Fetal alcohol exposure: A case report

Maternal consumption of alcohol during pregnancy, especially in large amounts, may lead to significant abnormalities in the newborn infants known as fetal alcohol syndrome (FAS). It can also lead to less severe abnormalities, termed as fetal alcohol effects or exposure (FAE), which is more frequent than FAS. Surviving infants of an alcohol-drinking mother can evidence any combination of the components of a syndrome that in its full form can include mental retardation, microcephaly, a diminished physical growth, an atrial septal defect, syndactyly and facial abnormalities such as a flat bridge on the nose, an absent philtrum, and an epicanthal fold.

Drug and alcohol abuse in women and exposure of fetus to alcohol is a neglected topic in the Indian literature. So far not a single case report is available in the Indian literature on FAE or FAS.

This case highlights the effect of the exposure of the human fetus to alcohol.

Case report

A 26-year-old housewife from an urban slum area presented to us for detoxification. Her personal history revealed that she was married for the first time in 1995. However, she got divorced within 4 months due to a confrontation with the husband over her addiction to pethidine, which she had started injecting almost daily within one week of marriage due to frequent abdominal pain. At the end of 3 years, due to her poor economic condition, she switched over to alcohol. Initially for four months, she took whisky (about 230 ml/day) with occasional parenteral pethidine. Later, she switched to a local brand of alcohol called “desi pawwa” (illicit alcohol) about 150-200 ml/day. She got married for the second time in the year 2000, but she continued to take illicit alcohol (about 200 ml/day). Throughout the 9 months of pregnancy, she continued to consume alcohol without any period of abstinence despite strong resistance from her husband and knowing the risks to the fetus. On two occasions during the second trimester, she consumed as much as 400 ml of alcohol per day for 2 days without taking any food. Barring these two incidents, she had a positive attitude towards pregnancy and her nutritional care was good. She did not attend any antenatal clinic. She was admitted to the hospital only at the time of labor pains, where for the first time routine investigations were conducted and all reports were found to be within normal limits, including blood sugar and liver function tests. She delivered a full-term female baby, weighing 2.4 kg, without any peri-natal or post-natal complications. Even during her lactation period, she continued to consume the same quantity of alcohol. She attended a psychiatry clinic, along with her 2-year-old daughter, for detoxification. The child’s father used to take alcohol on social occasions and upon evaluation, no psychopathology was observed in him. He would remain away from the house for most part of the day because of his work but upon coming back he would take due care of his family. Though he had cordial relations with his wife he would at times end up in a verbal argument with her because of her drinking habit. Apart from alcohol dependence, no other psychiatric problem was seen in the mother. She had been carrying out all the household chores including taking care of the child, well. There was no history of poor mother-child relationship or faulty parenting. Medical history of the child revealed delayed development milestones, particularly in the language and motor areas. The examination of the child showed decreased attention span and she was unable to speak more than 5 words. Further, motor incoordination was also noticed with hypotonia in all four limbs. She could walk only with support. Her play activity was solitary and she would not mix with her age-appropriate peers. She also exhibited lack of anxiety towards strangers and appeared a passive child.

Her height, weight and head circumference were 86 cm, 11 kg and 48 cm respectively. All these values were within the normal range for the child’s age. Apart from a broad nose, no other congenital abnormality in the form of microcephaly, maxillary hypoplasia, joint abnormalities, epicanthal folds, short palpebral fissures, cleft palate, syndactyly etc. were noticed at the time of evaluation. Laboratory investigation of the child revealed normal hematological findings except for low hemoglobin (9 gm %). Her MRI head and echo cardiography findings were normal. Her thyroid function test too, was normal.

We do not have facilities for performing standardized neuropsychological battery for children of this age. On administering Vineland Social Maturity Scale, her age was calculated to be about 1 year. In view of the low hemoglobin level the child was prescribed iron and B complex supplement but she did not turn up for subsequent follow-up visit.

Discussion

Alcohol and acetaldehyde can have deleterious effects on the developing fetus. These substances cross the placenta with ease; and in high enough doses, can produce fetal death and spontaneous abortion.

