

The patient experienced no discomfort except a slight rise of temperature after the first injection. The local reaction was a slight redness and pain. He exhibited a feeling of well-being and confidence after the second injection. He reported that he was very much better. After the third injection the harassing symptoms of breathlessness and cough disappeared and the patient was relieved completely of the attacks after a fortnight. There was a general improvement in the condition of the man. It may be added that Mukteswar is a hill station in the Kumaun Hills, situated at 7,700 feet above sea level. Winters are severe with heavy snowfall. The patient remained here in the winter of 1947 without any ill effects. He now takes part in the outdoor activities from which he was debarred for the last ten years. He has gained his normal weight and is in perfect health.

Discussion

It is difficult to say whether this case had its origin in some bacterial infection or some common allergens, e.g. pollen, dandruff, etc. The patient had been an animal attendant, looking after a group of experimental animals at this Institute. It seems possible that, under such conditions, dandruff and other agents along with a large number of streptococci, staphylococci, *B. coli* or other organisms may get into the system causing thereby bronchitis and asthma. The disease had a seasonal occurrence, starting in the autumn when pine dust and myriads of pollen grain float about freely in the air, and in the winter the malady became aggravated. The superiority of the bacterial antigen in this case over non-specific protein therapy of milk injections is not understood but the introduction of specific bacterial allergens may be worth trying in the treatment of such cases of bronchial asthma where other treatments have failed.

Summary

A case history of bronchial asthma and its successful treatment with mixed bacterial vaccine is described.

The authors wish to acknowledge the kindness of Dr. S. Datta, D.Sc., M.R.C.V.S., D.T.V.M., F.R.S. (Edin.), F.N.I., Director, Indian Veterinary Research Institute, Mukteswar-Kumaun, U.P., in allowing them to record this case.

SOME ASPECTS OF AMOEBIASIS IN MADRAS

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THE idea existed until recently that *Entamoeba histolytica* infection was more prevalent in the tropical and sub-tropical areas than in temperate

and cool regions; but now we know that even in the tropics, bacillary dysentery is more common than amoebic dysentery. Acton and Knowles (1924) state that bacillary dysentery is at least five or six times as common among the civil population of Bengal as amoebic dysentery. Fletcher and Jepps (1927) found that in 983 cases of dysentery in Kuala Lumpur no less than 77 per cent were of the bacillary type. Experience in the second world war has also confirmed the finding that bacillary dysentery is more frequent than amoebic infection. Payne (1945) analysed 2,000 cases of dysenteries observed in India both in the forward areas and the base hospitals and has, on the other hand, come to the conclusion that amoebiasis was as common as bacillary dysentery.

Our analysis of 2,641 cases treated in the General Hospital, Madras, both as in-patients as well as out-patients during the period of five years 1941 to 1946 is to be found in table I.

TABLE I

Analysis of dysenteric disorders treated in the Government General Hospital, Madras, for five years with mortality rate

Dysentery	Total number of cases	Percentage of incidence	Number of deaths	Percentage of deaths
Amoebic ..	1,011	38.3	62	6.13
Bacillary ..	1,345	50.9	134	9.9
Mixed ..	28	1.1	1	3.8
Non-specific	257	9.7	37	14.4

Age and sex distribution.—This is shown in table II.

In children the incidence of infection is low. Still amoebiasis is by no means unknown even in infants. Moore (1881) and Biggam (1932) reported amoebic abscess in children. Higher rates of infection have been reported by Willets (1914) in Philippino children. In an analytical study of 796 cases of *E. histolytica* infection, Chaudhuri and Rai Chaudhuri (1946) found that 2.5 per cent of infections were in children below 5 years. In Gharpure and Saldanha's (1931) series the incidence of infection in children below 10 years was only 1 per cent. In our study of 1,011 cases, nearly 8 per cent of the patients were in the age group of 0 to 10 years. Again, there is a decline in the incidence of infection after 50th year. The smaller incidence in young children is not due to immunity, but to a lower risk of exposure to infection; while the decline in the number of infections after middle life indicates a possible immunity developing as a result of previous infection.

All are agreed that males are more frequently infected than females and our figures are also in agreement with theirs (table II). The lower incidence of infection among the females is not of much significance, as it is definitely not due to inherent insusceptibility, but perhaps to more

restricted opportunities of contact with infected cases.

