HEMOLYTIC ANEMIAS


The hemoglobin value of cord blood is well correlated with the severity of hemolytic disease. In contrast, venous and capillary blood samples, especially when taken some hours or days after birth, are liable to misinterpretation. Normal values do not exclude anemia at birth. If the cord is not clamped early and transfer of placental blood is allowed, a deceptively high hemoglobin value may result.

In this series most of the babies with a cord hemoglobin of less than 8 grams per cent died within twenty-four hours of birth. A raised venous pressure found in some of these infants suggested that they died from heart failure. All of those with a cord hemoglobin of over 14 grams per cent survived.

The cord bilirubin and degree of erythroblastemia also show some correlation with severity of the disease, but other tests, such as the strength of the direct Coombs test, amount of free antibody in the infants' blood and form of antibody in the mothers' serum are of limited value.

These observations are of considerable value as a guide to the management of infants with hemolytic disease. Also, as the authors point out, the adoption of examination of cord blood as a routine in affected babies would make it possible to compare groups of cases in regard to severity.

S.C.

MEDITERRANEAN ANEMIA. A. Marmont and V. Bianchi. From the University Medical Clinic, Geneva (Italy). Acta haematologica 4: 28, 1948.

Three cases in the same Sicilian family of the so-called 'Rietti-Greppi-Micheli's hemolytic anemia' with increased osmotic resistance of the erythrocytes are reported, remarkable also for the clinically and hematologically normal parentage. The genetic implications related to this point are discussed. The findings of a biliary calculosis and an ulcer on the right ankle of one of them are briefly elucidated. Hematologic studies showed the well known features of this peculiar disease; particular stress is laid on the authors' researches on red cells fragmentation in vitro and in vivo, chiefly by means of a supravital staining technic, and others.

The demonstration of an intense erythrocytic disintegration, with signs of increased mechanical fragility, both in this and in genuine Cooley's anemia affords still a further motive to the authors for identifying the above mentioned syndrome with the moderate form of Mediterranean anemia. The hypothesis of mechanical fragility as closely related to increased osmotic resistance and inversely to osmotic fragility, is considered, and an outline of a new classification of primarily hemolytic and primarily erythrophagocytic anemias, the latter comprising both thalassemia and sickle-cell anemia, is put forward. Some
speculations as to the nature of the blood disorder, suggesting a congenital error of iron metabolism possibly involving faulty stroma-hemoglobin bindings, are advanced.

C.M.

**Congenital Hemolytic Icterus in the Negro. R. R. McCormack and E. P. Simon.** From the Department of Medicine, Cornell University Medical College and the Second (Cornell) Medical Division, Bellevue Hospital, New York City. Am. J. M. Sc. 216: 539-544, 1948.

Congenital hemolytic icterus in a 26 year old Negress is reported. This patient is a maternal aunt of the patient reported by Scherer and Cecil (J. Lab. & Clin. Med. 30: 244, 1945) and if the diagnosis is correct is about the fourth or fifth well authenticated case reported in a Negro. No evidence of racial admixture was obtained. The diagnosis of congenital hemolytic icterus was supported by the family history, spherocytosis, splenomegaly, and increased erythrocyte fragility in hypotonic saline. However, history of hemolytic episodes was singularly lacking, the anemia and reticulocytosis were minimal and although jaundice was present it was most likely due to the passage of a common duct stone. Following splenectomy and cholecystectomy the jaundice disappeared, the spherocytes diminished in numbers, the saline fragility curve shifted toward normal and the reticulocytosis, macrocytosis and anemia disappeared.

G.E.C.


The sickle cell trait was found in 24.2 per cent of 500 gravid Negro women, in 24 per cent of 250 nongravid Negro females of child bearing ages, and in 13.8 per cent of 250 adult Negro males. Of 71 pregnant females with the sickle cell trait, one was found to have mild sickle cell anemia. Sicklemia did not interfere with conception nor with normal pregnancy and delivery. Pregnancy did not activate a blood destructive process in 12 sicklemia patients observed through the last trimester and during labor and the puerperium.

G.E.C.


The disease, observed by Berlin in 11 cases from Central Sweden, has previously never been observed outside East Prussia. It was first described in 1932-33 and later in 1932-33 with in all about 1,000 cases. Even if the disease itself is hardly to be regarded as belonging to hematology the sudden appearance of large amounts of blood pigments in the urine should make it of diagnostic importance especially to hematologists.

The symptoms appear some time after the patient has eaten fish and occur chiefly among fishermen. In the present epidemic, all the patients lived around a lake where the fishing is of great economic and nutritional importance. All the cases occurred from February 1942 to April 1943. Later there were no similar cases. The symptoms are always ushered in by pains in the legs and back, the urine is dark red and contains large amounts of myoglobin. After some days the pains disappear and the urine becomes pale. Uremia is the only complication and in the author’s material there were 2 deaths among 11 persons.