Western literature shows that approximately 30-35% of pregnant women drink alcohol during the course of pregnancy on a regular basis. In India, alcohol content in illicit alcohol, estimated in 23 samples, was found to be in the range of 23-36 gm per 100 ml. In this case report, probably the fetus was exposed to a moderate daily dose of alcohol. The child had developmental delay, which could not be attributed only to social, environmental, or nutritional factors and therefore the effect of toxin on the developing brain cannot be ruled out.
Normal finding on the MRI of head does not rule out abnormalities at the micro level. The cause of the deficit is at a micro level for cases with relatively mild intellectual deficit, rather than at a macro level. Burd et al. appropriately used the term fetal alcohol spectrum disorder precisely because of the presence of complex cognitive, behavioral and physical symptomatology in children with prenatal alcohol exposure.

The most important step in reducing the incidence of such disorders is to increase awareness among the public that FAS is a totally preventable syndrome. Women who desire to become pregnant should stop even social drinking because certain subtle neurodevelopment adverse effects to the fetus may be induced even before pregnancy is detected.

Fluorouracil is an analogue of fluorinated pyrimidine commonly used in the treatment of several cancers. After rapid intravenous injection, fluorouracil rapidly diffuses into all body compartments, including the nervous system. The drug is primarily degraded by the liver. The toxicity of 5-FU is strongly influenced by the dosage used and the rate and duration of drug administration. Neurologic toxicity manifested by somnolence, confusion, seizures, cerebellar ataxia and rarely encephalopathy are known but uncommon. They are usually totally reversible on withdrawal of drug. Leucovorin which is commonly combined with 5-FU enhances the antitumor activity as well as toxicity.

**Case report**

A 49-year-old female, a known case of diabetes mellitus for 15 years, on insulin presented with complaint of lump left breast since April 2003 to the Radiotherapy outpatient department. She was treated for depression in 1997, but was doing well since then.

Her general physical examination was with in normal limits. Her local examination revealed that her left nipple was retracted and there was an 8x6 cm lump in the left breast which was hard, not fixed to underlying muscle or chest wall. The skin over the lump was normal. There was a 1x1 cm lymph node in the left axilla. Opposite breast and axilla were normal. Her abdominal and gynecological examinations were within normal limits.

Fine needle aspiration cytology (FNAC) from the lump revealed infiltrating ductal carcinoma. Her chest X-ray and ultrasound of abdomen and pelvis were normal. Her blood sugar was under control with insulin and other biochemical and hematological parameters were also normal. So she was diagnosed as Stage-III carcinoma breast.

Being a locally advanced case of carcinoma breast, she was started on neoadjuvant chemotherapy with FAC (5-fluorouracil, adriamycin and cyclophosphamide) regimen. The first cycle of chemotherapy was given on 3.5.03 at 2 pm. She developed generalized tonic clonic seizure at 11:30 pm on 3.5.03. She also had foaming and postictal incontinence.

On general physical examination she was disoriented to time, place and person. She was agitated, confused and had loss of both short as well as long term memory. Her behavior was altered and her talking was irrelevant. The pupils were reacting to light. The patient was sedated with iv diazepam. Neurological as well as psychiatric consultations were taken and she was also started on phenytoin.

On investigation her electrolytes, blood sugar, calcium, liver and kidney functions were within normal limits. Her ECG, chest X-ray, CT-scan brain both plain as well as contrast were also normal. On 4.5.03 at 7 am she was oriented but complained of loss of vision. Her electroencephalogram (EEG) and lipidogram were within normal limits. Her vision returned spontaneously on 5.5.03 at 6 am and her condition also improved and subsequently she was discharged on phenytoin.

She was given a second cycle of chemotherapy on 24.5.03 at 4 pm. She had similar symptoms again as on 3.5.03 and was managed with the same drugs. As no other cause could be found for her symptoms and the symptoms developed each time after chemotherapy, the 5-FU induced encephalopathy and convulsions were suspected; therefore 5-FU was omitted from next the course. She did not develop a similar problem after that and completed the rest of the chemotherapy without any problem.

**Discussion**

Many cases associated with high-dose infusion of 5-FU-induced encephalopathy have been reported in the literature. To our knowledge this is the first case being reported to have been caused by bolus 5-FU (600 mg/m²). Neurotoxicity is a well known but rather rare adverse effect of 5-FU. In the lit-