

## PURPURA COMPLICATING PREGNANCY\*

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THE occasion for the present study of purpura was the opportunity which came to me to see, in consultation with Dr. W. R. Basch of Boston, a pregnant woman in whom this complication was present.

The patient was twenty-nine years of age and was seen in the sixth month of her first pregnancy. Her general condition had been good in spite of much distress from nausea and vomiting in the early months.

About the beginning of the sixth month, the patient had what she described as an attack of bronchitis, with much coughing; she was stiff all over but not especially in the joints. She was not confined to bed nor did she consult her physician.

A little over two weeks after the beginning of the attack of bronchitis, the patient complained of marked itching of the ankles and noticed numerous red blotches, for which she called her physician at once. She was put to bed, the blotches spreading rapidly to cover perhaps one fourth of the surface of the legs and thighs. The itching was described as "terrible."

The patient was seen by me in consultation three days later, apparently in good general condition. She appeared rather pale with slight elevation of temperature. There were large areas of ecchymosis over the thighs and legs and feet and many smaller areas of hemorrhage down to pinhead petechiae. Some small ecchymoses and petechiae were present on the buttocks and lower back and a few were seen on the arms. Some of the spots appeared to be fading and it was said no new spots had appeared for twenty-four hours. There was no swelling of the joints and no history or traces of bleeding except into the skin. Two days later the patient miscarried spontaneously and completely, and convalescence was normal. The fetus was born dead, and showed no evidence of purpura.

The ecchymoses continued to fade, but about two weeks after the miscarriage there was swelling in the popliteal space on each leg, more on the right. There was no evidence of infection of joint or interference with the circulation of the legs. Convalescence was otherwise undisturbed. On December 31, menstruation occurred normally. Two months later the patient seemed perfectly well except that she said she became tired more easily than before the pregnancy began.

That this complication of pregnancy is infrequent is evident from the textbooks. In most of those consulted, no reference to it was found.

Hirst<sup>27</sup> says "Purpura hemorrhagica is generally rapidly fatal, always interrupting the pregnancy. The fetus dies before the interruption of the pregnancy." Kosmak<sup>28</sup> says: "Purpuric eruptions are sometimes noted in pregnancy, occurring either as occasional isolated hemorrhagic spots in different parts of the body, or as a more severe manifestation, associated with the advanced stage of pernicious vomiting or eclampsia. The former type is transitory, but in the other instance, the appearance of this symptom offers a grave prognosis. In such eruptions a differential diagnosis must be made between hemophilia and scurvy. Congenital hemophilia is rarely transmitted to females but if there is a familial tendency, the

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vessel walls are undoubtedly more susceptible to the destructive action of the pregnancy toxins. Scurvy is of course rarely met with in this country."

Seitz<sup>29</sup> in Doederlein's *Handbuch* says: "Purpura hemorrhagica has been described in pregnancy: it should be regarded only as a symptom. In addition to the small extravasations of blood in the skin, there are to be made out other changes, signs of severe intoxication. Thus purpura hemorrhagica is observed with hyperemesis and eclampsia. I have twice noted in parturient women that the whole surface of the body was covered with pin head ecchymoses, without noteworthy disturbances of the general condition. In the urine was a slight amount of albumin. In the puerperium the ecchymoses clear up rapidly. A few cases have come to autopsy and in addition to the hemorrhage into various organs and tissues of the mother, extensive fatty degeneration of the liver and kidneys was found."

In reviewing the cases reported in the literature one is again impressed with the infrequency of purpura as a complication of pregnancy. Barnes'<sup>1</sup> communication was published in 1867 and a careful, though not exhaustive search has brought to light reports of only forty-six cases since that time, in a period of fifty-seven years. Because the clinical picture is so striking it is probable that no great number of cases has occurred without report or detection.

Another feature is the variety of clinical conditions with which purpura occurs, and of which it may be symptomatic.

