

No.	NAME	Age	Admitted	Died	Under the care of	Examination, at what time after death
45.	Albert Cini	16 1/2	Feb 14.	Feb. 16.	D. Carafy.	29 hours

MORBID APPEARANCES.

Arteries. Numerous petechia on the skin. Rickety tibia, enlargement above the ribs. Slight oedema of the ankles.

Swelling below the right parotid gland; on section large oedematous lymphatic glands, no caseation, the glands remain distinct, no peridontitis. No other enlarged glands palpable.

Head. Anterior fontanelle open but no width. Dura mater and bones normal; sinuses healthy.

Both middle ears contain soft granular tissue polypii, more fus on the left.

Brain. 26g very anemic, gelatinous, no hemorrhages.

Thorax. Sternum normal on section. Ribs enlargement at junction with costal cartilages resembling rickety beads, they are vascular and on section appear hollowed out. At varying distances from this point there are subperiosteal bony nodules, sometimes there is a continuous layer of red marrow between these points, sometimes the red marrow dies away before the node is reached. These nodes are seen in greater numbers on the left side. There is well formed bone occupying the medullary cavity at section of ribs.

Lungs. $R =$ No tubercles; the bronchi as they enter the lung become injected. Both lungs show bronchopneumonia with some hemorrhages into the larger bronchopneumonic patches.

Bronchial glands small. Thyroid persistent. Thyroid healthy.

Pericardium, numerous petechia on the visceral layer, no effusion.

Heart. Valves and cavities normal. Myocardium pale.

Abdomen. No ascites. Oesophagus normal.

Stomach contains greenish blood. Its mucosa has growing from it a large number of softish white polypoid growths, they cover the surface of the stomach except near the pylorus at this part the mucosa is smooth or about 1 inch. On the outside of the stomach there are a few small nodules.

In the duodenum there are one or two small nodules. In the jejunum the Peyer's patches near the Ileo Caecal Valve are enlarged and friable, the Ileo caecal Valve is in the same condition. There are a few patches on the Caecum. The Vermiform appendix does not appear to be affected, its communication with the Caecum is patent. There is a sessile growth low down in the rectum but none elsewhere in the colon.

The mesenteric glands are about the normal size for a child. Spleen glands not affected but a few of the lumbar glands are pigmented; as are some along the upper border of the pancreas, close to the spleen.

Spleen 8g much enlarged, no capsula on section uniform and normal in appearance, Malignant cells not seen. No infarcts or hemorrhages. Pancreas pale. Suprarenals pale, small.

The Coeliac Ligament is well developed and supports the spleen, where it rests on the colon, the gut is collapsed.

Liver 24g pale, no growths, large gland in post. form. Gall bladder empty.

Kidneys $R = 10$
 $L = 12$ Anemic, no hemorrhages. Bladder distended. Testes rather large.

No. in Regt
1898.

NATURE OF DISEASE.

243.

LEUKEMIA.

CASE.

A CASE OF
LYMPHADENOMA INVOLVING THE
STOMACH IN A CHILD AGED
EIGHTEEN MONTHS
COMPLICATED BY RICKETS AND CLOSELY
SIMULATING LEUKEMIA.

BY
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Reprinted from THE LANCET, May 14, 1898.

No.	NAME	Age	Admitted	Died	Under the care of	Examination, at what time after death
43.	Albert Crini	1 1/2	Feb 14.	Feb. 16.	D. Cavafy.	29 hours

MORBID APPEARANCES.

General. Numerous petechia on the skin. Rectity labia, enlargement above the ribs. Slight oedema of the ankles. Swelling below the right parotid gland; On section large oedematous lymphatic glands, no caseation, the glands remain distinct, no peridontitis. No other enlarged glands palpable.

Head. Anterior fontanelle open but no width. Dura mater and bones normal; sinuses healthy. Both middle ears contain soft granulation tissue polyps, more free on the left. Brain - 26 g very anemic, gelatinous, no hemorrhages.

Thorax. Sternum normal on section. Ribs, enlargement at junction with costal cartilages near vascular end on section appear hollowed out. At varying distances from this point the nodes, sometimes there is a continuous layer of red marrow between these points, sometimes before the node is reached. These nodes are seen on greater numbers on the 6 the medullary cavity at attention of node. Pleurae - no adhesions.

Lungs. $\frac{R}{L}$ No tubercle; the bronchi as they enter the lung become congested. Both $\frac{R}{L}$ some hemorrhages into the larger bronchopneumonic patches.

