ABSTRACTS

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ABSTRACTERS

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NUTRITIONAL ANEMIA

STUDIES ON IRON METABOLISM IN NUTRITIONAL MACROCYTIC ANEMIA. C. R. Das Gupta, J. B. Chatterjea and S. K. Ghosh. From the Department of Hematology, School of Tropical Medicine, Calcutta, India. Bulletin Calcutta School of Tropical Medicine, Vol. 1, No. 4: 9, 1954.

Serum iron, unsaturated iron binding capacity of serum and iron saturation were estimated in 9 cases of nutritional macrocytic anemia (NMA). Mean value of serum iron before treatment was 137.1 µg. (range 80.0-225.0); after improvement of blood picture the mean value dropped to 72.5 (range 50.0 to 100.0). Mean value for unsaturated iron binding capacity was 168.8 µg. (range 50.0-300.0); after improvement of blood picture the mean value increased to 347.6 (range 300.0-400.0). The results indicate that uncomplicated NMA does not show any iron deficiency. — J.B.C.

RELAPSE IN NUTRITIONAL MACROCYTIC ANEMIA: C. R. Das Gupta and J. B. Chatterjea. From the Department of Hematology, School of Tropical Medicine, Calcutta, India. Bulletin Calcutta School of Tropical Medicine, Vol. 1, No. 4: 7-9, 1954.

Unlike pernicious anemia (PA), nutritional macrocytic anemia (NMA) patients usually do not require any maintenance therapy with antimegaloblastic drugs. Eleven cases of NMA showing one or more relapses were investigated with a view to find out the factors responsible for relapse. Dietary inadequacy and hypersplenism singly or in combination appeared to be contributory factors for the precipitation of relapse. State of gastric acidity did not appear to influence the incidence of relapse. Unlike PA, achlorhydria in some cases of NMA was reversible and thus achlorhydria was in all probability the effect and not the cause of anemia. Steatorrhea and impaired glucose absorption patterns in an average case of NMA might similarly be the manifestations of folic acid or vitamin B12 deficiency. — J.B.C.


The effect of citrovorum factor and of vitamin B12 in the treatment of nutritional macrocytic anemia with megaloblastic bone marrow is described. A single intramuscular injection of 24 mg. of the factor given to 5 patients was followed by a prompt but temporary improvement which began to wear off during the 3rd week. A single intramuscular injection of 120 µg of vitamin B12 produced prompt and sustained response in 2 similar patients. The results indicate that 24 mg. of citrovorum factor is not adequate to normalize the blood picture in nutritional macrocytic anemia. — J.H.C.
ABSTRACTS

STUDIES ON VITAmIN B12 EXCRETION PATTERNS IN NUTRITIONAL MACROCYTIC ANEMIA:
C. R. Das Gupta, J. B. Chatterjea, S. K. Ghosh and D. K. Banerjee. From the Department of Hematology, School of Tropical Medicine, Calcutta, India. Bulletin Calcutta School of Tropical Medicine, Vol. 1, No. 3: 8-9, 1954.

In 8 untreated patients the mean fecal excretion of vitamin B12 in 24 hours was 64.9 micrograms, as measured microbiologically by the growth response of a mutant of E. coli (M 200 of Dr. Davis). Expressed in micrograms per gram of dried feces the fecal excretion in these cases was 1.2 micrograms.

Terramycin in the dosage of 1.5 gm. given daily effected partial clinical and hematologic improvement and the fecal output of B12 as assayed by the growth response of E. coli fell to zero. By paper partition chromatography a B12 fraction could, however, be separated in the feces during terramycin therapy. Thus terramycin by its physical presence appeared to inhibit the growth of assay organism. The inhibitory effect of terramycin on the assay organism was confirmed by in vitro experiment.—J.B.C.


Liver function tests were carried out on 56 patients comprising macrocytic anemia 20, hypochromic anemia 9 and dimorphic anemia 27 cases. In 34 cases tests were repeated after anemia had improved considerably. Detoxifying function of the liver as measured by hippuric acid excretion test was depressed in all types of anemia; the depression varied directly with the severity of anemia and was uniformly restored to normal level with improvement of anemia. Another significant finding was low total protein values in 40 per cent of cases of macrocytic anemia. The other tests did not show any consistently abnormal pattern.—J.B.C.


