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CASE REPORT

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Two unusual stab injuries to the neck: homicide or self-infliction?

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Abstract A 31-year-old woman was found dead by her daughter, lying in the living room which showed a large pool of blood, secondary droplets and stains from arterial bloodspatter, dropping and contact. This bloody scene and two puncture wounds at the anterior aspect of the neck, one of them transecting the left common carotid artery leading to exsanguination, arose suspicion of homicide. However, the wound morphology including notches and a parallel skin incision as well as microradiography demonstrated that the two puncture wounds had been produced by glass. At the scene, a broken wineglass with two dagger-like tips had been standing on a table in front of a sofa where the woman had been sitting, and she most likely sustained the injury when she suddenly moved her head downwards, thus moving into the protruding tips. This self-inflicted accident demonstrates that inspection of the scene and synthesis of autopsy and scene findings can be crucial for a successful medico-legal reconstruction. The mechanism of producing the accidental injury is very extraordinary, in that the woman actively moved into a shattered wineglass instead of falling into an intact architectural glass surface.

Keywords Stab injuries · Glass · Homicide · Accident

Introduction

Fatalities from sharp force are mainly homicidal, while suicides are a minority, and accidents have a relative frequency of only 0–3% [8, 11, 14]. A typical scenario in accidents is an inebriated person falling into architectural glass such as a door or window [1, 4, 5, 9, 10, 12, 15]. This case report describes a very unusual incident involving a drinking glass.

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Case report

A 31-year-old woman sat on the sofa in her living room talking to a friend on the telephone when she suddenly shouted “Oh, my foot!”, and then the connection ended at 9:08 p.m.. The 11-year-old daughter heard this from upstairs and immediately came down to see for her mother, who was lying in a bloody living room and was declared dead a few minutes later. The bloody scene together with two puncture wounds at the neck arose strong suspicion of homicide.

At autopsy, two skin incisions 5.5 and 5 cm in length were present at the anterior aspect of the neck and in the jugular fossa in a distance of 7.1 cm (Fig. 1). The incisions continued as puncture wounds. The upper one had a total length of 11 cm and was directed slightly downwards and from right to left, while the lower wound tract was 5 cm long, running slightly upwards and from left to right. The lower incision was restricted to muscles, but the upper one

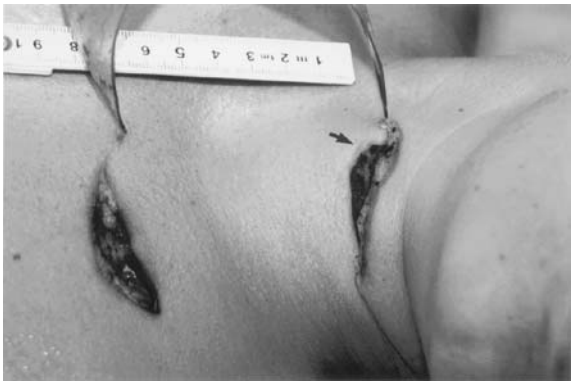

Fig. 1 The two incisions in the skin of the neck and the jugular fossa. The *upper one* shows a tag and a short parallel incision (*arrow*), while the *lower one* is rather clean-cut. Also note the two long notches in the wound edges on the right side

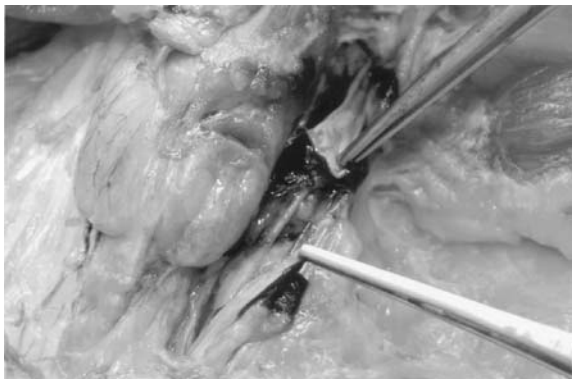

Fig. 2 The upper puncture wound including incision of the thyroid gland and transection of the common carotid artery

transected the left common carotid artery and injured the internal jugular vein and the vagal nerve (Fig. 2). There were no additional injuries. Signs of exsanguination including streaky subendocardial bleedings were obvious, and a test for air embolism was negative. BAC was 1.26‰. The cause of death, therefore, was exsanguination.