The first case reported, that of Barnes,<sup>1</sup> is the only one in which there is a suggestion of "rheumatism," or Schoenlein's disease. The patient at the onset of the disease in the sixth month of pregnancy began to complain of rheumatic pains in the joints, and of lumbar pain, accompanied by vomiting and fever. Labor ensued and a fetus was born that lived only three hours. On the day of delivery purpuric spots appeared on the abdomen, legs and face. There was much prostration and delirium with fatal outcome the following day. But even in this case there was no well-marked arthritic involvement.

Some of the cases strongly resemble scurvy, as that of Zangemeister<sup>13</sup>. In his case, the purpura preceded by two months the hemorrhage from the gums and mouth, which became worse in the month before delivery. The fetus died in the sixth month during birth. In one of the cases reported by Ferroni<sup>26</sup> the first symptom was odontalgia. Later there was a swelling of the gums which bled easily on slight pressure. Two days later there were blood stained movements, with great debility, and crops of small, wine-red spots appeared on the skin of the neck, extending over the rest of the body and extremities. The patient left the hospital in sixteen days, the stomatitis cured and the pregnancy undisturbed.

The occurrence of hemorrhagic disease in mother and fetus is noted seven times. In Dohrn's case,<sup>4</sup> the petechiae which were present in vast numbers during the pregnancy had disappeared at the time of delivery. The fetus, a female, born in the ninth month, showed cutaneous hemorrhages "perfectly identical" as to number, size and color with those of the mother when she was admitted to the clinic. The appearance of some of the spots indicated an origin shortly before birth. No new extravasations appeared except on the second and fifth days when small areas of hemorrhage were visible in the conjunctivae and hard palate.

In the case reported by Mosher<sup>22</sup>, a live child was born. Though it seemed well-developed and vigorous, large ecchymoses developed wherever it was touched and it died in ten hours.

In the cases reported by Hanot and Luzet<sup>11</sup>, and by Zangemeister<sup>13</sup>, of hemorrhage in both mother and fetus there was no hemorrhage into the skin of the fetus, though numerous foci were found in the internal organs. The case of

Hanot, was fatal streptococcus septicemia with purulent cerebrospinal meningitis of the mother.

That there may be a psychic or nervous element involved is strongly suggested by the case reported by Puech<sup>5</sup>. The patient, twenty-one years of age, had always been in good health. In the sixth month of her first pregnancy, following a violent attack of anger, the patient began to feel languid and suffer from palpitation. On the fourth day there were noted petechiae on the extremities, chest and abdomen. On the thirteenth day, following elevation of temperature, the patient fell into labor. The petechiae increased in number, hematuria, hematemesis and epistaxis occurred. Labor was normal, but bleeding continued and the patient died from exsanguination on the second day of the puerperium.

A glance at the outcome of the pregnancy indicates the seriousness of this complication for the mother. Recurrence in repeated pregnancies is therefore the more remarkable. The case reported by Greenhill<sup>23</sup> is of this character. The first pregnancy terminated normally, after there had appeared a "simple type of purpura hemorrhagica" at the beginning: hemorrhage from mucous membranes of nose and gums occurred with petechiae and ecchymoses on extremities, chest and abdomen. In the second pregnancy, two years later, there was some bleeding from the nose and gums (the case was reported while pregnancy was in progress). Hemorrhages on the extremities and trunk rapidly occurred after very slight trauma; for example, the cuff of the blood pressure apparatus produced ecchymosis. The patient was in good general health at the time of the report.

In the case of Vignes and Stiassnie<sup>17</sup>, purpura occurred in three pregnancies over a period of about ten years. Following the third confinement, a thorough examination of the blood was made: the findings were normal except for a positive Wassermann.

A coincidence reported by Wiener<sup>9</sup> is worthy of remark. Wiener's patient was a primipara, aged twenty-four, in whom pregnancy terminated in the seventh month. Twelve days later petechiae were noted on the patient's neck and the urine was slightly blood stained. Two days after the beginning of the eruption, severe headache occurred: face, neck and trunk were covered with scarlet petechiae, other symptoms were conjunctival hemorrhages, blood-stained sputum and intense hematuria, the gums were normal. The patient soon died. Going into the history of this patient it was learned that she had been in attendance on a sister who had been pregnant and who had died of the same disease fourteen days before.

