# CASE REPORT

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# A Forensic Science Approach to a Starved Child

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**ABSTRACT:** A 19-month-old, 3.6-kg (8-lb) female child dies after a protracted course. The child was premature and suffered a stormy perinatal and postnatal period. When there is underlying disease or a condition potentially sufficient in and of itself to result in a "starved child," isolation of the results of potential neglect presents particular difficulties. The approach to the resolution of this question will be addressed.

**KEYWORDS:** pathology and biology, child abuse, starvation

Much has been written about the maltreatment of children since the classic description of "The Battered Child Syndrome" which was published in 1962 [*1*]. When charges are filed against the alleged perpetrator there is usually an intensive exculpatory defense. If the child has suffered physical trauma each injury will have an alleged accidental circumstance which must be anticipated and countered if a court is to assess guilt to the exclusion of reasonable doubt [*2*].

When the victim exhibits a wasted or starved appearance, underlying disease will be offered as the excuse. Accordingly, protein-losing or malabsorptive syndromes must be excluded along with other diseases that result in emaciation [*3*].

Should the victim be alive, a sojourn in a medical care facility with good nutrition and nursing care will solve the problem because the child will gain weight and improve rapidly if suffering only from neglect.

The resolution of an apparent death by starvation, in which there have been no documented periods of observation during the administration of adequate nutrition, is not easy and requires consideration of home and environment. Usually such an investigation will reveal grossly wanton neglect of the entire family, filth, feces, and diversion of meager financial resources into liquor, drugs, and clothes for the parents. A common denominator is low socioeconomic and nonachiever status of the head of the household [*4,5*]. A common initial

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response on the part of the parent is denial that anything serious was amiss with the child and that the death, therefore, was a complete surprise [2,4].

Homicide charges may be sustained following intensive scene and social background investigation, coupled with an autopsy and a medical history that excludes significant underlying illness.

When an underlying, potentially serious illness is present the role of parental neglect becomes less clear even though the initial appearance of the victim would indicate death as a result of wanton starvation-neglect. There are no guidelines for medical examiners, police, or prosecutors in such an event because legal precedence is almost nil.

The following case exemplifies the problem and offers some suggestions for investigation.

**Case 81-2911**

This was the seventh child born to a 33-year-old white divorcee. Immediately after an uneventful 32-week pregnancy and normal vaginal delivery, this 1520 g, 41-cm-long female infant had an Apgar score of 8 followed by 9 at the age of 5 min. About 3 h later she was noted to have poor suck and grasp reflexes and some chest retraction with respiration. Her skin was mottled and extremities, cyanotic.

Her complicated hospital course was documented in a 9-cm thick record when she was discharged 73 days later. During hospitalization she was found to have, in addition to prematurity, Down's syndrome (trisomy 21), respiratory distress syndrome in the neonatal period, recurrent episodes of apnea, interstitial emphysema with pneumothorax, anemia requiring transfusions, jaundice necessitating prolonged phototherapy, duodenal atresia requiring surgical correction, and hypocalcemia. Protracted parenteral feedings were administered during the first two months of hospitalization. A nasogastric tube was used for feeding almost to the day of her discharge and was finally removed on that day. When oral feedings were attempted the child had to be propped up in order for the formula to be swallowed. The child was always as limp as a "rag doll" and had to be supported on a pillow when held.

During her stormy hospital course the child's weight dropped from 1520 g at birth to 1240 g on Day 15; eventually it rose to 1970 g on the day of discharge.

The baby's mother was offered a choice of foster home placement or home care. Social workers noted ambivalence in the baby's mother in regard to home care. After instruction in feeding, however, she finally accepted custody of the child, having been encouraged to do so by the hospital staff.

She was referred to a high risk clinic for follow-up visits.

After discharge she did not bring the child back although mail notices were sent.

At the age of 19 months the child was taken to a medical care facility by rescue paramedics when her mother, upon return from a short neighborhood visit, suddenly discovered her, not breathing. She told the police the baby had had a "cold last week" and related the history of the child's postnatal illness.