The author discusses the possibility that the disease may have something to do with the so-called Chastek paralysis caused by the presence of an antithiamin active substance in the muscles from certain fish species.

It seems probable that this diagnosis will be found to be more common with increasing knowledge of the symptomatology.

J.W.


The paper reports on the determination of the life duration of transfused red cells in two cases of hemolytic anemia; one of these cases belonged to macrocytic anemia Dyke-Young, the other was a case
ABSTRACTS

of congenital hemolytic jaundice. The conclusions which can be drawn from these investigations for the pathogenesis of such types of anemia are discussed.

C.M.

A CASE OF LYMPHOMANANULOMATOSIS (HOOGIEN'S DISEASE) WITH HEMOLYTIC ANEMIA. Svend Graelund.
From the Medical Department of Aalborg County Hospital, Denmark. Acta med. Scandinav. 129: 361, 1947.

The occurrence of hemolytic anemia (hypersplenism) in patients with splenomegaly from different causes is well known at present. The case treated in this paper is of great interest as splenectomy caused temporary improvement of the anemia (erythrocytes from 0.84 mill. to 3.5 mill.). Later the patient developed typical Hodgkin's disease with involvement of the lymph glands. Histologic structure was typical in the glands but the microscopic examination of the spleen showed no sign of Hodgkin's disease. Two similar cases have been published previously. Such instances of 'symptomatic hypersplenism' are of great therapeutic importance as has recently been emphasized by Dameshek.

J.W.

MACROCYTIC ANEMIAS

MACROCYTIC ANEMIA IN CENTRAL AFRICANS IN RELATION TO ANCYCYLOSTOMIASIS AND OTHER DISEASES. H. Lehmann. From Makerere College and Mulago Hospital, Kampala, Uganda, Africa. Lancet 1: 90-95, 1949.

This article contains some interesting observations which help to disentangle some of the problems of both tropical macrocytic anemias and Kwashiorkor.

By the study of 44 cases of severe anemia, the author shows that macrocytosis in the Central African is due mainly to reticulocytopoiesis in response to blood loss or following appropriate treatment. These macrocytes he calls 'coctic' (unfinished) cells, being distinct from macrocytes derived from megaloblasts. Most of the patients had a severe hypochromic type of anemia due to hookworms, but malaria and infection in some masked the blood picture of iron deficiency. Evidence is given that either iron or worming will give a partial remission in hookworm anemia but that both are necessary for full recovery. It was further noted that worming reversed symptoms usually associated with Kwashiorkor, e.g., pale skin and hair, in patients whose iron deficiency has been corrected. The suggestion is made that the parasites inhibit tyrosine oxidation, thus affecting melanin formation and arresting maturation of reticulocytes. This might be an additional factor in producing macrocytes. Tests in which tyrosine was injected into the skin are described to support the idea of inhibition of oxidation by parasites.

S.C.

A CASE OF PERNICIOUS FORM ANEMIA IN A CHILD NINETEEN MONTHS OLD. P. H. D. Waagstein. From the Medical Service of the County Hospital, Maribo, Denmark. Acta med. Scandinav. 131: 547, 1948.

The child had been breast-fed until 10 months old. Then for four months chiefly breast-fed. Later milk but practically no egg, fish or meat. At 19 months, severe megalocytic anemia with megaloblastic marrow was found. Gastric acidity: over 40 units of free HCl after histamine. Treatment with concentrated liver extract gave reticulocyte response and prompt changes in the sternal marrow. After thirty days, the red cell count was 4 million. Specific treatment was stopped and after six months there was a severe relapse. Liver extracts had excellent effect again. The diet in the interval was regarded as sufficient.

J.W.


A case of chronic liver refractory macrocytic anemia with nonmegaloblastic marrow and no increase in reticulocytes, no signs of liver damage and presence of free HCl in the gastric juice was treated with blood transfusions until folic acid could be given. With 25 mg. of this preparation pro die there was rapid improvement with marked reticulocytosis and increase in both red and white cells. Such cases are of great importance as folic acid seems to be the only way of treating them effectively. The presence of free
ABSTRACTS

HCl in the gastric contents in such atypical liver refractory conditions that respond well to the administration of folic acid should be especially stressed (cf. also, macrocytic anemia of pregnancy).

J.W.


Thirteen patients with initial pernicious anemia were investigated with regard to skewness of the Price-Jones curves. The majority of the cases had symmetric curves but the distribution range of the cell-sizes was abnormal, showing the blood to be pathologic.

J.W.