The proliferation of megaloblasts (m.) in vitro (bone marrow cultures) before and after treatment with folic acid was investigated in a case of megaloblastic, nutritional anemia. The following results were obtained: (1) the duration of proliferative differentiation of m. in this condition is longer than normal, as happens in pernicious anemia, (2) similar results were obtained by using either normal plasma or patient’s plasma in the bone marrow culture, (3) the basophilic m. present a more pronounced proliferation than the polychromatophilic m., (4) the mean duration of the kinetic period of the basophilic m. is shorter than that of the polychromatophilic m., (5) as a whole, the m. in nutritional anemia were not different, from the functional point of view, from the m. in pernicious anemia, (6) proliferation of normoblasts was normal, (7) after treatment with folic acid, normal findings were obtained.—P.d.N.


Twenty-one cases of macrocytic anemia in pregnancy, 13 with megaloblastic and 8 with normoblastic bone marrow, were treated with vitamin B12 by the oral or the intramuscular route. In both the megaloblastic and normoblastic groups the response was better by the intramuscular route.

Initial response was good (improvement rate over 90 per cent of the expected improvement as calculated according to the formula of Della Vida and Dyke) in 70 per cent of cases with megaloblastic marrow and in 80 per cent of cases with normoblastic marrow. The good initial response was not, however, sustained and continuation of vitamin B12 therapy did not usually produce further improvement of blood picture but administration of folic acid or crude liver extract did.
The authors suggest that an average case of macrocytic anemia in pregnancy represents combined deficiency of folic acid and vitamin B₁₂. — J.B.C.


An extensive review of the subject prepared on behalf of the Maternal and Child Health Advisory Committee of the Indian Council of Medical Research. Different aspects of the problem have been discussed very critically, especially the way in which Indian data compare with European and American data.

The paper contains a volume of information and should be read in original. At the end of the review are appended recommendations for future lines of work in India. — J.B.C.


Dimorphic anemia representing combined deficiency of antimegaloblastic factors (AMF) — folic and/or vitamin B₁₂ — and iron is very common in India. On the basis of hematologic picture and therapeutic response, the incidence of dimorphic anemia in 103 cases of nutritional anemia was as high as 51.4 per cent. Deficiency of AMF and iron was considerable in 51 per cent; in the remaining cases deficiency of one factor predominated over the other — deficiency of AMF was predominant in 38 per cent and deficiency of iron in 11 per cent of cases.

The characteristic macrocytic hypochromic blood picture was seen in 83 per cent of cases. In the peripheral blood smear association of megaloblasts, giant stabs or macrocytes with a large number of hypochromic red cells is diagnostic. The bone marrow presents a variable picture. Megaloblasts may or may not be present; some of the megaloblasts even in late stages may show basophilic cytoplasm suggestive of iron deficiency. Such a cell bearing the stamp of both AMF and iron deficiency has been designated as “hypochromic megaloblast.” More often transitional cells are present. Malformed “hypochromic normoblasts” are seen whenever a significant degree of iron deficiency is present. Characteristic granulocytic or megakaryocytic changes suggestive of AMF deficiency are seen in the majority of cases. The granulocytic changes in association with “hypochromic normoblasts” characterize the majority of cases.

When one deficiency predominates the signs of the other deficiency may not be evident initially. With correction of the major deficiency the minor deficiency is usually unmasked. — J.B.C.

RETICULOENDOTHELIAL SYSTEM

MALENT GRANULOMA AND ITS TREATMENT. G. Brusori. From the Istituti del Radio e di Radiologia, University, Bologna, Italy. Minerva med. 42(2): 723-728, 1954.

One hundred twenty-two cases of Hodgkin’s disease were treated by roentgentherapy or radiumtherapy and in some cases with nitrogen mustard as well. The immediate results were represented by reduction or disappearance of the lymph nodes, above all in the mediastinal area, and by improvement of the general symptomatology (cough, dyspnea, pruritus, fever). The survival rate on 114 patients was as follows: 19.2 per cent patients alive after three years; 7.8 per cent after five years and 5.5 per cent after ten years. In female patients the tendency to a chronic course was usually observed. Young patients were more sensitive to treatment. — P.d.N.


The annual death rate from Hodgkin’s disease in England and Wales, according to the Registrar General, is 17 per million population. In this paper the pathology, clinical pic-
tured, diagnosis and treatment are discussed. The five year survival rate of 256 treated cases (1934–47) was 21 per cent of males and 34 per cent of females.—R.H.G.


