

CASE REPORT

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Elevator Surfing: A Deadly New Form of Joyriding

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ABSTRACT: A new form of joyride, on top of an elevator as it moves up and down the elevator shaft, has surfaced on college campuses and in housing and apartment complexes with elevators. This practice is called "elevator surfing," and an illustrative case is presented, which is believed to be the first such report in the medical literature.

KEYWORDS: pathology and biology, elevator surfing, asphyxia

Case History

A 23-year-old white male college student, after an evening at a local bar, returned to his dormitory after midnight. He then joined three other friends in what they reported was an apparently fairly common late-night activity, riding on top of the dormitory elevator cars. Such activity was referred to by local college students as "elevator surfing."

The arrangement of this dormitory's elevators is such that there are two elevator shafts, side by side, separated by a steel girder framework. The north elevator only opens onto the odd-numbered floors, and the south elevator only opens onto the even-numbered floors (Fig. 1). The dormitory has only ten floors and a rooftop elevator mechanism with approximately 3 m of empty shaft above the level of the tenth floor. During the course of this activity, the south elevator, on which he was riding, ceased moving at the level of the tenth floor, stranding the subject on top of the car. Unknown to the victim, his actions had caused him to accidentally disable the "tape switch," a component that provides the elevator with information to allow it to determine where it is in relation to its proper floor stops. As a safety feature of the elevator, when the tape switch is disengaged, the elevator cannot be made to move (Fig. 2).

Since the victim was on top of the south elevator, which had stopped at the tenth floor, there was no door that opened at his level for either the north or south shaft. Furthermore, since the north elevator traveled no higher than the ninth floor, the only available exit for this individual was at the level of the ninth floor door. Although the ceiling of the elevator car did have a removable hatch, it was securely fastened to prevent unauthorized access to the shaft by means of this route. In this case, access to the shaft had been

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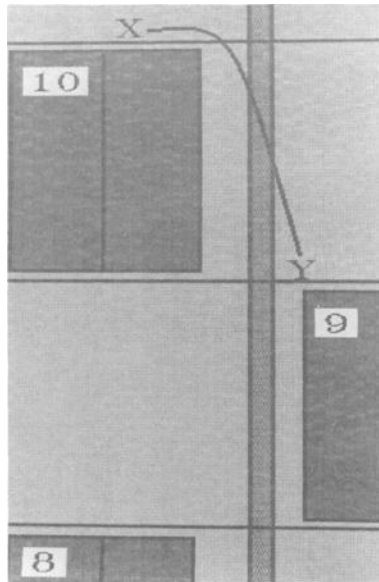


FIG. 1—Diagram of the odd-even elevator arrangement in the dormitory.

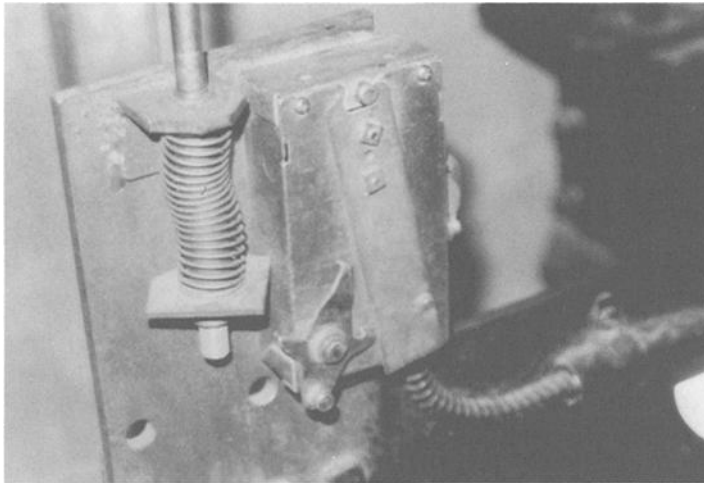


FIG. 2—Tape switch responsible for automatic shutdown of the elevator, if disturbed.

gained by using a coat hanger to trip the door lock (Fig. 3) while the elevator was at the next lower level.

The victim then attempted to escape his predicament by climbing down the steel girder superstructure separating the two shafts, to allow himself to exit via the door of the north shaft at the ninth floor. While apparently attempting to force the inner lock mechanism of the ninth floor door, he was struck by the ascending north elevator. The maximum speed of the elevator is approximately 300 ft (91 m) per minute, but it would have been decelerating at the time of impact.

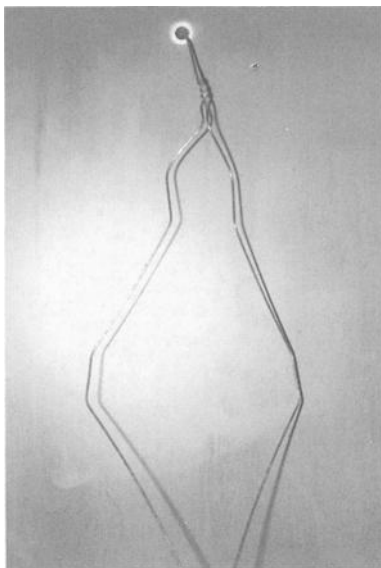


FIG. 3—Coat hanger inserted through the keyhole for the purpose of gaining access to the elevator shaft.

