G77 An Unusual Case of Homicidal Chest Trauma Using a Golf Club as a Weapon

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The goal of this presentation is to describe and discuss an unusual case of homicidal chest trauma caused by a single blow to the chest with a golf club that was used as a weapon.

This presentation will impact the forensic sciences community by demonstrating an unusual mechanism of chest trauma and death produced by a golf club head without penetration of the thoracic cavity by the weapon.

Different accidental injuries from golf equipment have been reported for adults and children. The vast majority of these reported cases were accidental blows to the head from clubs and balls. To this date there are no reported cases in the literature of homicidal chest trauma using a golf club as a weapon. Golf clubs are potentially lethal weapons when used inappropriately. A golf club is particularly designed to hit a golf ball. The club head is capable to accelerate to a great speed. This speed is produced by body motion swinging the club in vertical, circular, and horizontal directions.

This witnessed case involved an 18-year-old, black Hispanic healthy man who received a single blow to the chest in the presternal region with a club head during a fight. Immediately after he was hit he collapsed at the scene. Minutes later he was pronounced dead on arrival at the emergency room.

At autopsy the body corresponded to a well-developed and well- nourished lean male. He was 67 inches tall and weighed 118 pounds. External examination of the anterior torso, disclosed the presence of two well-defined brown-tan abrasions in the medial aspect of the left pectoral region separated by a 1" by 1" inch contused area. One of the abrasions was lateral and higher compared to the other. It measured 3/4" by 1/2" and had a rectangular shape. The other abrasion measured 5/8" by 5/8" and had a triangular configuration. The contused area had a triangular shape with a vertex pointing to the medial aspect of the thorax. The body had no other external signs of trauma. Upon reflection of the skin of the anterior thorax, a localized 1 ¼" by 1" hemorrhagic area was involving the presternal soft tissue and was associated to linear non-displaced fractures of the anterior aspects of the left 5th and 6th ribs at the costo- sternal junction. The right pleural and pericardial spaces had 1000 ml and 30 ml of liquid blood respectively. The pericardium had an extensive laceration associated with two parallel transmural lacerations of the anterior right ventricular wall, slightly parallel to the heart axis. There was no other cardiac involvement by trauma. The rest of the thoracic and abdominal organs had no lesions. Additional autopsy findings were remarkable for right lung collapse and brain edema. Toxicological evaluation was negative for alcohol, cocaine, opioids, and canabinoids.

Chest trauma is traditionally described as blunt or penetrating. The trauma is classed as blunt when the chest wall remains intact and as penetrating when the integrity of the chest wall is breached. Blunt trauma is more common than penetrating chest injury, accounting for more than 90% of thoracic injuries. Two mechanisms occur in blunt trauma: by direct transfer of energy to the chest wall and thoracic organs and by differential deceleration, experienced by thoracic organs at the time of the impact. A direct blow to the thoracic wall produces crush and shear injury associated with fractures of bones and soft tissue damage. Ribs may be fractured at the point of impact and damage the underlying thoracic organs by producing contusions or punctures. This case represent blunt chest trauma in which a great amount of energy was applied over a small body surface causing a penetrating injury of the heart by fractured ribs. An important feature of this injury is that the fractured ribs were not found displaced at autopsy examination. A temporal displacement of these ribs could explain the nature of the heart injury.

Factors such as golf club design and physics of chest trauma are keys for understanding the mechanisms of trauma involved in this unusual homicide case.

Golf Club, Chest Trauma, Homicide

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