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## Three subsequent infanticides covered up as SIDS

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**Abstract** Within a period of 9 years a young woman lost 3 daughters during infancy and each time death was attributed to the sudden infant death syndrome. The children had different fathers and died at the ages of 11 weeks, 7 weeks and 2 weeks, respectively. A fourth daughter survived and lives separated from the mother together with her father and is healthy. At autopsy the last of the three deceased infants did not reveal any pre-existing pathological organ findings, except for acute pulmonary emphysema and extensive intra-alveolar bleeding. As a consequence the strong suspicion of mechanical suffocation arose. Subsequent police investigations produced incriminating clues that the first two children had also been suffocated. On confrontation with the autopsy findings and investigation results, the woman confessed that she herself had killed the first two infants by pressing a cushion on their faces. In the case of the third death the baby had been smothered by the child's father who in agreement with the mother put a plastic film on mouth and nostrils.

**Keywords** SIDS · Infanticide · Asphyxia · Smothering

### Introduction

Sudden infant death syndrome (SIDS) is defined as the sudden and unexpected death of an infant between the 8th and 365th day of life, the cause of which remains unclear in spite of postmortem, histological, microbiological and toxicological investigations, evaluation of the death scene and the medical history [37, 42]. The diagnosis "sudden infant death syndrome" is thus a diagnosis by exclusion.

Without autopsy and further investigations sudden infant death syndrome cannot be assumed with sufficient certainty.

The recurrence risk of sudden infant death syndrome in families in which a cot death has already occurred has been controversially discussed in the medical literature. Some papers arrived at the conclusion that the probability for a recurrence of SIDS is not higher than the baseline probability [33]. In an Australian study the relative recurrence risk of SIDS in a family was found to be very low ( $<1$ ) [4], but according to other statements the recurrence risk of SIDS seems to be elevated. In a study conducted by a Norwegian study group the relative risk that a second child will die from SIDS in a family was estimated at 5.6 on average [22] and 5.8 in a subsequent study [32]. A similar relative risk was reported in an American study published in 1990 [18]. However, a higher risk for the repeated occurrence of SIDS was found, e.g., in premature infants or in the presence of malformations [32].

A point often criticized in studies of this type is that not only genuine SIDS cases were included in the study material, but partly also infant deaths due to illnesses. Another point of criticism is that the diagnosis "sudden infant death syndrome" was not always exactly verified, so that families with an elevated infant mortality were included in the study without definitely knowing whether the infants had really died from SIDS. Especially death from asphyxia was often not ruled out with sufficient accuracy and an autopsy had not always been performed [21, 23]. As pointed out by several authors, many of the recurrent infant deaths in one and the same family are homicides [13, 15, 18, 21, 28, 29, 31, 34, 43]. In a retrospective study of 57 infant deaths in 27 families (24 families with 2 deaths, 3 families with 3 deaths) it was found that death was caused by suffocation in 55% and that SIDS could be assumed only in 9% of the cases [43]. Maybe the most famous two cases were those which led to the sleep apnoea theory of SIDS in 1972 [38] and the mistake was only uncovered more than 20 years later when the mother confessed [15].

Our report deals with a young woman who, in the course of 9 years smothered 2 of her 4 baby daughters and

Dedicated to Prof. Dr. Dr. h.c. B. Brinkmann on the occasion of his 65th birthday.

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another infant was smothered by her husband. Each time death was at first attributed to sudden infant death syndrome.

## Case report

### Case 1

At the time of the first death the mother was 18 years old and lived in an assisted living facility for young people. Shortly before, she had separated from her husband, who was also the father of the child. Another daughter from this marriage, who was meanwhile 1 year old, lived together with the father. According to the woman's statement she found the 11-week-old girl lifeless in her cot one afternoon. There were no known previous diseases and pregnancy and delivery had been normal.

At the medicolegal autopsy cerebral edema, petechial hemorrhages of the epicardium and the thymus as well as hemorrhagic edema of the lungs with bloody froth in the respiratory passages were found. No acute pulmonary emphysema was described, nor were there any petechial hemorrhages of the eyelids or conjunctivae. The forensic pathologist performing the autopsy expressly mentioned the marked hemorrhagic pulmonary edema. The expert opinion actually recommended further investigations, but these were not ordered by the public prosecutor.