Because the ninth floor stop was the highest level of the north elevator's excursion, it stopped automatically at that level after striking the victim. The subject was pinned between the side of the elevator car and the superstructure (Fig. 4). The result was a severe rotation of the neck, inconsistent with respiration or venous blood flow. An extreme degree of congestion and cyanosis was present in the head (Fig. 5). Other injuries identifiable at the scene included pressure injuries to the upper extremities and a large perineal tear (Fig. 6). This tearing injury appeared to result from extreme abduction of the legs.

Autopsy

Autopsy examination revealed that no bones were fractured other than the hyoid. There was no associated hemorrhage with the hyoid fracture or fracturing of the laryngeal cartilages. Interestingly, the extreme congestion and cyanosis, in spite of drainage of the blood and the pressure applied during scalp reflection, had become fixed after only 7 h, and did not dissipate even slightly. This pattern of suffusion also resulted in marked congestion of the conjunctiva, preventing any accurate assessment of conjunctival petechial hemorrhages. Examination of the lungs demonstrated no petechiae or emphysematous changes. A large perineal tear was also present, reflecting an abduction injury. The intravascular blood volume was consistent with only minimal premortem hemorrhage from this wound. Toxicology analysis revealed a positive blood-alcohol concentration of 182 mg/dL, with negative urine results for drugs of abuse. The cause of death was determined to be positional asphyxia.

Discussion

Riding the tops of elevators is known by a variety of names, including "elevator chicken," "elevator surfing," and "elevator action." Although such diversions have been



FIG. 4—*Photograph of the body position within the elevator shaft. The top of the photo shows the front wall. The steel on right side is the framework between the two shafts. The head is positioned between the vertical metal guide and the elevator car below.*



FIG. 5—*Marked cyanosis of the head due to positional asphyxia and increased pressure.*

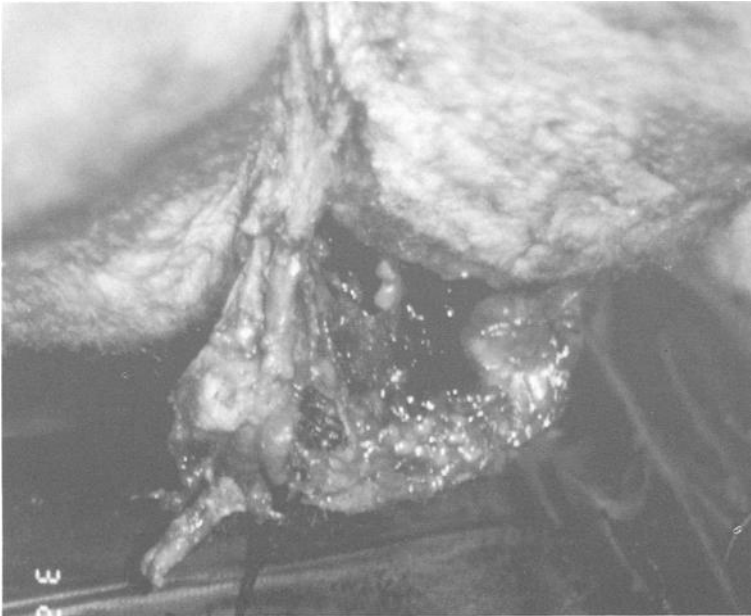


FIG. 6—Perineal tear from extreme abduction of the legs.

addressed in newspaper accounts for a number of years [1–9], a computer search of the medical literature reveals no previously published cases. In the absence of any case reports or other epidemiologic studies, it is therefore difficult to assess to what extent this activity is being practiced on college campuses and elsewhere.

A search of newspapers has noted multiple reports, primarily involving small children who have died as a result of playing on elevators. The majority of these reports, obtained from the New York Times between 1986 and 1990, indicate a widespread problem. In a recent Associated Press wire service report, the dispatch indicates that, between 1984 and March 1991, there have been a total of 14 fatalities from playing on or around elevators in the New York City area. At least one college death has also been reported involving a University of Massachusetts student in March of 1990 [10–13].

In the articles available for review, the victims were all young males, with ages ranging from 5 to 12 years old. The University of Massachusetts student was an 18-year-old male. The causes of death have included both falls down the elevator shafts and crush injuries.

Many devices have been tried to prevent access to elevator shafts by unauthorized persons, but those enamored of this form of joyriding have for the most part successfully circumvented any added safety devices. In the case described above, a coat hanger was used to fashion a key to allow access through the system designed to afford access to emergency personnel. Inadvertent disabling of the tape switch during the course of the ride then rendered the elevator inoperable, and an ill-advised attempt to escape without summoning help resulted in the fatal accident.

Although engineers are currently working on a number of designs to prevent such inappropriate use of elevators as playthings, the problem will remain a serious concern. Recognition by elevator inspectors and service representatives of tampering evidence, with subsequent notification of the appropriate authorities, will help engender appropriate warnings and education so that, hopefully, further such fatalities will be avoided.

Acknowledgments

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