Liver extracts contain a substance that can combine with porphyrin. The porphyrinic properties are lost as long as it forms part of this compound. This hitherto unknown substance is found especially in the liquid obtained by expression of the liver. In pernicious anemia it is lacking. In urine and stomach secretion of normal persons this substance is always present, but in urine and stomach of patients with pernicious anemia it was not found, even after treating these patients with liver extracts.

C.M.


This paper is a continuation of Bonsdorff’s previous work on the mechanism of tapeworm anemia in Finland. Folic acid had an excellent effect in four cases of this disease when given in doses of 20-30 mg. perorally for 7-10 days. The author concludes that the antianemic effect is not impaired by the presence of the worm in the intestinal canal.

J.W.


The possibility that the tapeworm might contain some substance antagonistic to the action of the antianemic factor formed by the interaction of Castle’s intrinsic and extrinsic factors was tested by the author. Neither fresh nor dried tapeworm has any influence on this interaction in vivo. Nor was the remission after the expulsion of the worm checked by peroral administration of dried tapeworm. Preparations of hog’s stomach mixed with large amounts of dried worm had retained their therapeutic effect.

J.W.


The explanation of the fact that only a low percentage of tapeworm carriers show signs of pernicious anemia is not yet found. The possibility that the location of the worm may be of importance from the point of view of pernicious anemia was investigated. It was found that the worm is most frequently located in the ileum, rarely in the jejunum and very rarely in the gall-bladder. Vomiting of the tapeworm seems to be connected with a higher incidence of anemia. The possibility that the tapeworm may be located higher up in the intestinal canal when vomited seems worth discussing. The author is very careful, however, in drawing any conclusions regarding the connection between high location of the worm and occurrence of tapeworm-anemia.

J.W.

ON THE SECRETION OF GASTRIC JUICE IN RECOVERY AFTER PERNICIOUS BOTHROCEPHALUS ANEMIA. G. A. Hernberg. From the Medical Department of Maria Hospital, Helsingfors. Acta med. Scandinav. 129: 12, 1947.

A follow-up examination of 14 patients, who had suffered from pernicious tapeworm anemia 1–12 years ago is published. The blood picture was normal. Achlorhydria was found in 12 cases. In all of these
the worm had been expelled only 1-3 years ago. In the other cases 7-9 years had elapsed since the expulsion of the worm. No case was found, where an idiopathic pernicious anemia had developed.

J.W.

ANEMIA: THERAPEUTIC AGENTS


Thymidine has been isolated from liver and found to prevent the toxicity of methyl folic acid. It can also replace vitamin B12 in the nutrition of certain lactobacilli. Such microbiologic evidence suggested that thymidine might have antipernicious anemia activity.

This paper reports that 48 mg. of thymidine intramuscularly produced no hematologic remission in a patient with classic addisonian pernicious anemia. The same patient later responded to 7.5 μg. of a red crystalline antipernicious anemia factor identical with or closely allied to vitamin B12.

S.C.


Three patients with tropical sprue have been maintained in complete hematologic remission for at least a year on oral thymine therapy. There was no evidence of subacute combined degeneration at any time. The patients, according to the authors, were asymptomatic with completely normal stools after the first six weeks of therapy. Two of the patients were maintained on 5 grams of thymine per day. The third patient received 15 grams of thymine for 30 days and none thereafter.

G.E.C.


Pteridines and blood sera have been shown to cause a cellular proliferation in vitro of bone marrow suspensions of the rat, rabbit, cat, sheep, and beef. This work was done to determine the effects on the bone marrow of the human. Rib marrow was obtained by surgery and a suspension was prepared in Tyrode's solution without glucose. Ten mg. of hydrolysate and 0.5 mg. of tryptophane were added per ml. of cell suspension. Proliferation was determined by means of cell counts. Xanthopterin increased the rate of cell proliferation while antixanthopterin inhibited this proliferation.

R.C.C.


An in vitro cell survival technic using rat bone marrow and based on the reticulocyte increase after three hours incubation at 38°C in various dilutions of glucose-free Tyrode's solution is described. Data are given which indicate that maturation of the red cells is stimulated by anti-pernicious anemia liver extracts and not by various other substances including an inactive liver extract. Pterolyglutamic acid and pteroylheptaglutamic acid were inactive when so assayed. Normal human serum and rat serum exhibited the presence of the maturation factor required by this technic.

G.E.C.


Young rats were made anemic by feeding a purified diet containing one per cent sulfathiazole. A single injection of less than 5 mg. of xanthopterin per kilogram of body weight produced hemopoiesis. Best
results were obtained with 1.0 mg. Doses of 10 mg. or more aggravated the anemia. Normal rats were also studied. Similar results were obtained.

R.C.C.


Twenty cases of iron-deficiency anemias were treated with intravenous injections of a special chemical compound of ferri-iron. In 17 cases an increase of the hemoglobin, the number of the erythrocytes, the reticulocytes and the serum-iron was observed as an effect of this treatment. In 19 cases there was a special favorable effect on the symptoms and on the epithelial signs.