TABLE II

Age and sex incidence of dysenteric disorders treated in the Government General Hospital, Madras, for five years

Age	Amoebic	Bacillary	Mixed	Non-specific
0-10 ..	82	224	3	80
11-20 ..	104	178	1	27
21-30 ..	301	427	12	52
31-40 ..	253	254	5	40
41-50 ..	172	154	5	38
51-60 ..	72	68	2	15
61-70 ..	21	26	0	3
71 and above	6	14	0	2
TOTAL ..	1,011	1,345	28	257

Year	AMOEBC		BACILLARY		NON-SPECIFIC	
	Males	Females	Males	Females	Males	Females
1941 ..	116	27	312	102	24	9
1942 ..	149	37	222	38	16	20
1944 ..	209	26	205	69	63	23
1945 ..	174	50	120	57	39	14
1946 ..	188	35	149	71	37	12
Total ..	836	175	1,008	337	179	78
PERCENTAGE ..	82.7	17.3	74.9	25.1	69.7	30.3

Seasonal incidence.—Amoebiasis in general does not exhibit that seasonal incidence which is characteristic of bacillary dysentery. In summer months a profusion of flies may increase the risk of infection by faecal contamination. In the rainy season greater chances are afforded for the dispersion of *E. histolytica* cysts in water. Analysis of 1,011 cases treated in the General Hospital, Madras, during the five years ending December 1946, revealed a higher incidence in the monsoon months, August to December (table III). This is in agreement with the findings of Tribedi and De (1938) who, in a study of the disease in Calcutta from 1929 to 1937, found that though the incidence among Europeans did not always follow the periods of highest rainfall, the number of cases among the Indian population showed a more definite seasonal correlation.

Distribution of ulcers.—Of the 44 cases of post-mortem examinations conducted during the period of five years, intestinal lesions were present in 38 and only hepatic lesions were seen

in the remaining 6. The distribution of the ulcers is presented in table IV.

TABLE III

Seasonal incidence of dysenteric disorders treated in the Government General Hospital, Madras, for five years

Month	Amoebic	Bacillary	Mixed	Non-specific
January ..	92	150	3	30
February ..	64	92	3	17
March ..	45	75	3	13
April ..	70	84	2	16
May ..	79	74	2	17
June ..	77	94	2	26
July ..	82	139	1	17
August ..	111	115	1	26
September ..	87	117	4	24
October ..	110	104	1	19
November ..	86	130	4	30
December ..	108	171	2	22
TOTAL ..	1,011	1,345	28	257

TABLE IV

Entire colon ..	..	27
Cæcum ..	..	4
Ascending colon ..	..	3
Transverse colon ..	..	1
Splenic flexure ..	..	1
Sigmoid ..	..	1
Rectum ..	..	1
TOTAL ..	..	38

Though in the majority of cases the primary lesion starts in the caecal area, with the progress of the disease, the entire colon seems to get involved. The findings published by Clark (1925) in an analysis of amoebic dysentery are : 61 per cent throughout bowel, 34 per cent isolated areas and 5 per cent only scars.

According to many authors, appendicular lesions are said to be fairly common and wherever caecum was extensively involved, the appendix was found to show amoebic lesions. Our autopsy findings are not in agreement with the above statement and only twice have we seen amoebic involvement of the appendix (figure 1, plate XXXIV). What has struck us most is the frequency with which the rectal area is involved. In many cases the infection has extended down to the ano-rectal junction. During the experimental investigation on the pathology of amoebiasis in cats and dogs, Wagner (1935) found the rectum immediately above the anal ring and the region just below the ileo-caecal valve particularly vulnerable to amoebic infection and strangely enough the incidence is more frequent in the same regions in human beings also.

Amœbic granuloma (amœboma).—An uncomplicated intestinal amœbic lesion is a non-inflammatory, necrotic ulcer. On rare occasions, the amœbic lesion seems to form a localized tumour, producing sub-occlusion, a condition simulating tuberculosis, actinomycosis or a neoplasm. The chief factors responsible for the production of a granulomatous mass appear to be inflammation and œdema due to infection with secondary organisms. In the sections we have studied, these changes were prominent in the sub-mucous and muscular coats. The irregular peristalsis initiated by the amœbic granuloma often results in acute intussusception. A complete review of this condition with a report on six cases was published by Reddy and Rangam (1946). The paucity of reports in early literature was to a great extent due to ignorance of this condition. Surgery in the tropics was not as popular as it is to-day and when a surgeon resected a mass, opportunities for histological examination by a competent pathologist were meagre. Here a brief comment on the advisability of operative interference in cases of intestinal obstruction due to amœbic granuloma may not be out of place. Where intussusception has occurred causing complete obstruction and relief thereof is urgent but not feasible with medical treatment, resection of the gut is necessary. This should always be followed by a full course of emetine treatment, since there will always be amœbic lesions in the rest of the colon. Still surgical resection is not favoured by some surgeons, because they have the apprehension that the sutures will not take well in intestinal amœbiasis as the gut is friable. The experience in the General Hospital fortunately has been very encouraging, since in a large percentage of operated cases, the post-operative period was uneventful and recovery complete.

