Asphyxial Games in Children and Adolescents

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Abstract: Asphyxial games, as played by young adolescents, and going by various names, are not new phenomena. What seems to be different at present is an increase in lethality introduced by the increasing use of ligatures and "playing" the game alone. The authors present a properly certified but insufficiently appreciated case followed 2 years later by 2 closely spaced but unrelated deaths in young adolescent males that made known this practice in New Hampshire youth. Other cases presented to the author from other jurisdictions are reviewed in aggregate. Presented are characteristics of victims of this practice that may help distinguish these deaths from suicidal asphyxia. A relative paucity of literature regarding asphyxial games outside the realm of autoerotic asphyxia gives rise to certification difficulties given the high prevalence of youth suicide.

Key Words: asphyxial games, hanging, youth suicide, manner of death

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Asphyxial games among children and young adolescents have been played for generations. Readers of this report may well remember games of their own youth when one child applied pressure to the neck, chest, or abdomen of another until the latter child felt woozy or lightheaded whereupon the pressure would be released. This activity rarely, if ever, resulted in documented fatalities. Recently, there has been a great deal of media attention directed at fatalities and alleged brain damage related to what has been dubbed "the choking game,"[1–8] with many articles reporting this as a "new trend" in youth high-risk behaviors.[9–12] The following case reports and the author's experience since these 3 cases suggest that rather than a new trend, this activity simply represents a new face on an old game, albeit one with potentially lethal complications.

CASE 1

A 9-year-old male was found by his mother with a thin rope looped twice about his neck, suspended from a bedpost. Emergency medical services were summoned and the child was transported to the local emergency department, then airlifted to a regional trauma center. His initial Glasgow Coma Scale was 3. There was a ligature mark over the thyroid cartilage, and petechiae noted of the face and eyelids. He was declared brain dead 26 hours after admission. At autopsy there was a 1/4-inch ligature mark, sloping gently upward and left toward the occipital notch. There was no hemorrhage of strap muscles and no injury of cartilage or hyoid bone. Florid facial petechiae were evident; however there were no conjunctival petechiae, consistent with what has been reported in the literature regarding these types of hangings.[13] Neuropathologic examination revealed cerebral edema with flattened gyri, narrowed sulci, uncal grooving and herniation of the cerebellar tonsils. There was also an incidental, patchy, acute bronchopneumonia.

Further investigation by police revealed a moderately chaotic social situation with divorced parents and the deceased and his 7-year-old female sibling living with their mother and her fiancé. The children had been sent to their room the day in question for jumping on a couch. The female sibling describes the deceased as playing with the rope about his neck on this and on previous occasions. The cause of death was certified as hanging and the manner as accident.

CASE 2

Two years after case number 1, a 13-year-old male was found in the basement of his home in a kneeling position with a 1-inch-wide nylon dog leash looped about his neck. Also at the scene were a set of weightlifting barbells and a broken plywood board. (Fig. 1) The deceased had had an argument with his mother the previous evening, left the house but returned, and all seemed well at bedtime. There had been no history of behavioral disturbances, school failure, substance abuse, or police contact. At autopsy there was a 3/4- to 1-inch-wide ligature mark directly over the laryngeal cartilage, sloping gently upward bilaterally to the occipital notch. There was no hemorrhage of strap muscles and no injury of underlying cartilage or hyoid bone. Facial petechiae were quite numerous but conjunctival petechiae were sparse. The tongue had been bitten. Elsewhere on the body, there were pressure marks on the knees and abrasions of the feet consistent with position in which the body was found. A blood alcohol concentration of 24 mg/dL was detected, and there were no other toxicologic findings of note. The cause of death was certified as hanging and the manner as suicide.

After this ruling, the mother of the deceased contacted the medical examiner to discuss her concerns regarding the circumstances of her child's death. She sent a package of information to the Office of Chief Medical Examiner

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FIGURE 1. The deceased as found.

