



Homicide by drinking glass with peculiar findings: Let's create safer drinking environments to reduce alcohol-related murders



Introduction

Among crimes, homicide provokes bitterness the most as well as elicits social reactions.

Aggressiveness is reported as a recurring motive for these crimes; lifestyle, cultural violence, starving, substance and alcohol abuse can play a crucial role as triggers. Acute alcohol consumption has criminological implications as it can exacerbate impulsiveness, leading to high-risk situations. Research has demonstrated a consistent relationship between alcohol use and violent behavior [1,2]. Alcohol misuse is positively associated with firearm violence [3] and sharp injuries [4] and consequently facilitates offensive aggressions close to licensed premises [5].

Alcohol use and associated harms in young people, occur in public drinking environments, often by means of bar-glasses and bottles.

Glass injuries may be caused by a variety of objects in the everyday life; accidents involving glass doors, light bulbs, windows and shower screens are an important cause of injury; most of them are superficial cuts and abrasions, but many involve deep lacerations of tendons, nerves and muscles. [6]

Glass bottles can cause serious injuries that are mostly located on the scalp and the neck and when they affect other parts of the body, such as the face and the hands, they may result in unsightly facial scars, disabling hand injuries or other physical deformities. Other glass-related injuries may be caused by street shard glasses in children walking barefoot. [7]

Regarding to that we present the autopsy case of a young male killed by a drunken man, outside a bar: the murder weapon was a drinking glass.

Case report

A 27-year-old man was standing nearby a bar in the city center, talking with some friends. Suddenly and seemingly randomly, he was assaulted by an unknown man. The victim was stabbed on his neck by an unusual weapon, a wine glass. Despite the immediate rescue by a doctor who was nearby and CPR which lasted about 30 min, he died shortly after the assault and a great deal of blood was present on the ground. At the moment of the attack many witnesses were present and confirmed it's dynamic.

The killer was subjected to toxicological analysis that showed high blood alcohol concentration levels (2.8 g/l).

Forensic autopsy was performed 48 h later.

The main external findings were:

- oval-shaped penetrating wound, 0.4 x 0.5 cm, in the middle third of the left side of the neck [Fig. 1];
- diffuse blood stains on the neck;
- swelling of the left lateral region of the neck.

The subsequent internal examination of the body allowed the following findings to be identified:

- full-depth interruption of the left internal jugular vein and retraction of the two stumps and a round-shaped penetrating injury on the antero-lateral wall of the left common carotid artery (0.5 cm of diameter, at the distance of cm 10 from its aortic origin and 5.5 cm from the bifurcation) [Fig. 2];
- extensive hemorrhagic swelling of subcutaneous and muscular layers, mainly involving left sternocleidomastoid muscle, extended from the retroesophageal tissues to the vertebral layer and from the left to the right side of the neck, down to the sterno-clavicular joints;
- paleness and lack of blood found in all the entrails.

These findings allowed to recreate a 4 cm-penetrating path, with a left-to-right and back-to-forward direction.

Toxicological examinations were carried out on central and peripheral blood, which tested negative for narcotics and alcohol. The investigations were completed with a histological examination of the organs. Specimens were embedded in paraffin, and 4 μm thick sections were cut and stained with hematoxylin-eosin. Preparations of samples from the organs did not reveal any significant findings.

In conclusion, the cause of death was a hemorrhagic shock.

Discussion

In Italy 21.3% of homicides are committed by stabbing [8]; this is a lower percentage than the other European countries [9,10]. Homicides due to sharp force are generally committed with a knife. The typical weapon is a flat-bladed, single-edged kitchen, pocket or folding knife with a 10–13 cm blade [11].

Injuries caused by glass-fragments are less frequent. Most of such wounds are accidental [12–14] and are the result of households accidents such as falling into architectural (plate) glass; suicide or homicide involving broken glasses are rarely described [15] and most of them are homicides [16,17]. Some authors describe that injuries inflicted with drinking-glass are more serious than those sustained by bottles [18]. Moreover it has noted the differences between tempered (toughened) and annealed (untoughened) glasses [19]. The first ones are safer. The tempering process involves rapid cooling of the glass after its initial formation. This holds together the outer layer of glass increasing its resistance to impact with a safer pattern of fragmentation.