At the scene, there was a large pool of blood on the floor in front of the sofa surrounded by numerous secondary splashing stains radiating outwards up to a distance of 3 m (Fig. 3). Abundant dropping and arterial splashing stains as well as smear stains marked the way from the sofa to the final position of the woman in a distance of 6 m. A broken and bloody wineglass was lying on the table, which showed a circular sparing of blood corresponding to the shape and size of the basis of the glass (Fig. 3). The basis and the stem were intact, but the goblet was broken in such a way that two long and sharp, dagger-like fragments were protruding (Figs. 3 and 4). The pointed tips were 7.1 cm apart, thus exactly reflecting the distance of the two skin incisions.

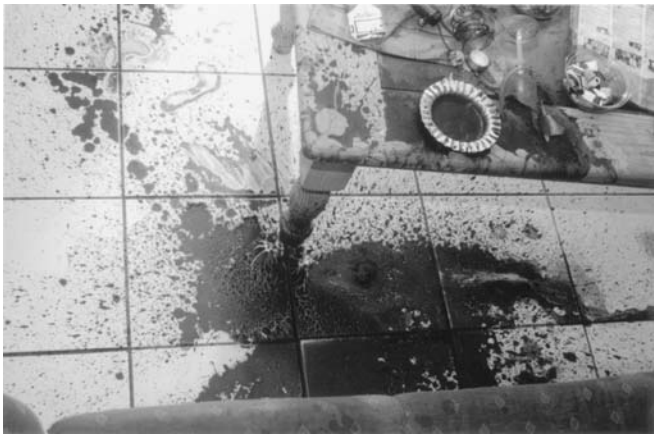

Fig. 3 The table and the ground in front of the sofa where the woman had been sitting. The floor shows a large pool of blood surrounded by a tight pattern of secondary droplets and arterial splashing stains. The bloody footprints were caused by the daughter. On the table, there is the broken wineglass, and in the *lower left corner*, a circular sparing of blood can be seen which marks the original position of the wineglass

Fig. 4 The wineglass recovered from the table including an intact basis and stem but a broken goblet which forms two long and dagger-like fragments protruding upwards. The distance of 7.1 cm between the tips of the goblet corresponds exactly to the one between the beginnings of the skin notches, which were caused by the tips moving tangentially to the skin surface (compare Fig. 1)

Police investigation established that the woman had been drinking wine together with her husband when she broke the goblet of her wineglass. The couple removed the fragments from the ground and the husband left the house to work on night shift, while the wife announced to make a telephone call; the remains of the wineglass (Fig. 4) were still standing in front of her on a table.

No glass was found during dissection of the wounds, but direct microradiography verified the presence of tiny glass fragments and glass dust (Fig. 5). Unfortunately, the wineglass itself was not available for further investigations.

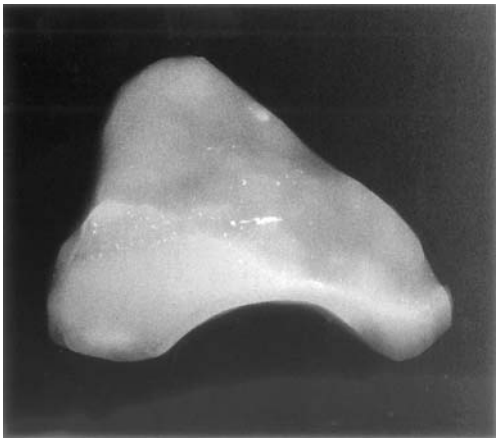

Fig. 5 Direct microradiography of a lamella of the left lobe of the thyroid gland including the puncture wound (compare Fig. 2) marked by small glass fragments and glass dust (original magnification ×1.8)

Discussion

There is no doubt that the broken wineglass was the instrument responsible for the fatal injury: The wound dimensions correspond exactly to those of the broken goblet, and the wound morphology including notches, tags and a short parallel skin incision is typical for broken glass, which was confirmed by the detection of glass fragments and dust inside the wound by microradiography [2, 3].

