the urine contains bacteria and at times pus for years, although there is no constitutional disturbance. There is very little danger of the process extending to the kidney, or that it will involve anything more than the superficial layers of the pelvis and bladder.

The pathology shows simply a catarrhal condition of the bladder and pelvis of the kidney. Very few autopsies have been made, because the condition is rarely fatal.

TREATMENT.

The alkaline method of treatment will often suffice to cure the disease. Potassium citrate is given well diluted with water, grains X, three times a day for an infant one year old. If the dose is not sufficient to make the urine highly alkaline, larger doses must be given. Another line of treatment is to change the reaction of the urine every three or four days by first making the urine alkaline with potassium citrate, then acid, with sodium benzoate or benzoic acid in doses of grains iii, three times a day for an infant one year old. This changes the reaction of the media and discourages the growth of the bacteria.

If the urine does not clear up under this treatment, hexamethylenamin in doses of from one to three grains should be used. If the urine is alkaline, it should be made acid with sodium benzoate or benzoic acid. The urine should be tested for formaldehyde by Berman's² test and the hexamethylenamin increased until the urine shows the presence of formaldehyde; the urine being carefully watched for irritation of the kidney.

If the trouble still continues, large doses of hexamethylenamin, aided by autogenous vaccines may be used as Freeman³ advises, gradually increasing the hexamethylenamin to gr. 25 daily for an infant of six months and grains 25-45 a day for an infant of nine to 12 months. Vaccine should be given every three or four days, beginning with a dose of 25,000,000 and increasing to 160,000,000. The large doses of hexamethylenamin should not be continued for more than a week at a time, and then after several days without any treatment, or with alkaline treatment, the hexamethylenamin should be started again at the same maximum dose given before⁴. The urine should be carefully watched for irritation of the kidney.

Local treatment of the bladder is of comparatively no value, because the infection is not localized in the bladder but involves the whole urinary tract.

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- ² Janness: Jour. Amer. Med. Assn., 1913, vol. ix, no. 9, p. 662.
- ³ Freeman: Am. Jour. Dis. of Children, 1913, vol. vi, no. 2, p. 117.
- ⁴ Freeman: Am. Jour. Dis. of Children, 1913, vol. vi, no. 2, p. 117.

XXII.

TWO CASES OF CIRRHOSIS OF THE LIVER IN CHILDHOOD.

BY THEODORE ELY, M.D.

While cirrhosis of the liver in children is no longer regarded as an exceedingly rare condition, it is by no means a common one, and that type of cirrhosis which is due to alcohol may still be said to be a most unusual affliction in childhood.

The first case of this kind of which we have a record was reported by Wilks in 1863 before the Pathological Society of London (Pathological Society of London 1863, Vol. XIV.) In succeeding years occasional cases were reported from England, America and the Continent. Among a total of sixty-three reported cases of hepatic cirrhosis of various types R. Palmer Howard in 1887 found ten cases whose cause could be traced to the abuse of alcohol. (R. Palmer Howard in *American Journal of Medical Science*, Oct., 1887) *Haushalter and Richon in 1899 collected twenty cases from the literature. Of these only fourteen came to autopsy and the alcoholic cause of at least one seems very doubtful. In 1907 Bolton of London (Cirrhosis of the Liver in Children—*Clinical Journal*, London, 1907-08) reports that at the time seventy-four cases had been described in the literature. This would scarcely seem a sufficient number to agree with his further statements, that hepatic cirrhosis of some type is found in .2% of all autopsies on children under 12 years of age in England, and that England is noted for its frequency in alcoholic cirrhosis, or with the statistics of various authorities quoted by Rapin (These de Nancy, 1899, Contribution a l'Etude de la Cirrhoe Alcolique) among whom Hebrad traced the origin of seven out of fifty-one cases of hepatic cirrhosis and D'Epine and Picot seventeen out of one hundred to the abuse of alcohol, or with the opinion of Morse (BOSTON MEDICAL AND SURGICAL JOURNAL, Sept. 11, 1902) that alcohol is responsible for from ten to twenty-five per cent. of all cases in children. In a brief but fairly comprehensive review of the English literature since 1907 I have found only two cases reported in this country and but one of these was proved by autopsy to be of the alcoholic type. (Blakely, BOSTON MEDICAL AND SURGICAL JOURNAL, 1910) (Davis—Cirrhosis in a Boy of Two Years—*West Virginia Medical Journal* 1912—12.)