The autopsy revealed a 57.5-cm, 3600-g emaciated infant with pinched facies and a scaphoid abdomen (Fig. 1). Her fingernails were unkempt and palms and soles soiled. There was serous atrophy of visceral fat in addition to evidence of prior surgery. The stomach contained about 2 mL of secretions, and there was no chyme in the small intestine. The large intestine contained an estimated 15 g of feces. A total body X-ray revealed no fractures although there was decreased opacity of the bones consistent with demineralization. There was no cardiac anomaly. Histologic study revealed focal hypostatic bronchopneumonia, moderate fatty change in the liver, and atrophy of fat. Consultant pediatric pathologists could find no evidence of a malabsorptive syndrome in the histologic sections.

The fixed brain weighed 700 g. Lateral ventricles were moderately enlarged in the occipital horns. The left superior temporal gyrus was narrow and the occipital contours were flattened.

The police, in the meantime, had interrogated neighbors and also investigated the family.

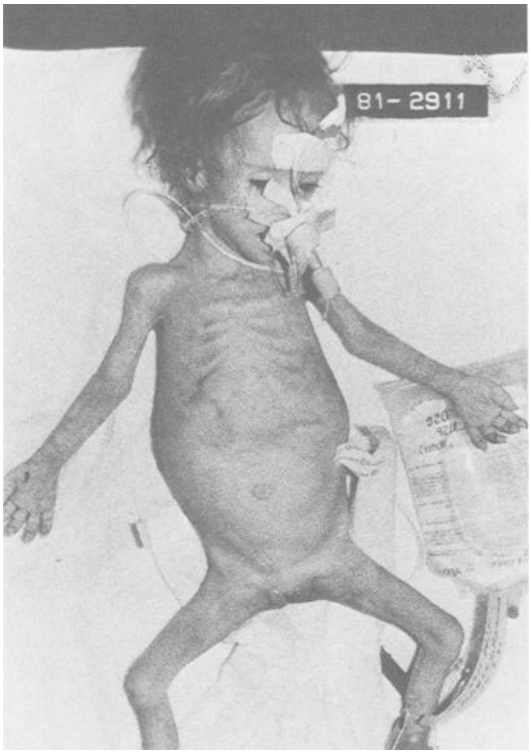


FIG. 1—*Emaciated appearance of child at time of autopsy.*

The medical examiner was informed that: a 14-year-old sister would babysit on occasion; a playpen contained some kittens and was soiled with cat feces; the baby sometimes slept in a tomato shipping box; an older brother had been a truant; there had been a prior charge of neglect made to welfare agencies regarding the care of twin siblings; the father had tried unsuccessfully to gain custody of the children; and the mother had not brought this child to the clinic for medical care despite mail notices.

The baby's mother was charged with homicide.

## Discussion

The initial impression in such a case is "starvation due to neglect." Before that may become the basis for criminal charges, it is essential to rule out malabsorption and protein-losing enteropathies as well as other causes for failure to thrive. The ingredients of such a determination include consideration of both the autopsy findings and circumstances of the care afforded the child. This necessitates careful autopsy, photographs of the child, review of all medical records, interview of witnesses, and review of records pertaining to the entire family unit.

Careful judgmental interpretations of the presumed responsibilities of the parents in the light of their capabilities are needed. Capabilities include intelligence, experience, and resources.

Certainly this child exhibited presumptive evidence of neglect:

1. She appeared to be chronically wasted and starved.
2. Her deteriorating appearance should have indicated the need for medical care.
3. She had an unkempt appearance.

4. She had not recently taken food (in view of the empty stomach).
5. No autopsy evidence of protein-losing or malabsorption syndromes could be demonstrated (consultation with two pediatric pathologists).