The bloodstain patterns at the scene were static, and there was no indication of a perpetrator such as signs of a fight. The doors and windows were closed. Police investigation verified that the husband had arrived at work by the time the telephone connection had ended. The telephone witness had not heard conspicuous noises before the woman had shouted. The 11-year-old daughter stated that the time gap between the shouting and her entering the living room and finding her mother was only about 20 s, so the two women definitely were the only persons present in the house. Also, it has been documented that it is possible to cover a distance of 10 m or more after transection of a common carotid artery [7]. These findings clearly exclude the involvement of another person.

The woman most likely sustained the fatal injury when she suddenly moved her head downwards to see for her foot while the glass was standing directly in front of her on the table. The somewhat opposite course of the two puncture wounds indicates a rotational component of the head to the left, which corresponds to the position of the wineglass at the left corner of the table. This accident mechanism is very extraordinary. Accidental sharp force fatalities mostly sustain their injuries by falling into intact architectural glass surfaces [1, 4, 5, 9, 10, 12, 15], while the woman actively moved into the tips of the glass, which had been shattered before. This scenario is also different from accidents involving knives carried unprotected in a pocket [6] or a bag [13], where the knives were driven into the body by impact of an object of high mass.

In conclusion, this case initially appeared to be a homicide. However, the typical wound morphology including a short parallel skin incision established glass to be the wounding agent, which was later confirmed by microradiography. Inspection of the scene was necessary for a complete reconstruction of the incident, which then turned out to be a tragic and extremely unusual accident.

References

1. Armstrong AM, Molyneux E (1992) Glass injuries to children. BMJ 304:360
2. Bajanowski T, Paldauf E, Brinkmannn B (1991) Morphologie von Glasschnittverletzungen. Rechtsmedizin 1:47–50
3. Bajanowski T, Hüttenbrink KB, Brinkmann B (1991) Detection of foreign particles in traumatized skin. Int J Legal Med 104:161–166
4. Bell D (1984) Two hundred glass injuries. Arch Dis Child 59:672–673
5. Clark AJ, Webber GMB (1982) Accidents involving glass in domestic doors and windows in England and Wales. Accid Anal Prev 14:293–303
6. Groβe Perdekamp M, Bohnert M, Pollak S (2000) Zur Kasuistik der akzidentellen Herzstichverletzung. Arch Kriminol 205:169–176
7. Karger B, Niemeyer J, Brinkmann B (1999) Physical activity following fatal injury from sharp pointed weapons. Int J Legal Med 112:188–191
8. Karger B, Niemeyer J, Brinkmann B (2000) Suicides by sharp force—typical and atypical features. Int J Legal Med 113:259–262
9. Karger B, Rothschild M, Pfeiffer H (2001) Accidental sharp force fatalities—beware of architectural glass. Forensic Sci Int 123:135–139
10. Murphy GK (1985) A single fatal penetrating chest wound from shattered window glass. Am J Forensic Med Pathol 6:332–335
11. Ormstad K, Karlsson T, Enkler L, Rajs J (1986) Patterns in sharp force fatalities—a comprehensive forensic medical study. J Forensic Sci 31:529–542
12. Ousby J, Wilson DH (1982) 1086 consecutive injuries caused by glass. Injury 13:427–430
13. Pfeiffer H, Fechner G, Brinkmann B (2005) Backstabbing—a report of an unusual case. Int J Legal Med 119:47–49
14. Rouse DA (1994) Patterns in stab wounds: a six year study. Med Sci Law 34:67–71
15. Shiono H, Fujiwara M, Tabata N, Azumi J, Morita M (1097) A single penetrating chest wound caused by a dagger-shaped fragment of broken door glass. Am J Forensic Med Pathol 8:346–349