



## Pathology Biology Section – 2010

### **G44 Stab Wounds, Incised Wounds, or Blunt Trauma With Single or Multiple Weapons – How to Read Soft Tissue and Bone Injuries**

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The goal of this presentation is to remind attendees of the importance of careful observation in all autopsies performed (either on the skin or internally in soft tissues, organs and even bones), in order to know how to correctly classify injuries, as well as to establish a relationship between both the external and internal injuries and the weapon(s) involved. By combining the knowledge of all these elements, the pathologist will then be able to better read the wounds' language.

This presentation will impact the forensic science community by advocating a return to the basics in the analysis of wounds. Also defended is the need for pathologists to be highly trained in clearly distinguishing incised, blunt and ballistic trauma, and to be prepared to solve difficult cases with mixed and atypical injuries, such as the one presented here. It is argued that the best interpretation of autopsies will come from those who use all these capacities and experience in every case, providing good answers to the questions aroused from the criminal investigation.

A young woman that was found dead in her home, laying on the bed, dressed; the body, clothing, and sheets stained of blood. Profuse blood spatters were visible on the walls and floor. Fragments of cement were found aside of the left hip. The victim presented at autopsy with typical incised wounds in the arms, neck and in the scalp, some of them with a tail. The scalp wounds had an internal translation as bone cut marks. However, these marks had different shapes and particular patterns. Underneath one of the incised scalp wounds there was also a skull fracture of the right zygomatic and frontal bones and cerebral laceration.

The injuries of the head, neck, and arms, suggested at first a knife. However, after examination of the deeper head injuries, it was found that although they appeared incised, the margins were not so clean as usual, and some of the bone cut marks showed one clear cut margin and little splinters on the other margin. Consequently, the knife assumption was discarded and instead, an axe or a similar tool was considered as a hypothesis, reinforced by the blunt trauma seen on the right side of the skull. Nevertheless, one abraded tangential lesion of the skull and the undulated shape of one of the cut marks lead us to look for another weapon that could produce blunt trauma and incised-blunt trauma at the same time – or to consider two different weapons.

This presentation will discuss the possible weapon(s) used to produce the different and complex injuries described, matched to the skin, subcutaneous tissues, organs and bones patterns of wound. The lethal wounds will be identified and possible defense lesions among the multiple injuries observed. Hypothesizing the existence of one or more aggressors and estimating the position versus the victim is also debated.

The solution of this case was found by the police in the main suspect's van (the victim's husband) near other material that as a builder, worked with: a bloody shovel – that fit with all the injuries found.

It was concluded that, facing complex and contradictory lesions such as the ones presented in our case, the pathologist should interpret them all, provide information about the weapon or weapons probably involved, determine those that produced the death, and the position of the aggressor vs. the victim, among other objectives that may appear during the investigation. He/she must be prepared, experienced, and able to read the wound language written in different morphological supports, including skin, soft tissues, and bone.

**Cut Marks, Blunt, Shovel**