CONTRIBUTION TO THE HISTORY OF MEDICINE IN BRAZIL

Early Work and Reports of

Dr. Adolpho Lutz

DYSENTERY

(1891-1898)

INTRODUCTION

Amoebic dysentery was first recognized in the New World by Dr. Adolpho Lutz, who saw three cases in 1888 and 1889, in S. Paulo, Brazil. Kruse and Pasquale mention this in their paper on Dysentery and Abscess of the Liver 1).


Before publication he discussed them in medical circles, in different places, with a view to awakening interest in the then very little known disease and in the hope of promoting the discovery of many more cases. He had, in fact, already suspected that the disease was wide-spread and he was bent on preventing the confusion of amoebic dysentery with other intestinal diseases, especially with dysentery not caused by amoebae.

Late in 1889, while crossing the United States on his way to Hawaii, to take up work in Leprosy, Dr. Lutz visited Johns Hopkins Hospital and found, on bringing up the subject, that no observations had been made there as yet. Next year Osler published a case of abscess of the liver in a patient from Panamá. After Lutz' publication followed the authoritative work of Councilman and Lafleur.

At the time of Lutz' observations, the etiology of dysentery was far from clear. The first well authenticated case in which amoebae were present was published by Loesch, in 1875, in a patient from the North of Russia, seen at St. Petersburg. Leuckart accepted Loesch's finding. Other well known parasitologists, however, like Grassi and Blanchard, and also Pfeiffer, were not convinced the more so as amoebae had been seen in persons not suffering from dysentery and even in horses and cattle.

In 1893, Koch, while, engaged in his studies on cholera in Egypt, found upon examining sections from the intestine, that amoebae could be seen deep in the tissues. But not even this, or Kartulis’ patient investigations, begun in 1886 and carried on over a number of years, which showed amoebae to be constant in cases of dysentery and endemic abscesses of the liver, brought conviction, since cases, and even epidemics, of dysentery in which there were no amoebae were known also. Loesch, for instance, believed his amoebae to be pathogenic, not to the extent of causing dysentery but only to that of keeping it up and preventing the ulcers from healing. Kartulis stated that he did not know whether the cases seen in Europe, including that of Loesch, were of the same disease as those observed by him in Egypt and later in Greece.

Lutz was the first to insist on the fact that there were two perfectly distinct diseases, both known as dysentery, and to make the differences between them perfectly clear. Although he himself was investigating amoebae, he realized that epidemic dysentery, of which he saw no cases, was probably of bacteriological origin.

This can be seen in his original text or in the following excerpt put into English:

“And now we come to the nature of the pathologic findings. The processes that accompany the presence of amoebae have been given such manyfold names as acute and chronic intestinal catarrh, ulcerous enteritis, typhoid, abscesses of the liver etc. that this might by itself be used as an argument against the significance of the amoebae. If we get down to fundamentals, however, we shall see that in certain circumstances, all the morbid conditions these names imply, the single case of typhoid excepted, can be found together in a single patient and fit into the picture of a single disease. In the first place, I propose to substitute the name dysentery by that of Enteritis with muco-sanguinolent Evacuations, since the often mentioned chronic or tropical dysentery is nothing else. Genuine dysentery is on the contrary, an acute infection, which may occur in all zones and has at times attained a wide distribution, (as any physician can see for himself by reading up the subject, since opportunities for direct observation have become rare of late). It is often extremely severe and deadly, and it is precisely the lesions seen in such cases that are repeatedly described as diphtheric inflammations of the large intestine. Were this disease ever followed by abscesses of the liver these would be entirely different to the endemic abscesses of the
liver, whose development is invariably slow. No one has ever been known to say that an epidemic of dysentery was followed by an epidemic of abscesses of the liver, which ought to happen if these two infectious diseases of the intestine were identical. The supposition that such a complication might be due to climate alone hardly deserves earnest consideration, nowadays. The functional disturbances following epidemic dysentery are evidently also residues of the already extinct destructive process: the amoebic disease may on the contrary be chronic from the beginning, without severe initial symptoms. It has not be shown that epidemic dysentery depends on amoebae, and it is far more likely, for several reasons, that it should belong to the group of infections caused by bacteria. In any case it cannot be due to the Loesch amoeba."