The disease seems to be more common in boys than in girls. The youngest case on record I believe is about sixteen months of age. The average seems to be between eight and eleven years.

The symptoms differ somewhat from those found in the adult. Jaundice is a fairly common symptom in children. Epistaxis is as fre-

* Revue Mensuelle des Maladies de L'Enfance, Mar., 1899.

quent and diarrhoea and vomiting more so than in the adult. Haematamesis is less frequent in children but several cases where this was the immediate cause of death have been recorded. Enlargement of the spleen is practically constant in children as is the hypertrophy of the liver in the earlier stages of the disease. The enlargements of the liver is not only more constant in the early stages in children but often persists until death. Dilatation of the superficial abdominal veins is perhaps less common and slight elevation of temperature more common. Ascites and oedema are about as common but seem to appear relatively later in the course of the disease.

The nervous symptoms in children are confined to marked drowsiness and sometimes loss of speech. Peripheral neuritis, delirium tremens, etc., are practically never seen.

The course of the disease is much shorter than in adults. Complications aside from the embarrassed heart action seem rare and the children usually die of the progressive asthenia.

The pathological changes found at autopsy due to the disease *per se* are practically identical with those found in the adult cases except for the constant splenic enlargement.

The two instances of hepatic cirrhosis in children which I have the privilege of reporting to you were observed in a pair of twins, four years of age, first seen in the medical out-patient department of the Children's Hospital on Oct. 6, 1913, and subsequently observed in the medical wards there.

CASE HISTORY, G. O.

Family History. Father and Mother living and (always have been well) well. Two sisters living and well. Another pair of twins, boys, at 2½ years, living and well. First child died from cholera infantum. Second pregnancy resulted in miscarriage at 3½ months. Fourth pregnancy which followed the birth of first living child also resulted in miscarriage at 3½ months. Neither father nor mother has had sore throat or rash. Both deny specific infection or constant use of alcohol.

Past History. Born instrumentally at full term. Has always been about 4 lbs. heavier than the other twin. His mother says that the infant was black for 24 hours after delivery but then regained normal color and had no paralysis. He was breast fed for 14 months. Had no acute infection until after onset of present illness. Ever since the breast feeding was stopped the mother has been in the habit of giving both children small amounts of brandy at frequent intervals. She started giving three drops every hour, but as the children have grown the dose has been increased until sometimes they have been given a half teacupful at a time. The mother estimates that the children have each had a quart of brandy on an average of at least 16 drops a day since fourteen months old. The father, who confesses to a "moderate" use of alcohol, tells of having found both boys drinking whiskey by the half-

cupful when one morning he came unexpectedly into the dining room, where he had been entertaining a friend on the previous evening and had carelessly left a partly filled quart bottle of whiskey on the table. The mother states that the brandy which was first given in small doses because the infants "seemed puny and had no appetite" was later given in larger doses when the children had a toothache or a pain.

Present Illness. In January 1913 patient developed painful swelling on penis. One week later mother noticed yellowish tinge in sclera. Child developed a voracious appetite with constant desire to drink water. Skin gradually turned yellow and has been more or less so ever since. There was no vomiting at the onset. About two months after onset mother noticed the dark smoky red color of the urine and that it left a red stain on clothes. The stools since onset have averaged from 4 to 5 a day and have generally been clay colored and very foul smelling. For a while under medical treatment they became darker. In July last had a severe attack of measles, and for about a month the jaundiced color of skin disappeared, but the urine and stools retained the characteristics noted. For the past two months the abdomen has been growing larger and the rest of the body thinner and the skin has itched. In that period the gums and buccal mucosa have grown tender and bled easily. Two weeks ago the mother found the patient's pillow and bed clothes covered with blood. No blood has ever been noticed in urine or stools. Two months ago swelling of fingers at the distal joints was noticed. He is now drowsy and sleeps all the time; no headache, digestion seems good, and he never vomits. Since attack of measles has lost considerable weight. Has never had any convulsions, fever, cough or sore throat. For a month before admission was kept on—fat and sugar—restricted diet without improvement. Child looks and acts drowsy.

