Self strangulation by hanging from cloth towel dispensers in Canadian schools

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Abstract

***Objective*—To investigate a local "epidemic" of incidents of strangulation by hanging from continuous cloth towels in dispensers.**

***Method*—The coroner's office in all provinces and territories were contacted. Five cases of hanging from continuous cloth towels in Canadian schools were identified and reviewed.**

***Results*—There were four deaths, and one near-death, all males age 7 to 12. Two cases were attributed to a "choking game" that provides a sensation (impending loss of consciousness) described as "cool". In three cases, the child was alone at the time. All deaths were due to strangulation from hanging and all occurred in school washrooms. One child (playing with two friends) recovered after admission to an intensive care unit.**

Towel dispensers were removed from the two index schools. In one province the Ministry of Education encouraged removal of towel dispensers from all schools and education of students of the dangers of "choking games".

***Conclusions*—Thrill seeking from partial asphyxiation appears to underlie these incidents. Awareness of such cases should prompt appropriate education strategies to highlight the serious consequences of this form of risk taking behavior in young males. In Canada, these incidents have resulted in changes in the design of, and legislation regarding, cloth towel dispensers.**

(*Injury Prevention* 2001;7:231–233)

Keywords: youth; self inflicted; asphyxia

Injuries among children and adolescents are often the result of thrill seeking or ill considered risk taking behavior. Health threatening risk behaviors in youths usually begin with experimentation which increases with age. Risk taking behaviors tend to be found in clusters; young people who participate in one type of risk activity are likely to participate in others.[1]

Two recent admissions to our pediatric intensive care unit followed asphyxiation caused by twirling while suspended by the neck from the hanging loop of a continuous cloth towel. Because this was a previously unrecognized hazard, we investigated the circumstances surrounding these and other similar incidents in Canada to guide recommendations on interventions that may reduce the number of similar injuries.

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Methods

A literature review using MedLARS for the period 1966 to 2000 was completed to identify reports of death by hanging involving cloth towels in dispensers. Search terms used, both alone and in combination, were "partial asphyxiation, strangulation, towel, hanging, and age <15".

We identified all cases of death by strangulation under these circumstances in Canada by requesting information from all provincial and territorial coroners. We also searched the newspapers of major cities to identify any reported near-deaths. We reviewed all identified cases using the coroners' reports and hospital charts, and interviewed the principal of a local school where one of the incidents occurred.

Results

CASES IDENTIFIED

We identified four fatalities and one near-death from hanging by this means. All five children had pulled down a loop of the cloth towel, wrapped the towel around their necks, and hung from it.

The first two cases occurred seven months apart in British Columbia during 1997.

CASE REPORTS

Case 1

The first case was a 9 year old boy who suffered near-strangulation while playing a "game" with two friends in the school washroom. They had played the game before—wrapping the towel around the neck and hanging from the dispenser. The dizzy feeling was described as "cool".

Estimated time of hanging was five minutes. Initial Glasgow coma score was 6 and pH was 7.32. He had a petechial rash on his face and a linear abrasion around the neck. He received assisted ventilation for one day and had no neurological deficits on discharge.

Case 2

A previously healthy 12 year old boy with no apparent medical or psychological problems and no known history of drug or alcohol abuse, suicidal ideation, or suicide attempts had a similar story.

Fifteen to 20 minutes after asking to be excused from class, he was found in the washroom with a towel from a towel dispenser wrapped around his neck.

Initial Glasgow coma score was 3 with pH 6.69. He was supported in the intensive care unit but there was no neurologic improvement over 48 hours. After discussion with the

parents, the decision was made to withdraw life support.

Death was attributed to self inflicted accidental hanging secondary to a "game" played at school.

Case 3
This child was a previously healthy 7 year old boy from Manitoba. In 1996, he was found hanging from a cloth towel dispenser in school, prompting an inquest under the Fatality Inquiries Act.

Case 4
A 7 year old boy from Alberta died in 1990 after hanging from a continuous cloth towel as a prank.

Case 5
An 11 year old boy from Alberta died in 1973. Cause of death was attributed to accidental strangulation by suspension in loose roller toweling in the bathroom, with aspiration of regurgitated food.

Discussion

Strangulation in children and preadolescents usually results from unsafe play.[1] We found no previous reports of death by hanging from cloth towels in dispensers. There were reported cases of children dying after hanging from window cords,[2] drawstrings on clothing,[3] and a necklace.[4] Digeronimo *et al* described three cases of near-hanging in 1994, two of which resulted from unsafe play.[5] We add to this literature five cases, one near-hanging and four deaths, all likely the result of ill considered thrill seeking or risk taking behaviour.