Amœbic dysentery in association with other diseases.—Co-existence of amœbiasis and carcinoma of the rectum has been recorded in several cases. More often it is the amœbic granuloma that is mistaken for a neoplasm. It is very doubtful if ever a carcinoma develops at the site of the amœbic ulcer, however chronic it

may be. The high incidence of chronic amœbic ulcers with relatively low percentage of the malignant conditions of the colon in this country bears testimony to this. On more than one occasion, amœbic dysentery has been noticed in typhoid patients in the Government General Hospital, Madras. Traces of blood seen in the motion suggest hæmorrhage, a much dreaded complication in typhoid. Unless the motion is examined microscopically, one easily misses the true nature of the lesion. In the first case under our care, rigid diet regimen with raising of the foot end of the bed was strictly adhered to. Since the condition of the patient continued to be good in spite of bleeding with no rise in the pulse rate, we were forced to bestow greater attention on the examination of motion and, to our surprise, active amœbæ were found in the fæces. With small doses of emetine, the dysentery was easily controlled and cured.

Secondary amœbiasis

Amœbic hepatitis and hepatic abscess.—During the period of five years from 1941 to 1946, 1,534 cases of hepatitis were treated in the Government Hospital, Madras (table V).

TABLE V

Cases of amœbic hepatitis treated in the medical wards of the Government General Hospital, Madras, for five years

Year	Cases of hepatitis with or without jaundice	Amœbic hepatitis including abscess
1941 ..	207	81
1942 ..	171	54
1944 ..	272	74
1945 ..	235	70
1946 ..	285	85
TOTAL ..	1,170	364

Of these, 364 (30 per cent) were diagnosed as of amœbic origin. The age, race and sex distribution is shown in table VI. During the

TABLE VI

Age, race and sex distribution of amœbic hepatitis

Age	Incidence	Percentage	Race	Males	Females	Total
0-10	6	1.6	Hindus	274	25	299
11-20	20	5.4	Muslims	12	4	16
21-30	106	29.2	Indian Christians	30	4	34
31-40	139	38.3	Europeans	4	..	4
41-50	64	17.6	Anglo-Indians	6	5	11
51-60	24	6.4				
61-70	4	1.2				
71-80	1	0.3				
			TOTAL ..	326	38	364
			Males	326	89.6%	
			Females	38	10.4%	

same period 124 cases of liver abscesses were attended to in the surgical wards of the General Hospital and 40 cases in King George Hospital, Vizagapatam (table VII).

TABLE VII

Age and sex incidence of amœbic liver abscesses treated in the surgical wards of the Government General Hospital, Madras, and King George Hospital, Vizagapatam

Age	Government General Hospital, Madras	King George Hospital, Vizagapatam	Total
1-10	1	1	2
11-20	2	2	4
21-30	21	13	34
31-40	21	16	37
41-50	31	4	35
51-60	4	3	7
61-70	3	0	3
71-80	1	1	2
TOTAL	84	40	124

Sex

Males	..	122
Females	..	2

Age.—In our series the largest number of cases are in the age group of 20 to 50 years, and this is in agreement with many published reports. In Rogers' (1921) series of 453 cases, over 70 per cent were in the age group of 20 to 40. In 169 cases of liver abscesses recorded by Gharpure and Saldanha (1931), 76.8 per cent occurred in the age period of 20 to 40. Liver abscess is a disease mainly of early adult life. In children the incidence of infection is low. Amœbiasis, however, is by no means unknown in children and even in the infants, and in our series 4 instances were in children below five years. Niblock (1911) from Madras reported a case of liver abscess in an infant 11 months old. Recovery followed the removal of 18 oz. of pus from the abscess. He recorded also that three other children in the same family died of the same complaint. The youngest patient on record is a 3 months old child reported by Biggam (1932). The infant suffered from amœbic dysentery and necropsy revealed a small abscess in the right lobe of the liver.

Race.—The records left by the earlier European physicians show that the liability of the European to liver abscess was nearly 35 times that of the Indian. Rogers (1921) found the incidence of liver abscess in Hindus to be 5 times that in Muslims. In our analysis the incidence among Hindus is about 20 times that in Muslims, whereas the Hindu population is only 10 times that of the Muslims. The relative freedom of the Muslims may, to a certain extent, be attributed to the lesser use of alcoholic drinks.