The sister was thirty-two years of age; quadripara, in the sixth month of pregnancy. On March 6, 1887, she complained of headache and lumbar and abdominal pain. On March 9, there was considerable tenderness over the liver; no enlargement of spleen; temperature 39.8° C.; pulse 100. On March 10, red petechiae were seen scattered over the arms and chest; other symptoms were conjunctival hemorrhages, hematuria and chocolate-colored sputum. Spots extended to face, neck, thighs and became purple in color; labor; postpartum hemorrhage and death.

My case belongs to the group known as simple purpura, in which there is hemorrhage into the skin only. But, it is peculiar in this respect, that the patient complained of "terrible" itching. There was, at the time she was seen in consultation, no evidence of urticaria, or any eruption except the petechiae and ecchymoses, neither was there history of any other change in the skin. But the intense itching suggests strongly that the case belongs with the urticarias or angioneurotic group. It followed an infection (bronchitis) and was accom-

panied by fever and increased pulse rate. In this connection, the spontaneous termination of pregnancy is especially interesting. It is the only case of pregnancy complicated by this form of purpura noted in the literature.

A study of the cases of purpura not associated with pregnancy gives rise to much the same sense of confusion that a consideration of the cases with pregnancy had produced. Classification is unsatisfactory but Pratt<sup>24</sup> has suggested the following groupings as convenient: (1) primary or idiopathic purpura; (2) purpura in acute infectious disease; (3) purpura in chronic disturbances of nutrition; (4) senile purpura; (5) toxic purpura; (6) nervous purpura; and (7) mechanical purpura.

Purpura of pregnancy may belong to any of these varieties, except the senile, and may be found in more than one group at the same time. It is the idiopathic forms of disease that are perhaps the most interesting for they represent the group about which we frankly acknowledge that we know the least.

Minot and Lee<sup>25</sup> introduce their discussion of hemorrhagic diseases and conditions with the following remarks:

"The definite hemorrhagic diseases are idiopathic purpura hemorrhagica, hemophilia and hemorrhagic disease of the new born. The etiology of these diseases is unknown, though a defect of some factor of the blood, associated with the production of blood, is recognized. There are also certain ill-defined cases of primary hemorrhagic disease in which a blood defect of somewhat similar nature is not clearly demonstrable but may be assumed to exist.

"There is also a disease condition, usually known as idiopathic purpura, which is to be differentiated from idiopathic purpura hemorrhagica. Idiopathic purpura occurs in various forms and in general seems related to urticaria, erythema and angioneurotic edema. Hemorrhage occurs particularly into the skin, and bleeding occurs relatively rarely from other parts. Idiopathic purpura is usually classified under the hemorrhagic diseases because of its resemblance to the more clear-cut forms of hemorrhagic disease. However, the hemorrhagic condition would appear to be particularly dependent on a focal alteration of the blood vessels, which in turn may well be dependent in part at least upon unrecognized changes in the blood.

"Purpura or hemorrhage into the skin is often a conspicuous symptom of hemorrhagic conditions but its causes are manifold. In some cases purpura is due to abnormal condition of the blood; but more commonly it does not indicate a recognized disturbance of the blood.

"Pathologic hemorrhage, besides occurring in disease entities, frequently occurs in a considerable variety of conditions as a secondary manifestation, due apparently in some cases to defect of the blood associated with the production of hemorrhage, and in others apparently to local vascular changes. Though hemorrhage may be due to some blood abnormality, it is usually due to a local condition."

Purpura hemorrhagica is further defined "as that condition associated with marked diminution of the blood platelets, in which there is spontaneous bleeding from some mucous membrane, usually with purpuric skin lesions." The bleeding time is prolonged.

"It is not to be confused with other types of purpura or scurvy, which have an essentially normal number of platelets," nor with hemophilia, in which the platelet count is normal and the coagulation time is prolonged. The idiopathic type may be considered for the present as constituting a disease entity, "other names for which are pseudohemophilia, Werlhof's disease, essential thrombopenia and idiopathic paucity of platelets." The symptomatic type is associated with

many diseases as for example; pernicious anemia, leucemia, tuberculosis, nephritis and infections.