Bronchial glands small. Thymus persistent. Thyroid healthy.

Pericardium, numerous petechia on the visceral layer, no effusion.

Heart. Valves and cavities normal. Pericardium pale.

Abdomen. No ascites. Oesophagus normal.

Stomach Contains grumous blood. Its mucosa has growing from it a large number of soft lobes of the stomach except near the pylorus at this part the mucosa is smooth for about 1 cm are a few small nodules.

In the duodenum there are one or two small nodules - none on the jejunum. The Peyerian patch and propped, the ileocecal valve is in the same condition. There are a few patches on the rectum not appear to be affected, its communication with the caecum is patent. There is some structure in the colon.

The mesenteric glands are about the normal size for a child. Aortic glands not affected pigmented; as are some along the upper border of the pancreas close to the spleen.

Spleen 8 g much enlarged, no capsule, on section uniform and normal in appearance hemorrhagic. Pancreas pale. Suprarenals pale, small.

The testicular ligament is well developed and supports the spleen, where it rests on the colon, the gut is overlapped.

Liver 24 g pale, no growth, large gland in fetal form - gall bladder empty.

Kidneys $\frac{R}{L}$ $\frac{L}{R}$ Anemic, no hemorrhages. Bladder distended. Uterus rather large.

No. in Regt
1898.

NATURE OF DISEASE.

243.

LEUKEMIA.

CASE.

A CASE OF LYMPHADENOMA INVOLVING
THE STOMACH IN A CHILD AGED
EIGHTEEN MONTHS COMPLICATED
BY RICKETS AND CLOSELY
SIMULATING LEUKEMIA.

THE patient, a male infant, aged one and a half years, was admitted to St. George's Hospital on Feb. 14th, 1898, and died two days later. He was under the care of Dr. Cavafy, who has kindly allowed us to make use of the case. Two months previously the child had been operated upon for a (granulation?) polypus in the right ear and since then had been losing strength and colour. The mother said that the child had brought up blood. A week before admission spots were noticed on the skin which at the post-mortem examination were seen as scattered petechia. There was a tender swelling behind the right parotid, and the spleen was found to be much enlarged, but no abnormal signs were discovered in the lungs. The child was very anemic, but did not complain or appear to suffer any pain except when the right side of his neck was examined, and died quietly from increasing asthenia two days after coming into the hospital.

Owing to the fact that we did not see the patient during life we were unable to make a complete examination of the

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45.	Albert Crini	1 1/2	Feb 14.	Feb. 16.	D. Casaly.	29 hours	243.	LEUKEMIA.

MORBID APPEARANCES.

CASE.

Anemic, numerous petechia on the skin. Rigidity like, enlargement above the ribs. Slight oedema of the ankles.
Swelling below the right parotid gland; on section large oedematous lymphatic glands, no caseation, the glands remain distinct, no periaortitis. No other enlarged glands palpable.

Head Anterior fontanelle open but not widely. Dura mater and bones normal; sinuses healthy.
Both middle ears contain soft granulation tissue polyp, more free in the left.

Brain 26 g. very anemic, gelatinous, no hemorrhages.

Thorax Sternum normal on section. Ribs, enlargement at junction with costal cartilage not vascular and on section appear hollowed out. At varying distances from the point nodes, sometimes there is a continuous layer of red marrow between these points, sometimes before the node is reached. These nodes are seen in greater numbers on the the medullary cavity at situation of node.

Pleurae no adhesions.

Lungs 2^g No tubercles; the bronchi as they enter the lung become impacted. Both lungs hemorrhage into the larger bronchopneumonic patches.

Bronchial glands small. Thyroid persistent. Thyroid healthy.

Pericardium, numerous petechia on the visceral layer, no effusion.

Heart. Valves and cavities normal. Myocardium pale.

Abdomen. No ascites. Diaphragm normal.

Stomach Contains grumous blood. Its mucosa has growing from it a large number of soft fungus of the stomach except near the pylorus, at this part the mucosa is smooth for about 1 or 2 cm a few small nodules.

In the duodenum there are one or two small nodules: none in the jejunum. The superior part and jejunum, the ileocolic valve is in the same condition. There are a few patches on the rest appear to be affected, its communication with the caecum is patent. There is a firm closure in the colon.

The mesenteric glands are about the normal size for a child. Aortic glands not affected pigmented, as are some along the upper border of the pancreas, close to the spleen.