(OCME) including e-mails alluding to the deceased's involvement with an asphyxial game known locally as "Space Monkey." During review of this material, OCME was presented with a third case.

CASE 3

Six weeks after case number 2, the New Hampshire OCME was presented with an 11-year-old male found by his 7-year-old male sibling, hanging by a nylon dog leash from a peg-type coat rack in his bedroom. His parent removed the ligature, cardiopulmonary resuscitation was started, and 911 called. The child was transported to the local emergency room where he was pronounced dead after a 10-minute resuscitative effort. There had been no history of behavioral disturbances, school failure, substance abuse, or police contact. At autopsy, there was a 1/4- to 1/2-inch, circumferential ligature mark with a distinctive weave pattern directly over the laryngeal cartilage, sloping sharply upward to the occipital notch. There were florid facial and sparse conjunctival petechiae. No hemorrhage of strap muscles was noted and there was no injury of the underlying cartilage or hyoid bone. The tongue had been bitten. Toxicology was negative for alcohol, drugs of abuse, and therapeutic drugs.

During the investigation, the deceased's sibling disclosed his brother's involvement with "Space Monkey." The deceased's intent, stated to his sibling, was to increase the time in which he could remain conscious while playing the game. This death was certified as due to hanging and the manner as accident.

Subsequent to this case, the manner of death in the preceding case was amended to accident. Two previous, similar cases were pulled from OCME files for review. A 12-year-old male with Attention Deficit Hyperactivity Disorder (ADHD) was found hanged by a dog leash. The manner of death was certified as suicide and on review was left unchanged. A 12-year-old female was found in her bedroom closet hanged by a dog leash. Manner of death was initially ruled suicide and on review of the case, including presentation to the state's Child Fatality Review Team, was amended to undetermined. New Hampshire OCME cases are summarized in Table 1.

TABLE 1. Summary of New Hampshire OCME cases

Case	Age	Sex	Psych. Dx	Prev. Attempt	School Prob.	Precip.	Manner of Death
1	9	M	N	N	N	Y?	A
2	13	M	N	N	N	Y?	S→A
3	11	M	N	N	N	N	A
4	12	M	Y	N	Y	N	S
5	12	F	N	N	N	Y?	S→U

ADDITIONAL CASES

Partnering with the New Hampshire State Pediatric Society and the state's Youth Suicide Prevention Assembly in publicizing the dangers of this activity led to consultations on similar cases from jurisdictions in various parts of the country. Table 2 is a summary of what is known about the circumstances of deaths in these cases.

The author's inability to access complete case files on many of the cases cited in Table 2 preclude definitive statements regarding the accuracy of manner of death determinations. However, in at least 4 of the cases, based on even the limited information available, there were investigative indicators that cases certified as suicide could have indeed been accidental deaths related to this behavior. In several others, a manner of death of undetermined may be appropriate.

TABLE 2. Summary of Additional Cases

Case	Age	Sex	Psych. Dx	Prev. Attempt	School Prob.	Precip.	Manner of Death
1	13	F	N	N	N	Y	U
2	13	M	N	N	N	Y	A
3	14	M	?	N	N	N	?
4	10	M	?	N	?	?	?
5	15	F	N	N	N	N	A
6	12	M	Y	N	Y	Y	S
7	14	M	N	N	N	N	S
8	12	M	N	N	N	N	S
9	12	M	N	N	N	N	S
10	14	F	?	?	?	?	S
11	14	M	Y	?	Y	Y?	S
12	10	M	N	N	N	N	A
13	15	F	N	N	N	N	A
14	14	F	Y	N	Y	N	S
15	17	M	N	N	N	N	S
16	13	M	N	N	N	N	S
17	12	M	Y	N	Y	N	U
18	15	M	Y	N	?	N	S
19	16	M	?	N	?	N	S

