

MUMPS.

By J. GORDON SHARP, M.D. EDIN.

IN the beginning of September, 1907, I had in my practice an epidemic of mumps which ran on without intermission till the end of March, 1908, when it ceased rather abruptly. This may have been owing to the fact that the epidemic had spent itself, aided by another important circumstance—namely, the weather suddenly changed to bright sunshine and absence of high wind. The lull, however, was only temporary, for in the last week of April, 1908, the weather suddenly changed once again and we had a heavy snowstorm, accompanied by biting north and north-east winds, so that women and children were confined to the house. The epidemic commenced afresh and did not finally cease till the end of May. Up to the middle of December, 1908, no fresh cases have been seen. In this second outbreak I had eight cases and as I calculated that medical men only see one-fifth of all the cases actually occurring this means 40 cases amongst the families who are nominally my patients. The epidemic affected all classes, from the very poorest to the comparatively well-to-do. In my experience of 16 years' practice it has been without exception the longest continued, the most severe, and the most widely spread with which I have had to deal. The experience gained has taught me that mumps is not the trifling disease which some people seem to regard it.

Some peculiarities of the epidemic.—The ages of the patients ranged from 17 months to 41 years. Three of the patients were adults—namely, two women (35 and 41 years of age respectively) and one man (aged 35 years). The man had had whooping-cough when he was 28 years of age. When convalescent from mumps his pulse was 60 in the upright posture. Generally speaking, the pulse was slow in all the patients, both in the acute stage and during convalescence. Only in one of the patients, and only for one day, did the temperature reach 104° F. As a rule it never reached higher than 101° or 102·5°. One of the patients, a girl, aged 17 years, was distinguished by the extent of the swelling and the long period of its duration. The illness started with a typical swelling of the anterior and outer aspects of the right parotid gland, and in two days this swelling had spread to the inner aspects of the gland, evidently pressing on the veins, for there was considerable cedema of the half of the neck and extending as far down as the clavicle. On the third day the left parotid became affected, and, although large, it never reached the dimensions of the right side. The swelling lasted for ten days and caused the friends of the patient considerable anxiety. If I had not been sure of the diagnosis I, too, should have felt concern, but the experience of this epidemic had taught me that severe and apparently alarming symptoms in mumps clear completely away. Although minutely inquired into I could find no evidence of affection of the breast, the pancreas, the inguinal glands, or of other parts likely to suffer in this malady. There was nothing wrong in the throat.

The disease generally attacked the whole of the children in the household. Some children were said to have suffered from a second attack but I cannot personally vouch for the accuracy of this statement.

Incubation period.—I tried to find out the average time of incubation but this was difficult to ascertain with any degree of accuracy, for the epidemic was so widespread that a child might happen to be in contact with many infected individuals. However, on several occasions I met with cases amongst children in which they could only have been infected within ten days or a fortnight. Thus, I should say the average time of incubation ranges from 10 to 14 days.

How long is a patient a source of danger?—I am inclined to think that a patient who has suffered from mumps may remain infected, and therefore a source of danger to others, for a much longer period of time than is generally believed. I have known one or two children of a large family to become attacked, while the remaining members of the family remained well for six weeks or even longer when another child contracted the disease, just as we had congratulated ourselves that the household was free from infection. Two striking examples of long-continued infection occur to me (see Case 1). Three children, the only juvenile members of a household living in a cottage shut off

from all near neighbours, contracted the disease, the only signs being parotitis, with slight constitutional symptoms, and all got apparently rapidly well. Six weeks later one of them, a boy, got orchitis and another, a girl, eight weeks after the parotitis suffered from vulvitis and subsequent pancreatitis. Unless these children suffered a second attack, and I think this is hardly likely, they must have had within them the source of infection all these weeks. Case 14 may also have been one of long-continued infection.

Nature of epidemic parotitis.—If I were asked to clear my mind of all preconceived ideas derived from books and traditional teaching about mumps I should say experience taught me that it was (1) an acute infectious disease producing constitutional disturbance, depressing rather than stimulating the higher nerve-centres, as shown in the comparatively low temperature and slow pulse rate; and (2) that there might be no signs or symptoms beyond those just named, but that oftener than not the parotid gland was swollen and occasionally the breast, pancreas, testicle, vulva, and other parts were swollen and tender.