### Case 2

The second death occurred 4 years later. Again it was a girl who died at the age of 7 weeks, pregnancy and delivery had been normal. Because of the (wrong) assumption of a previous SIDS case in the family the infant had been thoroughly examined and monitored in the hospital postnatally, but there were no abnormal findings. No symptoms of illness were reported on the days before death. The father of the child was a brief acquaintance of the mother and they did not live together. The mother called the ambulance service at night after having allegedly found the baby girl lifeless in bed.

The medicolegal autopsy revealed cerebral edema, petechial hemorrhages of the epicardium and the thymus as well as mucus in the trachea and bronchi. There were neither petechial hemorrhages in the eyelids or conjunctivae nor lesions on the mucosa of the lips nor dried patches around the respiratory orifices. The forensic pathologists performing the autopsy arrived at the conclusion that the findings as a whole were consistent with the assumption of SIDS. No further investigations were initiated.

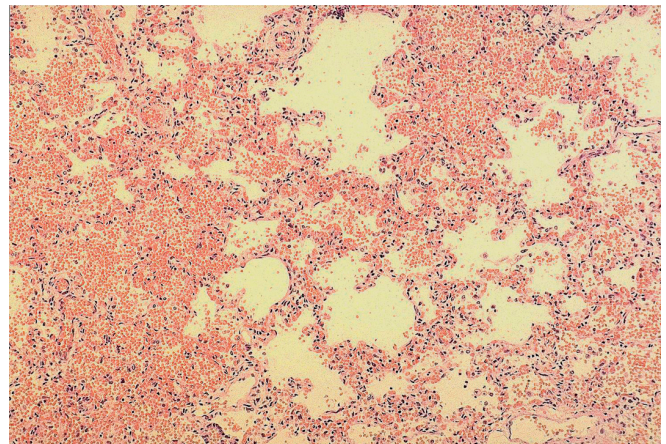
### Case 3

Four years after the second death, a third death occurred. In the meantime the woman had married again and, after a pregnancy without complications, had given birth to a healthy girl by spontaneous delivery. Two weeks later the child's father rang the emergency services around 2:00 a.m. and reported that he had just found his daughter lifeless in bed. The emergency doctor could only confirm her death and cardiopulmonary resuscitation was not carried out. The parents stated that the infant had been fed around 10:00 p.m. and brought to bed. The infant was wearing baby rompers and was covered by a feather pillow. The child's mother also told the police that she had lost two daughters due to SIDS in 1993 and 1997.

At the forensic autopsy blood-tinged secretions were found at the mouth and nostrils (Fig. 1); the internal findings included hemorrhagic pulmonary edema with bloody froth in the respiratory passages, petechial hemorrhages of the epicardium and the visceral pleura as well as congestion of the liver. Bacteriological investigation of the spleen, meninges, lungs, nasal meatus and the trachea did not produce any evidence of pathological microorganisms. The



**Fig. 1** Case 3 showing blood-tinged secretions at the mouth and nostrils



**Fig. 2** Case 3 with acute emphysema and intraalveolar hemorrhage of the lungs (hematoxylin-eosin stain)

toxicological investigations showed minor amounts of caffeine in the cardiac blood, the kidneys, the liver and the gastric contents.

Histological examination of the internal organs showed acute blood congestion, interstitial and intra-alveolar edema, acute pulmonary emphysema, and fresh pulmonary hemorrhages without evidence of siderophages (Fig. 2).

Due to their strong manifestation the pulmonary hemorrhages and the acute pulmonary emphysema were evaluated as being atypical for SIDS, but it seemed highly improbable that SIDS would occur 3 times in half-siblings. Therefore mechanical suffocation was suspected in the autopsy report.