Sex.—Males are much more commonly affected than the females. In Rogers' series of 453 cases composed of 361 Indians and 92 Europeans, there were only 8 females among the former and 4 among the latter. In Gharpure and Saldanha's (1931) 169 cases in Indians, there were 164 males and 5 females and in Chatterji's (1927) collection of 225 cases, there were only 2 females. In our series treated in the medical wards, 326 were males and 38 females (10 per cent), whereas in the surgical wards, only 2 cases of liver abscess in women were recorded out of a total of 124 cases. We have no satisfactory explanation to account for the low incidence in the females. Of the very many explanations that have been offered, one is that the menstruation by preventing hepatic congestion may make the organ less liable to abscess formation. The second reason may be the abstemious character in women. Recently, one woman was admitted into the General Hospital for amœbic abscess of the liver and on close interrogation she confessed that she was given to the habit of drinking alcohol. Sandwith aptly remarked 'I have noted on the very rare occasion when a European woman had suffered from liver abscess, she has been endowed with a masculine thirst!'

Pathogenesis

Infection with *E. histolytica* does not necessarily lead to abscess formation in the liver. In the great majority of cases the amœbæ do not colonize in the liver parenchyma but soon die due to some unknown amœbostatic action. Whether or not amœbic infection will lead to hepatic suppuration is determined to a very great extent by the action of one or more of the predisposing causes which lead to impairment of the functional capacity of the liver or alter its structural integrity by the action of toxins. The consumption of alcohol is considered a potent predisposing cause in the ætiology of this condition. In an analysis of 170 cases by Megaw (1905), habitual use of alcohol was noticed in 70 per cent of the cases. In a series of 55 cases among the Europeans, Rogers found that all of them used alcohol and in 16 per cent the amount consumed was excessive. Rarity of liver abscess in the females at least some years ago might have been due to a great extent to non-consumption of alcoholic drinks. While all agree that liver abscess is less frequent among teetotallers, in our opinion, alcoholic consumption as an ætiological factor is over-exaggerated. The relation of alcohol to the production of liver abscess appears to be similar to that which it bears to the production of the cirrhosis of the liver. Experimental work on animals in recent years has shown dietary deficiency chiefly proteins, and lipotropic factors lead to fatty infiltration, necrosis of the liver cells and cirrhosis. There may be enough justification, therefore, to presume that a similar

change in the liver may be responsible for the colonization and thriving of the amœbæ.

Frequency of liver abscess associated with amœbic dysentery

Most of the statistics that are available show the incidence of liver abscess in fatal cases of dysentery; hence this cannot be a correct indication of true frequency clinically. In all likelihood the incidence is bound to be considerably less.

Frequency of dysenteric ulceration in fatal cases of liver abscess

In 500 cases of hepatic abscess of the liver reported by Kartulis (1889), there was associated dysenteric lesion in 60 per cent. In 66 cases of liver abscess recorded by Rogers, intestinal lesions were seen in 77 per cent. In our autopsy study of 15 cases of liver abscess, 9 (60 per cent) showed varying amounts of intestinal ulceration. There are several records in the literature of the occurrence of amœbic liver abscess in patients who had never suffered from dysentery or diarrhœa. Craig (1934) reported 7 cases of amœbic abscess of the liver in individuals who had never suffered from dysentery. Rogers (Rogers and Megaw, 1930) states in 20 per cent of autopsy cases of liver abscess, there was no history of dysentery, although some ulceration of the intestine was present. In our own series, in 6 out of 15 cases, there was no evidence of recent intestinal lesion.

Nature of liver abscess

Amœbic abscess is mostly solitary, but multiple abscesses are not so rare as we are made to believe and probably constitute 30 per cent of all cases.

Author	Year	Total	Single, per cent	Multiple, per cent
Rogers (India) ..	1913	66	70	30
Craig ..	1935	39	60	40
Huard and Meyer	1936	115	91	9
Reddy (Madras)	1946	15	80	20

Distribution of the liver abscess

Most of the abscesses are localized to the right lobe, chiefly at the summit of the liver. In Rogers' (1913) series, 88 per cent occurred in the right lobe and 12 per cent in the left. Clark (1925) found 60 per cent in the right lobe and 40 per cent in the left. In 9 fatal cases published by Craig, 5 abscesses were in the right lobe, 3 in the left and 1 in the spigelii. In our series of 15 cases, 3 were in the left lobe. This distribution is based on the anatomical division of the liver by the falciform ligament, which is only arbitrary and differs from embryological and pathological division according to which a

part of the right anatomical lobe belongs to the left lobe. If based on this division, many abscesses now located in the right lobe should be deemed to occur in the left lobe.

Histopathology

In the sections we have studied, amœbæ were found almost constantly in the wall of an acute abscess, but on the condition becoming chronic, we have found it difficult to demonstrate them. Fibroblastic proliferation and fibrosis were prominent in the wall of a chronic abscess. Just outside the wall, where there is liver cell regeneration, we have come across some hyperplastic liver cells with giant nuclei presenting a picture liable to be mistaken for malignant change.

