# CASE REPORT

*Thomas A. Rejent,*[1] *B. A. and Sung-ook Baik,*[1] *M.D.*

# Fatal In Utero Salicylism

**REFERENCE:** Rejent, T. A. and Baik, S., **"Fatal In Utero Salicylism,"** *Journal of Forensic Sciences*, JFSCA, Vol. 30, No. 3, July 1985, pp. 942-944.

**ABSTRACT:** An aspirin overdose by an eight-month primigravida proved to be the mechanism of death for the fetus. Clinical progress of the mother and postmortem concentrations of salicylate in the fetus are listed exhibiting the fetal survival time of about 18 to 20 h post ingestion by the mother.

**KEYWORDS:** pathology and toxicology, salicylate, pregnancy, placental barrier

Acetylsalicylic acid is widely used both discriminately and indiscriminately. Suicidal attempts and accidental poisonings with this compound or its derivatives are quite common. The case describes the death of a near-term fetus following an unsuccessful suicide attempt by the mother.

## Case History

An unmarried 22-year-old primigravida presented at the emergency room of a local hospital admitting consumption of 100 5-grain generic aspirin following a fight with a boyfriend. She stated she was about eight months pregnant, had not sought or received prenatal care, was despondent, depressed, and obviously in severe distress. Her body weight was stated as 55 kg (122 lbs). The patient complained of tinnitus, had three episodes of emesis in rapid succession, was breathing rapidly, and was obviously in a hyperventilated state. She was given 300 mL of magnesium citrate, and transferred to the intensive care unit after blood specimens were drawn for serum electrolytes, blood gases, and toxicology screening for alcohol and acidic drugs.

The obstetrical consultant was summoned who confirmed the presence of a 32- to 34-week-old fetus with "normal cardiac sounds and in no imminent danger" and recommended no interruption of the pregnancy at that time. The mother was noted to be taking 30 to 40 breaths per minute confirming the hyperventilation apparent on admission. The results of the initial blood chemistries and toxicological findings are listed in Tables 1 and 2. Intravenous dextrose-saline was started with addition of potassium chloride to correct the low potassium of the patient and counteract the alkalinity of the intravenous fluids. A fetal monitor was connected and serial chemistries and salicylate levels were ordered. The patient became

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[1]Chief toxicologist and associate chief medical examiner, respectively, County of Erie, Buffalo, NY.

TABLE 1—*Arterial and venous blood chemistries of mother shortly after admission.*

| Test | Results | Normals |
|---|---|---|
| pH (arterial) | 7.52 | 7.35-7.45 |
| $pCO_2$ | 17 mm Hg | 36-44 |
| $pO_2$ | 115 mm Hg | 100-140 |
| $HCO_3$ | 13.2 meq/L | 24-32 |
| K (venous) | 3.3 meq/L | 3.6-5.5 |
| Na | 135 | 135-145 |
| Cl | 101 | 100-107 |
| $HCO_3$ | 12 | 20-30 |
| Glucose | 137 mg/DL | 60-100 |
| B.P. 118/68 | pulse 100 | resp. 34 |

TABLE 2—*Sequential blood Salicylate concentrations of mother over 44-h period after admission.*

| Test | Date | Time, min | Concentration, μg/mL |
|---|---|---|---|
| Salicylate | 3/24 | 00:48 | 568.0 |
| Salicylate | 3/24 | 02:26 | 528.0 |
| Salicylate | 3/24 | 04:01 | 547.0 |
| Salicylate | 3/24 | 12:00 | 366.0 |
| Salicylate | 3/24 | 20:00 | 212.0 |
| Salicylate | 3/25 | 08:30 | 65.0 |
| Salicylate | 3/25 | 16:00 | 16.0 |
| Salicylate | 3/25 | 20:00 | 44.0 |

ungovernable and was put in restraints; intravenous fluid input was doubled to correct the abnormal electrolytes and high pH and to aid in diuresis. There was a continuing imbalance of electrolytes although the salicylate level was reduced dramatically. Fetal movements were still apparent at 3:00 p.m., approximately 15 h post admission. There was an obvious deterioration of the fetus in the subsequent hours and no signs of life were noted within 20 h after admission. The patient was discriminately notified and became sorrowful and very apologetic about her overdose and rendered disbelief about the death of her child. A decision was made to await spontaneous labor. Sodium bicarbonate was added to the patient's treatment to further counteract the persistent metabolic acidosis.

The following morning the salicylate level had decreased to 65.0 μg/mL, falling rapidly to 16 and then rising to 44 μg/mL about 12 h later. Psychiatric evaluation and counseling of the patient was instituted. The usual medical care continued and metabolically the patient steadily improved, although her mental anguish and sorrow continued to be severe.

The patient went into spontaneous labor on Day 6, was transferred to the surgical suite, and delivered, unaided, a stillborn fetus. The fetal cadaver was submitted to the medical examiners department for autopsy and pathological and toxicological analyses. The patient received the usual postnatal care, improved rapidly, and left the hospital on the eighth day after admission without formal discharge.

## Pathology and Toxicology

The fetus was a well-developed female, eight-months gestational age, weighing 3.3 kg and measuring 50 cm in length. There were no congenital anomalies noted. The fetus was nor-

TABLE 3—*Postmortem salicylate concentrations in fetal blood and tissues.*

| Specimen | Concentration |
|---|---|
| Blood | 243.0 μg/mL |
| Bile | 104.2 μg/mL |
| Liver | 225.0 μg/g |
| Brain | 200.0 μg/g |

mocephalic but early maceration had taken place. Autolysis was prevalent but no inflammatory changes were noted. Blood, brain, bile, and liver tissues were submitted for toxicological examination. Analytical screening confirmed the absence of alcohols or acidic drugs other than salicylates, levels of which are listed in Table 3. Blood specimens were back extracted and the ferric salicylate complex analyzed by visible spectrophotometry [*1,2*], the bile and tissue specimens were analyzed similarly following hydrolysis.

## Summary

A case is described involving intrauterine death of a 33-week-old fetus by salicylism as a result of mass ingestion by the mother. The history would indicate survival of the fetus for about 20 h after the mother's admission. The postmortem salicylate concentrations, compared with the clinical record of the mother, serve to confirm the approximate time of the demise of the unborn child. Whether interruption of the pregnancy shortly after admission would have led to a different outcome is conjectural. The case serves to point out the ease of crossing the placental barrier by acetylsalicylic acid or its metabolites and exemplifies the difficult medical decision that may be precipitated by serious drug overdose. Legal questions may subsequently arise relative to the decisions that were made.

## References

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Address requests for reprints or additional information to
Thomas A. Rejent
60 Meadow Lea
Buffalo, NY 14226