Side effects in connection with the injections were not noticed. Paravenous injection of the iron solution must be avoided.

C.M.


“Ferrivenin” (saccharated oxide of iron) was used to treat 25 patients with anemia of pregnancy. All the patients responded to treatment and the response compared favorable to that obtained in 62 similar patients given iron by mouth. Two patients apparently refractory to iron by mouth responded to the intravenous iron. One patient had a severe reaction and about 10 per cent showed a slight general reaction at the first or second injection but not subsequently.

The pregnant anemic women appeared to need more iron than nonpregnant women to restore the hemoglobin values to normal, i.e., almost 40 mg. of iron for every 1 per cent increase in hemoglobin; perhaps due to the demands of the fetus.

S.C.


After trial of many different iron preparations it was found that Seitz filtered ferri ox. sacch. B.P. (1 per cent iron) could be given intravenously in large doses without producing toxic symptoms. Sixty patients with iron deficiency anemia were treated, about a third of them with a home made preparation and the remainder with “Ferrivenin” (Bengers, Ltd.). The total blood iron deficit was calculated in each patient and 50 per cent added for depleted body stores. The usual scheme of dosage was 25 mg., increasing daily up to 100 mg. on the fourth and subsequent days until the total calculated dose had been given. Only one patient developed a mild reaction to 100 mg. but larger doses gave more frequent reactions. Fifty-seven of the 60 patients, including some refractory to oral iron, showed a striking therapeutic response. Utilization of iron appeared to be nearly 100 per cent, urinary loss being negligible. Two patients with chronic infection showed a response but required more than the calculated amount to maintain improvement.

This experience with intravenous saccharated oxide of iron confirms a real therapeutic advance. The suggestion that the anemia of infection may respond to this form of iron is especially interesting and clearly needs confirmation.

An amendment to the method of preparation and further details are given in a letter from these authors in Lancet i: 163, 1949. They also give a warning against the irritant action of the iron preparation if allowed to leak around the vein.

S.C.

LEUKOCYTES, LEUKEMIA, LYMPHOMA


The conception of the neutrophil stab-cell is critically analyzed, and it is shown that by strictly using Schilling’s definition only the lack of segmentation of this cell group is taken into consideration. While
the name of stab-cells should express at the same time a lack of lobulation of the nucleus. It is pointed out, that the tendency to lobulation of the nucleus and the degree of segmentation of the nucleus have, from the genetic point of view, a different origin. The lobulation of the nucleus respectively the definitive number of the segments is dependent on the form of the maturating myelocytes, but the extent of segmentation is regulated by the speed of maturation and emigration. Those two functions are controlled by the vegetative nervous system: the formation of the cells is under parasympathetic, the maturation and emigration under sympathetic influence. It is suggested that from now on one should distinguish only between segmented and unsegmented neutrophils, and to record separately the number of the segments either developed or still in development.

C.M.

THE INFLUENCE OF PHYSICAL AND CHEMICAL AGENTS ON THE MOVEMENT OF LEUKOCYTES. P. Schaefer.
A method is described for the measurement of movements of isolated cells. The results of the measurement concern the influence of hypotony and hypertony, colchicine, acetone, alcohol, chloralhydrate, stilbestrol and cibazol, and they are compared with the influence on the development of mitoses in fibrocytes.

C.M.

Previous work has indicated that toxic agents introduced into the body produce a decrease in the circulating lymphocytes through the action of the adrenal cortex. This work was done to determine whether there would be any response to typhoid vaccine in the absence of the adrenal glands. Fifty-six adult male rats of the Sprague-Dawley strain were used. They were adrenalectomized and maintained on 0.9 per cent salt solutions. Intraperitoneal injections of typhoid vaccine markedly lowered the lymphocyte level two hours after the injection in the absence of the adrenal glands. In addition, the neutrophils increased in number. Normal human beings injected with typhoid vaccine showed similar results. It is concluded that the adrenal glands are not necessary for the lymphopenia which is induced by typhoid vaccine.

R.C.C.

The prophylactic and therapeutic administration of folic acid to cats did not alter the occurrence or the magnitude of leukopenia caused by exposure to 200γ whole body irradiation.

G.E.C.

STUdIES ON BLOOD HISTAMINE. PARTITION OF BLOOD HISTAMINE BEFORE AND AFTER CLOTTING IN HEALTH AND DISEASE STATES. W. N. Valentine and J. S. Lawrence. From the University of Rochester School of Medicine and Dentistry and the Department of Medicine of Strong Memorial and the Rochester Municipal Hospital, Rochester, New York. Am. J. M. Sc. 216: 661-664, 1948.
Data are presented on the partition of blood histamine before and after clotting and on the correlation of blood histamine levels with the blood leukocyte picture in health and disease states. The data support the view that most of the blood histamine in man is found in the myeloid leukocyte. Little or no transfer of histamine from cells to serum was observed when human blood was allowed to clot. Greatly increased values for blood histamine were found in patients with chronic myelogenous leukemia, but no close correlation was obtained between the level of blood histamine and the total or differential leukocyte count. The studies did not permit any conclusions as to which members of the granulocyte series are richest in histamine content.