I have often seen one or more children of a household suffer from typical mumps while one or more children of the same family had general malaise without any evidence of swelling of the parts generally affected in mumps. I believe the latter had mumps but without the usual outward manifestations thereof.

I have frequently examined the throat and tonsils in severe typical cases of mumps in search for local redness and swelling or other signs pointing to a possible source of entry of offending material into the system but always with a negative result. I have in my own mind come to the conclusion that whatever the causal agent of mumps may be it finds its entry through the alimentary tract.

Inguinal glands.—These are occasionally tender and swollen.

Mastitis.—This is not a prominent symptom.

Head symptoms.—Pseudo-meningitis was observed in one case.

Severe abdominal symptoms.—The abdominal symptoms in mumps are often very alarming. There may be sickness and vomiting and blood may be vomited. The pain is often severe and this may be accompanied by collapse. The abdomen may be tense and tender to the touch. Sometimes a swelling is to be felt. The tenderness, swelling, tumour, or severe pain is limited to the left hypochondrium and to the epigastrium. This is a peculiarity of the affection and helps one in distinguishing it from other abdominal affections. I need hardly say these signs and symptoms point to an extension of the disease to the pancreas. Now and then there is a passage of large quantities of blood and fat droplets by the bowel, while at other times constipation is a prominent symptom. The first few cases I saw made me think of peritonitis but then the symptoms limited themselves to the areas I have named, and further the state of the pulse and temperature did not point to it.

Another point of interest was the rapidity with which alarming symptoms disappeared. Lastly, there was presented to my mind the possibility of one patient suffering from parotitis, while another patient of the same household or of another neighbouring household might suffer from pancreatitis and all due to one common causal agent. In other words, mumps may be represented in one patient by parotitis, in another patient by pancreatitis only, and as stated in another place a patient may have mumps without showing any glandular affection whatever. The pancreatic area marks the seat of pain and when acute symptoms subside a tumour can often be felt in this region.

Treatment.—In simple mumps in children I give five-grain doses each of the salicylate and bicarbonate of sodium well diluted with aerated soda water. I likewise tell the mother to give plenty of cold water or aerated water and no food unless the child asks for it. The salicylate relieves the aching of the neck muscles and gives sleep and comfort to the child. When pain in the abdomen is severe I give in children three minims of tincture of opium diluted to half a fluid drachm with glycerine and water every hour or even oftener as long as may be necessary. Here my object was to reduce volume as much as possible, for I found by experience that anything which distended the stomach even in a small degree increased the pain. I have known children refuse to take even a tablespoonful of fluid because of the pain it occasioned.

The present epidemic is largely represented by abdominal symptoms. Conditions of weather and locality may determine these points. In other places and during other epidemics mastitis, orchitis, pseudo-meningitis, and affection of the lymphatic glands may be largely met with.

Mumps is, speaking generally, a benign disease, hence when pancreatitis depends on this cause it is not highly fatal. This, I take it, is why all my cases of acute pancreatitis recovered.

ILLUSTRATIVE CASES.

CASE 1. Parotitis, vulvitis, and pancreatitis in the same patient.—On Oct. 23rd, 1907, I saw a girl, aged ten years, who was then suffering from a moderately severe attack of mumps, the parotid gland alone being affected. In a fortnight her brother, aged 12 years, contracted the disease, and a few days later the baby, aged 17 months, the only remaining juvenile member of the household, also contracted the complaint. I saw nothing more of them till Dec. 17th, that is, eight weeks after the girl and six weeks after the boy first showed symptoms of mumps. At this time the girl was suffering from vulvitis with pain on passing urine, evidently owing to some pelvic trouble. The boy was suffering from orchitis and got rapidly well and has remained well. The girl, however, was seized four days later—that is, on Dec. 21st—with sudden collapse. On examination I found there were swelling and extreme tenderness in the left hypochondrium and epigastrium, accompanied by constipation. The temperature was subnormal and the pulse was thready. The imbibing of a tablespoonful of fluid increased the pain and touching the swollen parts produced evident suffering. Movement increased the pain. The child absolutely refused to take anything except three minims of tincture of opium made up to half a fluid drachm with glycerine and water. This she asked for because she said it gave her so much relief. On the second day she was comfortable unless she took fluids or was moved or the parts were touched. She improved a little each day and by the fifth day all cause for anxiety was removed and she was able to take fluids without discomfort. On the seventh day I was able to palpate the abdomen, when I found a tumour in the epigastrium. Taking this together with the history of the illness I set it down as an enlarged pancreas. It was tender on palpation. On the ninth day after the onset of collapse the child was almost well.