Spleen 8 g. much enlarged, no capsule on section wisson and normal in appearance hemorrhage. Pancreas pale. Suprarenals pale, small.

The Costal Ligament is well developed and supports the spleen, where it rats on the colon, the gut is collapsed.

Liver 24 g. pale, no growth, large gland in post-liver. Gall bladder empty.

Kidneys 2 x 1 1/2 Anemic, no hemorrhage. Bladder distended. Uterus rather large.

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blood—for instance, we have no data with regard to the absolute number of white and red cells. We were fortunate, however, in having several blood films prepared by Mr. S. Smith, the house physician of the case. An examination of these films showed that there was very considerable degeneration of the red cells and that this was accompanied by a large increase in the number of white cells. A differential count of 500 white cells gave the following figures: lymphocytes, 61.1 per cent; polymuclear cells, 16.5 per cent; eosinophile cells, 1.6 per cent; and myelocytes, 20.8 per cent. During this count 84 normoblasts and 6 megakaryoblasts were noticed; many of these showed mitotic changes. There were no Charcot-Leyden crystals. The blood thus showed very marked anemia, together with a marked increase in the number of lymphocytes—many of which were of the larger form—and a very large percentage of cells foreign to normal blood—namely, myelocytes.

At the necropsy the body was found to be markedly anemic with scattered but not very numerous petechia. There was slight oedema of the legs. There were marked rickets curves of the tibia and enlargement of the wrists. There was a hard swelling in front of the sterno-mastoid muscle on the right side reaching up into the parotid region. On dissection this was found to be a packet of glands passing underneath the sterno-mastoid muscle. The glands appeared gelatinous from oedema and the fibrous tissue separating them seemed prominent and increased in amount. Microscopically, the packet of glands on the right side of the neck showed thickening and increase of their fibrous capsules; the normal arrangement of the glands was obscured and lost. There was a general slight increase of the fibrous tissue throughout the tissue of the gland with a number of oval connective tissue cells. The number of small lymphocytes was diminished but large lymphocytes were present in considerable quantities. These cells appeared to be the same as those described by many writers as endotheloid cells. The other accessible lymphatic glands in the body were examined but were not found to be enlarged. The anterior fontanelle was open, but not widely; the diploë and bones of the skull-cap were healthy. The membranes and sinuses were normal. The brain weighed 36 g. and was and sinuses were normal. The brain weighed 36 g. and was healthy. Both membrane tympana were perforated and the middle ears contained soft granulation tissue polyp and mucus. The sternum appeared to be normal on section. The ribs showed very marked rickets enlargement at their costo-chondral junctions, there being in

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several instances some backward displacement of the rib on the costal cartilage. At a distance of from 1 1/2 in. to 2 in. from the costo-chondral junction several of the ribs showed periosteal nodes which on section invaded the medullary cavity and rather suggested a united fracture. But as the node was only on one side, the fracture, if there had been one, must have been a "greenstick." The rickets enlargement was very vascular and was in places excavated into loculi; reddish marrow extended some distance into the shafts of the ribs, in some as far as the periosteal nodes, already referred to. There was no hemorrhage under the periosteum or sign of scurvy rickets. Microscopically, besides marked evidence of rickets, the costo-chondral junction showed an excess of lymphocytic infiltration as compared with normal bones from a child of the same age. This lymphocytic infiltration was also present in the shafts of the ribs; this condition might be thought to resemble, but only in a very minor degree, the lymphadenomatosis of bone described by Weber. The nodes on the ribs were composed of ossifying cartilage; under the node there was a transverse break on the underlying lamina of bone strongly suggesting that a partial fracture had occurred some time before death. The bones of the limbs were not examined. The thymus and thyroid glands were healthy. The pleurae were normal. The lungs showed early broncho-pneumonia with small hemorrhages into their substance. The bronchial and tracheal glands were healthy. There were petechia on the visceral pericardium. The cardiac valves were healthy. The myocardium was pale but there was no manifest fatty degeneration. The abdomen was distended from the presence of flatus in the intestines; but there was no ascites. The oesophagus was perfectly normal. The outside of the stomach near the lesser curvature showed a few plaques of white growth. The stomach contained some grumous fluid. Its mucous membrane presented a remarkable appearance (vide Fig. 1) from the presence of a number of polypoid growths that were scattered all over the lining mucous membrane except for a distance of from 1 in. to 1 1/2 in. around the pylorus. The growths were smooth, white, and not ulcerated. These were of varying size, the largest being equivalent to a small walnut. They were largest and most

A. P. Weber: General Lymphadenomatosis of Bone, one form of Multiple Myeloma. Journal of Pathology and Bacteriology, January, 1898.