In his short treatise on dysentery, Dopter 2) points out the injustice done to Lutz, in generally omitting his name from the history of dysentery, since it was he who first propounded the views now definitely established.

Jeanselme and Rist 3) mention another contribution made by Lutz, this time in connection with the amoebae of dysentery. The proof of the genuinely parasitic nature of the dysentery amoebae, is traced back by Lutz to their biology. For this type of reasoning on biological factors he was eminently qualified, since besides being a physician by profession he was, by vocation, a naturalist from his early boyhood, spent in Switzerland, the land of his forebears.

"Proof that the amoebae are real parasites" says Lutz "and not mere inhabitants of decomposed organic matter, capable of living outside the body, as well as in it, is shown by the facts that they are bound to narrow ranges of temperature and that inside them one does not find extrinsic particles of the intestinal contents, but elements taken from the host himself, preferably red blood corpuscles. Their hardy survival inside closed abscesses of the liver further demonstrates their excellent adaptation."

Methods of treatment were also throughly investigated by Lutz who pointed out the difficulty for drugs to reach and affect amoebae in the tissues, where they cluster and multiply, since even a thin layer of mucus would protect them from substances that easily kill isolated amoebae. This clear


insight is of special interest as at that time physicians might easily have been
led astray by the sensitiveness of amoebae brought directly into contact with
the drugs used against them.

Lutz’s observations, though made in São Paulo, were sent to the Cen-
tralblatt from Honolulu. During his absence from Brazil his studies on
dysentery were perforce interrupted. When he resumed them, in 1893, he
was Director of the Bacteriological Institute of the State of São Paulo and
unfortunately too much absorbed by epidemics to prepare many papers for
publication in technical periodicals. Consequently, he limited himself to in-
cluding his findings in his yearly reports for 1893, 1896, 1897 and 1898 of
which the last two were published in the Revista Medica de São Paulo 1898.

All the early writers on amoebic dysentery point out the need to exa-
mine fresh stools, as the movements of the amoebae are the easiest way to
differentiate them from other cells. Lutz devised an apparatus by which he
could warm the table of the microscope and keep it at a constant tempe-
rate so as to observe the amoebae for long periods at the temperature of
human blood. After observing them at length he pointed out, that amoebae
do not just contain red blood corpuscles, but that they are often gorged with
them and that wherever there is bloody mucus amoebae are readily seen full
of red corpuscles; they seem to wander into the tissues preying on the red
blood cells and it is they who cause the small haemorrhages. This steady
insistence on the presence of blood corpuscles inside the amoebae, from 1891
on, is worth mentioning since this character was used later to differentiate
the amoeba of dysentery from Amoeba coli, when the existence of two species
was recognized.

In 1897 Lutz was in Montevideo and had the opportunity to repeat,
in Sanarelli’s own laboratory, an experiment consisting in the inoculation of
filtered cultures of the cholera vibrio into guinea-pigs, whereby it was claim-
ed the amoebae of dysentery appeared in the intestinal fluid. Lutz saw at
once that the organisms were flagellates, whose active movements were quite
different from those of genuine amoebae. This disposed of one more attempt
to refute the specificity of amoebic dysentery.

The later reports, written more than forty years ago, are largely con-
cerned with the findings in post-mortems of fatal cases of amoebic enteritis,
including gangrenous dysentery, and mention all the lesions found in pre-
sent day treatises. Symptoms, therapeutics and the behaviour or the para-
sitic amoebae are also gone into.

Having diagnosed an incipient abscess of the liver in one of his first
three patients, Lutz was better prepared than many others to accept Kar-
tulis’ work. Consequently he investigated abscesses of the liver carefully
and was able to show that bacteria cultivated from amoebic abscesses were unspecific and furthermore that such bacteria could be obtained from experimentally produced turpentine abscesses.

He rejected the views still current then, and for some time to come, which attributed such abscesses to syphilis, malaria or excessive indulgence in alcohol.

He states, very clearly, that the endemic, indolent, single or multiple abscesses of the liver, considered peculiar to hot countries, that make up 90% of those seen in Brazil, are due to amoebic enteritis, especially in its chronic form.

