A150 Development of Standardized Protocols for the Intervention of Forensic Pathologists and BPA Experts in the Solution of Violent Crimes

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The goal of this presentation is to highlight the need for standardization of investigations in the field of forensic pathology and of their integration with the Bloodstain Pattern Analysis (BPA) within the framework of judicial on-site inspections regarding deaths by firearm, which is one of the most frequent causes in murder and suicide cases.

This presentation will impact the forensic science community by dealing with a real case brought to the attention of the authors of the present study and will allow the forensic community to understand that an adequate drive to aid in the further development of criminal investigations can only come from the standardization of on-site inspection techniques and their integration with the medico-legal and laboratory procedures, which will allow the sharing of the know-how and competence of experts operating in the field of forensic sciences.

The case at the center of the study is reported from the Calabria Region, a geographic area in Southern Italy with a high rate of murders connected with organized crime, largely in part to the activities of a criminal organization called “Ndrangheta,” whose goals are the control of weapons and drug trafficking as well as extortion. In summer, at approximately 10:00 p.m., the corpse of 70-year-old man was found. The decedent was lying on the lawn in front of his country home and had a wound by a single-charge firearm at the level of his left cheek. The scene of the crime included about 500 square meters of a steep rural area with several natural obstacles. Wide areas stained with blood could be observed. Several blood traces were found, in particular, on leaves and bushes. Immediately after the finding, the inspections converged towards the assumption of murder, as the distribution of blood traces along a lengthy and winding path with ascents, descents, and obstacles to be overcome appeared compatible with a subject on the run, thus supporting the hypothesis of murder. From the thorough on-site inspection carried out by the forensic pathologist and the technicians with an expertise in BPA, it turned out, however, that the morphology of blood traces, their distribution on the corpse, and the surfaces stained, raised serious doubts about the relationship between the real dynamics of the events and the initial hypothesis assumed by investigators. The BPA analysis carried out thus allowed the consideration of a different sequence of events. It was only after a long and thorough on-site inspection that the revolver used for this action was found among some leaves, thus allowing the completion of the investigation on the spot. The study of the corpse and the medico- legal postmortem examination, performed in compliance with the standards set forth in Recommendation No. R(99)3 of the Council of Europe, provided the correct solution via an intra-body ballistic exam. The overall evaluation of the technical data allowed the investigators to conclude a suicidal event. BPA applications led the authors to reconstruct the event and to evaluate each step from the firing of the shot to the moment of death.

An evaluation of the blood flow in the vascular sections caused by the lesion allowed the calculation of the hemorrhage volume and made it possible to reconstruct the victim’s survival time after the shot was fired into his mouth. Additionally, lacerations were found on the neck of the subject, which may have made it possible for the undoubtedly frightened subject to run around for some time until his vital functions slowed. This study should reveal the need for investigators to focus their inquiries on correct assumptions and avoid possible evaluation mistakes regarding the dynamics of an event and the involvement of different subjects.

BPA, Standardized Protocols, On-Site Inspection

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