Physical Examination. Patient is poorly nourished with little subcutaneous fat. Skin is dry and lax and uniformly jaundiced, rough and in spots excoriated from scratching. Petechial spots on arms and legs. Eyes show marked yellow sclera with reddened conjunctivae. Buccal and nasal mucosa reddened and congested and beneath the buccal and palatal mucosa small punctate hemorrhages are visible. The lips are excoriated and cracked. There is a general glandular enlargement. Heart: Boundaries on percussion are 2½ cm. from the right and 7 cm. from the left of the M. S. L. No abnormality of sounds. Lungs negative. Abdomen distended, convex. There is slight shifting dullness but no distinct fluid wave could be demonstrated. The superficial veins are prominent and somewhat distended. Liver dullness begins above at lower edge of 5th rib in nipple line on the right. The lower edge is distinctly palpable 5 cm. below the free costal border in the nipple line and 5 cm. below the tip of the xyphoid in the median line. The edge is smooth and not very tender. Spleen is much enlarged, the lower pole being palpable 7 cm. below the costal border and 4 cm. from the median line. No other abnormal masses palpable. Extremities show no edema. There is marked clubbing of the distal joints of the toes and fingers. Genitals show no edema. Urine was red, smoky, acid and con-

tained bile but no albumin or sugar. Stools were grayish yellow in color, contained bile, no blood, pus or mucous. Blood count showed nothing remarkable in numbers or character of white or red cells. The hemoglobin was 70% by Tallquist. Wassermann's complement fixation test and Von Pirquet skin test were both negative.

Ten days later on Oct. 16th the physical condition showed little change. Jaundice persisted. The boundaries of the heart, liver and spleen showed no appreciable change by percussion and palpation. The urine and stools both contained bile.

At the request of the parents he was discharged home from the hospital on Nov. 4th, four weeks after entrance. The jaundice was much less marked, as was yellowing of the sclera. The petechial spots on the arms and legs were fewer and the child was scratching much less. The area of cardiac dullness was unchanged. The spleen was felt in the same situation as before. The lower edge of the liver was palpable $3\frac{1}{4}$ cm. from the costal border in the right nipple line. The urine still contained bile but the reaction was less marked. During the child's stay in the hospital the pulse and respiratory rate ranged within normal limits. His evening temperature during twenty-nine days of observation reached 100 on eight evenings and his maximum was 101.6 reached on one evening. For the rest of the time the daily variations were within normal limits.

The patient was last seen alive on Dec. 9th. After leaving the hospital his condition showed little change until December 6th. The urine remained of reddish color. The stools were described as having grown more normal in character and no blood had been seen in them. Dec. 6th he began to vomit and retained practically no food after this. He coughed up and vomited blood at frequent intervals. The mother noticed that his breathing became more rapid and difficult. He complained of pain in the upper right quadrant of the abdomen which was somewhat relieved by rubbing. On examination his respirations were grunting and labored, rate was about 52 per min. The pulse was too rapid for count, poor volume and tension. The physical signs in lungs were those of consolidation of the right lung extending from the base upward in back to the upper angle of the scapula and in front to the third interspace. In the lower left axilla the breath sounds were much diminished and moist rales were numerous throughout. The left border of the heart was 8 cm. to the left and the right $4\frac{1}{2}$ cm. to the right of the M. S. L. Because of the lung consolidation on the right it was impossible to make out the character of the cardio-hepatic angle or the upper limit of hepatic dullness. The heart action was very rapid but regular and no abnormality of sounds aside from their generally weak character was detected. The abdomen was enormously distended and showed the usual signs of free fluid. Superficial veins were very prominent on both abdomen and thorax. The liver was tender and its lower edge was indefinitely felt 2 cm. below the costal border in the nipple line. The lower pole of the spleen was distinctly felt $5\frac{1}{2}$ cm. below the free costal border in the anterior axillary line. There was marked edema of the genitalia and slight edema of the extremities. Emaciation was more marked and the condition of the mouth worse than on leaving the hospital. The patient died at two o'clock the following morning.

CASE HISTORY, C. O.

Family History. The same as the other child.

Past History. Was delivered normally at full term. Except for having always been the smaller of the twins his past history is not important.