### Further investigations and court trial

After receiving the autopsy report of the third infant the police conducted extensive investigations, which also covered the two previous deaths. In the course of these investigations it was found that the woman had abandoned her first daughter at the age of 6 months, but the child was found before it was too late and survived. After that event her first husband filed for divorce and took the child into his custody. As a result of the police investigations the woman and her current husband were finally arrested. Both made a detailed confession according to which the three deceased infants had all been smothered. The second and the third daughter had been smothered with a pillow by the woman herself. Accord-

ing to her statement the first homicide took rather long, as the child started breathing again when the cushion was briefly taken away. In the second homicide she therefore pressed the cushion down on the face longer from the start. As motive the woman maintained that the care of the children was too strenuous. Her fourth child was suffocated by the husband with cling film pressed on the child's mouth and nose in the presence of the mother. Again the offender stated that the homicide took rather a long time, as the child started breathing again when he removed the cling film briefly. The husband knew about the previous infanticides of his wife. With regard to his own motive he stated that the child had been crying a lot and that he and his wife were near a nervous breakdown.

The forensic psychiatrist entrusted with the expert opinion diagnosed an emotionally unstable personality disorder of the borderline type (ICD-10: F60.31) in the child's mother. The husband did not have any psychiatric disorder. For both defendants the question whether their criminal responsibility was considerably diminished or absent was answered in the negative.

The defendants repeated their confessions in the trial. Both were sentenced (in separate trials) to several years imprisonment for manslaughter.

## Discussion

The percentage of deaths due to suffocation in the total number of infants who died suddenly and unexpectedly is difficult to assess [21]. Accordingly the figures quoted in the literature range between 0.6% [25] and 10% [14]. In general it is assumed, however, that the rate of homicides due to suffocation among the deaths primarily classified as SIDS is about 2% [21, 31, 36]. In the literature authors have repeatedly pointed out the difficulty to differentiate especially forms of suffocation with few external signs from SIDS [7, 12, 14, 24, 28, 29, 31, 36, 40, 43, 44]. With both causes of death petechial hemorrhages of the serous membranes as well as pulmonary and cerebral edema may be found. External symptoms of suffocation such as petechial hemorrhages in the eyelids or conjunctivae are not mandatory in smothering [8, 31]. Such blood extravasations are more frequently seen in cases of traumatic asphyxia by thorax compression [31]. Minor lesions around the mouth and the nostrils (e.g. bruises on the mucosa of the lips, scratch-like skin lesions on the nostrils) may be indicative of smothering [29, 31, 35]. Blood-tinged fluid leaking from the nose may also be a sign of suffocation, although this is seen only in 39% of the cases [6].

In all the three cases presented, the autopsy findings were poor and not specific. In cases 1 and 3 hemorrhagic pulmonary edema was found at autopsy, which was associated with blood-tinged liquid leaking from the nostrils in case 3. In both cases cardiopulmonary resuscitation was not carried out by the emergency doctors, because the infants were obviously dead. The hemorrhagic pulmonary edema was found in those cases in which the suffocation process had been interrupted and the perpetrators reported that the children had temporarily started breathing again spontaneously. In case 2, where the homicidal act had not been interrupted, no primary suspicious changes were detected at autopsy. In none of the cases were there any external petechial hemorrhages or lesions of the skin around the mouth or the nostrils. This demonstrates again that in-

fanticide by suffocation may leave only minor or even no external traces at all.

The importance of histological examination of the pulmonary tissue in diagnosing death due to asphyxia has been repeatedly emphasized, especially for the differentiation of SIDS cases [5, 6, 21, 30, 44]. Significant findings in connection with deaths from asphyxia due to obstruction of the respiratory passages are acute pulmonary emphysema in combination with intra-alveolar pulmonary edema, fresh intra-alveolar hemorrhages involving >5% of the pulmonary tissue ("hemorrhagic-dysoric syndrome"), and occasionally microembolism syndrome with migration of bone marrow cells into the pulmonary circulation [6, 9, 10, 16, 41, 44]. In cases of primary survival intra-alveolar siderosis can be found [5, 11, 30]. Not only in infants is the latter regarded as an important sign of previous near-suffocation [1, 11, 26].