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43.	Albert Crini	4 1/2	Feb 14.	Feb. 16.	D. Paraly.	29 hours	243.	LEUKEMIA.

MORBID APPEARANCES.

Anemic. Numerous petechia on the skin. Rigidity of the ribs, enlargement above the ribs. Slight oedema of the ankles. Swelling below the right parotid gland; on section large oedematous lymphatic glands, no caseation, the glands remain distinct, no peridontitis. No other enlarged glands palpable.

Head. Anterior fontanelle open but not widely. Dura mater and bones normal; sinuses healthy.

Both middle ears contain soft granulation tissue polypi, more free on the left.

Brain 36g very anemic, gelatinous, no hemorrhages.

Thorax. Sternum natural on section. Ribs enlargement at junction with costal cartilages not vascular and on section appear hollowed out. At varying distances from this point 1.

nodes, sometimes there is a continuous layer of red marrow between these points, sometimes before the node is reached. These nodes are seen in greater numbers on the the medullary cavity at situation of node.

Pleurae no adhesions.

Lungs $\frac{2}{2}$ No tubercles; the bronchi as they enter the lung become congested. Both (

Some hemorrhages into the larger bronchopneumonic patches.

Bronchial glands small. Thyroid persistent. Thyroid healthy.

Pericardium, numerous petechia on the visceral layer, no effusion.

Heart. Valves and cavities normal. Myocardium pale.

Abdomen. No ascites. Oesophagus normal.

Stomach contains greenish blood. Its mucosa has growing from it a large number of soft lobes of the stomach except near the pylorus at this part the mucosa is smooth or about 1/4 are a few small nodules.

In the duodenum there are one or two small nodules. None in the jejunum. The Peyerian patch and jejunoid, the ileocecal valve is in the same condition. There are a few patches on the not appear to be affected, its communication with the caecum is patent. There is some structure in the colon.

The mesenteric glands are about the normal size for a child. Aortic glands not affected pigmented; as are some along the upper border of the pancreas, close to the spleen.

Spleen 8g much enlarged, no capsulitis on section uniform and normal in appearance hemorrhagic. Pancreas pale. Suprarenals pale, small.

The Costal Ligament is well developed and supports the spleen, where it rests on the colon, the gut is collapsed.

Liver 24g pale, no growths, large gland in fetal form. Gall bladder empty.

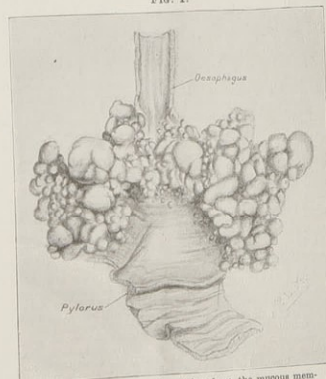
Kidneys $\frac{2}{2}$ Anemic, no hemorrhages. Bladder distended. Testes rather large.

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closely packed near the cardiac orifice, gradually diminishing as the pyloric region was approached. Microscopically the polypoid growths were composed of the mucous membrane

FIG. 1.



Lymphadenomatous growths arising from the mucous membrane of the stomach. The only part not affected is the region around the pylorus.

thrown into folds and extensively infiltrated with large and small lymphocytes (vide Fig. 2). The submucous coat did not contain any lymphocytes at all. This growth, which also contained some spindle-shaped connective tissue, was apparently derived by proliferation of the lymphoid tissue that is normally found on the mucosa. The tubular glands of the

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stomach were somewhat displaced by the growth but showed no proliferation or degeneration and were well preserved. The duodenum showed some vascular streaks from which the stomach was quite free. In the second and third parts of the duodenum there were some small white nodules on the mucous membrane. Close to the entrance of the ileum into the caecum there were a few enlarged and superficially eroded Peyer's patches, but the rest of the small intestine was free.

FIG. 2.



Microphotograph of lymphadenoma of the stomach $\times 12$ showing infiltration limited to the gastric mucosa and not invading submucosa.

