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Lysergic acid diethylamide (LSD) and exstrophy of the bladder

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EXSTROPHY of the bladder is a rare congenital defect with an estimated frequency of only 1 per 40,000 to 1 per 50,000 live births.[1] It is thought to result from the failure of the infraumbilical mesenchyme to invade the cloacal membrane during the sixth and seventh weeks of gestation, allowing the cloacal membrane to break down and exposing the posterior wall of the bladder.[2] Only rarely has bladder exstrophy been reported in twins or in siblings.[3] There is no definitely known association of this anomaly with viral infection or drug ingestion during pregnancy; it has not been produced experimentally in any laboratory mammal.[3]

We report here a child with exstrophy of the bladder, whose mother ingested lysergic acid diethylamide (LSD) prior to conception and during the first trimester of pregnancy. The purpose of this report is to encourage others who may have observed such an association to report their findings.

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CASE REPORT

Patient M. R. (U.H. 11-36-81) was a Caucasian boy, the product of a 36 week pregnancy, who weighed 5 pounds 7 ounces at birth. He was noted to have complete exstrophy of the bladder, epispadias, widely separated pubic rami, and bilateral inguinal hernias. The rectal sphincter was normal, and no other abnormalities were noted. An intravenous pyelogram at 7½ months of age showed adequate function bilaterally, with minimal hydronephrosis and hydroureter on the left side. Operative repair of the bladder and epispadias was carried out in several stages. The child's growth and development have been normal to the age of $2\frac{3}{12}$ years.

The child's mother was a healthy 19-year-old primipara. During the two months prior to conception and the first 2½ months of pregnancy (at which time she realized she was pregnant), she allegedly ingested LSD in amounts sufficient to produce hallucinations on 12 to 15 occasions. In addition, she had smoked marijuana twice during this interval, and on one occasion she had ingested mephentermine sulfate (Wyamine Sulfate Elixir). The child's father, age 19, had ingested LSD on 2 occasions approximately 3 months prior to conception and had used methedrine and mescaline on several occasions.

There was no maternal family history of exstrophy of the bladder or other genitourinary congenital defects. The child's father had been adopted, and no information was obtainable on his family.

DISCUSSION

The effects of LSD on chromosomes and the possible biologic significance of such effects are subjects of considerable controversy.[4, 5] Although some investigators have reported an increased incidence of chromosomal abnormalities (without associated phenotypic abnormalities) in children born to mothers who ingested LSD during pregnancy,[4] others have failed to confirm this finding.[6]

The possible teratogenic effects of LSD are also in dispute. The experimental administration of LSD during pregnancy has been reported to cause an increased frequency of stillbirths and fetal resorptions and skeletal and neurological anomalies in rats, hamsters, and mice, but other laboratories have reported negative findings (see reference Nos. 4 and 5 for specific references and discussion). Thus far there are 3 reported cases of 3 different and individually rare congenital limb anomalies in children born to mothers who ingested LSD during the first trimester of pregnancy.[7-9] No significant chromosomal abnormalities in circulating lymphocytes were demonstrated in any of these patients.

The proper assessment of the teratogenic potential of LSD in man requires careful prospective studies of women ingesting LSD early in pregnancy. The significance of a single report of an association of exstrophy of the bladder with maternal LSD ingestion early in pregnancy is unclear. However, since this anomaly is so rare in the general population, if several similar reports were to appear associating it with LSD ingestion during the first 7 weeks of gestation, this would certainly raise one's suspicion regarding the teratogenicity of this hallucinogen. If such an association has been observed by other physicians, it is hoped that this case report will stimulate them to report their experience.

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