The vomiting and pyrosis have entirely ceased. Slept well last night. Bowels opened naturally. Dismissed cured.
Ellen Hunter. Aged 55

Was admitted into Ward 14 on December 20.

As far as can be ascertained patient was in good health till within the last two years during which time she has had repeated attacks of vomiting which were however relieved by an emetic pill. Previous to August and September last when the vomiting became more frequent and in October she had a sensation of weight at her stomach after taking food as if it were prevented passing downwards by some obstruction. About six weeks ago she felt a gnawing pain in the epigastrium which has continued since; it is augmented after eating but is not increased by pressure. She has vomited constantly after every meal for two weeks previous to admission, and has had various medicines administered without any good result. Emetic oil has been freely applied over the surface of the abdomen, which is still covered with the muscular resection but has afforded no relief. Patient has been of late losing flesh
and now presents a very emaciated appearance. Tongue somewhat furried. Appetite impaired. Bowels constipated. On palpation over epigastric region an undefined tumour is felt on the left side at the junction of the epigastric and hypochondriac regions somewhat indistinctly along the involuntary contractions of the abdominal muscles.

Perussion over the tumour is dull. Ordered a dose of Castor Oil and the following mixture

R. Med. Naphtha 31
   Var. Cannabis 60 31
   Sopra ad 31

Sig. A tablespoonful when necessary.

Also

R. Locii Sulphuris 31
   Infusi Cannabis 31

Sig. 1 spoonful gracefull three a day.

Dec. 25th

The pain in epigastric region is less severe today. She has omitted twice since admission after taking food. Her Appetite has rather improved. Tongue clean and sleek pretty well at night. The epigastric pain is always relieved by a ten puncture stethoscope.
Decemb. 31st. Pain over epigastric region rather worse today.
The vomiting has entirely ceased, she still however continues her medicines.

Jan. 9th. Appetite is now very good, and the food she takes does not increase the pain in the epigastrium, nor does it induce vomiting as formerly.

Jan. 13th. Patient is able now to sit up several hours a day without feeling fatigued. Appetite continues to improve.

Jan. 15th. Has been troubled with a severe cough for some days past which increases her pain, she vomited today after a fit of coughing. Complains of fullness and sense of weight in epigastrium after taking food. Ordered:

R. Pelargonii Sprea 3f
Phul. Thui 3f
Sulph. Bichlor. 3f

Sig. due three times a day before meals

Also, R.

Pra. Commone Aromat 3f
Uloth. Chlorici 3f
Tr. Opii Camph. 3f
Mus. Acarini 3f

Sig. a tablespoonful every three hours.
Patient though still weak is gradually improving in her general health, she is now able to sit up for some time each day without feeling tired. Her food causes very slight annoyance and she has not vomited since last date, till yesterday evening when she brought up a quantity of matter resembling green soup in consistence but brownish in colour. Patient felt the Epigastric pain much more severe immediately before vomiting, but it has again subsided.

February 12

Patient vomited last night without feeling any unusual uneasiness beforehand, and does not complain of any new symptom today.

February 13

Pain rather more severe today especially after food, does not sleep well at night.

February 20

Patient has had no return of vomiting since last date.

February 25

Pain in Epigastrium more severe last night, has a feeling of heaviness at her stomach. Ordered an Opiate.

March 12

The vomiting has entirely ceased. She takes food much better. Has no pain in Epigastrium. There is still some fullness.
and hardness in the left Epigastric region, which is somewhat dull on percussion, but no distinct tumour can be felt. The patient leaves today, her health and appearance are much improved.

Epigastric tumour in C. Hunter's case.
The vomit of December 22nd was examined microscopically and found to contain bundles of bacillae in great abundance, very distinctly marked, starch granules very perfect and numerous, striated muscular fibre, cilia epithelium, tumours and fat cells innumerable, some dark brown crystals and some hair. I examined the same after it had been carefully bottled on the 30th of March. It is perfectly fluid of a brown colour, and the greasy looking substance which floated on the top has entirely melted down. No bacillae can be detected after careful search. Nothing but multitudes ofecal fumiisome neculated but others quite transparent threads of muscular fibre, ciliae, and starch granules some perfect, but others shrivelled and without contents. The vomit resembled old cheese in odour. It did not give its characteristic colour to the starch granules which floated on 12th February presented the following appearances at the bottom of the bottle there was a light brown grumous sediment, on the top there floated a spongy looking mass of the same
colour, and between the two a transparent stratum of clear fluid. The whole has a peculiar, sweet, mucity, odour. Examined a portion of the sediment but could detect no sarcinae even after adding acetic acid, however upon the addition of a drop of No. 5 numerous bundles were seen. The field of the microscope being filled with fascicles of striated muscular fibre, large irregular masses of reddish brown granular matter, black pigment, epithelium, little oval cells often single, but sometimes in little strings of 3 or 4 or even more attached by their extremities, starch cells, many of them burst and partially shreded up. The shongy looking floating masses presented much the same character as the sediment, sarcinae being present, and some unusually dark in colour, some dark crystalline masses, some muscular fibre evidently in a state of disintegration, or grot globules, and many large starch cells, some long transparent tubular tubes of different sizes evidently vegetable having in their interior clear cells of various sizes were observed, besides granular masses of a deep blue purple colour.
Margaret Dean aged 38.

Was admitted on November 13, 1861, laboring under pulmonary disease, on February 6, 1862. She had a feeling of uneasiness in her stomach, which was relieved by the vomiting of a quantity of bilious looking fluid, mixed with a small portion of solid matter, which on microscopic examination is found to contain large bundles of bacilli in considerable numbers. On March 24, she died from her pulmonary disease, and on post mortem examination there was found considerable dilatation of the stomach, with slight constriction and thickening of the pyloric orifice; the mucous membrane found to be quite healthy, no ulceration of the coats either of the stomach or intestines.