Partial asphyxiation by hanging is a recognized thrill seeking behavior among youths. An altered level of consciousness results from pressure altering cerebral venous and arterial blood flow, and an associated rise in carbon dioxide tension. The resulting sensation is perceived as pleasurable and promotes the (thrill seeking) behavior. In older male adolescents, autoerotic behavior involving partial strangulation is recognized to occur, usually as a solitary act, and may be mistaken for attempted suicide.[1]

Two of our five cases were attributed to playing a "choking/blackout game" at school and this was a possible cause in all five cases. Although suicide cannot be completely ruled out, all deaths were due to strangulation from hanging in boys 7 to 12 years old. Suicides before the age of 15 have always been rare.[6] However, recent data indicate a doubling in the suicide rate among children 10 to 14 years between 1980 and 1992.[7]

LIMITATIONS

The main limitation in this study is its retrospective nature and focus on mortality. Our inability to study morbidity resulted from information not being retrievable from other intensive care units on any children who survived after near-strangulation. For reasons of confidentiality, such information is not made available to external inquiry.

Implications for prevention

These deaths prompted legislative or policy changes in the provinces in which they occurred. Towel dispensers were removed in all schools where the choking "game" had resulted in a death or near death. In one province, a letter from the Ministry of Education "encouraged" the removal of towel dispensers from other schools and discussion with students to educate them about the dangers of such games. The investigation of one child's death under the Fatality Inquiries Act resulted in the provincial judge making the following recommendations regarding the towel dispensers:

- Safety shields should be installed immediately on cloth towel dispensers in all schools, day cares, community centers, and other public places frequented by children.
- The height of the towel dispensers should be lowered in any facility used predominately or exclusively by children, such that children will not have to stretch up to reach a dispenser mounted at a height convenient to adults.

The safety shields recommended by this judge are a technological modification which ensures that not more than 22 cm of towel loop extend from the dispenser. This makes it harder for children to wrap the towel around their necks or twirl from it. Mounting the dispenser at a lower height (appropriate for the age and stature of the youth using the facility) makes it more difficult for young people to actually suspend themselves from the towel.

We questioned the choice of cloth towel dispensers for hand drying in the school environment. The principal we interviewed reported that if paper towels are used, students tend to make a mess of the washroom, plug the toilets, and use excessive quantities. Hot air hand drying machines are available, but are seen as potentially harmful, and often require repair necessitating a backup method for hand drying. According to the principal, the cloth towel dispensers are seen as the least expensive, most practical option.

In making recommendations for injury prevention, it is critical to make use of epidemiological data. Addressing preadolescent injury prevention through the schools may be an effective approach because schools are an important site of unintentional injury and violence (10% to 25% of all injuries to youths). Because they are also places of learning, schools can promote acquisition of lifelong attitudes to risk taking behavior relevant to injury prevention.[8] Using peer counselors in the injury prevention education process may be an effective means of generating lifelong changes in risk taking behavior.[9] Physicians, particularly those in emergency rooms, can contribute significantly to the health of school children if they are involved in development and organization of systems for prevention of injury.[10] However, neither schools nor health care providers alone can influence the issue of preadolescent injury sufficiently to reduce an individual's risk to an acceptable level. To do this, an integrated process of educational, legislative, and environmental approaches is necessary.[10]

Key points

- Cloth towel dispensers present a risk for self strangulation, especially among preteen boys.
- Among preadolescents, self strangulation is most likely a risk taking, rather than suicidal, behaviour.
- Injury prevention principles (education, technological improvement, and legislation), should be applied to the issue: (1) education of children and teachers, (2) use of safety shields (technological improvement), (3) legislation requiring removal of unmodified towel dispensers and mounting at a lower height.

The cases described here illustrate that risk taking behavior probably underlies these deaths, and that established injury prevention principles incorporating education, technological improvement and legislation[8 11] need to be applied to this issue. We recommend that students be made aware of the extreme consequences of this form of risk taking behavior, although we recognize that knowing the consequences of such behavior is unlikely to stop all such injuries. It is also possible that children will seek other methods of self strangulation. However, children are entitled to information that will contribute to them making informed decisions. Legislation requiring the removal of unmodified towel dispensers, installation of safety shields (a technological modification), and mounting at a lower height to reduce risk, is likely the most effective injury prevention measure.

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Safety and laws on alcohol levels

A review has been published of the impact of lower blood alcohol concentration (BAC) limits on traffic safety.[1] The reviewers examine control of driving after drinking through legislation and enforcement of laws. The authors conclude that lower BAC limits are likely to translate into a reduction in traffic crashes when the public believes that they are likely to be arrested and punished for driving after drinking alcohol. The report summarizes research on public opinion about drinking and driving, laws to control that behaviour, and the enforcement of those laws. The article also includes a summary of roadside survey data with international comparisons. This is reflected in current efforts in Victoria to reduce the level of permissible alcohol levels. Victoria is proposing to decrease the allowable blood alcohol content for drivers by making a reading of 0.05 illegal. Currently a driver must be over 0.05 before penalties apply. Similarly automatic loss of license occurs for a reading above 0.10 and this will change to a reading equal to or above 0.10. Licensed drivers who are supervising learner drivers will also be required to have BAC readings below 0.05 or suffer penalties (not including loss of license). Proposals are also before parliament to require motorcyclists to have a zero reading for the first 12 months of their license (*The Age* (Melbourne), April 2001).

1 Desapriya EBR, Nobutada I. Commentary: lower legal BAC limit and traffic safety—some international evidence. *J Traffic Med* 2001;**28**:7–20.