A stab wound to the neck with a broken glass may lead to death in ways other than vessel damage and consequent exsanguination. In literature is described a case of a 38-years-old man who was stabbed to the neck and died, but the autopsy did not find injuries to the carotid artery or the jugular vein, as well as to their main branches. The only finding was an hematoma near the trunk of the vagus nerve and its branches, that led to the conclusion that the man died of vagal inhibition. [20]. In fact soft tissues of the neck are especially vulnerable. It is important to remember that neck vessels and soft tissues can be injured not only by knives or glass shards, but also by unusual items; for example in literature are reported cases of decapitations (complete and uncomplete) due to the pressure

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Fig. 1. Oval-shaped penetrating wound in the middle third of the left side of the neck caused by the glass stem.

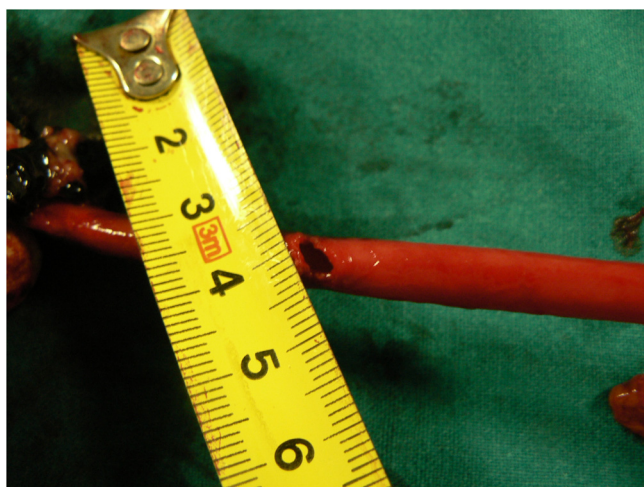


Fig. 2. Injury on the antero-lateral wall of the common carotid artery.

exerted by the helmet strap wore by the motorcyclists [21,22]. A study on pigs has been conducted to demonstrate the dangerousness of commonly available items including a ball point pen, a plastic knife, a broken wine bottle, and a broken wine glass, proving the relative ease these items could be inserted into the necks of these animals next to the jugular veins and carotid arteries [23].

In our case, the sharp object used to hit the victim was a wine glass. It was located on a table outside the bar and had not been removed from the waiting staff.

Generally stab wounds inflicted with a broken bottle or drinking-glass tend to occur as clusters of sharp edged but ragged injuries, of different sizes, shapes and depths [11].

In the described case the exceptional finding represented by a lone and small wound on the right side of the neck, makes our case very peculiar because of the absence of the typical clusters of injuries generally described in similar cases.

The Prosecutor asked to the forensic pathologist if it was an accidental wound caused by an involuntary gesture of the aggressor's arm and if the glass was already broken, in order to bring a first-degree murder charge or an involuntary manslaughter one.

The morphology of the wound allowed the following considerations about the dynamics of the aggression:

- the 4 cm depth wound, penetrating up to the carotid artery, could not be caused by an accidental movement of the aggressor's arm;

- at the time of assault, the glass was already broken.
- the stem of the glass used by the murder was too short to cause damage unintentionally.

In conclusion there was the aggressor's will to stab the victim's neck by using the broken glass as a pointed weapon. Based on these medico-legal considerations, the aggressor was sentenced to 30 years in prison for first-degree murder.

Therefore in these cases, forensic pathologists, should always be faithful to empiric observations, in order to provide the Prosecutor with accurate data for the indictment and subsequently obtain a conviction [24].

The presented case highlights the necessity to improve the awareness about the circumstances of assaults happening close to bars, in order to create, in Europe, drinking environments that are less conducive to risky drinking and alcohol-related harm. Bars should adopt safety standards by using only tempered glass or plastic bottles, plastic cups and cans. Licensees should ensure too that empty bottles and glasses are regularly collected and soon removed. This strategy could avoid a quite important number of alcohol consumption-related accidents and voluntary or involuntary homicides.

In fact alcohol-induced CNS depression weakens inhibitions causing impulse control impairments which enhance anger. Moreover, alcohol decreases the ability to judge, and it can lead to a misunderstanding of people's behavior and to an overreaction. Therefore, alcohol can be enlisted among psychotropic drugs which more than others can induce "psychopharmacology related violence".

Declaration of Competing Interest

All authors deny any financial and personal relationships with other people or organizations that could inappropriately influence their work. In particular they deny employment, consultancies, stock ownership, honoraria, paid expert testimony, patent applications/registrations, and grants or other funding.

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