(For further details see the original of the first paper in the Zbl. 1891, the following excerpts from the Reports, and also the Portuguese text).

AMOEBIASIS

EXCERPTS FROM THE REPORTS OF DR. ADOLPHO LUTZ

REPORT FOR 1893: "DYSENTERY"

"In this country, there is a chronic enteritis with bloody stools, which may last for many years. A species of amoeba is always found in great abundance in the stools of patients suffering from it, especially in the sanguinolent mucus. This has been confirmed three times at the Bacteriological Institute in microscopic preparations, observed for a long time at the temperature of human blood, by means of an apparatus, built according to my specifications, which enables one to keep the table of the microscope at a constant temperature.

I have also observed several cases of acute dysentery and diarrhoea, without finding this amoeba. In a case of dysentery in a child a Streptococcus was exceedingly abundant."

REPORT FOR 1896: "DYSENTERY AND ENTERITIS WITH AMOEBAE"

"Last year I observed a chronic case of enteritis, of very long standing, with a great number of amoebae in the muco-sanguinolent parts of the stools, which were always more or less like those of diarrhoea. Methylene blue taken internally or by injection, which I was the first to use, some years ago, in several cases, seemed to give favourable results, but observations will have to be multiplied before one can be sure of its efficacy.

I also observed two acute cases, which developed along more or less the same lines. They began with a simple diarrhoea, characterized, however, by violent colics, and gradually went over into severe acute dysentery.
becoming fatal in the third week, through gangrene of the intestine with
symptoms of peritonitis.

At the post-mortem of one of them we found the whole transversal wall
of the intestine sphecalate and a fibrinous-purulent peritonitis with exten-
sive adhesions. In both cases microscopic examination at an advanced stage
showed enormous masses of amoebae in the dysenteric stools. As usual, I
examined the preparations at blood-temperature and observed the frequent
and intense amiboid movements that differentiate the amoebae from other
cells.

Dr. Fajardo saw many more cases in Rio, where this disease and abs-
cesses of the liver are more common then here”.

REPORT FOR -897: “ENTERITIS AND PURULENT HEPATITIS WITH AMOEBAE”

“It is difficult to estimate the frequency of this disease in São Paulo. 
Death statistics for 1897 register 49 deaths from dysentery. A large per-
centage of them must have been cases of amoebic dysentery, but there may
have been other kinds also. Most of the deaths certified as simple enteritis
naturally refer to infants, in which case amoebae are not found as a rule, but
a few cases of dysentery with amoebae in adults may have been included.

This disease is rather rare among city dwellers but is often brought in
from the country by agricultural workers and consequently seen more fre-
quently in hospital wards. The same applies to abscess of the liver. There
is no separate section for it in the death statistics, which only indicate 2 cases
of hepatitis and 53 of other diseases of the liver. Of these quite a large
proportion must have been abscesses, for I myself know of six or seven diag-
nosed as such. In any case this disease is common enough to be of practical
interest.

This year, 5 severe cases of enteritis with amoebae were observed. One
of them, of more than a year’s standing, with frequent and very bloody mo-
ments, was cured by intestinal irrigations. Three patients, already very ca-
chetic, died and postmortems were performed; the fifth was lost sight of. The
stools of one the fatal cases were like those of diarrhoea and not bloody in
appearance; microscopic examination, however, revealed large quantities of red
blood-corpuscles and an enormous amount of amoebae. I had never seen
them in such profusion in any previous case. At the post mortem a very
intense ulcerative process, evidently of long standing, involving the whole
intestine, became evident.

The second case also showed many ulcers in the colon. The third had an
abscess of the liver, complicating a more superficial but very extensive ulce-
ration of the large intestine and ulcers in the ileum. In all three the corres-
ponding mesenteric lymph-nodes were tumefied but the increase in volume did not seem proportionate to the intensity of the local process. Where there was bloody mucus, there amoebae replete with blood cells were always to be found. Their movements were constantly observed in preparations kept at blood temperature. Living flagellates were seen but once.