G.E.C.

A patient with acquired hemolytic anemia accompanying Hodgkin's disease showed a positive Coombs' test. This was taken to indicate the intravascular hemolytic action of an immune gamma globulin. In stained films of the patient's blood many of the lymphocytes showed cytoplasmic buds especially at the time of maximum hemolysis and it is suggested that such buds, becoming detached, might be the source of the immune gamma globulin.

S.C.

ON SERUM COPPER IN ANGINA SIMPLEX AND IN INFECTIOUS MONONUCLEOSIS. S. Munch-Petersen. From the Biochemical Institute, Aarhus University, from the Medical-epidemic Department, Aarhus Marselisborg Hospital and from the Medical Department of Aarhus County Hospital, Denmark. Acta med. Scandinav. 31: 588, 1948.

Serum copper was determined with sodium diethyl-carbamate in 22 cases with angina and 10 patients with infectious mononucleosis. In both conditions the values were increased as might be supposed in a febrile condition. The values in infectious mononucleosis were much higher. The meaning of this difference is discussed but no explanations could be found.

J.W.


The author discusses the problem: why cases of chronic myeloid leukemia with increase in the basophilic leukocytes do not show greater tendency toward bleeding than patients with the same disease but with low counts of basophilic cells. If the basophilic cells of the blood were really producing heparin this is hard to explain. The difference between tissue basophilic cells and blood basophilic cells is pointed out.

J.W.


The author stresses the frequent occurrence of osteo-articular symptoms in the early stages of leukemia in children. Many such cases have for a time been mistaken for acute rheumatic fever. In early infancy, rheumatic symptoms will always indicate a careful examination of the blood (often including the bone marrow as the blood picture may be almost normal until terminally). The relation between the articular symptoms and the radiographically demonstrable bone lesions is discussed. The value of the roentgenologic examination of the skeleton in obscure cases is emphasized. The literature is surveyed, and three characteristic case reports are presented.

C.M.


Monocytic leukemia is briefly discussed and a case of the Naegeli-type is reported. The monocytoid elements which were originally found, changed their character and more and more resembled myeloblasts, finally only paramyeloblasts and myeloblasts were observed. Sternal puncture made an early diagnosis possible.

C.M.


A case is presented in which the patient when first seen had the histologic findings of lymphosarcoma with normal blood and bone marrow; a year later an acute "lymphatic" leukemia developed with rapidly fatal course. The transition of the lymphosarcomatous to the leukemic phase could be followed by serial blood, sternal and iliac bone marrow and tissue studies and confirmed at autopsy.
ABSTRACTS

The cells of the blood, marrow and the lymph nodes have the characteristic features of lymphosarcoma cells. Consequently the disease can be classified as lymphosarcoma cell leukemia.

The possibility is discussed whether roentgen- and nitrogen mustard therapy induced or enhanced the appearance of the leukemic phase.

C.M.


The electrophoretic patterns of various blood dyscrasias are presented. The leukemic states are associated with a diminution in the approximate absolute amount of albumin and a rise in the absolute amount of globulin. The albumin-globulin ratios fall below the limits of normal in most instances. The alpha-1 and alpha-2 globulin are increased in most instances and the increase is noted with both normal and diminished total albumin values. Gamma globulin values, both absolute and relative, were elevated in monocytic leukemia, reticulum cell sarcoma, and infectious mononucleosis. Chronic lymphatic leukemia demonstrated low relative and absolute gamma globulin values. A markedly lowered albumin-globulin ratio appears related to the degree of infiltration of the bone marrow by leukemic cells as well as when the excretory and metabolic functions of the liver demonstrate impairment. No alteration in the serum protein architecture was noted following Stilbamidine therapy.

G.E.C.


During the last war the authors were assigned to the Army Institute of Pathology to render a report on all lymphatic and hemopoietic tissue submitted. The present paper is a summary of a pathologic study involving 1300 lymphatic tumors including 700 cases of Hodgkin's material and 600 cases of lymphomas (follicular lymphoblastoma, lymphosarcoma, reticulum sarcoma, lymphatic leukemia, monocytic leukemia) apart from Hodgkin's disease. The authors conclude that a rigid subclassification of lymphatic tumors is artificial and confusing. In their material there was a striking fluidity in histologic pattern, with transitions and combinations that could best be interpreted as indicating a single neoplastic entity having a number of variants. As they state, this is not surprising when one appreciates that all cellular components of lymphatic tissue are derived from the same mesenchymal stem cells.