The best composite picture of the clinical course of pregnancy complicated by purpura is given by Mosher<sup>22</sup> as follows.

"The victim is usually a multipara. Her age is from twenty-two to thirty-five years. The patient shows at first the appearance of good health, and the family history may be negative. Her former pregnancies have been normal and each one terminated with the birth of a full term living infant. Her present pregnancy may have been normal or there may have been a complication of metrorrhagia of sufficient importance to attract attention, when the woman finds herself again *enceinte*. The beginning of the pregnancy is not marked by any serious accident. At this time she may have noted a peculiar odor which seems to come from a fermentation of gastrointestinal origin. To all appearances, however, she is in good health and her gestation shows no untoward symptoms until some time in the sixth or seventh month she experiences a vague discomfort, loses appetite, and complains of headache; she has palpitation and gastrointestinal trouble which becomes more marked. Some time later there appear hemorrhagic spots on the skin, then petechiae, which are at first discrete, but later become confluent. These spots usually appear in successive crops. The woman finds that her gums are tumefied and painful and begin to bleed; epistaxis becomes troublesome; she usually has a persistent diarrhea; she consults a doctor, who finds that the fetus is living, but that the mother has purpura with symptoms of grave character. The patient is usually pale and depressed, short of breath, although no abnormal symptoms can be found in the heart, lungs, or other organs. Blood pressure may be normal, the pulse is rapid, corresponding with that of a light fever. A trace of albumin is usually found. She may improve but the reverse is generally the case. Gastrointestinal troubles increase. Mucous hemorrhages are frequent. The patient bleeds from the mouth, the nose, the bladder, and the rectum. She becomes rapidly anemic and exhausted, is confined to her bed. Hemorrhages increase from all mucous surfaces, the temperature rises. She goes into rapid labor, without great pain. She is delivered normally and may begin to improve. Generally, however, she dies after a few hours or a few days because, for some reason, the organism cannot reestablish itself after expulsion of the products of conception."

It has been claimed that pregnancy disposes to purpura. There is no evidence on this point that is conclusive, and little that is suggestive. There is no characteristic deviation from normal in the blood platelet count in pregnancy, or increase in the bleeding time, or diminished retractility of the clot. Such changes as are found in the blood in pregnancy may or may not have any bearing on the unknown factors which give rise to purpura. The chief evidence is that, in general, pregnancy has a depressing effect on the maternal organism, involving an increased load on the metabolic and eliminative activities. A few cases have shown prompt recovery after the termination of the pregnancy, and in the recurrent cases, purpura was present only in pregnancy.

In the absence of knowledge of the cause of purpura the treatment is symptomatic. If there is a deficiency of blood platelets these can be increased by transfusion of blood which may have to be repeated. The effect is temporary but it may tide the patient over some sort of

CASE NO.	AGE	NO. OF PREGNANCY	MONTH OF PREGNANCY	RESULT	
				Mother	Child
1 Ferroni	31	4	7	D	W
2 "	28	4	8	D	D
3 "	37	8	3	W	D
4 "	34	6	4	*	*
5 "	21	2	6	*	*
6 "	34	6	8	W	W
7 "	32	4	9	D	W
8 "	39	9	6	D	D
9 "			7	D	D
10 "			6	D	D
11 Barnes		2	6	D	D
12 Byrne	30	2	7	D	W
13 Dohrn	28	2	5	D	D
14 "	27	2	5	D	D
15 "	42	2	9	W	W
16 Puech	21	1	6	D	D
17 "	30	5	8	D	
18 Kezmarsky	30	3	Early	W	D
19 "	26	2	9	W	W
20 "	39	11	9?	W	D
21 "	29	2	8?	D	D
22 "	28	2	6?	D	D
23 Grazzini	43	6	9	W	W
24 Brieger	32	3	9	D	W
25 Wiener	24	1	7	D	D
26 "	32	4	6	D	D
27 Phillips	32	7	9	W	W
28 Hanot	22	1	9	D	D
29 Chambrelent	25	5	9	W	W
30 Zangemeister	36	1	6	W	D
31 Diehl		6	5	D	D
32 Buffen			9	D	D
33 "	25		9	D	D
34 Van Sweringen	29	1	9	W	W
35 Vignes	30	3	9	W	W
36 Merlini	32	5	7	W	D
37 Leclerc	22	5	6	D	D
38 Rudaux			7	D	D
39 Khitroff			2	W	W
40 "			8	W	W
41 "	21	3	8	W	W
42 Moscher	36	6	7	W	D
43 Greenhill		2	5	*	*
44 "	18	1	7	D	D
45 Phillips	29	1	6	W	D
46 "	21		6	D	D
47 "	30	5	8	D	