Symptomatology

Apart from the well-known symptoms associated with liver abscess, jaundice may be met with on rare occasions. From a survey of available literature, latent jaundice appears to be not uncommon in amœbic hepatitis and abscess of the liver, but deep jaundice of an obstructive type is a very rare accompaniment. Reference to this condition is absent or meagre in textbooks on pathology and in most of the commonly used textbooks on tropical diseases. Because of the rarity of case reports of jaundice in liver abscess, there seems to be an impression that the presence of deep jaundice negatives the diagnosis of amœbic liver abscess. From this institution, Reddy and Rangam (1945) have published two cases of jaundice in amœbic liver abscess. Subsequently, we had occasion to conduct another post mortem where an encysted liver abscess in the wall of which a main bile duct was caught, was responsible for an obstructive jaundice and an obstructive biliary cirrhosis. In our study, we have not come across a single case report of this nature; and hence a short summary of this case may be of interest.

Case.—A Hindu male, aged 50 years, was admitted in the medical wards of the Madras General Hospital for general anasarca, ascites and jaundice. His condition grew worse and he died. Necropsy revealed (1) fibrocaceous tuberculosis of the lungs, (2) amœbic ulceration of the large intestine, (3) two chronic abscesses in the liver, one 3 inches in diameter and another 1 inch, and (4) monolobular cirrhosis of the liver with bile staining (figure 2, plate XXXIV).

Progress of liver abscess

Spontaneous healing of the abscess by encystment may occur or the pus may be absorbed and the cavity obliterated, leaving a puckered cicatrix. Such favourable results are not very common and an encysted mass when seen in the post-mortem room may be mistaken for a solitary gumma. In our autopsy work we have seen two such cases. In the absence of treatment, the abscess may reach an enormous size

and eventually rupture into the adjacent tissues or more commonly into some neighbouring cavity or viscus. The site of rupture is to a great extent determined by the original site of the abscess and the direction in which it tends to spread. Since a large percentage of abscesses are situated on the upper surface of the right lobe, rupture most commonly occurs into some viscus above the diaphragm, lung or pleural space. In the case of abscess situated on the under surface, rupture may occur into the stomach or intestine. In Craig's series of 190 cases, rupture into the pleura occurred 117 times and into the peritoneum on 39 occasions. Rupture into the stomach and intestines was rare and occurred only on 9 occasions. In our series of 9 cases of rupture, 5 were into the peritoneum, 2 into the lung, 1 into the pericardium and 1 into the rectus sheath. Rupture into the pericardium is very rare and occurs in abscess of the left lobe. Clinical diagnosis is often mistaken for tuberculous pericarditis or some other pericardial effusion. A short clinical history of a case that has come under our observation may not be out of place.

Case.—A Hindu male, aged 35 years, was admitted into the medical wards for pain in the right hypochondrium and right half of the epigastrium of 4 weeks' duration. Liver was palpable and extremely tender. F.T.M. and barium meal results were normal. Total W.B.C. 6,100. Post-mortem examination revealed (1) bilateral pleural transudate, (2) amœbic abscess of the liver of the size of a tennis ball involving the left lobe and left half of the right lobe communicating with the pericardium (figure 3, plate XXXIV), (3) enormously distended pericardium containing purulent exudate, and (4) healed pigmented scars of the large intestines.

A very rare instance of spread of amœbic abscess which we have noticed was one in which the abscess contents gained entrance into the rectus sheath (figure 4, plate XXXIV) and presented a picture of abscess of the abdominal wall.

Case.—A male, aged 35 years, was admitted for a painful swelling of the abdominal wall of 4 months' duration. He gave a history of dysentery 4 months prior to admission. The clinical findings were: (1) Swelling in the right umbilical and lumbar regions extending to the right hypochondrium, (2) barium enema hepatic flexure pushed downwards, and (3) total W.B.C. 6,800. Under local anaesthesia, a small incision was made on the right flank and abscess drained. The abscess was found communicating with a liver abscess. Post-mortem examination revealed a large orange-sized abscess on the under surface of the right lobe communicating with an encysted abscess of the abdominal wall—right rectus sheath. The abscess contents had travelled down to the iliac crest. The peritoneal cavity was free from infection.

