Multiple Myeloma and Normal Pregnancy
Report of a Case

By Leonard A. Kosova and Steven O. Schwartz

MUltIPLE MYELOMA has its peak incidence during the fifth and sixth decades.1 It occurs during the fourth decade but is uncommon earlier. Five cases in children have been reported. Although multiple myeloma is observed during the childbearing age, we have been unable to find a previously reported case in which multiple myeloma and pregnancy were concurrent.2,3 Pregnancy complicated by leukemia is not rare. Although associated with increased fetal mortality,4 it has not been associated with leukemia in the offspring, nor would one expect multiple myeloma to develop in the offspring of a patient with this disease.

The following report is thought to represent the first report of a case of multiple myeloma concurrent with a normal pregnancy.

REPORT OF A CASE

A 35-year-old Negro woman was first admitted to Cook County Hospital on November 25, 1961, because of pain low in the back and pain and stiffness in the left hip of 3 months' duration. She had experienced similar symptoms 6 months earlier. Bed rest brought apparent recovery until the symptoms recurred. The patient had had a spontaneous abortion at 2 months' gestation in 1958. Four other pregnancies and deliveries were otherwise uncomplicated. The four children were living and well.

The patient was well developed, appeared well nourished and in good health. The uterus was retroflexed and slightly enlarged but uterine fibroids. Tenderness was elicited over the transverse processes of the fourth and fifth lumbar vertebrae. Flexion, abduction, and external rotation of the hip did not produce pain; straight leg-raising bilaterally did produce pain at 65°.

Table 1 describes the hemogram. The marrow (Fig. 1) was diffusely infiltrated with mature and immature plasma cells which in some areas were in syncytium and accounted for about 40 per cent of the cellular elements. Erythropoietic and myeloid elements were present. Urinalysis did not disclose abnormalities. Bence Jones protein was absent. Biochemical data are shown in Table 2. The pattern of serum electrophoresis (Fig. 2A) had a large, possibly homogeneous serum component in the fast gamma region. A study by immunoelectrophoresis was not available. Figures 3A and 3B are of osteolytic lesions of the skull and osteolytic changes of the transverse processes of the lower lumbar vertebrae.

Roentgen therapy was instituted. 1500 roentgens to the lower lumbar area of the spine over a 3-week period. beginning December 7, 1961. Urethane. 2 Gm. a day, was given concomitantly. The patient tolerated this well. On January 17, 1962, the amount of urethane was increased to 3 Gm. a day. The patient remained entirely asymptomatic. In February

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1962 she reported that she had missed two menstrual periods; signs of pregnancy were evident, and the uterus was the size at a 6-week gestation. In view of the possible danger to the fetus, the drug was discontinued.

Pregnancy continued uncomplicated except for intermittent episodes of epistaxes, treated readily with cold packs and compression. Normochromic anemia developed and leukopenia persisted (Table 1). During the last trimester, the patient began to feel weak and experienced pain in her hips, knees and right shoulder. She was admitted to the obstetrical service for blood transfusion in early September, during the ninth month of gestation, and was readmitted in labor on September 12, 1962. After an uncomplicated labor lasting 4½ hours, a 6-pound, 10-ounce girl infant was spontaneously delivered. The patient had lost less than 200 ml. of blood. Postpartum bleeding was not significant. A postpartum bone survey revealed further diffuse osteolytic lesions (Figs. 4A and 4B).

On September 18, 1962, the patient began taking 100 mg. cyclophosphamide a day; she was then discharged. She discontinued taking her medicine and did not return until February 1963. From then on, the course steadily deteriorated. The patient had had multiple rib fractures, episodes of severe infection, and hemorrhagic manifestations. She continued to require blood transfusions and symptomatic treatment for maintenance until she died on June 5, 1965. Permission for autopsy was refused.

The child born during the patient's illness with multiple myeloma was normally developed and active. Respirations were spontaneous. Hemoglobin was 15.8 Gm. per cent, the white
<table>
<thead>
<tr>
<th>Date</th>
<th>Hemoglobin (Gm. %)</th>
<th>RBC millions per cu. mm.</th>
<th>Hematocrit (mm. %)</th>
<th>WBC per cu. mm.</th>
<th>Neutrophils</th>
<th>Lymphocytes</th>
<th>Monocytes</th>
<th>Eosinophils</th>
<th>Basophils</th>
<th>Platelets Estimation</th>
<th>RBC Morphology</th>
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<td>November 25, 1961</td>
<td>11.8</td>
<td>4.25</td>
<td>--</td>
<td>4,000</td>
<td>52</td>
<td>--</td>
<td>45</td>
<td>3</td>
<td>--</td>
<td>Adequate</td>
<td>Rouleaux formation</td>
<td>None</td>
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<tr>
<td>January 17, 1962</td>
<td>--</td>
<td>--</td>
<td>--</td>
<td>3,800</td>
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<tr>
<td>May 23, 1962</td>
<td>7.6</td>
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<td>--</td>
<td>6,400</td>
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<td>June 27, 1962</td>
<td>8.4</td>
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<td>3,200</td>
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<td>September 2, 1962</td>
<td>22</td>
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<tr>
<td>September 18, 1962</td>
<td>8.7</td>
<td>3.26</td>
<td>7,200</td>
<td>41</td>
<td>39</td>
<td>13</td>
<td>7</td>
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<td>Decreased</td>
<td>Rouleaux formation</td>
<td>Five days post-partum</td>
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<tr>
<td>October 4, 1962</td>
<td>8.1</td>
<td>--</td>
<td>3,350</td>
<td>--</td>
<td>--</td>
<td>--</td>
<td>--</td>
<td>--</td>
<td>--</td>
<td>--</td>
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<td>Cyclophosphamide 100 mg./day</td>
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Fig. 2A.—Mother's electrophoretic patterns with persistent large, possibly homogeneous serum component in gamma region.