Pus from the liver of seven different cases was examined. In two there were no amoebae; in one of these not only were they lacking but no bacteria developed in the cultures and the pus injected into the pleural cavity of an adult dog produced no reaction. In a third case, with perforation of the diaphragm, rupture into the lung, and expectoration of pus, there were also no amoebae and few germs. Living amoebae were found in the other four but bacteriological study of three was rendered useless as the pus had not been collected with due precautions. In the fourth there were amoebae but the culture media remained sterile. The pus was injected into the peritoneal cavity, the liver tissue and the still closed conjunctival sac of three young puppies, and produced no reaction.

Amoebae should not be looked for in the mass of the pus but in scrapings from the walls of the abscess and the neighbouring layers of tissue, into which they wander in search of red blood-corpuscles. Only when lacking in the wall tissue may they be considered absent, though this does not preclude their former presence. Taken altogether, I consider these cases as favouring amoebic etiology.

In three out of the last four cases the abscesses were enormous. They were all incised but this did not prolong life much. In the fourth patient, who died without an operation, the liver tissue had been largely destroyed by multiple abscesses. I was not able to follow up the other cases. In three, an exploratory puncture had furnished a serous fluid, the pus having settled. I believe this to indicate that a serous membrane, generally the diaphragmatic part of the peritoneum, is involved. It also seems to denote the absence of cocci capable of producing a purulent peritonitis.

Sanarelli is known to have produced enteritis with abundant flagellates and amoebae in the liquid contents of the intestine in guinea-pigs, by inoculating them with filtered cultures of the cholera vibrio. This might be considered as proof against the etiological rôle of amoebae. The opportunity offering, I repeated the experiment in Sanarelli’s own laboratory. I found that the amoebae described were really flagellates, with active movements, entirely different from those of the intestinal amoebae.”

REPORT FOR 1898:

"Acute dysentery, chronic ulcerative enteritis and suppurred hepatitis consequent to it, were observed with the same frequency as in former years.
This applies also to cholera nostras which, as usual, appeared preferably during the hot weather."

"ULCEROUS ENTERITIS AND DYSENTERY, ABSCESS OF THE LIVER"

"This year I had the opportunity to study the pathology of many cases of ulcerative enteritis peculiar to hot countries and characterized by its tendency to form abscesses of the liver.

It may be acute or more chronic, but the acute attacks are often just exacerbations of the chronic disease. As shown by the frequent relapses, the disease is not necessarily eradicated upon the disappearance of symptoms, but may continue latent. One must not consider a patient cured until all the ulcers are healed and that probably never occurs within a few days. A few ulcers, however, may not produce appreciable symptoms.

Our anatomical material now consists of 15 cases of ulcerative enteritis and another 3 of gangrenous dysentery. The latter, in part of the cases at least, seems be a malignant form of the same disease, perhaps due to a microbic association or a secondary infection.

The lesions are generally found in the large intestine; only in a small number of cases do they extend beyond the valve of Bauhin; the appendix is generally free from them; most of them are found in the coecum and the ascending colon, especially near the valve; thence downwards they diminish and may lack entirely in the rectum, though sometimes there is a slight increase near the anus. In very severe cases the whole colon may be affected to such an extent and degree that differences are hardly perceptible from one part to another. When the case is slight or healing, the lesions may be limited to the vicinity of the valvula coli.

The ulcers vary in size and are round or oval, sometimes rather similar to those seen in typhoid, especially coli-typhoid; they may be miliary, lenticular or larger, but they seldom exceed the size of an almond. The edges are generally slightly infiltrated and may be sheer or undermined; the base is formed by the muscular coat and the more or less schacelate sub-mucosa, when it is not covered by fibrinous, or in rare instances, gangrenous, matter. They are generally localized in the convexity of the folds and are sometimes grouped in zones but the largest diameter of the oval ones does not necessarily coincide with the transversal diameter of the intestine. The mucosa between the ulcers may seem normal or be much injected; in some cases there is a condition similar to the "état mammelonné" often seen in the mucous membrane of the stomach. In gangrenous dysentery the sub-mucous may be schacelate at certain points and the whole wall of the intestine so much softened as to tear upon the slightest pull. In such cases extensive adhe-
sions of the serous membrane, a fibrinous exsudate and a sero-purulent discharge may render examination of the intestine difficult or almost impossible.