The vermiform appendix appeared to be normal and except for a single sessile growth in the rectum the large intestine was free from growth. There was no infiltration of the peritoneal coat of the intestines and the mesenteric glands were normal, but there were The aortic lymphatic glands were normal, but there were some pigmented glands along the iliac arteries and accompanying the splenic artery at its entrance to the hilum of the

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43.	Albert Cini	16/2	Feb 14.	Feb. 16.	D. Caspary.	29 hours	243.	LEUKEMIA.

MORBID APPEARANCES.

General. Numerous petechia on the skin. Rickety ribs, enlargement above the ribs. Slight oedema of the ankles.

Swelling below the right parotid gland; on section large oedematous lymphatic glands, no caseation, the glands remain distinct, no post-mortem. No other enlarged glands palpable.

Head. Anterior fontanelle open but no widely. Dura mater and bones normal. Smell healthy.

Both middle ears contain soft granulation tissue polyp, more free in the left.

Brain. 36 g. Very anemic, gelatinous, no hemorrhages.

Thorax. Sternum natural on section. Ribs, enlargement at junction with costal cartilages + vascular and on section appear hollowed out. At varying distances from these points nodes, sometimes there is a continuous layer of red tissue between these points, some before the node is reached. These nodes are seen in greater numbers on the the medullary cavity at section of ribs.

Lungs. No tubercles; the bronchi as they enter the lung become congested. Both some hemorrhages into the larger bronchopneumonic patches.

Bronchial glands. Small. Thyroid persistent. Thyroid healthy.

Pericardium, numerous petechia on the visceral layer, no effusion.

Heart. Valves and cavities normal. Myocardium pale.

Abdomen. No ascites. Coephaque normal.

Stomach contains greenish blood. Its mucosa has growing from it a large number of nodules of the stomach except near the pylorus at this part the mucosa is smooth for about 1/2 an a few small nodules.

In the duodenum there are one or two small nodules - one on the jejunum. The Peyerian patches and jejunoid the ileocecal valve is in the same condition. There are a few patches on the not appear to be affected, its communication with the caecum is patent. There is some induration in the colon.

The mesenteric glands are about the normal size for a child. Spleen glands not affected pigmented; as are some along the upper border of the pancreas, close to the spleen.

Spleen. 8 g. much enlarged, no capsule on section wisdom and normal in appearance hemorrhage. Pancreas pale. Suprarenals pale, small.

The Costal Ligament is well developed and supports the spleen, where it rests on the colon, the gut is collapsed.

Liver. 24 g. pale, no growths, large gland in portal space. Gall bladder empty.

Kidneys. 2 1/2 g. anemic, no hemorrhages. Bladder distended. Uterus rather large.

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spleen. The spleen weighed 8 oz. and was much enlarged; it rested on an extremely well-developed costo-colic ligament and the adjacent splenic flexure of the colon was collapsed as if from pressure. There was no capsulitis and on section the spleen appeared to be tough, reddish, and uniform. There were no manifest pigmentation, no enlargement of the Malpighian bodies, and no lardaceous reaction. There were no infarcts or hemorrhages. Microscopically the pulp was inundated with large and small lymphocytes; the Malpighian bodies were small but had not undergone any fibrotic change. There was some pigmentation around the walls of the sinusoids. There was no fibrosis of the spleen. The suprarenals and the pancreas were normal. The kidneys (each weighed 1 oz.) were pale but otherwise normal. Microscopically there were a few small foci of small and large lymphocytes, small lymphadenomatous growths, and some blocking of the capillaries with lymphocytes. The tubal epithelium showed a little proliferation. The bladder was normal. The testes were large but healthy. The liver was enlarged to a slight extent and on section appeared to be swollen and pale. There was a large white gland in the portal fissure, but there were no growths on the substance of the organ. The bile-ducts were pervious. The gall-bladder was almost empty. Microscopically there was a general excess of lymphocytes in the capillaries, so that in the liver appeared to be in a state of early leukemia. In the addition there was in the portal spaces and outside the capillary vessels early lymphadenomatous growth composed of lymphocytes and young connective tissue-cells. There was no cirrhosis or fatty change.