An environmental background study likewise indicated neglect:

1. This mother had not responded to mailed clinic notices.
2. The child had slept in a makeshift crib, either an empty tomato box or a dresser drawer.
3. A 14-year-old sister often cared for the infant while the mother was away.
4. The yard was not kept up and the house was not neat in that there was a cat with litter in the playpen.
5. A neighbor had requested that this mother take her baby to the hospital a few days earlier but mother had failed to comply.
6. Welfare records indicated an earlier neglect complaint involving twin siblings some years before and a male sibling had been cited for truancy.

This mother was charged with the wrongful death of her child. The charge prompted an even more vigorous investigation into her background on the part of the public defenders. An experienced pediatric pathologist was consulted by the defense to review the entire record in addition to the autopsy.

Two broad issues were raised:

1. What would be the expected eventual outcome of such an infant with Down's syndrome experiencing the same postnatal complications if afforded continuous care in a medical treatment facility?
2. What substantive evidence was there of overt or implied intent to neglect?

Without doubt, the many grave postnatal complications in this case would have been expected to alter the child's prognosis adversely even if she had been afforded optimum medical care. As a Down's syndrome, trisomy 21, the child had some slight central nervous system structural abnormality which of itself should not have compromised neurological function to the extent that she could not take proferred nourishment and keep growing. However, other evidences of acquired central nervous system deficits were apparent and stemmed undoubtedly from her stormy neonatal course.

Weight gain after receipt of adequate nourishment is an excellent indicator that an apparently starved child has failed to grow and gain because of deprivation. Retrospective study of medical records, if available, offers clues as to a child's ability to take nourishment. In this case, the baby's minimal weight gain in the hospital had occurred only because she was receiving tube feedings. The nurses themselves had experienced difficulty when attempting to feed her with a nipple.

The pathologist for the defense (MVD) noted that the graph for the *expected* growth of a 1500-g baby born prematurely has a slope of 28° from the horizontal [*6*]. A plot for this baby's weight gain during her hospital days had a slope of only 14°. The slopes were increasingly divergent over time (Fig. 2). That growth failure occurred despite the fact that the child was then receiving maximal care and nourishment by nasogastric tube in an infant care center.

Can a depressed growth curve such as this have prognostic value? It would appear that it can. If this child in the best of hospital care responded so inadequately, one would reasonably expect less in a foster home, or even in its own home at the hands of nonprofessional caregivers.

Children with uncomplicated Down's syndrome usually thrive. If not, it is usually because of an associated major cardiac anomaly. This child had a normal heart but did have acquired handicaps in the form of neonatal "brain damage" which resulted in severe neurological deficit (a so-called "floppy infant"), evidence for which exists in her poor clinical response throughout hospitalization.

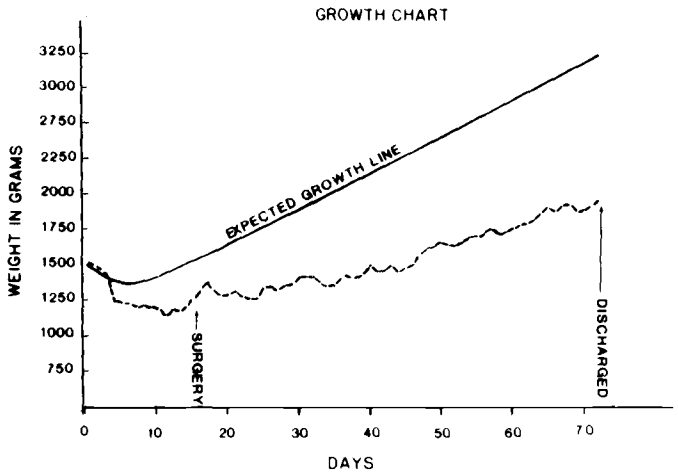


FIG. 2—*Expected growth curve compared to this child's growth curve. Note increasing divergence over time.*

It is probable that this child would have died as an infant even with optimal care and did well to survive for 19 months. An alternative conclusion is that we cannot opine, in the face of the evidence, that the child would have survived if rendered hospital care rather than, presumably, inadequate home care. In either event, the conclusions are insufficient to support a continued charge of homicide beyond reasonable doubt.