D—Died; W—well; \*—Pregnancy undisturbed at time of report.

Cases 1 to 33 have been transcribed from Ferroni<sup>28</sup> who made an exhaustive study in 1903. Cases 46 and 47 are mentioned in Phillips<sup>10</sup> original paper but are not transcribed by Ferroni. The references as well as the abstracts of Ferroni have been checked whenever the originals were accessible.

crisis until the recuperative power of the body is restored. The diseased condition with which the hemorrhages are associated should receive careful attention and may be susceptible to more specific treatment.

It is not possible to reach a satisfactory conclusion as to artificial termination of pregnancy, because the number of cases is so small. But it is my opinion at present, that the possible benefits to be derived

from getting the fetus out of the uterus do no compensate for the increased risk of hemorrhage at or following childbirth. In any case, at the time of delivery, preparations should be made for immediate transfusion if it becomes indicated, and the patient should be watched with the greatest care during the first week of the puerperium.

A thorough review of the literature on the subject discloses a total of forty-seven cases, which may be summarized as follows:

There were 44 cases in which the final result for the mother was reported; of these 26 mothers died and 18 remained well. Of 42 cases in which final result for the child was reported, 27 children died and 15 survived.

The age was noted in 38 cases as from eighteen to forty-three. Under 20: 1; 21 to 25: 10; 26 to 30: 13; 31 to 35: 8; 36 to 40: 5; 41 to 45: 2.

The number of pregnancies was noted in 39 cases: I: 7; II: 10; III: 4; V: 5; VI: 5; VII: 1; VIII: 1; IX: 1; XI: 1.

The months of pregnancy were as follows: Early: 1; II: 1; III: 1; IV: 1; V: 4; VI: 2; VII: 8; VIII: 7; IX: 13.

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- <sup>12</sup>Chambrelent: Purpura hemorrhagique chez une femme enceinte. *Accouch. à terme. Enfant vivant.* *Courrier méd.*, Par., 1893, xlv.
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- <sup>14</sup>Diehl: Ueber Purpura in puerperio. *Ztschr. f. Geburtsh. u. Gynäk.*, 1899, xli, 218.
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\*In Pratt<sup>24</sup> and in Minot and Lee<sup>25</sup> will be found comprehensive bibliographies on purpura. (not connected with pregnancy.)

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(For discussion see page 590.)



DR. STEPHEN RUSHMORE, Boston, Mass., (by invitation) read a paper on **Purpura as a Complication of Pregnancy**. (For original article see page 553.)

#### DISCUSSION

DR. HENRY T. HUTCHINS, BOSTON, MASS.—The essayist has been able to find reports of only forty-six cases occurring in the last fifty-seven years. This is perfectly natural because purpura is a rare disease at best.

One or two points are important. In the first place, we know practically nothing about the etiology of purpura; and in the second place, we know really very little about the treatment during pregnancy. We cannot forestall the onset of purpura because it comes out of a clear sky and there are no signs that can be observed to prevent its occurrence.

Another point is its serious nature both to the mother and child. It would seem to me that in cases of pregnancy complicated by purpura, the little treatment we do know about has not been started early enough. At the very onset of the purpura it would seem that the uterus should be emptied, or first, perhaps transfusion started, then the uterus emptied and transfusions kept up. Most of the cases reported have been treated by transfusions after delivery. Dr. Rushmore's individual case would seem to contraindicate this perhaps because his patient aborted spontaneously and the mother did live. However, that is not the usual result.