Remarks.—Viewing the case in the first place from the standpoint of the blood examination alone the case would plainly have to be described as one of leuco-myelogenous leukemia. The small percentage of eosinophilic cells is unimportant, but the majority of observers are agreed that the part played by eosinophilic cells in leukemia is unimportant. Some of the blood changes are undoubtedly due to the fact that the child was suffering from marked rickets. In this disease there is considerable anemia, which is often accompanied by a lymphocytosis and a small (from 2 to 3 or less) percentage of myelocytes. In this patient, however, the large percentage of myelocytes was far in excess of anything that has been found in any other disease than leukemia. Again, a part of the lymphocytosis and the small number of polynuclear cells might readily be accounted for by the age of the child, so

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that it is fair to regard the excess of small lymphocytes as due to some other cause than leukemia. In fact, our knowledge of the changes which occur in the blood in children is not sufficiently accurate for us to form any definite conclusions on a blood examination alone in such a case as this. It might be suggested that the case should be classified under what von Jaksch² and others have called "anemia infantum pseudoleukemica." It is very doubtful, however, whether this name can be fairly given to any class of disease. The vast majority of cases recorded under this heading have not been examined in a sufficiently thorough manner in the matter of a differential count of the white cells for us to say under what classification they should be put. Further, very different types are given by different observers. We agree with von Limbeck³ that no such disease exists and we believe that Cabot⁴ is right in suggesting that the cases which have been recorded as cases of "anemia infantum pseudoleukemica" are in reality either cases of pernicious anemia, secondary anemia without leucocytosis, Hodgkin's disease, lymphatic leukemia, or possibly cases of spleno-myelogenous leukemia. It is further possible, as Cabot suggests, that there may be cases which are intermediate between leukemia and pernicious anemia. Turning to the point of view of the morbid anatomy the case appears to be a remarkable example of lymphadenoma. The growth, as is so often the case, apparently began in the cervical glands, and it is probable that the poison, whatever it may be, which gives rise to lymphadenoma gained entrance to the lymphatic system through the abraded surface in the right tympanum. Starting here, the growth had become general and, a noteworthy feature in the case, chiefly in the alimentary canal and especially in the stomach. The spleen was much enlarged and there was some infiltration of the ribs. These latter lesions, as will be seen, are of great interest. Now though lymphadenoma, unlike leukemia, is far from rare in young children, it appears that lymphadenomatous growths from the gastric mucous membrane have not been previously described at so young an age. The youngest case which Pitt⁵ recorded was twenty-four years old and

² Von Jaksch: Wiener Klinische Wochenschrift, 1899, No. 22 and 23.

³ Von Limbeck: Grundriss einer Klinischen Pathologie des Blutes, p. 368.

⁴ Cabot: Clinical Examination of the Blood.

⁵ Pitt: Transactions of the Pathological Society of London, vol. 21, p. 80.

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MORBID APPEARANCES.

Protriae. Numerous petechiae on the skin. Reddy tibia, enlargement above the ribs. Slight oedema of the ankles. Swelling below the right parotid gland; on section large oedematous lymphatic glands, no caseation, the glands remain distinct, no periaortitis. No other enlarged glands palpable.

Head. Anterior fontanelle open but no width. Dura mater and bones normal; sinuses healthy. Both middle ears contain soft granulation tissue polyp, more free in the left.

Brain. 56 g. Very anemic, gelatinous, no hemorrhages.

Thorax. Sternum normal on section. Ribs enlargement at junction with costal cartilages. Vasculature and on section appear hollowed out. At varying distances from the point nodes, sometimes there is a continuous layer of red tissue between these points, some before the node is reached. These nodes are seen in greater numbers on the medullary cavity at situation of nodes. Pleurae no adhesions.

Lungs. L_1 No tubercles; the bronchi as they enter the lung become injected. Both some hemorrhages into the larger bronchopneumonic patches.

Esophageal glands small. Thyroid persistent. Thyroid healthy.

Pericardium, numerous petechiae on the visceral layer, no effusion.

Heart. Valves and cavities normal. Myocardium pale.

Abdomen. No ascites. Oesophagus normal.

Stomach Contains grumous blood. Its mucosa has growing from it a large number of nodules of the stomach except near the pylorus at this part the mucosa is smooth or about a few small nodules.

In the duodenum there are one or two small nodules. None in the jejunum. The Peyerian patch and Peyer's, the ileocecal valve is in the same condition. There are a few patches on the not appear to be affected, its communication with the caecum is patent. There is some distension in the colon.

The mesenteric glands are about the normal size for a child. Spleen glands not affected pigmented; as are some along the upper border of the pancreas, close to the spleen.

Spleen 8 g. much enlarged, no capsule on section uniform and normal in appearance hemorrhage. Pancreas pale. Suprarenals pale, small.

