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Short communication

Simultaneous occurrence of acute myelogenous leukemia and seminoma of the testis

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Summary. Simultaneous tumors are rarely encountered during the course of acute leukemias. We report on a case of seminoma of the testis that occurred during the evolution of acute myelogenous leukemia. To our knowledge, this stimultaneous association has not previously been described, but a causal relationship was not apparent in the present case. The likelihood of a common carcinogenesis existed, but direct exposure to carcinogens could not be established. Although the results of a physical examination and echography were normal at the time of diagnosis, we cannot exclude the presence of microscopic cancer of the testis. Since the dissemination pattern of seminoma is usually slower than that observed in this case and the disease remains limited to the lymph nodes for long periods following dissemination, the rapid development of the present case might have been attributable to the immunosuppression and the scrotal sepsis that occurred during the induction therapy. Immunosuppression might have stimulated the progression of a primary microscopic seminoma and the development of metastasis, whereas the scrotal sepsis and inflammation might have favored the occurrence of metastasis through bypass of the lymphatic barrier.

A 42-year-old man working at a military airport was admitted for treatment of severe anemia. His hematopoietic organs were not enlarged. The hemoglobin count was 52 g/l; the WBC was 4.4×10^9 /l, involving 45% blast cells; and the platelet count was 306×10^9 /l. At aspiration, bone marrow was abundant, with 61% of the myeloblasts being classified as M1 (FAB classification) [1]. The patients's myeloblasts expressed strong positivity for CD 13 (My7) as well as for human leukocyte antigen (HLA) class II DR (I2-IOT2a) and weak positivity for CD 11 (Mo1), CD 15 (ION1), and CD 33 (My9), whereas CD 2 (T11), CD 10 (J5), CD 14 (My4, Mo2), CD 19 (B4) were not detected. The karyotype was 46, XY.

The patient achieved a complete remission (CR) following induction chemotherapy consisting of 200 mg/m^2 zorubicin given daily for 4 days and 200 mg/m^2 cytosine arabinoside given daily for 7 days. During aplasia, he developed staphylococcal cellulitis of the scrotum in the absence of orchiditis, which was treated with broad-spectrum antibiotics. The results of a physical examination and echography of the testis were normal. At 3 weeks thereafter a left testicular tumor measuring 4 cm in diameter was detected and was thought to represent orchiditis. Consolidation chemotherapy consisting of 200 mg/m^2 zorubicin given daily for 2 days and 6 g/m^2 cytosine arabinoside given daily for 4 days was then carried out, but the tumor continued to grow. Alpha-fetoprotein and beta human chorionic gonadotropin (hCG) levels were normal. At orchidectomy performed after the patient's recovery from aplasia, a pure seminoma measuring 5 cm in diameter was diagnosed.

Inflammatory parenchyma were found close to the tumor facing the area of scrotal sepsis. A pulmonary metastasis was discovered in the lower right pulmonary lobe on computed tomographic scans. Treatment of acute myelogenous leukemia (AML) was ended with an intensification chemotherapy regimen consisting of 4 mg/m^2 busulfan given daily for 4 days and 50 mg/m^2 cyclophosphamide given daily for 4 days followed by autologous nonpurged bone marrow transplantation (ABMT). Prolonged cytopenia prevented specific treatment of the seminoma and preceded a relapse of AML at 8 months after the CR, manifesting as a t(4;15)(q31;q14) translocation in leukemic cells. The patient died of progressive AML at 14 months after diagnosis.

A case of seminoma of the testis occurring at 10 years after the diagnosis of acute lymphocytic leukemia has been reported [3]. To our knowledge, the simultaneous development of such an association has not previously been described, but a causal relationship was not apparent in the present case. The likelihood of a common carcinogenesis

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existed, as the patient had been employed at an airport, but direct exposure to kerosene could not be estabilished. Moreover, the observation that the patient's initial karyotype was normal did not support the hypothesis of the occurrence of secondary leukemia. The presence of a translocation at the time of relapse seemed indicate a secondary event due to chemotherapy or to tumor progression. Furthermore, t(4;15) has not been reported to be linked to a special type of leukemia [2] and has not previously been described in association with testicular tumors. Although the results of a physical examination and echography were normal at the time of diagnosis, we cannot exclude the presence of microscopic cancer of the testis. Since the dissemination pattern of seminoma is usually slower than that observed in the present case and the disease remains limited to the lymph nodes for long periods following dissemination, one could argue that immunosuppression and scrotal sepsis might have been responsible for the rapid development of the tumor. Immunosuppression might have stimulated the progression of a primary microscopic seminoma and the development of metastasis, whereas the scrotal sepsis and inflammation might have favored the occurrence of metastasis through bypass of the lymphatic barrier.

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