Although these histological findings need not be present in every case of death caused by obstructive asphyxia and may also be found with other causes of death [17], there are several cases in which it was possible to strengthen the diagnosis of death due to suffocation by means of the histological findings in the lungs. It must be mentioned however, that the hemorrhagic-dysoric syndrome as originally described by Brinkmann et al. [10] does not refer to infants, but to older victims. Of course both fresh hemorrhages and siderophages in the pulmonary tissue can be found as consequences of several illnesses, e.g. in idiopathic pulmonary hemosiderosis [7, 19, 20], heart defects [2, 3] or as a sign of immaturity of the pulmonary tissue [39], but in those cases it should be possible to demonstrate the basic illness from the autopsy findings as well [30].

In the cases presented here the histological changes of the lungs resulted in an initial suspicion of mechanical suffocation. This suspicion was confirmed by the subsequent police investigations and finally by the perpetrators' confession. In our cases no siderophages were present in the pulmonary tissue which can be explained by the fact that the homicidal acts were obviously not preceded by any episodes of near-suffocation, as they occur, for example, in the Munchausen syndrome by proxy [11, 27, 30].

## References

1. Ahmed Q, Chung-Park M, Tomashefski JFJ (1997) Cardiopulmonary pathology in patients with sleep apnea/obesity hypoventilation syndrome. *Hum Pathol* 28:264–269
2. Bajanowski T, Rossi L, Biondo B et al. (2001) Prolonged QT interval and sudden infant death – report of two cases. *Forensic Sci Int* 115:147–153
3. Bajanowski T, Ortmann C, Teige B, Wedekind H, Zack F, Röse I, Brinkmann B (2003) Pathological changes of the heart in sudden infant death. *Int J Legal Med* 117:193–203
4. Beal SM (1992) Siblings of sudden infant death syndrome victims. *Clin Perinatol* 19:839–848
5. Becroft DM, Lockett BK (1997) Intra-alveolar pulmonary siderophages in sudden infant death: a marker for previous imposed suffocation. *Pathology* 29:60–63