Present History. Began two weeks after the brother's. The first symptom noticed in January, 1913, was the yellowish discoloration of the sclera. The story of his present illness was exactly identical with his brother's except that his attack of measles last July was less severe than his brother's and jaundice has never disappeared. The character of stools and urine, jaundiced and itching skin, painful, easily bleeding gums and buccal mucosa, epistaxis and clubbing of fingers have all been the same as his brother's, and the last four symptoms have appeared at about the same time as the brother's. His abdomen has never grown so large as the brother's. He has never had convulsions or fever, cough or sore throat except with the measles.

Physical Examination. Much the same in its important points as the brother's. Sclera of the eyes is markedly yellow. The buccal mucosa shows punctate hemorrhages underneath, most numerous over the palate. Tonsils are large and fibrous. There is general glandular enlargement. The lungs give no abnormal physical signs. Cardiac dullness extends from 3 cm. to the right to 6 cm. to the left of the M. S. L. The sounds are somewhat irregular in rate and rhythm, the second pulmonic is much accentuated; no murmurs or friction sounds detected. The abdomen is distended, convex, and above the level of the thorax. The upper limit of hepatic dullness is in the 5th inter-space. The lower edge of the liver is smooth, firm, and easily palpable 5 cm. below the costal border in the nipple line and 4 cm. below the xyphoid. The lower pole of the spleen is palpable $7\frac{1}{2}$ cm. below the costal border and 7 cm. from the median line. No free abdominal fluid detected. The superficial abdominal veins are prominent. The genitals show a moderate hydrocele of the right testicle and slight phimosis. The clubbing of the fingers and toes is marked, no edema of extremities, the reflexes are all normal.

The urine was slightly acid and contained bile but no albumin or sugar.

Stools yellow, formed and smooth, contained bile and no blood or pus.

The blood examination showed 5,500,000 red cells and 6,500 white cells per cubic mil. Of the white cells 55% were polynuclears and 45% of the mononuclear type. Hemoglobin was 70% by Tallquist. The Von Pirquet skin reaction was negative. No Wassermann test was made, as it was deemed unnecessary in both cases.

Fragility of the red blood corpuscles in both cases was tested by the Senior House Officer, Dr. A. E. Myers, with the assistance of Dr. Karsner, using hypotonic salt solution in the percentages running from .2% to .8% in steps .05%. In the case of G. O. hemolysis began at 45%, was incomplete at .2%. In case of C. O. hemolysis began at .4%, was incomplete at .2%. In the normal control hemolysis began at 45%, was complete at .25%. This would indicate that the resistance of the corpuscles of both patients is slightly increased. This is shown more markedly in the

point of complete hemolysis which occurred at less than .2%, as compared with complete hemolysis which in the normal control occurred at .25%. The value of the experiment lies in the fact that it served to indicate a decreased fragility of the red blood corpuscles in our two patients, whereas in familial jaundice the fragility is said to be increased.

On Oct. 22nd, sixteen days after admission, the general condition showed little change. The jaundice and condition of the mouth were the same, the boundaries of the heart, liver and spleen showed no change. No free abdominal fluid could be detected. The urine contained bile in slightly decreased amount.

He left the hospital on Nov. 4th., four weeks after admission, with condition unchanged except for a decrease in the depth of the jaundice.

During his stay of twenty-nine days in the hospital his evening temperature reached 100 on only seven evenings, and only twice attained the maximum of 101° Fahr. During the rest of the time the daily temperature variations were within normal limits. The pulse rate and respirations varied only within normal limits.

While in the hospital both boys on questioning would express a most enthusiastic desire for brandy.

He was last seen on December 9th, approximately two months after coming into the hospital. Since his discharge the urine is said to have become fairly normal in color. The stools have remained hard and white. Recently he has grown more apathetic and drowsy, and if undisturbed sleeps at least half of the day. On examination pulse and respiratory rate were normal. Jaundice and the yellowish discoloration of the sclera were somewhat less marked. The heart area was within normal limits. At the apex a slight systolic murmur faintly transmitted to the anterior axilla was heard, second pulmonic sound much accentuated, action slightly irregular. The abdomen was only moderately distended and no free abdominal fluid was detected. The superficial abdominal veins were fairly prominent, the liver edge was distinctly palpable 7 cm. below the costal margin in the nipple line and 7½ cm. below the xyphoid. The tip of the spleen was felt on a line with the umbilicus and 7½ cm. to the left of it. The condition of buccal and nasal mucosa was practically the same as on discharge.