Pulmonary amœbiasis

It is commonly mentioned in the textbooks that in the expectorated material, amœbæ, liver cells and Charcot-Leyden crystals may be found. Chaudhuri and Rai Chaudhuri (1946) reported two cases in which *amœbæ were seen in the sputum. We have not seen amœbæ in the expectorated pus though we have examined the expectorated fresh material on more than one occasion. Since live amœbæ are to be seen in the abscess wall but not in the necrotic material, it is very doubtful whether examination of the coughed out material will ever yield positive results. A note of caution is very essential here, especially to the beginners in the art of microscopy that phagocytic cells which are abundant in the alveolar contents of the lung may be easily mistaken for amœbæ.*

Amœbic abscess of the brain

Though frequently mentioned in the textbooks, amœbic abscess of the brain is a rare complication of amœbiasis and is usually secondary to abscess of the liver or lung. Absolute proof that the brain abscess is of amœbic origin is very often wanting, since the demonstration of amœbæ in the cerebral tissue has not met with any success. The mechanism by which the *E. histolytica* reaches the brain is not yet understood. The contents of the brain abscess resemble those of the liver abscess being reddish in colour. With softening a cavity is formed. The situation of the abscess is almost invariably in the cerebrum. The disease advances rapidly and death occurs from 6th to 8th day with deep coma. Cases have been recorded in which the onset has been sudden with signs of jacksonian epilepsy. In our post-mortem work, we have not met with even a single case, but the senior writer had occasion to witness a post mortem in the department of pathology in the University Medical College, Mysore. We are indebted to Professor V. R. Naidu, professor of pathology in that institution, for the following case history:

Case.—A Hindu male, aged 45, was admitted into the Mysore Medical College Hospital on 26th April, 1944, in a semi-conscious condition and died on 28th April, 1944. The clinical findings were: (1) Right-sided hemiplegia with aphasia, (2) exaggerated jerks on the right side with ankle clonus, (3) plantar reflex—upgoing toe on the right side, (4) muscular tone—spasticity on right side, and (5) laboratory findings—Blood: no malarial parasites, microfilaria positive. Motion: nil abnormal.

* In one (not two) of the cases reported by Chaudhuri and Rai Chaudhuri *E. histolytica* trophozoites were found in the sputum on four consecutive days, and this was confirmed each time by the Department of Protozoology of the School of Tropical Medicine, Calcutta. Such a finding, though rare, has also been reported by J. R. Mencia (*Avance Med.*, 5, 35. Abstract: *Internat. Med. Digest*, 45, 213) who found numerous *E. histolytica* in the sputum.—EDITOR, *I.M.G.*

PLATE XXXIV

SOME ASPECTS OF AMŒBIASIS IN MADRAS : D. GOVINDA REDDY & M. THANGAVELU.
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Fig. 1.—Amebic ulceration of the caecum and appendix; two ulcers seen in the appendix.

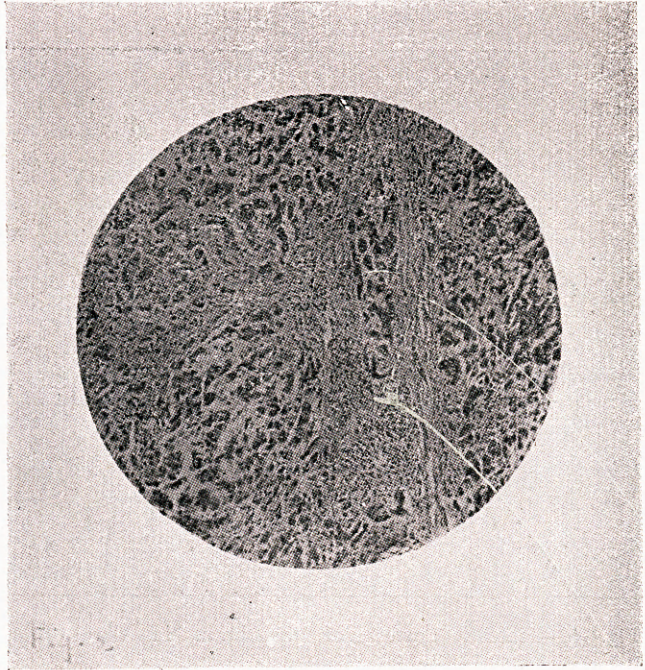


Fig. 2.—Monolobular type of cirrhosis due to obstruction of bile duct in a case of liver abscess.

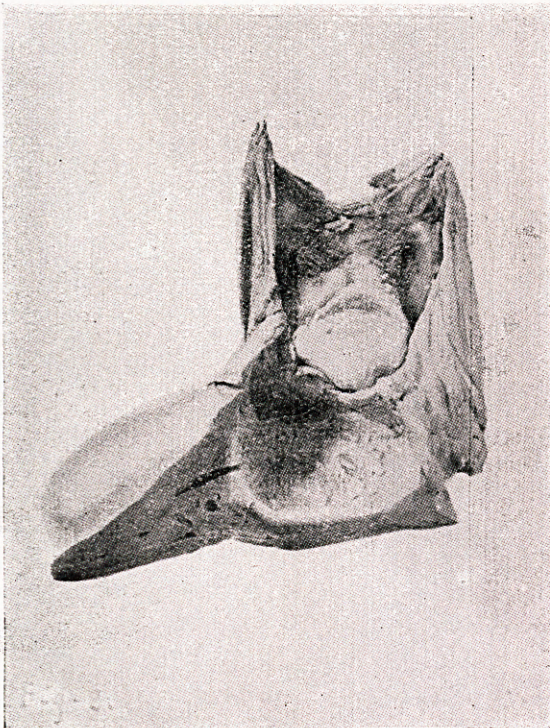


Fig. 3.—Amebic abscess of the left lobe of the liver communicating with the pericardium.