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DISCUSSION

Asphyxial games and their variations go by a wide range of names including Black Hole, Black Out, Flatlining, Funky Chicken, Gasp, Knock Out, Rising Sun, Space Cowboy, Space Monkey, Suffocation Roulette, and Tingling. In Ireland the game is known as the "American Dream Game." As previously stated, these games likely represent an extension of or variation on games played by previous generations of youth without fatal results. The key generational differences observed involve solo play and the use of ligatures such as dog leashes, belts, bungee cords, and the like to induce asphyxia. Clearly, once the fine lines between alertness, lightheadedness, and loss of consciousness are crossed, the results of this activity can easily prove to be fatal within minutes. In the review of our own and referred cases, a proposed profile emerges. The typical age range seems to be between 9 and 15 years with a male:female ratio of approximately 2:1. In general, these children tend to be more often "action-oriented," athletic, average to above-average students who would ordinarily shun alcohol and drugs. In fact, many have convinced themselves that this behavior is safe simply because of the absence of alcohol or drugs. In keeping with the current trend of "extreme" everything, from sports to snack foods, these games push the envelope of risk to the next level in comparison to similar games played by previous generations. The magnitude of risk is clearly lost on the child lulled into a false sense of security inherent in the belief that this activity is a drug-free, and therefore perfectly safe, high. Alternatively, there does seem to be a subset of younger adolescents with anxiety and/or depression who, having a desire for drugs and alcohol for self-medication, but limited access to such agents, turn to this kind of behavior as a substitute.

Interesting neurodevelopmental research is ongoing regarding the propensity for pre-adolescents and young adolescents to make choices about behavior that baffle adults.[14] Baird and associates conducted experiments in which groups of adults and teenagers were shown various scenarios on a computer screen, such as eating a salad, swimming with sharks, visiting your grandmother, and setting your hair on fire. Subjects were tasked with judging whether the displayed activity was safe or dangerous. There were no "incorrect" answers in either group, but teenagers took longer to reach their decisions on dangerous scenarios. Brain scans during the testing procedure showed more prefrontal cortex activity in the teens, suggesting greater effort to judge the results of each situation.

These findings are relevant in the evaluation of both suicidal and accidental asphyxial fatalities in children. Unfortunately, there may well be cases in which investigative information supports certification of either manner. Such cases may be properly certified as of undetermined manner. The author of this report is not in favor of the approach outlined by Cooke et al.[15] In their 1995 article on hanging deaths, the authors state, "Childhood hangings are usually certified as accidental, based on a presumed lack of fatal intent as a result of immaturity, and a humanitarian wish to comfort the family (an accidental finding being perceived to be more helpful to a bereaved family than one of suicide)." When scene, autopsy, and investigative data allow supportable certification of suicide as manner, this is precisely what the forensic pathologist should do.

Comparable to national statistics,[16] over 80% of youth suicides in New Hampshire are males. The 2003 Youth Risk Behavior Survey[17] indicates that 27.9% of high school students in the United States seriously considered suicide *and* made a plan. 8.5% of high schoolers (females 11.3%, males 5.9%) actually attempted suicide. Firearms account for as many New Hampshire youth suicides as hanging, overdoses, and all other methods combined, but hanging predominates in the 11 to 15 age group and females in general. Kosky and Dundas have reported that hanging as a cause of death in persons under 25 years in Australia has nearly doubled in the last decade.[18]

Thorough investigation is clearly the most valuable tool in the proper assignment of manner. In New Hampshire youth suicides, roughly 15% have made a previous attempt, 20% were known to have told others of suicidal ideation, 51% had depressive symptoms, and nearly 40% had been referred for counseling or therapy. Among those referred for therapy, depression is the most common diagnosis. Ninety percent are medicated, and 30% have had inpatient psychiatric admissions. Nearly 40% were taking prescribed medication, with 5% on 5 different drugs at the time of death.