For the performance of the autopsy on the first case and the subsequent pathological and histological work I am indebted to Dr. Howard T. Karsner of the Pathological department, Harvard Medical School. The autopsy was performed thirty-six hours post-mortem. In brief the anatomical diagnosis is as follows: Acute fibrinous pericarditis with effusion. Chronic interstitial myocarditis. Passive congestion of lungs and conglomerate tuberculosis of left lung. Miliary tuberculosis of right lung. Lobar pneumonia of right lung. Atrophic cirrhosis of liver with regeneration. Miliary tuberculosis of liver. Chronic passive congestion of spleen with follicular hyperplasia and miliary tuberculosis. Passive congestion of intestines. Ascites. Slight arteriosclerosis. Miliary tuberculosis of left peri-bronchial, superior mediastinal, mesenteric, retroperitoneal and subhepatic lymph nodes.

The more detailed report of the gross pathological findings is as follows:

Body. That of a poorly nourished, white male child showing moderate jaundice, no rigor, marked liver mortis and green discoloration over the distended belly. The lower extremities and the forearms show numerous punctate hemorrhages.

Primary Incision. Shows a thin panniculous adiposis and dark red musculature, no bleeding.

Peritoneal Cavity. Contains an unmeasured but large amount of slightly cloudy yellowish-brown, limpid fluid. Peritoneum smooth and glistening throughout. Omentum is very much congested and the organs are all in normal position, spleen reaching about 4 cm. below the costal margin, the liver not being visible.

Thoracic Cavity. Shows a markedly distended pericardium filled with slightly cloudy blood-stained fluid containing flakes of fibrin. Thymus not visible.

Pleural Cavity. Left pleural cavity is smooth and glistening throughout. Right cavity throughout its entirety shows easily broken up fibrinous adhesions and the sac contains a slight excess of slightly cloudy blood-stained limpid fluid containing flakes of fibrin.

Lungs. Left lung is of moderate volume, crepitant throughout except for a very small area in the apex anteriorly and of generally dark red color. Organ cuts with normal resistance and shows a dark red, bleeding, soft moist cut surface. The point of consolidation in the apex anteriorly is found to be near a yellow bulging caseous mass measuring 1 cm. in diameter, fairly well encapsulated, but showing in the immediate neighborhood several small slightly projecting gray tubercles. The pulmonary vessels are normal. Peribronchial lymph nodes are enlarged, adherent to one another uniformly caseous and continuing into the superior mediastinal lymph nodes. Similar involvement is found around the bifurcation of the trachea and the left side of the trachea above the bifurcation. Bronchi show slight congestion, but otherwise normal. The right lung is voluminous and solid, weighs 320 grams in contrast to a weight of 140 grams for the opposite lung. The organ is covered by thin loosely attached, blood-stained fibrinous exudate. The organ is completely consolidated, cuts with normal resistance and above throughout all three lobes dark red, firm, finely granular cut surface which on scraping appears to be dry. Throughout this cut surface, however, a relatively small number of minute, non-projecting, vaguely defined, gray and yellowish-gray masses are found which have the gross appearance of miliary tubercles. They are not closely associated, however, never confluent and in a single section do not number more than 10 to a lobe. The pulmonary vessels of this side are normal, the bronchi are the same as on the other side and the lymph nodes are somewhat enlarged, soft and pink and do not show any caseation.

Pericardium. As noted above contains a great excess of fluid.

Heart. Of about normal size and weighs 120 grams. The epicardium is covered throughout by a blood-stained, loosely adherent, fairly thick fibrinous exudate, thicker over the left ventricle anteriorly than elsewhere and giving rise to a typical shaggy appearance. The hemoglobin staining, however, is extreme. The muscle cuts with normal resistance and shows a retracted, firm, reddish-gray cut surface in which there appears to be an increase of connective tissues. The mitral,

aortic, pulmonic and tricuspid valves show nothing abnormal. The endocardium throughout is thin and transparent and the columnae carnae and papillary muscles normally rotund.