It is interesting to note the long period of time that elapsed between the parotitis and the onset of the vulvitis and pancreatitis in this girl and between the parotitis and the appearance of the orchitis in the case of her brother.

CASES 2 AND 3. Parotitis only in a sister: pancreatitis only in a brother.—On Feb. 3rd, 1908, I saw a girl, aged 13 years, in a typical case of mumps, the parotid gland alone being affected. It ran the usual course without after effects. On Feb. 13th, or ten days later, I was called to see her brother, aged 11 years. He had been seized suddenly with intense pain (without vomiting) in the left hypochondrium and in the epigastrium. Shortly afterwards he passed by the bowel about five ounces of dark blood containing large droplets of fat. Later in the day he passed about ten ounces of dark blood and an appreciable quantity of fat droplets. Next day he again passed blood and fat. I may here add that I saw all the evacuations. The condition was so evidently one of pancreatic affection that I had the last evacuation examined by Dr. E. Allan Wilson, honorary pathologist to the Leeds Public Dispensary, and his report is as follows: "*Fæces.*—Fat is present in the specimen sent and also blood and undigested muscle fibres and connective tissue. No free bile pigments are to be found. Diagnosis: acute pancreatitis." I may add that the urine of this same patient reduced Fehling's solution. The further report is that the boy rapidly got well and never developed parotitis. The history is the same as in all the other cases of mumps showing alarming symptoms—namely, the rapidity with which these disappear. When the acute symptoms had passed away I examined the abdomen, but I could not make out any distinct swelling of the pancreas.

The question arises, Was the acute pancreatitis in this boy due to the same causal agent as the parotitis in the sister?

CASE 4. Doubtful pancreatitis.—As an offset to the foregoing cases I think it only fair that I should report the following. On Jan. 25th, 1908, I was called to see a girl, aged 10 years, living in the midst of a district in which

mumps had been for over four months epidemic. The mother's story was that the child was suddenly seized half an hour before I saw her with pain which was referred to the upper part of the abdomen. On examining the child I found that the painful area was the left hypochondrium and the epigastrium on its upper part. The pain was accentuated by movement, by touching, and by drinking. Before my arrival she had passed by the bowel half a teacupful of dark blood and about two teaspoonfuls of thick, grey oily fluid. On the top of the blood dark drops of fat could be seen without being specially searched for. Unfortunately I did not at this stage have the evacuations examined microscopically. I ordered three minims of tincture of opium diluted to half a fluid drachm with glycerine and water every half hour till relief was obtained. This medicine gave the patient great comfort. It had to be continued for some days. The pain and swelling never left the parts I have named. Indeed, had the swelling shown signs of creeping downwards I should have felt much alarm and have had the benefit of surgical opinion and most likely the abdomen would have been opened. The further progress of the case is that for days dark, bloody stools were passed. In a week the stools became liquid and greyish, evidently containing pus. On Feb. 3rd, that is ten days after the commencement of the illness, I sent a specimen of the fluid passed by the bowel to Dr. W. Gough of the Yorkshire Pathological Laboratory, and his report runs: "*Fluid passed per rectum.*—The fluid contains great numbers of degenerate leucocytes, a few red blood corpuscles, and many bacilli and cocci. It is practically *pus* coming from an abscess of some duration and discharging by the bowel. There is no evidence of pancreatic origin; of course, the commonest site of such abscesses is around the appendix." The temperature at the beginning of the disease was subnormal. Later it rose to 102° F. for two days but never became higher and then it sank to normal. The pain and swelling were, as I have already stated, high up in the abdomen; there never was any pain or distension or dullness below the line limiting the upper abdominal areas. When convalescent, the child passed enormous quantities of urine which reduced Fehling's solution to a dark brown. She developed an enormous appetite which continued for two months. She never had any swelling in the parotid.