The coexistence of cryptococcosis and malignant disease of the reticuloendothelial system, particularly Hodgkin's disease, is more frequent than can be explained on the basis of mere coincidence. The present study confirms these observations particularly with regard to the disseminated form of cryptococcosis. Of 60 cases from the files of the Armed Forces Institute of Pathology, 30 per cent were associated with malignant disease of the reticuloendothelial system. Eighty-three per cent of the cases occurring in Hodgkin's disease and other disorders of the hematopoietic system were disseminated while only 21 per cent of those unassociated with these diseases were disseminated. On the other hand, of 13 patients with localized lesions due to cryptococcosis, not a single one was associated with malignant lymphomas or leukemias. It is believed that the relatively higher incidence of cryptococcosis in patients with malignant disorders of the reticuloendothelial system may be due to increased susceptibility to certain infections, including cryptococcosis. There is no morphologic evidence that cryptococcosis is capable of exciting a tissue response that mimics Hodgkin's disease or other malignant lymphomas, nor that it is an etiologic agent of these diseases. There was no conclusive evidence that chemo-therapeutic agents such as nitrogen mustard and urethane were responsible for the diminished resistance of these patients to the infection.—H.R.


In non-reactive tuberculosis there are disseminated miliary areas of necrosis which contain large numbers of tubercle bacilli and are surrounded by either normal parenchymal cells or a minimal degree of the usual tissue response to tuberculosis. The incidence of association of this form of tuberculosis with an abnormal blood picture is striking. Agranulocytosis, obscure anemias, leukemoid changes and thrombocytopenia are frequent. The condition has also been observed in association with leukemias and Hodgkin's disease. (Reviewer's note: Non-reactive tuberculosis is particularly apt to occur in association with malignant disorders of the reticuloendothelial system. Not infrequently a diagnosis of leukemia established during life is changed to tuberculosis with leukemoid reaction when the postmortem findings become available. However, the tuberculous lesion may produce such extensive necroses involving the leukemic infiltrate that a diagnosis of leukemia is difficult to make on the basis of the postmortem sections. Careful analysis of the clinical data and pathologic findings often reveal that the tuberculous lesions are so recent they must have been preceded by months and sometimes years by the abnormal hematologic findings. See also the Clinicopathologic Conference. Ann. Int. Med. 42: 945, 1955.)—H.R.


Stellate cytoplasmic inclusion bodies were observed within multinucleated myeloma cells in a lymph node from a case of plasma cell myeloma, and within multinucleated "Gaucher's cells" from two cases of Gaucher's disease. These stellate inclusions were morphologically identical with inclusions commonly seen in giant cells of granulomatous reactions. They are not specific for any disease. The asteroid bodies seen in the case of myeloma gave histochemical reactions indicating the presence of a protein component either in the bodies or adsorbed on them. Identical reactions were obtained with asteroid bodies in a case of non-caseating granuloma with the clinical picture of Boeck's sarcoidosis.

The progression of nuclear changes noted in the case of plasma cell myeloma suggested
to the author that the inclusions are composed, at least in part, of nuclear material released by rupture of the nucleus. It is suggested that the presence of lipids or lipoproteins in the cytoplasm of giant cells may favor formation of asteroid bodies.—R.R.E.


An account of three patients who were operated upon for what was found to be lymphosarcoma of the stomach. The patients were males aged 66, 66 and 46 years. None had leukocytosis and only one had a raised lymphocyte count. This patient also had enlargement of the spleen and abdominal lymph nodes. He later developed leukemic infiltration of the spine. Another patient died of generalized disease of the reticulo-endothelial system. The third patient, who was given radiotherapy, is alive and well after four years.—R.H.G.


In a woman, aged 33, repeated histological evidence of a typical Hodgkin’s lymphogranuloma was obtained. It could not be said with certainty whether the disease started in the lymph glands surrounding the sternum or in the bone itself. For 11 years, the disease has been running a course of an isolated bony lesion with conspicuous occasional glandular manifestations, appearing only around the affected bones and rapidly disappearing. The bony process proceeded slowly but relentlessly in a belt-like manner around the upper thoracic opening and even returned to places once before affected and repaired by condensation. Metastases and generalization did not occur till now.—M.N.