Liver. Weighs 400 grams, measures 16.5 x 9.5 x 3.5 cm. The organ is extremely firm and shows a slightly thickened, smooth capsule with numerous areas in which the sub-capsular veins are considerably distended. The edges are rounded. In several places there are points of nodular bulging immediately under the capsule. These nodules are spherical yellow-white, very well defined and bulge in the cut surface. Their diameters range between one and three millimetres and they have more the appearance of tubercles than of liver substance. Organ cuts with leathery resistance and shows a non-bulging, firm, gray cut surface throughout. Projecting into the cut surface and not clearly visible from the outer surface except in the Spigelian lobe are areas fairly definitely defined, ranging from 2 to 4 mm. in transverse diameter, yellow in color with slightly depressed red centres, generally soft consistence and much more numerous in the right lobe than in the left lobe. In fact, the left lobe is almost a solid mass of this dense leathery, gray, very nearly homogeneous connective tissue. The gall bladder and bile ducts are normal.

In the small intestines at about the middle of the ileum is a small, slightly depressed irregular ulcer generally circular, measuring about 2 mm. in transverse diameter with slightly undermined edges and yellow nodular masses in the elevated margin. A similar ulcer is found at the region of the splenic flexure in the large intestine.

Spleen. Weighs 140 grams, measures 14 x 7.5 x 2.5 cm. It is large, shows a thickened, opaque capsule and is distinctly softened. It cuts with slightly increased resistance and shows a slightly bulging cut surface in which both follicles and trabeculae are distinctly more prominent than normal. In addition there is found in the cut surface a number of slightly projecting well defined, aphorical, yellow nodules which grossly appear to be tubercles.

Adrenals. Show post-mortem congestion.

Kidneys. Weigh together 220 grams. They appear to be slightly enlarged and are extremely soft, capsule strips with ease, leaving a smooth, marked congested outer surface. Organs cut with slightly diminished resistance and show a bulging, soft, dark red, slightly bleeding cut surface. The cortex is thickened and bulging; pyramids sharply defined and purple. Peripelvic fat normal. Ureters and bladder normal.

Lymph-Nodes. Mesenteric, retro-peritoneal and sub-hepatic lymph nodes all show enlargement and are soft. Several of them in transverse section show a bulging cut surface in which are several nodules projecting above the cut surface, fairly well defined, yellow and of the gross character of miliary or small conglomerate tubercles.

Aorta. Shows throughout its length similar fine streaks of thickening and yellowing of the intima to that described in the ascending part.

"On microscopic examination, the right lobe of the liver shows very marked thickening of the capsule of Glisson with marked proliferation of bile ducts and moderate infiltration focally of lymphocytes. The parenchyma shows cloudy swelling, fatty degeneration and central necrosis. Bile pigmentation is found peripherally in many of the lobules. The sections

from the left lobe fail to show any remaining parenchymatous tissue; but the central vein, much fibrosed, can be made out and the capsule of Glisson can be distinguished. In the position of the parenchyma, however, there is a marked overgrowth of connective tissue and proliferation of bile ducts. These ducts show low cuboidal epithelial, occasionally show clubbed extremities and in a few cases contain bile, but no transformation into liver cells can be seen. The diagnosis is a cicatricial atrophic cirrhosis, following some acute general destructive lesion. Miliary tuberculosis is also present."

Neither the pathological nor histological findings in this case lend much support to the diagnosis of an alcoholic cirrhosis in the pathologists' opinion. On the other hand, they do not completely discredit this diagnosis and the pathologist can suggest no other more probable cause than alcohol for the changes found in the liver. The histological picture suggests most strongly an acute destructive process such as is seen in acute yellow atrophy or acute atrophy due to phosphorus poisoning. The history, symptomatology, especially the absence of acute gastroenteric symptoms, the comparatively long course all tend to discredit this diagnosis. Furthermore, both children apparently were attacked within a period of three weeks by a disease that in both has presented one at a time symptoms compatible with the diagnosis of an alcoholic cirrhosis, and in both was presumably due to the same cause. It seems most improbable that an acute atrophic process of the idiopathic type or due to poisoning or even to intestinal toxemia could originate in both children at almost the same time and then present in both the same symptomatology and protracted course. The other more common causes of hepatic cirrhosis are fairly conclusively ruled out, I think, as follows:—

1. Congenital lues, by the personal history, negative Wassermann test, the symptomatology, and so far as I now know by the pathological and histological findings.

