THROMBOCYTOPENIC PURPURA IN PREGNANCY; TREATMENT BY SPLENECTOMY AND CESAREAN SECTION

Report of a Case

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Inasmuch as thrombocytopenic purpura is an uncommon disease, its occurrence in pregnancy is even more rare. Since the description of essential purpura by Werlhof in 1775, numerous contributions toward its etiology, diagnosis, and treatment have been made, including the first splenectomy by Schloffer in 1916.

The coexistence of thrombocytopenic purpura and pregnancy has been less widely reported. Polowe in 1944 reviewed the literature and found 62 cases of pregnancy complicated by purpura. However, in 1943 Burnett and Klass found records of 68 cases of which they regarded only 4 as true thrombocytopenic purpura. Finn in 1944 accepted the cases of Burnett and Klass, gleaned 6 more from the literature, and described 3 cases of his own, thus bringing the total to 13 cases. Patterson has recently reported another case. Since an accurate analysis of all reported cases is impossible, and since there are doubtless other unreported cases, it may, nevertheless, be safely assumed that thrombocytopenic purpura in pregnancy is one of medicine's more unusual combinations.

Splenectomy has been performed in a moderate percentage of cases of pregnancy complicated by thrombopenic purpura. As in uncomplicated purpura, the procedure has been followed largely by dramatic improvement. If one is to accept the total number of proved cases of thrombopenic purpura in pregnancy as being in the neighborhood of 15, a study of these cases reveals splenectomy to have been performed in 8.

A careful analysis of the literature has failed to reveal a case of pregnancy complicated by thrombocytopenic purpura in which both splenectomy and cesarean section were performed. For this reason and because of the interesting complications which developed, the following case is presented.

Case Report

A 19-year-old white female, presented herself at Cleveland Clinic, service of Dr. Haden, on December 12, 1945, with the complaints of spots on arms, bleeding gums, and bloody urine. She stated that she had been perfectly well until four weeks previously, when she first noticed bloody urine followed by bleeding from gums and epistaxis. Prior to her admission she had been in another hospital for one week

where blood studies were made, and one blood transfusion and intramuscular injections of blood and glucose were given. During her stay in this hospital purpuric spots developed on the abdomen, thorax, and legs.

She said that she was seven months pregnant, her last menstrual period having occurred May 23, 1945, and had had no previous pregnancies or abortions. Her family history was negative, as was the remainder of the personal history.

Physical examination revealed a well developed and nourished young white female 60 inches tall and weighing 152 pounds, temperature 98°, pulse 84, blood pressure 110/80. The physical examination was essentially negative except for small purpuric lesions scattered over the legs, arms, thorax, and abdomen. Crusted blood was present on the gums and nares; the uterus was palpable 3 cm. above the umbilicus. Fetal heart tones were not definitely heard. The tourniquet test was moderately positive after three minutes, and markedly so after five minutes.

Laboratory studies were as follows:

Blood report:

Red blood cells:

1. Number per cu. mm. 3,250,000
2. Size ..... moderate anicytosis
3. Shape ..... slight anicytosis
4. Color ..... slight pallor
5. Nuclear particles ..... occasional Howell-Jolly body
6. Reticulocytes 4.5%

Volume of packed red blood cells ..... 64% of normal
Volume index 0.98
Hemoglobin ..... 58% of normal (9 Gm. per 100 cc.)
Color index 0.89

White blood cells:

1. Number 8900
2. Differential:
   - Neutrophiles 70%
   - Lymphocytes 10%
   - Eosinophiles 1%
   - Monocytes 8%
   - Basophiles 1%
   - Nonfilamented neutrophiles 7%
3. Abnormal forms:
   - Atypical mononuclears 1%
   - Metamyelocytes 2%

Icterus index 4
Platelets 38,000
Coagulation time ..... 10 minutes (Lee and White method)
Bleeding time ..... more than 10 minutes (Ivy method —test stopped at the end of 10 minutes as there was no evidence of cessation of bleeding)
Prothrombin time ..... 15 seconds
Clot retraction ..... character of clot: moderately firm
Amt. serum expressed in 4 hours: 20%
Extra corpuscular volume: 51%

Urinalysis:

Sp. gravity	1.006
pH	6.0
Albumin	(++)
Sugar	0
Erythrocytes	numerous
Leukocytes	5-10
Blood sugar	85 mg. (¼ hr. p.c.)
Wassermann and Kahn	negative

The patient was admitted to Cleveland Clinic Hospital and given daily injections of parathormone, 2 cc. (200 units) daily. During the first week of admission blood continued to ooze from the nose and gums. A generalized placental bruit could be determined, but definite fetal heart tones were never heard. However, the patient stated that she occasionally felt fetal movements. By the end of ten days her blood platelet count had dropped to 14,000 per cu. mm., by which time she had received 10 injections of 200 units of parathormone and two 500 cc. transfusions of whole blood.

Splenectomy was decided upon, and this operation was performed (R.S.D.) on January 8, 1946, under subcostal block and light ether anesthesia. Except for rather profuse generalized hemorrhage, no particular difficulty was experienced, and the patient tolerated the procedure well.