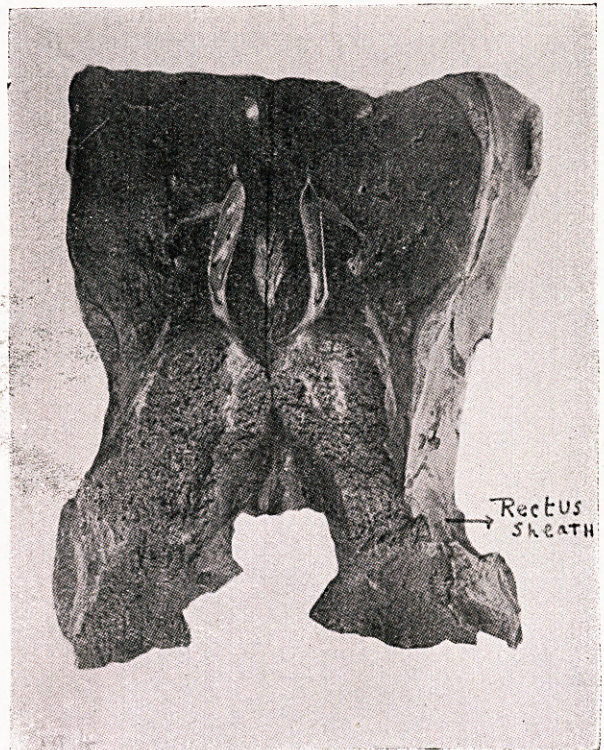


Fig. 4.—Amebic abscess of the liver opening into the rectus sheath.

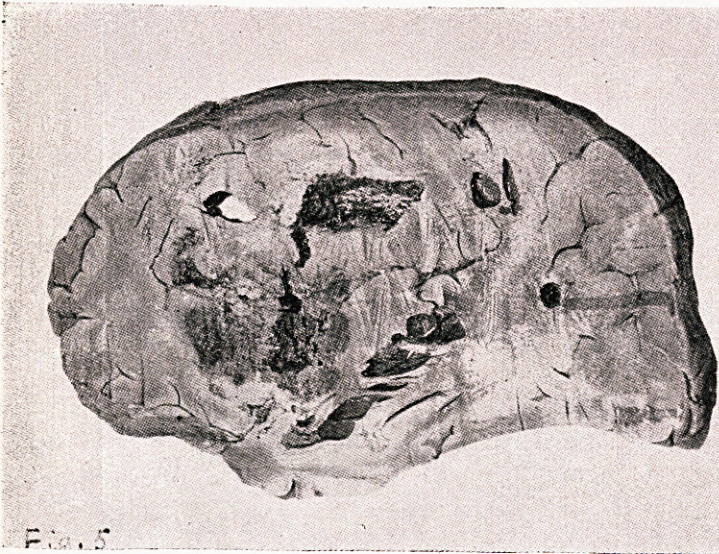


Fig. 5.—Amœbic abscess of the brain in the cerebrum on the left side.

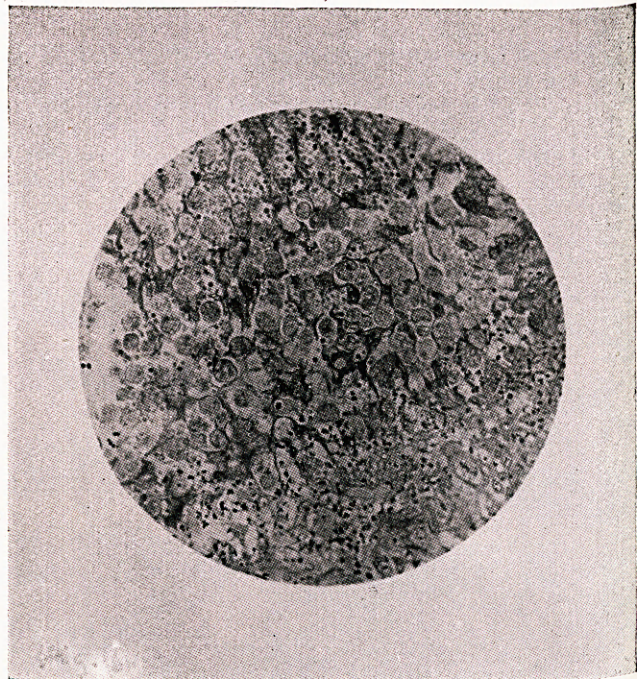


Fig. 6.—Photomicrograph, Cutaneous amœbiasis; large collection of amœbæ in the perianal subcutaneous tissue.