Despite the adverse pathological report this may have been at its start a case of acute pancreatitis for the pain and swelling were limited to the area occupied by the pancreas.

CASE 5. Vomiting of bright red blood, later of digested blood; acute hæmorrhagic pancreatitis(?).—On Feb. 1st, 1908, a boy who had no former signs or symptoms of anæmia nor any gastric symptoms was seized with pain in the pit of the stomach and almost immediately afterwards he vomited a large quantity of bright red blood. I saw him within half-an-hour of the beginning of the illness. He was pale in the extreme and almost pulseless but quite conscious. When asked if he had any pain he said that he had, and when asked where the pain was located he passed his hand over the pit of the stomach and over the ribs on the left side. The experience here was the same as in all the other cases—the limited area occupied by the pain and swelling and that area always being that covering the site of the pancreas. The blood which the boy had last vomited was of the coffee-ground type, but I was shown a bucket in which the blood first vomited was contained and this was bright red. The boy had been constipated a day or two previously to this illness but otherwise he was not particularly out of sorts. Like the other children whose cases I have reported he had been exposed to the infection of mumps, but he had never had any signs of parotitis. The further progress of the illness was uneventful. He was kept at rest and was given three-minim doses of tincture of opium in the manner which I have already related. He was allowed cold water if he wished; indeed, this was all he asked for. The vomiting was not repeated. At the end of a week the acute symptoms had subsided and I then examined his abdomen, and at the junction of the left hypochondrium and the epigastrium a distinct swelling could be felt. This was tender to the touch. It rapidly decreased in size.

Taken in conjunction with all my experience of the other cases occurring in the epidemic I should say that this tumour was an enlarged pancreas. The temperature never rose beyond 100° F.

CASE 6. *Mumps represented by primary pancreatitis succeeded by parotitis.*—On Feb. 22nd, 1908, I saw a girl, aged five years, whose history was, as related by the mother, that the members of the household had been kept awake during the previous night by the child crying and complaining of pain in the pit of the stomach, the term being employed in its widest sense. I asked the child to show me where the pain was and she passed her hand over the upper part of the abdomen from the epigastrium to the left side, and when I attempted to touch it the child winced. I asked the mother if the girl had had mumps but she said "No." The pulse was 90 a minute and the temperature in the armpit was 101° F. On the next morning pain was still complained of and the mother volunteered the statement that she had been kept awake during a good part of the night because of this. I may say that I did not prescribe opium in this instance but merely a saline mixture. I think my sin of omission shows the advantage of opium. On the following day—that is, 48 hours after the patient was first seen—the right parotid gland was observed to be swollen in its anterior and outer aspects. The pulse was now 80 a minute and the temperature was normal, while the swelling in the abdomen had gone down and there was now no tenderness. The child was small and thin, possessing small, non-resisting muscles, so that the abdomen could be examined with the greatest ease. I could feel a body somewhat tender when pressed upon, extending from the central point of the epigastrium and to the left for perhaps a couple of inches. It gave one the impression of being an inch in diameter. This, I believe, was the enlarged and tender pancreas. It could be felt for three days in succession. The parotitis followed the usual course. Within ten days altogether the child was well.

The next eight cases belong to the second outbreak of the epidemic and, taken as a whole, are not so remarkable as the foregoing simply because they are not selected but are merely a record of all the cases met with.

CASE 7. *Mumps in a woman, aged 35 years.*—An unmarried woman, aged 35 years, contracted an ordinary attack of mumps without complications in the last week of April, 1908.