2. Cardio tubercular cirrhosis, of the type described by Hutinel (quoted by Morse, *ibid*), by the absence of any definite signs or symptoms of cardiac or pericardial origin, by the failure of the Roentgen ray to indicate any pericarditis or mediastinitis, and by the fact that the pericarditis found at autopsy was evidently an acute process of recent origin, and there were no old adhesions, and also no valvular lesions found in the heart.

3. Cirrhosis due to acute infections seems fairly satisfactorily ruled out by the negative history of any acute infection except measles and the fact that the symptoms of liver impairment had been present at least for six months before the attack of measles.

In conclusion from all the evidence now at hand and with full appreciation of the rarity of the condition I am inclined to believe that in both children the initial process was a cirrhosis

of the liver due to abuse of alcohol. I am not sufficiently familiar with the pathological changes in the livers of children dying from acute liver degeneration as a sequel to one of the acute infections to advance the idea as anything more than an hypothesis, but it would seem at least possible that in the one case which has come to autopsy the pathological picture might be accounted for by an initial alcoholic cirrhosis complicated by an acute destructive process as a sequel of the measles infection, and later followed by attempts at regeneration of the liver tissue. The whole picture of course being further complicated by an acute general miliary tuberculosis and terminated by the attack of lobar pneumonia.

For the privilege of reporting both cases I am indebted to Dr. Thomas Morgan Rotch, visiting physician at the Children's Hospital.

XXIII.

THE REPORT OF A CASE OF MULTIPLE BONE TUBERCULOSIS ATYPICAL IN ITS DISTRIBUTION AND X-RAY APPEARANCES.

By HENRY J. FITZ SIMMONS, M.D.

Believing that the report of cases which are unusual and which have been studied by the best methods of the present day may lead to a wider dissemination of knowledge and subsequent more accurate diagnosis I report the following case.

This patient J. R., a boy of sixteen months, came to the Out Patient clinic of The Boston Children's Hospital May 3rd, 1913. The child was born in Boston of healthy parents who are still well and strong and show no signs of organic disease. He was breast fed five months and has always had good care.

Four months before entrance the mother noticed a lump in the child's abdomen which has gradually grown smaller. She brought the child to the clinic for diagnosis and treatment of lumps upon the head.

On entrance the child appeared well developed and well nourished. The skin upon his face was clean and of good color. His hair and nails appeared to be normal. His head was of normal size. Both pupils were equal and reacted to light and distance. The right external auditory meatus contained a foul smelling discharge. The left ear appeared normal. Over the right parietal portion of the skull were three tumor masses, each about $\frac{3}{4}$ inch in diameter. Two appeared hard and definitely connected with the bone, the other was fluctuant, neither was reddened nor was there any increase in the surface temperature. The posterior cervical and posterior auricular glands were somewhat enlarged but not tender. At the outer canthus of each eye there was a small

Fig. 1.—Showing tumor mass beneath eyes and tumors over the right parietal region of the skull.

fluctuant reddened area about the size of a green pea. Along the descending ramus and angle of the lower jaw on the left side was a nodular thickening which was neither tender nor reddened. The child's mouth was practically negative. No increase in the adenoid tissue was discernible. Teeth were in good condition and the mucous membranes of good color.

The examination of the chest revealed good development with no signs of rickets. No nodulation could be made out along the course of the ribs. The heart percussed within normal limits and its action was regular as to rate and rhythm. The sounds were of good quality and no murmurs were heard. The lungs showed no areas of dullness, no rales nor adventitious sounds.

The abdomen was soft, easily palpated and no masses nor tenderness was found. The liver and spleen percussed within normal limits but the edge of the liver could not be felt.

There was no enlargement of the iliac or inguinal lymph glands.

On the surface of the right thigh are a few small areas that are covered with dark crusts and are surrounded with an area of induration. The right femoral region appeared normal save for these skin lesions and a general thickness about the lower end. This thickness is above and outside the knee joint.

In the region of the upper third of the right tibia on its anterior aspect one could feel an area of thickening about 2 inches long by 1 inch wide.

Beneath the external malleolus and extending towards the cuboid and over the region of the astragalus is a large, tense area of swelling.

The right upper arm appears normal save for some thickness at the lower end of the humerus.