Following operation blood continued to ooze slightly from the gums and nose, and, in addition, there was evidence of spotty bleeding from the vagina. At this time the patient began to complain of irregular, cramp-like abdominal pains, and no longer felt fetal motion. About the fourth postoperative day she developed tenderness in the right calf and demonstrated a positive Homan's sign. Several days later she complained of sudden pain in the left lower chest, aggravated on inspiration, and a faint transitory friction rub could be heard in this area. A portable x-ray of the chest showed no abnormal changes.

By the eighth postoperative day the vaginal bleeding had increased to rather sizeable clots, and the irregular, cramp-like abdominal pains increased in severity. No fetal heart sounds nor uterine souffle could be heard. The fetal head was free and well above the pelvic outlet, the cervix tough and undilated. Dr. F. S. Mowry of University Hospitals was called in consultation and, in view of the continued vaginal bleeding, undilated cervix, and absence of heart sounds, he believed a partial placental separation had occurred. Normal labor, in his opinion, was apt to be prolonged and disastrous, and cesarean section was advised.

A cesarean section was performed (F.S.M.) under general anesthesia on January 16. The procedure was complicated by tremendous oozing from all tissues. The classical type of operation was employed, and a macerated fetus and a partially separated placenta delivered. The patient again tolerated the operative procedure well.

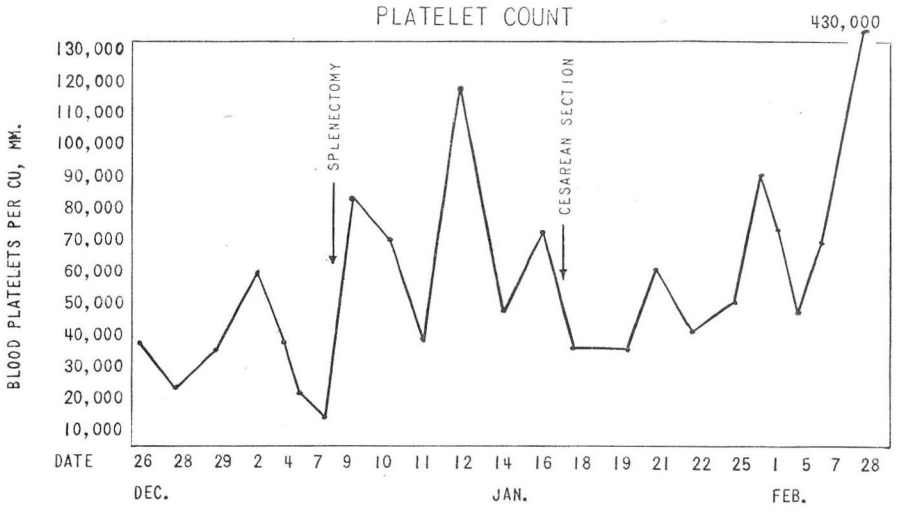
Following operation the patient continued to complain of pain in the left chest. The temperature showed a daily sharp rise despite continued administration of penicillin in doses of 25,000-50,000 units given every two to three hours. An x-ray of the chest on the tenth day after cesarean section showed a pneumonic infiltration along the left border of the heart and a small amount of pleural fluid along the periphery of the left lung.

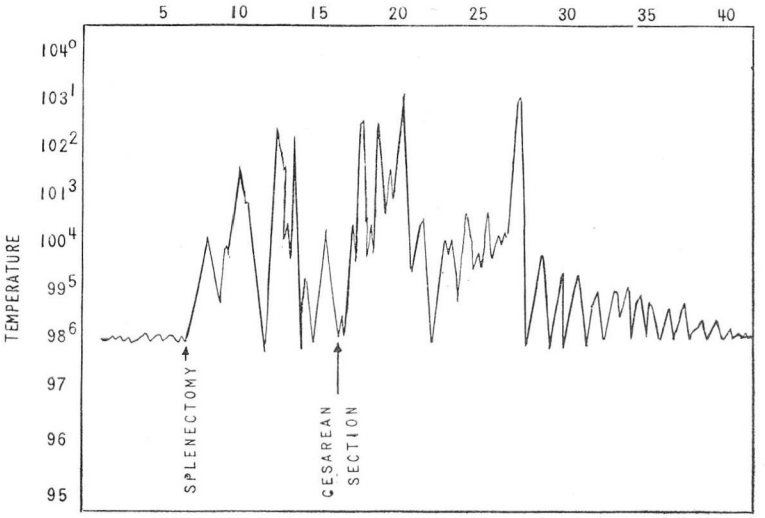
However, she began to improve subjectively, the temperature gradually dropped to normal, and she was discharged from the hospital on the thirty-ninth day after admission.