A virtually complete alteration in the histologic pattern of the tumor in the Hodgkin's group was noted in 39 per cent of the 138 autopsied cases in which biopsies were available and in 31 per cent of the serial biopsy group. Pure tumor types were present in only 19 per cent of the autopsy group and in 23 per cent of the serial biopsy group. The variety of histologic appearances observed in different foci in the same individual, and even in several areas in the same node, was still more spectacular. Three hundred eighty-four of 700 cases presented these combined lesions. Lymphomas not grouped with Hodgkin's disease also exhibited an alteration of their histologic structure in much the same fashion.

G.E.C.

BONE MARROW AND RETICULOENDOTHELIAL SYSTEM

The Occurrence of Epithelioid Cell Granulomas in Human Bone Marrow. H. Gormsen. From the University Institute of Legal Medicine, Copenhagen. Acta med. Scandinav. Suppl. 213, 154-164, 1948. Studia in Honorem Einar Meulengracht.

Histologic sections of sternal aspirates showed typical granulomas in 10 of 39 patients with Boeck's sarcoid, in 5 of 5 patients with miliary tuberculosis and in 15 of 15 patients with brucellosis.

J.W.

ABSTRACTS

This is probably the most extensive study of the peripheral blood and bone marrow of the normal dog which has as yet been published and has promise of serving as the standard reference of this subject for some time to come. It is regrettable, however, that volume of packed red cell measurements were not done and values for the red cell indices calculated. Analysis of the peripheral blood of 91 normal dogs is presented including differential white cell counts. Bone marrow differential counts from the ribs, femora, tibiae and humeri are presented, compared and analyzed statistically. Bone marrow total nucleated cell counts are given for one or more sites from 4 different bones. Rib bone marrow has been studied at 1, 3, 4, 5 and 8 hours after death and no significant alterations in degree of cellularity and cellular detail was found. Histologic studies are also included.

G.E.C.


This work was undertaken to determine whether ripe erythrocytes were stored in the bone marrow. Dog A was injected with 30 mg. of phenylhydrazine per Kg. of body weight which produces Heinz's granules in a large percentage of the dog's erythrocytes. After allowing time for all phenylhydrazine to be eliminated, the circulation of dog A is crossed with another dog, dog B. In this way the labelled erythrocytes were introduced into dog B. This crossed circulation was maintained from thirty minutes to one hour. By means of this technic the author found that no ripe erythrocytes were stored in the bone marrow, and concluded that all red cells achieve their ripening in the circulating blood.

R.C.C.


The author points out that the intact animal is not always the best thing to use in the study of toxicology. He describes a method of using tissue cultures of bone marrow for the study of the toxic actions of drugs.

R.C.C.


The still unsolved problem of the denucleation of red blood cells or the separation of cytoplasm from the erythroblasts in the marrow is discussed. A large number of morphologic observations that seem to indicate that the hypothesis of protoplasmatic budding may be correct are presented. Also the bone marrow cultures by Plum are regarded as proof that this explanation should be accepted. The presence of unripe reticulocytes with a structure possibly indicating a 'scar' from the stalk after the budding is also interpreted in the same way. The paper should be read in the original by all those who are interested in the problem of erythrocyte formation.

J.W.


The diagnosis of Gaucher's disease depends upon the demonstration of the glucose containing cerebroside or of the characteristic Gaucher cell. The disease can be diagnosed before the appearance of hepatomegaly or splenomegaly.

The study of properly prepared sections of the bone marrow is a more certain method of diagnosis than the study of sternal puncture smears. Gaucher's disease is not a disease of the reticulo-endothelial system. The reticular cells, osteoblasts, osteoclasts and fibroblast-like spindle cells of bone and marrow are the source of the Gaucher cell. The Gaucher cell is morphologically distinct from the cells found in the other fat storage diseases. Evidence is offered that red cells in the marrow in Gaucher's disease are present outside of what is ordinarily conceived to be blood vessels.

C.M.
ABSTRACTS


The paper begins with an anatomic description of the reticulo-endothelial system (issue 563), followed by a discussion of its physiology in relation with malarial fever (issue 566) and of its pathology in various infectious diseases (issue 567). Most of the photomicrographs have been taken from the collection of Dr. Soberon y Panza. The endo- and exocrythrocytic cycle of the plasmodium is stressed, the latter taking place in the reticuloendothelial cells where they remain in a 'latent state.' This localization of the plasmodium, which appears to be most important, explains the therapeutic failures of most antimalarial drugs. She believes that the anemia of malarial fever is not only due to the destruction of the erythrocytes in the peripheral blood, but also to a block and degeneration of the hematopoietic organs. For the study of malarial reticuloendotheliosis she recommends the methods of Henry and Soberon.