ERYTHROCYTES AND ERYTHROCYTIC DISEASE


Once thought to be limited to Mediterranean races the disease appears to have an almost universal incidence. In India 15 cases were reported in the past. During the last two years the authors came across 42 cases of Cooley’s anemia with distinctive hematological and biochemical findings. In the parents and siblings of these cases were encountered 39 people with mild or minimum forms of the disease. While reviewing the evidences of minimum anomaly or trait the authors think that specific tests for identifying these cases are yet to be evolved.

While discussing the diagnostic criteria the authors contend that in Indian patients too much emphasis should not be laid on the mongoloid facies. Target cells were seen in greater numbers in the milder forms of the disease where normoblasts were few or absent; target cells were relatively scanty in the severe forms of the disease. The authors postulate that this particular shape of the red cells may be an admirable contrivance for the optimum distribution of sub-optimal amount of hemoglobin. Normal or high serum iron with greatly reduced iron-binding capacity and high level of fetal hemoglobin provided valuable confirmatory evidences in favor of the diagnosis of Cooley’s anemia. The more frequently observed radiological signs in the skull bones were loss of density, increased porosity and coarse bony trabeculations which together presented a mottled appearance; classical hair-on-end appearance was found in only a small number of cases.

Evidences of associated nutritional macrocytic anemia was found in three patients while three others showed evidences of hypersplenism.—J.B.C.

FOETAL HEMOGLOBIN IN BLOOD DISORDERS WITH SPECIAL REFERENCE TO ITS DIAGNOSTIC VALUE IN FAMILIAL HYPOCHROMIC ANEMIA. C. R. Das Gupta, J. B. Chatterjea and S. K. Ghosh. From the Department of Hematology, School of Tropical Medicine, Calcutta, India. Bulletin Calcutta School of Tropical Medicine 2: 9-11, 1954.
Employing alkali denaturation technique as described by Singer et al., the authors found a high level of fetal hemoglobin (F.Hb.), varying from 8.5 to 77.9 per cent in the blood of 18 patients suffering from Cooley’s anemia. F.Hb. in other hematological disorders did not exceed 4.52 per cent. High levels of F.Hb. provided confirmatory evidence in favor of the diagnosis of Cooley’s anemia.—J.B.C.


Thirty-five cases of microdrenchocytic disease (Blood 7: 429, 1952) were observed in Sicily, Italy, in 17 out of 120 families. It was found that this condition is frequent in Sicily, where small foci of sickling subjects are possibly present in some districts. Hematologic studies revealed the presence of hypocromic anemia, leukocytosis, circulating nucleated erythrocytes, morphologic abnormalities of the erythrocytes, decreased red cell fragility. From the genetic point of view, it was assumed that the sickling and the microcytic genes are both present in these patients.—P.d.N.


In fifty cases of chronic, non-constitutional anemia and in 264 hematologically normal subjects as controls, the bone structure was studied radiologically. Subjects more than 55 years of age were not included. A high percentage of hyperplastic alterations in the bones in the anemia cases (24 per cent) as compared with the other subjects (9.09 per cent) was observed. This finding is discussed from the pathogenetic point of view.—P.d.N.


Girl of 14 years. A cousin of the mother had leukemia. On admission the girl showed paleness, some enlargement of lymph nodes and hepatosplenomegaly. Temperature varying from 38 to 39°C. Hematological findings: normochromic anemia (30%), slight reticulocytosis, marked predominance of nucleated red cells and myeloblasts in the blood, the nucleated red cells being of a very immature and atypical kind and outnumbering the myeloblasts (number varying from 15,000 to 40,000/cu.mm.). The bone marrow showed also a predominance of cells belonging to the erythropoietic system: normoblasts, immature erythroblasts and large erythroblasts ("promegaloblasts, no typical megaloblasts"). Among the cells not belonging to the erythropoietic system the myeloblasts ("micromyeloblasts") predominated. Megakaryocytes were lacking, signs of hemorrhagic diathesis present. Osmotic fragility increased. Serum iron low. Acute course. At autopsy, cellular infiltrations in all organs with predominance of erythroblasts. The case is considered as a genuine erythroleukemic myelosis (erythroleukemia).—C.G.
ABSTRACTS


Three lipid-containing protein fractions have been separated; two of these migrate readily in veronal buffer at pH 8.6. The electrophoretic mobility was estimated on the basis of aocarnine B and sudan black binding resulting from staining after paper electrophoresis. Similar studies were carried out on a preparative scale by zone electrophoresis on cellulose slabs using Whatman No. 1 standard grade cellulose powder. The blood group substances A and B were located in the slowly moving fraction in high concentration. Rh substance is present in the crude stroma extract but, on electrophoresis, neither fraction was sufficiently strongly inhibitory to the Rh antibody to indicate the fate of this substance.—R.H.G.