Other evidences of criminal neglect seemed apparent. Certainly this mother had not brought the baby to clinic. However, she had very little money; other children to care for; and, in the city in which she lived, public transportation was virtually nonexistent.

The pediatric center concerned has a special "high risk clinic" to which this mother had been referred. Unfortunately, the program was not well coordinated in relation to the public health nursing program within the County Health Department. Home nursing visits could easily have been arranged for this mother. A sense of equity indicates this mother should not be held solely responsible for her failure to keep clinic appointments and seek further medical care [*4*].

Her reason for not taking the child to a medical care facility, when her neighbor suggested it, was fear that the baby would be taken away from her. She had no pecuniary reason for she had not even reported the child's birth to the welfare agency and thus had forfeited child care payments.

The earlier charge of neglect of twin siblings evaporated when the concerned state agency was eventually contacted. The complaint was not sustained following investigation at the time. Even the "unkempt home environment" seemed less impressive when photographs were reviewed. (One photograph showed a vacuum cleaner that had been in use.)

Criminal charges of death as a result of child starvation are not easy to sustain. In addition to the requirement for exclusion of malabsorption syndrome, neurological deficits must also be excluded.

A child with an illness likely to impede the taking of nourishment should not be placed into a home environment unless arrangements for home nursing visits are in effect.

When the initial circumstances of death indicate that criminal charges because of wanton neglect are in order, the quantum of evidence required to sustain that charge becomes far greater if the child has been seriously ill or in some way defective. It is essential that all available family, social, and health records be traced and studied meticulously if criminal homicide charges are to be supported.

Most importantly, all medical records must be reviewed by a competent pediatric expert to ascertain subtle details and prognostic trends.

## Epilogue

This paper was presented at the Academy of Forensic Sciences meeting in 1983 in Cincinnati. The paper was subsequently reviewed with the defense and prosecuting attorneys. The prosecutor, after having perused the article, decided that the case could no longer be prosecuted as a homicide. That count was dropped but a charge of neglect continued.

The effect of this complex medicolegal investigation upon the local criminal justice system was appreciable. There was in it one unique element in that there were no "adversary" courtroom proceedings, and both prosecution and defense counsels shared material in regard to the case. Litigants agreed that the mother of the dead child was not deserving of imprisonment. One count of child abuse, that is, neglect, was entered to which the mother pled no contest.

> The Court having heard negotiated plea as stipulated by Counsel, hereby, accepts said plea with the following special conditions as enumerated below:
>
> 1. You must undergo psychiatric treatment until such time as the person in charge of such treatment (Dr. W.) and the Court determines that such treatment is no longer necessary.
> 2. Defendant shall receive supervision by the appropriate division within the Department of Health and Rehabilitative Services for an indefinite period of time until Department of Health and Rehabilitative Services and the Court agree that said supervision is no longer necessary.
> 3. The defendant's family to wit: all children shall be evaluated (medically and psychologically) by the Family Protection Team, and said family shall cooperate and follow through with any recommendations and/or any programs that the Family Protection Team shall propose, until such time as those programs and the Court agree that said participation is no longer necessary. The defendant specifically agrees to cooperate with this condition as legal custodian of her children.
> 4. Defendant shall give written permission to release the results of psychological testing conducted by Dr. S. M. in March 1983; said results to be given specifically to the Office of the State Attorney, Dr. W. and the Department of Health and Rehabilitative Services.
> 5. The defendant must make all reasonable efforts to seek employment.
> 6. The Probation Officer shall personally visit the defendant's home at least once a month and shall submit a Report to the Court on the status of the family situation every 6 months for the full length of Probation.

These conditions were explained to this mother and she accepted the same. The judge formally sentenced her to the above stipulations.

It would appear that in this case justice prevailed because of the willingness of the litigants and expert witnesses to operate within the criminal justice system to seek a solution to a uniquely complex issue at law.

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