CASE 8. *Mumps followed by collapse, abdominal pain, and polyuria.*—A girl, aged five years, and a member of the same household as the patient in Case 7, had a slight parotitis a few days later. This passed off apparently but a week after convalescence was evidently complete the child became suddenly collapsed, the condition being accompanied by vomiting and pain in the upper part of the abdomen. She complained of great pain on passing urine but there was no vulvitis. Later she passed great quantities of urine. In the second week following the onset of collapse diarrhoea set in and continued for a week and the region occupied by the pancreas was exquisitely tender. Convalescence was prolonged. The temperature was never high.

CASE 9. *Simple parotitis from the same household as Cases 7 and 8.*—On May 5th, 1908, a boy, aged eight years, had well-marked parotitis of both glands which disappeared under simple treatment and without after-effects.

CASE 10. *Pseudo-meningitis followed by parotitis in a woman, aged 41 years.*—On May 4th, 1908, a married woman, aged 41 years, of neurasthenic temperament, suffered, according to her own story, from pain over the vertex. Towards night the pain increased so much that she was unable to sleep. During the next day it abated a little but at night it became worse than ever and she sent for me. I saw her on the morning of the 6th. She then complained of great pain over the vertex and of stiffness of the muscles of the neck and of the muscles of the head in general. Photophobia was prominent and there was great irritability of the whole muscular system. I at once gave her five grains of bromural in hot milk. Later I learned that this had given her refreshing sleep. I also prescribed five grains of bromide of potassium and five minims of tincture of opium, to be repeated every two hours while the pain continued. On the next day the patient was better; on the following day (May 8th) the left parotid gland was found to be swollen; and on the 9th the right gland was enlarged. Thus to all appearance the pseudo-meningitis preceded the parotitis. The temperature was never above 100° F. and the pulse ranged from 66 to 70. On May 10th diarrhoea was present. I could find no enlargement of the pancreas in this case. Convalescence was not prolonged. The neurasthenic type may account for the pseudo-meningitis.

CASE 11. *Simple parotitis.*—On May 8th, 1908, a daughter, aged four years, of the foregoing patient, who slept with her mother, showed a typical double parotitis. The condition cleared up rapidly.

CASE 12. *Abdominal pain preceding parotitis.*—On May 9th a girl, aged seven years, began to suffer from severe pain in the upper part of the abdomen, and this continued with intermissions until the 15th of the month, when a typical double parotitis appeared, and then the child gradually improved and soon got well.

CASE 13. *Acute pancreatitis following mumps.*—On May 20th I was summoned to a boy, aged seven years, who as his mother told me had a few minutes previously to this come in from school and almost as soon as he entered the house had been seized with sickness and vomiting and pain in the body, with pallor of the face and blueness of the lips. I saw him within a few minutes of the seizure and was able to confirm this description. His temperature in the armpit was 104.5° F. and the pulse was small and 132 a minute. The upper part of the abdomen was distended and when I asked where the pain was the boy placed his hand over the left hypochondrium and epigastrium. The parts were evidently tender and no attempt was made at examination beyond stroking the surface. I enjoined quiet, hot flannels to the tender parts, with one and a half minims of tincture of opium every hour—made up to a bulk of one teaspoonful by means of glycerine, tincture of cardamoms, and water. If the boy asked for any drink I told his mother to give nothing but cold water. On inquiry into the history of the illness I was told by the mother that exactly 15 days before the present attack he had begun to suffer from mumps. The swelling of the parotids had lasted for five days. My anxiety was now relieved for I knew that the abdominal symptoms most likely were due to acute pancreatitis following on mumps, and I gave a favourable prognosis. On the next day the temperature was normal and the pulse was 84. The bowels had been moved but nothing special was noticeable in the motion. There was still pain in the area covered by the pancreas. On the following day the temperature was normal and the pulse was 80. Some blood was said to have been passed in a motion but this I did not see. Pain was still complained of. On the next day the temperature was normal and the pulse was between 80 and 90. The mother said that the boy had had another motion and that it was green, with blood and oil in it. (He had had no castor oil.) This I saw for myself, so that the evacuation contained drops of fat on the top with blood and evidently bile—the green described by the mother. I tried to examine the pancreas but the muscles became so rigid that I was baffled. From this time onwards the patient gradually improved. The urine contained no sugar when examined by Fehling's solution.