When infection is acute, the mesenteric lymph-glands participate, though they are generally less swollen and congested than in typhoid fever; the changes seem insignificant as compared to the extensive lesions in the intestine. The symptoms observed are: sensitiveness to pressure, frequent and painful cholics, sometimes tenesmus, the latter generally in acute forms or exacerbations in which the rectum is involved. Stools may be consistent, especially after the use of certain drugs, but in this case sanguinolent mucus is found between or on top of the solid parts. Movements are mostly muco-sanguinolent, but on several occasions have been seen to look like the stools of diarrhoea; they were found, however, to contain large numbers of red corpuscles so intimately mixed with them as to be only perceptible under the microscope. Chronic diarrhoea should always be looked upon with suspicion; repeated examination will generally show the bloody-mucus secreted by the ulcers. The large intestine becomes very intolerant even in chronic cases, as treatment by emema shows, hence the imperious need to go to stool almost always manifest in the early morning. In the worst cases the alternation of faecal and muco-sanguinolent stools may persist for years.

Amoebae are seldom absent. Free or enkysted flagellates are less frequent though still fairly common. I have never seen Anguillula stercorealis in such cases. Bacteriological examinations never furnished specific germs and those isolated were never agglutinated by the blood of the patients. In post-mortem made some time after death or in stools kept for a while the amoebae are no longer visible. I have never seen kysts, nor have I seen this amoeba except in cases of ulcerous and dysenteric enteritis and the hepatitis consequent to it. I found amoebae in five cases of acute dysentery, or exacerbations of chronic cases, three of which were fatal. One severe case improved but became chronic, the amoebae persisting.

Two facts stand out from clinical and anatomical observation: Firstly, that contact with faecal masses prevents the cure of ulcers, so that in severe cases it might be obviated by establishing an artificial anus above the valve; secondly, that the amoebae live in the ulcerated tissue, not in the contents of the intestine, or faeces, and should be looked for in the sections of the ulcers and in their secretions. The small haemorrhages are probably due to them and the red blood-corpuscles are their chief item of food. They are genuine parasites, incapable of living outside the body and with sufficient power of penetration to invade the liver and form abscesses in it.

A series of such abscesses were seen and described last year. Sometimes the pus obtained by operation was examined, at others post-mortems
were made. The amoebae were almost always found in the wall-tissue even when wanting in the pus from the central part of the abscesses. Flagellates are not seen there. From a bacteriological point of view the pus was sometimes sterile, or then it contained common species such as Staphylococcus, Coli-bacillus, Bacillus fluorescens putridus. When sterile, there were sometimes no amoebae either. The bacteria found cannot be held responsible for the abscess. They are rare, generally revealed only by cultures, not upon direct examination. They belong to different species and were absorbed without causing symptoms in several experiments made on animals. An abscess artificially produced by injecting oil of turpentine into the peritoneal cavity of a dog also contained bacteria.

Amoebic abscesses are indolent. Only if they are large and subjected to strong pressure is there a continuous, remittent fever. Anatomically speaking they are cold abscesses, without well preserved drops of pus. Their evolution is extremely chronic.

Caseous necrotic foci, without a trace of the purulent process provoked by pyogenic cocci are also to be seen. When an abscess reaches a serous membrane it provokes only serous secretion, not purulent inflammation. In sections, amoebae are found in the middle of such caseous masses where there are no polynuclear leucocytes, which are also rare in the vessels and walls of the abscesses.

The amoebae are dyed by Unna's polychrome methylene blue, the particles of chromatin staining a metachromatic red. No readily staining nucleus shows. Phenicated vesuvine and fuchsine secured quite good preparations. Saffranin and haematoxylin gave inferior results.

The association of hepatic abscesses and ulcerative enteritis is very constant. In the rare cases of abscess in which there were no ulcers there were good reasons to suppose that they had existed but had healed. If amoebae are lacking in the ulcers they may found in the abscess and vice versa.

Abscesses of the liver may of course be due to different causes, but the typical, chronical, single or multiple abscesses that make up 90% of those seen here, are entirely unrelated to malaria, syphilis, or excessive indulgence in alcohol. They are due to ulcerative enteritis, especially when chronic, and constitute a frequent complication of it.

At times, I have seen hepatic localizations without formation of abscess. They should correspond to the foci of coagulative necrosis sometimes seen in post-mortem examinations."