Reticulocytes and polychromatocyte erythrocytes are known to have a higher oxygen consumption than mature red cells. In blood from lead-poisoned guinea pigs the oxygen consumption was found to be roughly proportional to the number of stippled cells. This finding is believed to support the concept that stippled erythrocytes are immature cells.—R.S.

LEUKOCYTES AND LEUKOCYTIC DISEASE


Studies on the electrolyte pattern in leukocytes have been limited. However, the K⁺, Na⁺ and Cl⁻ content of rabbit leukocytes have been determined and some of their permeability characteristics studied. The present paper reports experiments to determine changes in the internal K⁺–Na⁺ content of the rabbit leukocytes under in vitro conditions and the factors acting to limit or accelerate these changes. Cells were obtained by a slight modification of Hamburger’s classic technic. Analyses of rabbit polymorphonuclear leukocytes from sterile exudates gave values of about 105 mEq./Kg. cell water for potassium and 68 for sodium. Cytolysis in distilled water removed all analyzable K⁺ and Na⁺. The addition of glucose retarded the rate of K⁺ loss at 37 C. Protection against K⁺ loss by glucose could not be attributed to simple hydrogen-ion exchange for extracellular K. Maintaining cell suspensions at 2 C. produced an enhanced loss of K⁺ when compared to losses at 37 C. An exact reciprocal amount of Na⁺ was gained.—O.P.J.


Plasma cells were studied in lymph nodes from 15 day, 30 day and 6 month old albino rats, and in rib, clavicular and sternal marrow from patients with multiple myeloma. The factor determining the transformation of lymphocytes into plasma cells seems to be a lymph stasis and accumulation of noxious metabolites in chronic inflammation. In multiple myeloma an additional factor must be postulated because of the neoplastic transformation. The reported multiple origin of plasma cells may be explained on the basis of the unitarian theory of hemocytopoiesis because it postulates an identity among the "blast" cells. Plasmacytes exhibited a slight degree of motility in fresh mounts.—O.P.J.
ABSTRACTS


When William Russell first described certain intracellular acidophil hyalin bodies, which today bear his name, they were thought to be “the characteristic organism of cancer.” Since that time, a large literature has developed about the appearance of Russell body plasma cells in a wide variety of chronic infections. The present paper deals with the experimental production of these bodies in animals after the injection of bacteria. They were present in the spleens of rabbits and mice after a single antigenic stimulus in animals previously sensitized to this antigen. Histochemically Russell bodies gave a positive reaction with periodic-acid-Schiff reagent. Demonstration of antigen and antibodies in tissues was accomplished by the technic of Coons and Kaplan (1950), which involves the precipitation of fluorescein-tagged antibodies. “Crystals” occurring with the cytoplasm of plasma cells are similar in composition to Russell bodies.—O.P.J.


Leukemia is not common. During 1948 it was responsible for only 1.6 per cent of all malignant growths in Scotland. Reports of leukemia in pregnancy have been relatively few. Four cases of chronic granulocytic leukemia associated with pregnancy are described. Possibly two were pregnant twice during the illness. Others previously reported are analyzed in tabular form. Fetal death does not necessarily occur, even in acute leukemia, and it is uncertain whether pregnancy has a harmful effect on the leukemia. Most authors consider that pregnancy should not be terminated.—R.H.G.

HEMOLYTIC DISEASE OF THE NEWBORN


This article is a well presented summary of work beautifully executed. There is first a brief review of accepted theories of the mechanisms which lead to erythroblastosis fetalis. It is pointed out that treatment of the Rh-negative mother during pregnancy has not been found useful. This includes the use of Rh-hapten, progesterone, diethylenesulfonate, “desensitizing” injections of Rh-positive blood, and cortisone. Many reasons are given for the use of Rh-negative blood in exchange transfusions, chief among these being the avoidance of intravascular clumping which is held responsible for tissue (i.e., brain and liver) damage.