CASE 14. *Epigastric pain, bleeding from the nose; mumps five weeks previously.*—On May 30th I was called to see a girl, aged ten years, with the history that on the previous day she had started with pain in the epigastrium and excessive bleeding at the nose. These abated somewhat but were repeated on the day of my first visit. The pulse was 90 and the temperature in the armpit was 99.8° F. The mother said that five weeks previously the child (as well as all the other four children of the family) had suffered from mumps. I prescribed three minims of tincture of opium, to be repeated every two hours till the pain was relieved. On the following day the bleeding from the nose had stopped and the pain in the epigastrium was much relieved. The child got well in less than a week.

If one were to summarise, the following points would appear to me to be worthy of special mention. 1. Mumps is not a trifling affection. 2. The comparative frequency with which the pancreas is affected. 3. The suddenness with which abdominal symptoms may appear and the equal rapidity with which evidently serious symptoms pass away. 4. The area occupied by the swelling and tenderness in abdominal cases—namely, the epigastrium and left hypochondrium—that is the area occupied by the pancreas. 5. The comparatively slow pulse and low temperature. (These may help one in distinguishing it from peritonitis, &c.) 6. The long period elapsing between the parotitis and the vulvitis and the onset of pancreatitis in some of the cases (poison retained in the tissues). 7. Pancreatitis may be the first manifestation of mumps. 8. The possibility of pancreatitis replacing parotitis in mumps. 9. Mumps may exist

in a patient without affection of any gland so far as one can see. 10. Acute parotitis is not a synonym of mumps, for mumps may be present without any apparent affection of the parotid gland.

Bibliography.—Practitioner, February, 1908 (Edgecombe: Metastatic Affection of Pancreas in Mumps). Westminster Hospital Reports, vol. xv. (Mumps). Brit. Med. Jour., Oct. 26th, 1907, p. 1132; April 18th, 1908, p. 925; April 25th, 1908, p. 988; and May 2nd, 1908, p. 1045. Leeds.

Clinical Notes :

MEDICAL, SURGICAL, OBSTETRICAL, AND THERAPEUTICAL.

THE BILIARY CIRRHOSIS OF CHILDREN, OTHER WISE KNOWN AS "INFANTILE LIVER."

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FOR many years a peculiar disease of the liver of infants accompanied with fever and attended with a high mortality has been recognised in India (Bengal). The morbid anatomy and pathology of this disease were well described by Major J. B. Gibbons, I.M.S., in 1891, who considered it to be a form of biliary cirrhosis and suggested that the term "intercellular cirrhosis" would be appropriate, as there occurred a primary development of fibrous connective tissue within the lobules between the liver cells. The other organs of the body seem unaffected except the kidney, which shows marked degeneration, and shedding of the epithelium of the tubules. The usual post-mortem appearances were œdema of the feet and legs and generally of the face and hands and a small quantity of fluid in the abdomen. All the tissues of the body are bile-stained. In the earlier stages the liver is enlarged, but later it becomes small. There is no perihepatitis but the liver substance is tough and the cut surface granular. The liver cells are much altered, many being destroyed and others converted into masses of granular débris. In the interlobular bands of connective tissue many bile-ducts are found. The intercellular fibres are not applied closely to the degenerated cells but form a network in the spaces of which the degenerated cells lie. It was suggested that the disease is due to an irritant which primarily attacks the liver cells but which also leads to proliferation of the connective-tissue elements. The proliferation of the bile-ducts is not so easily explained, but it was suggested by Paltang to be a curative process in which a regeneration is brought about by a multiplication of bile-ducts from which masses of liver cells were formed. The disease is not due to alcohol, there is no evidence of syphilis, and the pathological changes are quite different from the liver enlargement which follows malaria.