Fig. 2B.—Cord blood and child's electrophoretic patterns. Persistently normal patterns.

blood cell count was 16,700/cu. mm.; polymorphonuclear leukocytes, 52 per cent; bands, 5 per cent; monocytes, 11 per cent; lymphocytes, 32 per cent. At 24 hours, total bilirubin was 7.4 mg. per cent; direct, 0.7 mg. per cent. Electrophoresis of cord serum and the child's serum 48 hours after birth was normal (Fig. 2B). The child is normal in growth and development. Serum electrophoresis (Fig. 2B) and immunoelectrophoresis (Fig. 5) in May 1965 were normal.
Fig. 3A.—Nov. 30, 1961. Destruction of the transverse processes of fourth lumbar vertebra. Section of pelvis shown is free of osteolytic lesions.

COMMENT

Among 483 cases of multiple myeloma reported,5 19 patients or slightly fewer than 4 per cent were under 40 years of age. In a study of the incidence

Table 2.—Biochemical Data

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<th>Date</th>
<th>Blood Glucose (Mg. %)</th>
<th>Urea Nitrogen (Mg. %)</th>
<th>Albumin (Gm. %)</th>
<th>Globulin (Gm. %)</th>
<th>Gamma Globulin (Gm. %)</th>
<th>Calcium (Mg. %)</th>
<th>Phosphorus (Mg. %)</th>
<th>Alkaline Phosphatase (Bodansky)</th>
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<td>Nov.</td>
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<td></td>
<td></td>
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<tr>
<td>28, 1961</td>
<td>90</td>
<td>10</td>
<td>4.3</td>
<td>5.3</td>
<td>1.94</td>
<td>11.6</td>
<td>5.5</td>
<td>1.5</td>
</tr>
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<td>Sept.</td>
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<td></td>
<td></td>
<td></td>
<td></td>
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</tr>
<tr>
<td>20, 1962</td>
<td>—</td>
<td>—</td>
<td>4.0</td>
<td>8.8</td>
<td>—</td>
<td>—</td>
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</table>
Fig. 3B.—Osteolytic lesions of skull.

Fig. 4A.—Sept. 14, 1962. Pelvis at time of delivery. Note development of extensive osteolytic lesions.
of multiple myeloma in Brooklyn, New York, the incidence in the 30 to 39-year age group was 2 per million.\textsuperscript{12} Thus, even allowing for the preponderance of males having this disease, which has been cited\textsuperscript{10} as 1.6 to 1.0, one would expect that the concurrence of multiple myeloma and pregnancy would not be rare. The absence of any previous report may be attributable to the low incidence of pregnancy because of infrequent coitus during so debilitating and painful a disease as multiple myeloma. In the case reported here the patient was asymptomatic at the time of conception.

It is interesting that notwithstanding extensive osteolytic lesions of the pelvic bone, and manifestations of hemorrhagic phenomena (recurrent epistaxes), delivery was accomplished without difficulty, without pelvic fracture, and without abnormal loss of blood.

Although conception must have occurred during the period of irradiation of the lower lumbar area of the spine, and although urethane in therapeutic dosage was continued for about 8 weeks after conception, abnormalities were not detected in the child at birth nor have any been manifested since.

Serum electrophoretic patterns (Fig. 2B) of both the cord and the child’s blood, drawn shortly after birth, did not reveal the abnormal globulin of the
Fig. 5A.—Immunoelectrophoretic pattern of patient’s serum, May 1965. Note abnormal γA globulin. (1) Anti-whole human serum; (2) anti-γA globulin; (3) anti-γG globulin. Normal control appears in lower half of each illustration.

mother’s serum. Immunoelectrophoretic studies of both the mother and the child’s sera continued to show the expected differences. Both qualitatively, and apparently quantitatively, the child has a normal immunoglobulin pattern, and the child’s clinical status of normal development without increased susceptibility to infection further suggests a normal immunologic status. Since the primary protein abnormality in the mother, as shown by immunoelectrophoresis, was the excessive production of a γA globulin, one would not expect an increase in this globulin in the cord blood or in the child’s blood.

Summary

Pregnancy of a patient with multiple myeloma and the subsequent uncomplicated delivery of a viable normal infant apparently is the first such case
reported. The child is developing normally. The mother died almost 9 months after delivery. Serum electrophoretic and immunoelectrophoretic data are documented. The primary protein abnormality in the mother was the excessive production of a γA globulin.

**SUMMARY IN INTERLINGUA**

Es presentate lo que pare esser le prime reporto de un caso de pregnantia in un patiente con multiple myeloma experientiante un non complicate parturition de un viabile infante normal. Le infante se disveloppa de manera normal. Le matre moriva approximativemente 9 menses post le parturition. Datos sero-electrophoretic e immunoelectrophoretic es documentate. Le primari anormalitate proteinic in le matre esseva le production excessive de un globulina γA.
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ACKNOWLEDGMENTS

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REFERENCES

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