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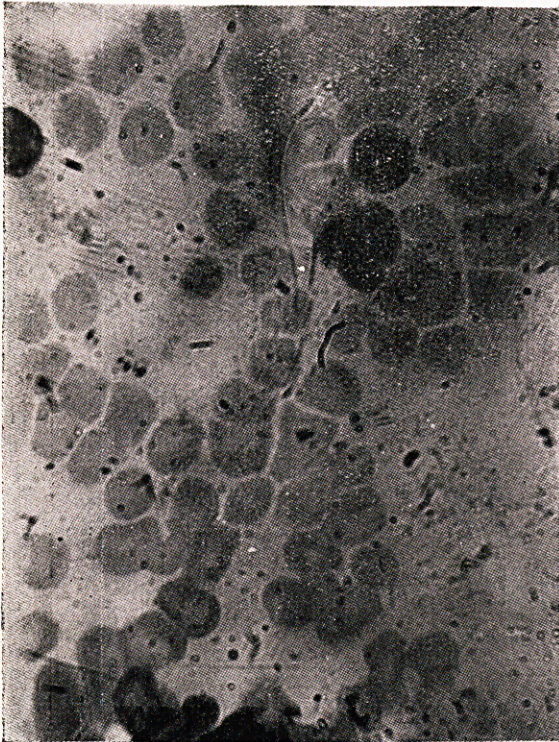


Fig. 1.



Fig. 2

Post-mortem findings.—Myocardium : flabby. Lungs : right pleural cavity contained 56 oz. thick reddish brown fluid. The base was firmly adherent to the diaphragm. Left pleural cavity contained 6 oz. of blood-stained fluid. Peritoneal cavity contained 3 oz. of blood-stained fluid. Liver enlarged; the dome of the right lobe was firmly adherent to the diaphragm. The upper half of the right lobe was soft and fluctuant. On section a large abscess communicating with the pleural cavity through a small perforation of the diaphragm was found. Intestines : no evidence of recent amœbic ulceration. Cranium : C.S.F. under increased tension. An area of localized leptomenigitis over the left temporal region.

Sagittal section of the left cerebral hemisphere revealed a large abscess cavity measuring about 6 cm. in diameter situated in the anterior two-thirds of the cerebrum (figure 5, plate XXXV). It was pointing to the left temporal region. The wall of the abscess was ragged with creamy blood-tinged liquid contents. The white matter of the brain showed some amount of softening for an area of about 2 cm. around the abscess.

Cutaneous amœbiasis

Amœbiasis of the skin is not very common, but may be easily diagnosed if suspected. Areas of the skin usually affected are : (1) Peri-anal skin, (2) at the incision for operation of liver abscess, and (3) at the incision for appendicectomy. Rajam and Rangiah (1939) reported the first case of cutaneous amœbic ulceration around the anus from this institution. Mahadevan (1945) has later published two cases of cutaneous amœbiasis admitted into the King George Hospital, Vizagapatam. His first case was one of extensive ulceration of the abdominal wall consequent on the spontaneous rupture of a liver abscess to the parietes and his second was one of extensive ulceration of skin around the anus extending into both the gluteal regions. Professor Rajam's patient, since publication, has attended his department on and off for recurrence of peri-anal ulceration and stricture of the rectum. Repeated examinations of the biopsy material (figure 6, plate XXXV) and the fæces have shown persistence of amœbæ in spite of a course of emetine injections every time he attended the hospital. This shows that, unless the intestinal amœbiasis is completely cleared, the skin which has once given way to amœbic infection, though it shows signs of healing every time a course of emetine injections are given, continues to be vulnerable to amœbic invasion.

Summary

A brief survey of amœbic lesions treated in the General Hospital, Madras, during a period of five years from 1941 to 1946 is presented. Necropsy records are given wherever possible. The subject is presented under the following

headings : (1) Seasonal, age and sex distribution of intestinal lesions, (2) amœbic granuloma (amœboma) of the intestines, (3) amœbic dysentery associated with other diseases, (4) amœbic hepatitis and hepatic abscess, with age, race and sex distribution, (5) frequency of liver abscess associated with amœbic dysentery, (6) distribution of the liver abscess, with rare sites into which it has ruptured, (7) jaundice in amœbic liver abscess, (8) amœbic abscess of the brain, and (9) cutaneous amœbiasis.

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