The disease is almost entirely limited to children between 6 months and 2 years of age. The onset is insidious. Some families seem liable to the disease. It occurs amongst rich and poor but is probably less common amongst Mahomedans than Hindus. It is as common amongst infants fed with other milk than that of their mothers. The disease varies in its duration, sometimes lasting a month only, and at other times for perhaps two years. Generally the first symptom noticed is enlargement of the liver, but early symptoms are nausea, vomiting, sallow complexion, and slight fever. The child loses its appetite, becomes irritable, develops thirst, and becomes distinctly feverish, especially towards night. The liver enlargement progresses and may become very extensive. Some tenderness over the liver is detected. In the later stages jaundice sets in and the child is markedly ill. Œdema occurs also in the later stages. There is a deficient excretion of bile, the stools being clayey and whitish, but the urine is deeply stained. The fever seems to increase with the disease. The prognosis is extremely unfavourable but it is impossible to estimate the case mortality as there are no trustworthy figures available. The disease is said to be common in Madras and it has been seen in Bombay. The clinical course of the disease was well described by Dr. Jogendra Nath Ghose in the Transactions of the First Indian Medical Congress (1894).

Since 1894 careful inquiries (in the absence of medical

certificates) have been instituted in Calcutta into the causes of all deaths, and the prevalence of this disease has been clearly shown. The symptoms and course of the disease shown by later inquiries confirm the early descriptions. I am not aware, however, that anything further has been done to explain its pathology or to discover its origin.

We had in Calcutta in 1907 no less than 636 deaths of children from this disease. Of this number 92 only were under 12 months of age. 138 only were over two years of age. The great bulk of the cases—viz., 64 per cent.—died at ages between one and two years. The mortality amongst Hindu children is much greater than amongst Mahomedans, but male and female children are about equally attacked. I append a table showing the details of our statistics.

Infantile Liver for 1907.

Ages.	Hindu.		Mahomedan.		Total.
	Male.	Female.	Male.	Female.	
Under 3 months ...	2	—	—	—	2
" 6 " ...	14	7	2	2	25
" 9 " ...	12	10	3	4	29
" 12 " ...	15	7	6	8	36
" 15 " ...	52	44	19	12	127
" 18 " ...	14	12	1	4	31
" 21 " ...	83	71	11	9	174
" 24 " ...	29	30	7	8	74
Over 24 " ...	55	45	20	18	138
—	276	226	69	65	636

It is important in connexion with the theory that this disease is brought about by absorption of toxic material from the bowels to note that diarrhoeal diseases (more particularly acute and chronic enteritis and the complaint corresponding to summer diarrhoea) are less common in Calcutta than in England, the mortality from diarrhoeal disease being 21 per 1000 births in Calcutta, as against 31 per 1000 births in England and Wales (1904). Considering that the disease occurs in sucklings, in infants artificially fed, and in children between one and two years of age who are given all sorts of food, it is difficult to ascribe the disease to errors of diet. It is generally considered to be a progressive disease and once started it is almost always fatal. Taking all things into consideration, we can most reasonably conclude that it is a parasitic disease, but whether microbic in origin or due to larger forms there is no evidence to show. Calcutta.

CLINICAL NOTES OF TWO CASES OF PUERPERAL FEVER TREATED BY CURETTAGE AND APPLICATION OF PURE IZAL.

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THE following cases of puerperal fever seem to indicate the value of early curettage combined with the application of undiluted izal in order to prevent re-infection through the raw surface. In each case labour was uncomplicated, the after-birth was complete, and nothing had been introduced into the uterus.

CASE 1.—A woman, aged 34 years, a multipara, developed a temperature of 102·4° F., with a pulse of 108, on the third evening after confinement, the lochia remaining unchanged. Aperients and sedatives failed to reduce the fever, which reached 103·2°, with pulse 100, on the fourth evening, and a slight rigor occurred. The uterus was explored with the finger and was found to be free from any appreciable trace of after-birth or clot. An intra-uterine douche of lysol 1 in 320 was given, together with the following treatment: antistreptococcic serum (B. and W.'s polyvalent) ten cubic centimetres and one intra-uterine douche daily; frequent doses of liquor ferri perchloridi and alcohol; and vaginal douches of biniodide of mercury 1 in 2000 four