Portions of the authors' own summary are here given:

“Among 36 stillbirths caused by Rh sensitization, all but one of the patients had Rh antibody titers of 16 units or higher by the albumin-plasma conglutination method. . . . Therefore, when using antibody titer as a criterion of severity, it was decided to consider 8 units by the albumin-plasma titration as the upper limit for cases classified as mildly affected.

“The results of treatment by exchange transfusion in a series of 222 erythroblastic infants were compared with the results obtained in a series of 67 erythroblastic babies who were left untreated or given one or more simple transfusions. Among ‘mildly’ affected babies, i.e., those whose mothers had antibody titers of 8 units or less, no significant differences in the mortality rate in the two series was demonstrable. On the other hand, among severely affected babies treated by exchange transfusion the mortality rate was 15.5 ± 2.0 per cent; while among the babies receiving simple transfusions or no treatment, the mortality rate was as high as 46.4 ± 6.2 per cent. The difference in mortality . . . is statistically significant.
"During the past few years . . . part of the citrated plasma is removed from bank blood not more than 3 days old . . . and the resulting concentrated blood (hematocrit, approximately 0.50) is used for the exchange transfusion . . . In the more severely affected babies, a second such exchange transfusion is given 24 to 48 hours after birth. Among 78 erythroblastic babies treated in this way, of whom 53 had mothers with antibody titers above 8 units . . ., the mortality rate was only 5.1 ± 1.6 per cent (. . . including neurological sequelae as well as deaths). . . A case is cited which demonstrates the importance of icterus per se as a criterion of severity, and therefore this sign is a strong indication for treatment by exchange transfusion even in the absence of anemia."—T.R.T.

**THE CONSERVATIVE TREATMENT OF FOETAL ERYTHROBLASTOSIS. J. Schubert and J. Novák.**

From the Gynecologic and Medical Clinic, State Hospital in Praha. XVI. Čas. Lék. Čes. 91: 72-77, 1952.

Basic treatment of cases with high titer of anti-Rh antibodies consists in the application of hapten. To this treatment should be added the administration of vitamins K, C and P (fortification of the placental barrier), methionine and iron (amelioration of the general state of fetus) and diethylstilbene (accelerated repairation of placental lesions). The authors report in detail the observations of two women in which this treatment fully succeeded; in both the pregnancy was terminated prematurely, but without Caesarean section.

The administration of hapten has also a prognostic significance. If the titer of antibodies falls quickly, the prognosis is favorable; in severe cases, the change in titer is insignificant or nil.—M.V.

**HEMOLYTIC DISEASE OF THE NEWBORN IN BINOVULAR TWINS. S. N. Garde and H. M. Bhatia.**

From the Department of Obstetrics and Gynaecology, B. Y. L. Nair Hospital and the Department of Pathology and Bacteriology, Seth G. S. Medical College, Bombay, India. Ind. Jour. M. Sc. 8: 87-94, 1954.

Both the binovular D + ve twins born of a 20 year old Indian D — ve female showed signs of hemolytic disease and were treated by exchange transfusion. Authors made serial studies on anti-D titers in mother's serum and milk. With a view to assess the effect of breast milk on the newborn, the female baby was breast fed and the male baby top fed for the first 10 days. During this period the female baby receiving mother's milk with low anti-D titer did not show any evidence of antibody absorption as the Coombs test became negative on the 7th day and there was no fall in hemoglobin level; in the male baby the Coombs test became negative on the 10th day and the hemoglobin was 13.25 gm. After 10 days both the babies were put on breast milk. On the 35th day hemoglobin level in both the babies fell by 3.5 gm, the mother's milk showed highest anti-D titer and the Coombs test became faintly positive in both the babies. The evidence suggests that milk antibodies in high titer may harm the breast-fed babies.—J.B.C.

**ANEMIA OF NEWBORN FOLLOWING ANTERIOR PLACENTA PREVIA. N. R. Butler and J. D. Martin.**


A description is given of five cases of posthemorrhagic anemia of the newborn following lower-segment Caesarean section for placenta previa. In each instance the placenta was incised. In 14 other instances, lower segment Caesarean section was done for placenta previa without this complication: in two of these the placenta was incised. In 235 Caesarean sections carried out for other reasons in the same period of four years anemia did not occur. In all cases with placenta previa delivered by Caesarean section, arrangements should be made for hemoglobin determinations on the cord or infant’s blood. Hemodilution may not occur for several hours after hemorrhage.—R.H.G.