R.M.S.

HYPERSPLENISM


The indications for splenectomy in 6 patients with reticuloses are discussed. In 2 patients the spleen was removed in order to alleviate pressure symptoms, in 2 for leukopenia, in 1 for thrombocytopenia. The effect was favorable in 5. In one patient a diagnostic splenectomy had no favorable effect.

J.W.

MYEOSCLEROSIS. A CASE WITH NON-MYELOID SPLENOMEGALY, AND AN ATTEMPT AT FINDING OUT THE PATHOGENESIS BY MEANS OF COMPARISON WITH RESULTS OF ANIMAL EXPERIMENTS. H. C. Engell. From the Medical Department of the Frederiksborg County Hospital, Denmark. Acta med. Scandinav. 129: 371, 1947.

Splenomegaly and myelosclerosis were present in this patient and the author regards the changes in the spleen as nonleukemic. Splenectomy was performed at an early stage on the assumption that there was present a splenogenic inhibition of the marrow. The correctness of this explanation may be questioned but there was definitely an increase in leukocytes after operation. Later the patient died with anemia and thrombocytopenia but no leukopenia. The bone marrow showed increased fibrosis and the diagnosis was myelosclerosis. No extramedullary hemopoiesis was found.

J.W.


The history of a man, 25 years old, who had suffered since childhood from recurrent stomatitis, angina and profuse nosebleeds is given. There was no anemia but the leukocytes decreased from 3,000 in January 1943 to 760 in February 1945. Platelets low. No signs of myeloblastosis in the bone marrow. Splenectomy gave prompt objective and subjective cure. Observation time two years. The patient’s brother had typical symptoms of acute leukemia clinically. The possibility of a connection between the two diseases is pointed out.

J.W.

HYPERSPLENISM: SOME PRELIMINARY OBSERVATIONS. W. Dameshek, and S. Estren. From the Blood Laboratory of the J. H. Pratt Diagnostic Hospital, Boston, Massachusetts and the Department of Medicine, Tufts College Medical School, Boston, Massachusetts. Acta med. Scandinav. Suppl. 213, 106-119, 1948. Studia in Honorem Einar Meulengracht.

The paper gives an essence of Dameshek’s ideas about hypersplenism with some illustrative case histories showing the importance of splenectomy.

J.W.
ABSTRACTS

BLOOD VOLUME


The authors have presented a method for determining total circulating red blood cell volume by an isotope diluting technic using radioactive phosphorus. The authors point out that the subject to be studied is utilized for the labeling, that the counting is easy, that determinations can be repeated, and that the rapid uptake and slow release of radioactive phosphorus by exposed red cells facilitates wide experimental application. Details of the method are too complex to put in abstract form.

R.C.C.


The object of this experiment was to compare the results obtained with the dye method for determining red cell volume with the method utilizing radioactive phosphorus (Am. J. Physiol. 155: 226-231, 1948). Concomitant measurements of red cell mass and plasma volume were made with the P-32 technic and the T-1814 method on 10 normal and 35 hospitalized patients. A standard correction factor of 0.915 was used to correct the hematocrit values for trapped plasma. Total blood volumes were calculated from the red cell volume and hematocrit and from the plasma volume and hematocrit. These values were compared with the total blood volume as calculated from the sum of the actually determined red cell and plasma volumes and showed satisfactory agreement. The data show that the plasma-dye-hematocrit method is valid provided the corrected hematocrit value is used.

R.C.C.

MEASUREMENT OF CIRCULATING RED-CELL VOLUME WITH METHEMOGLOBIN-TAGGED CELLS. J. C. MOORE, O. W. SHADLE AND H. C. LAWSON. From the Department of Physiology, University of Louisville School of Medicine, Louisville, Kentucky. Am. J. Physiol. 155: 312-319, 1948.

Circulating red cell volumes were determined on splenectomized barbitalized dogs by means of the conventional dye method and also by injecting a suspension of red cells containing large amounts of methemoglobin. The latter method always gave values that were lower than by the dye method even after corrections were made for the injected material.

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DETERMINATION OF BLOOD VOLUME IN DOG BY MEANS OF VISUALLY LABELLED ERTHROCYTES. A. NIEIT. From the Institut de Clinique et de Policlinique Médicales, Université de Liège. Quart. J. Exper. Physiol. 34: 113-128, 1948.

This study was undertaken to determine blood volume by means of labelling erythrocytes with Heinz granules by injections of phenylhydrazine. A known volume of labelled blood was injected intravenously into a dog and a blood sample removed five to forty minutes after the injection. By using a formula, which is given, the blood volume can be determined by counting the erythrocytes containing granules. The average circulating blood volume was found to be 66 cc. per Kg. of body weight.