DR. ARTHUR H. MORSE, NEW HAVEN, CONN.—I have not seen a case of purpura complicating pregnancy, but I have been interested in the blood picture as shown in patients with purpura hemorrhagica. Perhaps the most complete paper in this country was published by Duke in 1910. This author found the bleeding time prolonged in experimental animals and in humans when the platelet count was reduced to 10,000. The condition in human beings was relieved temporarily by transfusion, which caused an increase in the number of platelets. However, the increase lasted only three to five days, when the hemorrhagic diathesis returned. In a series of thirty-eight experimental animals injected with benzol, diphtheria toxin, or tuberculin, only those with a reduced platelet count bled.

During the past few months at Yale, we have done some interesting experimental work which may throw light upon this problem. Working with the male albino rat, it was found that the number of platelets in the blood could be greatly increased and the coagulation time reduced by exposing the animal to the rays of quartz lamp. The same results were found by treating the female albino rat in pregnancy.

The experimental results of the use of the quartz light were so striking that it was thought worth while to try its effect on a baby suffering from hemorrhagic disease of the newborn. This baby had had already three transfusions and when

where the rectus muscle is pulled out of its sheath and afterwards replaced. A relatively large branch of the deep epigastric artery ascends the posterior sheath of the rectus and enters the muscle about half way between its outer and inner border. The vessel is often ruptured by traction, causing a hematoma. I had one such case. On the second day the patient began to vomit, had a temperature of 102° and all the signs of a beginning peritonitis. I found a hematoma behind the rectus muscle which made a distinct prominence in the peritoneal cavity, putting the peritoneum on the stretch and giving all the clinical signs of a peritonitis. We could not find the origin of the hemorrhage at that time because the muscle was infiltrated with blood but the main part of the blood was probably from the main branch of the deep epigastric artery.

Influenza or some other disturbance of general health may explain some of the hemorrhages and some of the failures in operation.

DR. BERNHARD FRIEDLAENDER, DETROIT, MICH.—Hematoma in the sheath of the abdominal rectus muscle occurs more frequently than is commonly supposed, and so we make it a rule in all our gynecological cases to make a thorough examination of this muscle. We have found three cases in the last three years. One was an infected hematoma. The other two were not infected and were due to rupture of the epigastric artery. In the infected case it was impossible to determine which one of the blood vessels was ruptured before it became infected. The third case was rather interesting. A woman, 59 years of age, had been suffering for several years, from a tumor in the left lower quadrant. Last spring, following an attack of influenza and cough, the tumor enlarged very rapidly, becoming the size of a small cocoon in a short time. It was diagnosed by an internist as an ovarian cyst with a twisted pedicle, and a surgeon even went so far as to diagnose it as a sarcoma or carcinoma of the sigmoid. The examination of the enteric tract and the reproductive organs revealed nothing abnormal, and the tumor was confined strictly to the abdominal wall. We designate all such cases as abdominal apoplexies, and I would recommend that this term nomenclature be adopted to indicate this condition.

DR. HERBERT R. SPENCER, LONDON, ENGLAND.—I should like to call attention to three cases of hematoma of the abdominal wall, published by Dr. Russell Andrews in the *Proceedings of the Royal Society of Medicine*. (Vol. IX, 1916, Obs. & Gyn. Sec. p. 98.)

DR. CLARENCE B. INGRAHAM, DENVER, COLO.—I believe that there were many cases of hemorrhage in the rectus muscle occurring during the influenza epidemic in the army. Dr. J. N. Hall of Denver, a consultant, visiting the different camps, told me that he encountered several such cases following instances where there had been severe coughing.

I, personally, had occasion to open the muscle in one such case, there being present a considerable mass at the lower end of the left rectus muscle. A large hematoma was encountered, this I attributed to the tearing of the muscle and hemorrhage from a small vessel, though it is possible this bleeding may have arisen from the rupture of a larger vessel, such as the epigastric.