The blood platelet count and temperature reaction are shown on the accompanying charts. Pathologic report of the spleen was described by Dr. Harry Goldblatt: "Architecture is somewhat altered. The most striking change in the sections is the vascular

disease, which is pronounced. Both large and small arteries have greatly thickened walls due to proliferation of the intima, with partial or even complete hyalinization of the wall. The other striking feature is the variety of cells present both within and between the sinusoids. Here and there are multinucleated cells of the megakaryocytic type and occasional long mononuclear cells which could be Werlhof cells. Diagnosis: Hyperplasia, severe, of spleen (variety of cells)."

The patient returned to the Clinic on March 28, six weeks after her discharge from the hospital. She stated that she was in excellent health and had had no bleeding tendency. Her first postpartum menstrual flow had occurred on March 8, was not pro-





fuse, and lasted four to five days. No ankle edema was present and she experienced only occasional aching of the right leg.

Blood studies at this time were as follows:

Red blood cells	4,680,000
Volume of packed red cells	91% of normal (41 cc. per 100 cc.)
Volume index	0.97
Hemoglobin	75% or normal (11.5 Gm. per 100 cc.)
White blood cells	9550
Neutrophiles	59%
Lymphocytes	39%
Eosinophiles	2%
Monocytes	9%
Basophiles	1%
Presence of abnormal forms	none
Icterus index	4
Platelets	430,000
Coagulation time	12 minutes
Bleeding time	3½ minutes
Clot retraction	firm. 71% serum expressed in 5 hr.

Discussion

Because of its rarity, little is known about thrombocytopenic purpura in relation to pregnancy. Burnett and Klass believe that no causal relationship exists between the two, but rather that thrombocytopenic purpura has periods of exacerbation and remission which may coincide with pregnancy. They believe that it is equally common in multiparas and primiparas, an opinion which is disputed by other writers. They also state that only 1 out of 5 patients had hemorrhagic tendencies prior to the pregnancy, and that these patients had had normal previous pregnancies. Most authors agree that no hemorrhage occurs at the time of delivery, although Mosher maintains that all cases of purpura in pregnancy end fatally because of hemorrhage.

What effect does the thrombocytopenic purpura of the mother have on the child? A wide diversity of opinion exists on this point. Mosher states that 50 per cent of infants die in utero or shortly after delivery. Burnett and Klass believe that purpura occurring in the fetus is not the essential type, but rather symptomatic purpura or the result of a familial platelet defect. Of 13 cases reviewed by Finn, 4 infants died, whereas, in the 9 living infants, only 1 showed evidence of congenital thrombocytopenic purpura. Although it is difficult to determine the prognosis for the infant, it would appear to be better if the disease is in a chronic phase, and if splenectomy has been done prior to pregnancy.

A review of the records of Cleveland Clinic has failed to reveal other instances of pregnancy complicated by thrombocytopenic purpura.

During the past decade this disease has been diagnosed in 40 cases; splenectomy has been performed in 17 of these cases.

Summary

A case of thrombocytopenic purpura complicating pregnancy, treated by splenectomy and cesarean section, has been presented. A macerated fetus was delivered, but complete recovery of the mother occurred. After reviewing the literature it is believed that this is the first reported case in which both splenectomy and cesarean section have been performed.

Bibliography

1. Burnett, C. W. F., and Klass, I.: Review of problem of purpura during pregnancy. J. Obst. & Gynaec. Brit. Emp. **50**:393-404 (Dec.) 1943.
2. Finn, W. F.: Thrombocytopenic purpura in pregnancy; review of literature with report of 3 cases. Am. J. Obst. & Gynec. **48**: 497-509 (Oct.) 1944.
3. Mosher, G.: Complication of purpura with gestation. Surg. Gynec. & Obst. **36**:502-507 (April) 1923.
4. Patterson, W. B.: Thrombocytopenic purpura in pregnancy and in newborn. J.A.M.A. **130**:700-702 (March 16) 1946.
5. Polowe, D.: Splenectomy in pregnancy complicated by thrombocytopenic purpura hemorragica; report of successful case, with review of literature. J.A.M.A.: **124**:771-773 (March 18) 1944.
6. Polowe, D.: Splenectomy in pregnancy complicated by thrombocytopenic purpura hemorragica. J.A.M.A.: **124**:771-773 (March 18) 1940.
7. Posner, A. C.: Purpura hemorrhagica complicating puerperium. Am. J. Obst. & Gynec. **34**:155-158 (July) 1937.
8. Rushmore, S.: Purpura complicating pregnancy. Am. J. Obst. & Gynec. **10**:553-560 (Oct. 25) 1925.

PRACTICAL CONSIDERATIONS IN THE MANAGEMENT OF DIABETES MELLITUS

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The purpose of this article is to present briefly certain concepts which the writers consider basically important in the management of uncomplicated diabetes mellitus. Most of the program to be discussed agrees in principle with teachings of recognized clinics on diabetes. There are, of course, variations in opinion concerning the details of management among various groups. Since diabetes is a common and chronic disorder of variable severity, and untreated diabetes is often compatible with life for long periods of time, these divergent opinions are understandable. The objectives of treatment remain the same with all groups, that is, maintenance of the patient in a good state of general health, and prevention of the occurrence of complications.