6. Becroft DM, Thompson JM, Mitchell EA (2001) Nasal and intrapulmonary haemorrhage in sudden infant death syndrome. *Arch Dis Child* 85:116–120
7. Berry PJ (1999) Intra-alveolar haemorrhage in sudden infant death syndrome: a cause for concern? *J Clin Pathol* 52:553–554
8. Betz P, Hausmann R, Eisenmenger W (1998) A contribution to a possible differentiation between SIDS and asphyxiation. *Forensic Sci Int* 91:147–152
9. Brinkmann B (1978) Vitale Reaktionen in der Lungenstrombahn bei Tod durch Strangulation. *Z Rechtsmed* 81:133–146
10. Brinkmann B, Fechner G, Püschel K (1984) Identification of mechanical asphyxiation in cases of attempted masking of the homicide. *Forensic Sci Int* 26:235–245
11. Dorandeu A, Perie G, Jouan H, Leroy B, Gray F, Durigon M (1999) Histological demonstration of haemosiderin deposits in lungs and liver from victims of chronic physical child abuse. *Int J Legal Med* 112:280–286
12. Du Chesne A, Bajanowski T, Brinkmann B (1997) Spurenarmer Tötungsdelikte an Kindern. *Arch Kriminol* 199:21–26
13. Emery JL (1986) Families in which two or more cot deaths have occurred. *Lancet* 1:313–315
14. Emery JL (1993) Child abuse, sudden infant death syndrome, and unexpected infant death. *Am J Dis Child* 147:1097–1100
15. Firstman R, Talan J (1997) The death of innocents. Bantam, New York
16. Grellner W, Madea B (1994) Pulmonary micromorphology in fatal strangulations. *Forensic Sci Int* 67:109–125
17. Grellner W, Madea B (1995) Zur Wertigkeit einzelner Lungenveränderungen beim Strangulationstod. *Arch Kriminol* 196:38–45
18. Guntheroth WG, Lohmann R, Spiers PS (1990) Risk of sudden infant death syndrome in subsequent siblings. *J Pediatr* 116:520–524
19. Hanzlick R (2001) Pulmonary hemorrhage in deceased infants. *Am J Forensic Med Pathol* 22:188–192
20. Hanzlick R, Delaney K (2000) Pulmonary hemosiderin in deceased infants: baseline data for further study of infant mortality. *Am J Forensic Med Pathol* 21:319–322
21. Hunt CE (2001) Sudden infant death syndrome and other causes of infant mortality. *Am J Respir Crit Care Med* 164:346–357
22. Irgens LM, Skjaerven R, Peterson DR (1984) Prospective assessment of recurrence risk in sudden infant death syndrome. *J Pediatr* 104:349–351
23. Irgens LM, Oyen N, Skjaerven R (1993) Recurrence of sudden infant death syndrome among siblings. *Acta Paediatr Suppl* 389:23–25
24. Krous HF, Nadeau JM, Silva PD, Byard RW (2002) Infanticide: is its incidence among postneonatal infant deaths increasing? *Am J Forensic Med Pathol* 23:127–131
25. Kukull WA, Peterson DR (1977) Sudden infant death and infanticide. *Am J Epidemiol* 106:485–486
26. Lockemann U, Püschel K (1993) Siderophages in the lung of drug addicts. *Forensic Sci Int* 59:169–175
27. Meadow R (1977) Munchausen syndrome by proxy. The hinterland of child abuse. *Lancet* 2:343–345
28. Meadow R (1989) Recurrent cot death and suffocation. *Arch Dis Child* 64:179–180
29. Meadow R (1999) Unnatural sudden infant death. *Arch Dis Child* 80:7–14
30. Milroy CM (1999) Munchausen syndrome by proxy and intra-alveolar haemosiderin. *Int J Legal Med* 112:309–312
31. Oehmichen M, Gerling I, Meißner C (2000) Petechiae of the baby's skin as differentiation symptom of infanticide versus SIDS. *J Forensic Sci* 45:602–607
32. Oyen N, Skjaerven R, Irgens LM (1996) Population-based recurrence risk of sudden infant death syndrome compared with other infant and fetal deaths. *Am J Epidemiol* 144:300–305
33. Peterson DR, Sabotta EE, Daling JR (1986) Infant mortality among subsequent siblings in infants who died of sudden infant death syndrome. *J Pediatr* 108:911–914
34. Pinholster G (1994) SIDS paper triggers a murder charge. *Science* 264:197–198
35. Pollak S, Saukko PJ (2003) Atlas of forensic medicine. CD-ROM. Elsevier, Amsterdam
36. Reece RM (1993) Fatal child abuse and sudden infant death syndrome: a critical diagnostic decision. *Pediatrics* 91:423–429
37. Rognum TO, Willinger M (1995) The story of the "Stavanger-definition". In: Rognum TO (ed) Sudden infant death syndrome. New trends in the nineties. Scandinavian University Press, Oslo, pp 17–20
38. Steinschneider A (1972) Prolonged apnoea and the sudden infant death syndrome: clinical and laboratory observations. *Pediatrics* 50:646–654
39. Walcher K (1926) Über Blutungen im Lungengewebe bei Neugeborenen. *Dtsch Z Ges Gerichtl Med* 8:523–535
40. Wayne DM (1985) Smothering, suffocation, and cot deaths. *Lancet* 1:114
41. Wiese J, Maxeiner H, Schneider V (1990) Histologische Lungenbefunde beim Würgen und Drosseln. In: Brinkmann B, Püschel K (ed) Ersticken. Springer, Berlin Heidelberg, pp 158–171
42. Willinger M, James LS, Catz C (1991) Defining the sudden infant death syndrome (SIDS): deliberations of an expert panel convened by the National Institute of Child Health and Human Development. *Pediatr Pathol* 11:677–684
43. Wolkind S, Taylor EM, Waite AJ, Dalton M, Emery JL (1993) Recurrence of unexpected infant death. *Acta Paediatr* 82:873–876
44. Yukawa N, Carter N, Rutty G, Green MA (1999) Intra-alveolar haemorrhage in sudden infant death syndrome: a cause for concern? *J Clin Pathol* 52:581–587