DR. CULBERTSON (closing).—The suggestion of abdominal apoplexy is a new one. Most of these cases appear in the literature as hematoma of the sheath or rupture of the rectus muscle or rupture of the deep epigastric. That was the reason it took me a long time to find Schumann's cases. I believe that hematoma is the best title for these spontaneous cases.

Regarding the war epidemic cases, I know of no literature coming out in the American Army which shows any of these cases due to influenza. The characteristic thing in most of the diagnoses seems to be the fact that the history which the

first seen there were hematomata on the shoulders and arms, and oozing of blood from the umbilicus. The coagulation time was thirty-six minutes. The baby was first given six minute exposures, three minutes on the front and three on the back. Following this, general radiations were given for four days. After an interval of eight days the coagulation time was found to be eight minutes. The platelet count in the beginning 155,000 had increased to 550,000; the red blood cells had increased from 3,200,000 to 5,400,000.

In a second baby in whom bleeding began two days after delivery, the coagulation time was found to be nineteen minutes and the platelet count 170,000. After nine days of six minute radiations the platelet count had increased to 430,000 and the coagulation time was within normal limits.

One would conclude that since the platelets come from the megacaryocytes of the bone marrow, the effect of the quartz lamp is a stimulation of the bone marrow, resulting in a throwing off of platelets into the circulation. I do not know what the result of this treatment would be in a patient with hemorrhagic purpura, but it would seem worth while to try it.

DR. I. C. RUBIN, NEW YORK CITY.—Recently in a patient aged fourteen, vaginal bleeding was at first construed as associated with puberty and a number of measures were instituted which failed to stop the bleeding. I seriously considered radiating the ovaries by x-ray or putting radium into the uterus. Now it happened that the patient showed two small petechial spots on both underlids and on closer inspection she had fading spots on the skin, but a careful blood analysis failed to show any specific evidence of purpura hemorrhagica.

This condition is now divided into two types from the prognostic point of view. One is the acute purpura hemorrhagica which is practically always fatal; and the other is the chronic purpura hemorrhagica which some patients enter into if they are lucky enough to escape from the acute attack. For the acute attack I think there is nothing to do. This little girl showed evidences of the chronic type. She bled most profusely from the uterus and had hematemesis, epistaxis and then developed hemorrhagic spots on the skin. The platelets varied from 120,000 to 180,000 in spite of very large amounts of blood transfusion. She was so desperately ill that she was subjected to a surgical procedure which I think is well worth bearing in mind in such cases and that is splenectomy. It was done in about fifteen minutes by Dr. A. A. Berg and was followed by a blood transfusion. She stood the operation very well and as soon as the pedicle of the spleen was tied, the oozing in the wound was almost immediately less noticeable, the bleeding from the uterus rapidly became reduced and she ceased to vomit blood, her epistaxis ceased and her blood platelets within thirty hours had increased to one and a half-millions.

DR. FRED L. ADAIR, MINNEAPOLIS, MINN.—We had a case admitted to the Minneapolis General Hospital on the medical service, a woman who was pregnant and who had purpura. The question arose as to whether or not the pregnancy should be terminated but we temporized, in the meantime transfusing whenever it seemed necessary. She was carried to term and delivered successfully with no untoward results, and the infant was healthy and showed no hemorrhagic manifestation. The case will be reported in *Minnesota Medicine*. (June, 1925, viii.) She was subjected to very careful blood study, as was also the infant.

DR. RUSHMORE (closing).—On account of the time limit for the paper, there are a number of points to which I have not been able even to allude: for instance, how the platelets seem to be connected with the purpura and bleeding. They are apparently not the only factor involved because the amount of bleeding

and the tendency to bleed do not parallel closely the platelet count, although there is a general correspondence.

The chronic form to which reference has been made has been treated in several cases by removal of the spleen. This is the type to which Kaznelson refers as thrombolytic purpura, in which removal of the spleen gives prompt relief and ordinarily a cure. For chronic purpura, splenectomy is the treatment now recommended.