Nearly 25% (nearly all males) were known to be experiencing social/educational difficulties and roughly 20% (nearly all males) were known to have legal difficulties. Overall, 64% had ongoing stressors and 33% had what could be construed as an immediate precipitating event.

Attempts have been made to define operational criteria for the determination of suicide,[19–20] but application of "standard" criteria to adolescents is fraught with difficulty. As previously referred to, adolescents are "risk takers," and above all hovers the question of intent. Swedo et al have presented "weighted" criteria that may aid in these determinations.[21]

There is relatively little in the literature regarding recreational asphyxial behavior, save for innumerable variations on the theme of autoerotic asphyxia (AEA), and occasional case reports of apparent accidental hangings, sometimes in the context of play, in young children.[22–27] Although asphyxial games may be considered by some a *forme fruste* of AEA, these games should not be easily confused with AEA, a similar but unrelated activity that involves elaborate, almost ritualistic bindings, sophisticated escape mechanisms, pornography, cross-dressing, and is engaged in nearly exclusively by older adolescent and adult males.

It remains unclear just how widespread nonsexual asphyxial games are practiced. Anecdotally, fatal and nonfatal cases have been reported in the United States, Canada, Australia, Israel, France, England, and Ireland. There are virtually no published statistics regarding how many children are aware of the game, have played the game, or are regular practitioners. Exacerbating the problem where fatalities are

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concerned is the potential misclassification of some unknown percentage of these deaths as suicides. Medical Examiner and Coroner's offices, often strapped for time, personnel, and resources, may not be able to probe deeply enough beneath the surface of what seems to be a "straight-forward suicide," especially when suicide is consistently among the top 2 or 3 ways in which preadolescent and adolescent children die every year.[28–29] This leads to a situation in the United States that presents a mirror image of the misclassification potential of that unwittingly described by Cooke et al in Australia.

In the sparse literature that exists on asphyxial games, most alarming is a report of self-strangulation by hanging from cloth towel dispensers in Canadian schools by Le and Macnab in 2001.[30] Four fatalities and 1 near-death in boys aged 7 to 12 years were examined. In 2 cases there was specific investigative information regarding involvement with a "choking game." In 3 cases the child was alone at the time of the incident. The only nonfatal case was playing with 2 other children and recovered after admission to the intensive care unit. Continuous loop towel dispensers were removed from 2 schools wherein these deaths took place. In 1 Canadian province, the Ministry of Education encouraged the removal of such dispensers from all schools and education of students on the dangers of "choking games." A case from the French literature documents ophthalmologic complications of what is called in France, "the scarf game."[31]

A casual search of internet news sources shows that the media has, for reasons unknown, seized upon a number of cases recently and has given the phenomenon more widespread publicity. Although there have been concerns raised over the possibility of the media "teaching children how to play this game," it is far more likely the children already know about the phenomenon and the adults reading the articles and watching the news stories are the ones learning something new.

CONCLUSIONS/RECOMMENDATIONS

These games are clearly not new, but the terms of engagement have changed. Suicidal violence remains a leading cause of death in young adolescents, but it is clear that some, as yet undefined subset of cases may indeed be misclassified. Death scenes and autopsy findings in suicides and asphyxial games ending fatally do not appreciably differ. Investigators must ask the right questions of the right people to expose the possible role of such games in hanging deaths. This would include siblings and associates of the deceased if at all possible. Clues, albeit subtle, at death scenes may suggest the unintentional nature of the outcome of asphyxial activity. For example, the significance of the broken plywood and the position of the barbells in the basement of case number 2 were not appreciated until much later in the evaluation of the case. In retrospect, it seems that the deceased used the board as a rolling ramp against the barbell to regulate the degree of asphyxia when the board broke. Do not neglect diaries, journals, and computers of the deceased if given access. When encountering such cases, it behooves the medical examiner to engage and mobilize local assets such as public-health and injury prevention groups, pediatric societies, and youth suicide coalitions to raise public awareness, thus making prevention a possibility.

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