The Gastrocolic Ligament is well developed and supports the spleen, where it rests on the colon, the gut is collapsed.

Liver 24 g. pale, no granules, large gland in portal space. Gall bladder empty.

Kidneys: L_1 R_1 Anemic, no hemorrhage. Bladder distended. Uterus rather large.

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the average of his 5 cases was 44-8 years. The morbid appearances in our case closely resemble those in Pitt's own patient, who was forty-eight years old. In both the mucous membrane of the stomach around the pylorus, in the antrum pylori, was free from lymphadenomatous growths. This is very striking, especially in Pitt's case, when it is considered in the light of the anatomical distribution of lymphoid tissue in the mucous membrane of the stomach. From a number of observations Soltan Fenwick* concluded that in "infancy and childhood these collections of lymphoid tissue are fairly developed and profusely scattered over the whole surface of the organ, but are always particularly large and distinct in the pyloric region near the lesser curvature. After the age of forty it is often impossible to demonstrate their presence in the cardiac two-thirds of the stomach without the use of the microscope, and in the pyloric region they are much reduced in numbers and appear small and shrunken." The growths have therefore in both cases avoided the parts where the lymphoid follicles are normally best developed, and in Pitt's case were present where the lymphoid tissue is usually atrophied at that age. It is plain, then, that although the disease appears from the morbid anatomy standpoint to be lymphadenoma, yet it presents some unusual features in such points as the distribution of the disease. So far we find that the blood examination points to a diagnosis of leucomyelogenous leukemia and that post-mortem evidence gives support to the diagnosis of lymphadenoma. If the disease were leukemia throughout there ought to have been much more marked leukemic infiltration of the liver and the kidneys than was present, for it is of the liver and the kidneys that only two cases of genuine leukemia the other organs should be affected to a corresponding degree. On the other hand, the examination of the sections of the liver and kidney showed that the capillaries were in places filled with lymphocytes, thus supporting the diagnosis of early leukemia. Against leukemia, however, we have to face the fact that only two cases of genuine leukemia in infancy have been recorded,† and that of these only one was of the leucomyelogenous type. In this case there was a percentage of 21 myelocytes and this was associated with a large increase in the number of white cells and an

* Soltan Fenwick; Journal of Pathology and Bacteriology, vol. 1, p. 426.
† Morse; Boston Medical and Surgical Journal, 1894.

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abundance of nucleated red cells. It is possible to regard the case as primarily one of Hodgkin's disease which in its later stages had taken on the characteristics of leukemia. There is no doubt that cases which clinically are primarily cases of Hodgkin's disease do before death develop the blood characteristics of leukemia. It may be that towards the end of a case of lymphadenoma we get in some instances what may be called a lymphadenoma of the blood—that is to say, the process in the glands becomes acute and there is secondary invasion into the blood, getting in this way the appearance of lymphatic leukemia, just as in sarcoma a secondary invasion occurs by means of the blood. This secondary invasion in sarcoma is, it may be noted in passing, often associated with what appears to be a lymphocytosis. This occurrence thus becomes very interesting, not only from the point of view of the relationship between lymphadenoma and leukemia, in which the lymphatic glands and the leucocytes are respectively affected, but as bearing on the relationship of lymphadenoma to sarcomatous growth. The close connexion of these diseases is made more evident by the result of Muir's* careful study of a series of leukemic cases; he comes to the conclusion that the changes in both forms of leukemia are due to the proliferation of a certain cell—possibly owing to the action of some irritant—in a manner analogous to what is found in certain tumours, such as sarcoma. In this particular case the morbid appearances suggest Hodgkin's disease, the blood examination points to a mixed leukemia, and in view of the above it might be held that the case was primarily Hodgkin's disease and secondarily had taken on the blood characteristics of leucomyelogenous leukemia. Against this, however, we know in the first place that strange variations occur in the blood of children without any very apparent cause, and further although the blood examination is in itself very much in favour of leucomyelogenous leukemia, yet considering the age of the child it does not justify the conclusion that the case was leukemia. This conclusion is very much strengthened by the fact that there appears to be no record of any case of lymphadenoma which went on to leucomyelogenous leukemia, although cases of Hodgkin's disease indistinguishable in the late stages from cases of lymphatic leukemia are common. It would seem best to regard the case as one of aberrant lymphadenoma in which changes simulating leucomyelogenous leukemia had been

* Muir; Journal of Pathology and Bacteriology, vol. 1, p. 121.