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This experiment was conducted to test the theory that there is a reserve of red blood cells in the spleen which can be utilized by the body in cases of emergency. Three normal adults, one patient with rheumatoid arthritis, and one patient with hemolytic anemia were studied. After preliminary studies had determined the normal plasma and red cell volumes (by the dye and radioactive phosphorus methods), normal peripheral and body hematocrits, and protein level, each person was injected with 1 mg of adrenalin. One man who expected adrenalin was given saline. This amount of adrenalin did not result in any significant changes in the plasma or red cell volumes. The authors conclude that if sympathetic stimulation or adrenaline influence these functions, the effect must be very slight and of no real significance as an emergency response.

BLOOD COAGULATION AND HEMORRAGIC DISEASES


The administration of 3 or 4 mg of nitrogen mustard per kilogram of body weight to rabbits produced a prolongation of the clotting time. The same syndrome was produced in human beings after therapeutic doses of this drug. The amount of protamine necessary to produce clotting in the heparin tolerance test was increased and the prolonged clotting time and decreased ‘heparin tolerance’ were reversible with antiheparin substances. The values for calcium, prothrombin and fibrinogen were normal. The platelets were reduced but prolongation of the clotting time took place prior to a significant reduction in platelets. The authors conclude that the anticoagulant present in the blood is probably heparin or a heparin-like substance.


Studies were made on the blood of man, dogs, and rabbits. All calcium was removed from blood by treatment with Amberlite IR-100. The blood was then treated with varying concentrations of calcium, barium, strontium, and magnesium to test the effects on coagulation. The optimal amount of calcium for coagulation was found to be the same as is found in blood normally. All the above mentioned elements have an inhibitory action on coagulation when increased above the optimal level.


The object of this experiment was to determine the exact role of the platelets in blood coagulation. This study was aided by the availability of purified preparations of a number of the principal factors which participate in clotting reactions. Bovine platelet extracts contain an accelerator of prothrombin activation and only a small amount of thromboplastin. This accelerator is in an active form and acts in a similar manner to serum Ac-globulin. It is apparently a protein. Bovine extracts also contain a factor which hastens the second stage of clotting. The authors postulate that platelets aid in the initial formation of thrombin by catalyzing the interaction of prothrombin and thromboplastin. This thrombin then activates the inert plasma Ac-globulin to its active counterpart, serum Ac-globulin, which acts as the principal accelerator of the first stage of clotting.

ABSTRACTS

A report of two cases of multiple hereditary telangiectases with recurrent hemorrhages (Rendu-Osler) is presented and compared with other cases of external and internal types of this condition with special regard to multiple telangiectases of the nervous system and other inborn vascular malformations. In the first case the developmental error was not restricted to the structure of the telangiectatic malformations but extended besides to a degeneration of the collagenous and elastic tissue of the skin outside the telangiectases. The second case offered the rare combination with a venous hemangioma of the spinal cord, causing the symptoms and signs of a cauda-conus tumor. This coincidence speaks in favor of some relationship between both inborn vascular lesions indicating a common congenital disorder of the vascular system. The genetic connections between inborn vascular lesions of the skin and the nervous system are discussed.

THROMBOCYTHEMIA HEMORRHAGICA. Ole Mortensen. From the Department of Medicine, Kolding Sygehus, Denmark. Acta med. Scandinav. 129: 547, 1948.

The occurrence of chronic bleeding (nose, stomach and post-traumatic) in spite of very high platelet counts (3–6 million) is illustrated by a case history of a man of 60, who had previously suffered from polycythemia. The erythrocyte values were exactly 5 million at the time of investigation but the leukocyte count was high (max. 50,000). The syndrome is regarded as a malignant hyperfunction of the bone marrow of the same type as myeloid leukemia and polycythemia.

Obviously, the connection with polycythemia is quite intimate. A similar case is published by J. E. Holst, Acta Medica Scandinavica 130: 507, 1948.


The author describes 3 cases of polycythemia with a bleeding tendency. Two of these cases had platelet-counts around 300,000 (normal value with the technic used 300,000). They also had low fibrinogen values but other polycythemics showed normal or increased fibrinogen values in spite of bleeding. A closer analysis of this symptom seems desirable.

NEWS AND VIEWS

JOSÉ ORIA

In July 1948, Dr. José Oria, leading hematologist of Brazil and one of the Contributing Editors to this journal from Latin America, died in São Paulo, victim of a rare neoplasm. He was 43 years old and at the height of his professional career.

In Brazil, particularly in São Paulo, we owe a great debt of gratitude to those European physicians who, in response to the plea from the government of Brazil, came to the country and helped raise the standards of medical education. However, in the field of hematology there were no preceptors and José Oria had to start completely on his own resources. He graduated from the Faculty of Medicine of