

Vol. 136 Suppl. 1

SEPTEMBER 2003

ISSN 0379-0738

Forensic Science International

An international journal dedicated to the applications of medicine and science in the administration of justice

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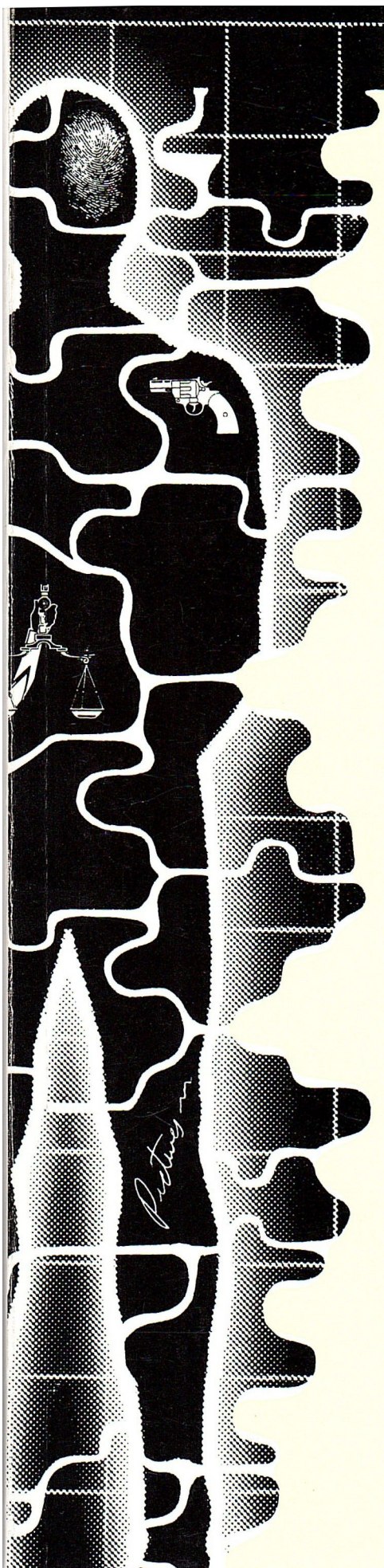
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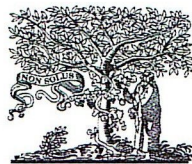


Forensic Science International

VOLUME 136/SUPPL. 1 (2003)

Proceedings of the 3rd European Academy of Forensic Science Meeting

September 22–27, 2003
Istanbul, Turkey



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AMSTERDAM — LONDON — NEW YORK — OXFORD — PARIS — SHANNON — TOKYO

MED-SO-03

Differential-Diagnostic Elements in the Determination of Different Kinds of Drowning

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According to Milovanovic, one of the Balkan most prominent forensic scientists, „Not every body recovered from water is a body of a drowned person”, regarding the origin and manner of death, bodies recovered from water can be: primary drowning, secondary drowning or non-drowned bodies. Analyzing our own experiences with bodies where the cause of death was drowning, in this paper we want to contribute to the criteria for differential determination of the manner of death of dead bodies recovered from water. A total of 29 cases of drowning were analyzed, the autopsies of which were performed at the Institute of Forensic Medicine and Criminology in Skopje during the period of 1997 - 2002. Classical autopsy technique was used as a basic method, along with the special approach to obtaining material during the autopsy to prove the presence of diatoms through the diatom-test. In this paper we want to emphasize the most frequent feature in the death by drowning, as a basis for differential determination of the manner of death of dead bodies recovered from water, and the usefulness of the diatom-test, for the same purpose.

Keywords: Drowning, Diatoms, Manner of death

MED-SO-04

Railway Accidents - Medico-Legal Study

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Introduction: Railway accidents represent through their seriousness and dramatic character, a significant problem of traffic medicine and also a social one taking into account the great incidence of the suicides through this method. An important role of the forensic investigation was to exclude the dissimulation of murder through train accident. Our work aims to analyze all lethal cases of railway accidents for which forensic autopsy was performed at the Institute of Legal Medicine from Iasi for a period of 20 years.

Material and Methods: Our study has as object the autopsies performed for the railway accidents victims between 1980 - 2001 (without 1989, 1990). Following parameters were noted: age, gender, distribution on months, the medical cause of death and the mechanism of the lesions. Results: We ascertained 538 cases of death through railway accidents, i.e., 2,49% from the total of the autopsies performed in this period. Most of the cases were registered in 1996 (39) and in 1986 (38). 410 victims were males (76,2%) and 128 females. The age of the victims was comprised between 1 and 86 with a mean of 43,2. The distribution on months was approximately the same; however maximum values were registered in March and October. 21 victims (3,9%) were unidentified. Regarding the cause of death, in 269 (50,18%) cases the victims died at a short time after the impact following the sudden suppression of the vital functions or of the cataclysmic hemorrhage due to the crush of the head, thorax and/or of the abdomen; in 126 (23,4%) cases death occurred after a certain time (several hours) due to the traumatic and hemorrhagic shock caused by multiple fractures of the limbs and of the pelvis; at 77 (14,3%) victims we registered death by traumatic coma due to a cranio-encephalic injury; acute respiratory failure was established at 36 (6,7%) cases following thoracic injuries; 27 (5%) victims died due to spinal marrow damage; at 3 cases death was caused by electrocution. In the period of our study there were no railway catastrophes registered.

Discussion: Our study has established that the majority of the victims of the death on the railway was men, maybe because it is common for men to make use of violent means of suicide. The increase in the number of victims in March and October could be explained by the common spring and autumn depression that leads certain (vulnerable) people to suicide. Most of the victims had serious traumatic lesions that produced death in a very short time: brain laceration, smashing of the thoracic and abdominal viscera, great vessels damages. These lesions occurred through the crushing of the body by the train wheels. At the cases in which the train did not drive over the body the lesions had less gravity and occurred as a consequence of the hitting of the vehicle followed by the projection and the rolling over of the victim on the ground. Regarding the judicial type of death 235 were considered at investigation to be suicidal deaths and 303 accidental deaths (127 were pedestrians and 168 were travelers of cars hit by the train; at 8 cases the victim fell from the train and were hit or treaded on). In the framework of the accidental deaths, at 38 cases one dealt with the hypothesis of the victims being attacked before the deadly impact; at some of these cases were observed traumatic lesions compatible with a criminal assault, remaining for the police investigation to establish the real character of the aggression.

Conclusions: Forensic examination plays an important role even essential in railway accident investigation, with implications both in the general activity of prevention and in the criminal investigation working to exclude dissimulation of murder.

Keywords: Railway accident suicide, Criminal assault

MED-SO-05

Postmortem DNA Degradation Analysis with Flow Cytometry

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Determination of the time of death has always been one of the primary goals of forensic medicine. Various methods have been used to define the length of the postmortem interval with reasonable approximation. Corpse temperature is probably the first method ever used; this method is based on the assumption that body temperature after death will tend to be equal to the temperature of the environment in which it is found. In some cases, observation of cadaveric phenomenology can be helpful in the attempt to determine the time of death. Recently, it has been shown that DNA molecule seems to be a valuable parameter to study to determine the time of death. The aim of this study is to determine the time of postmortem interval by using flow cytometric DNA degradation analysis in the cells of spleen, brain, liver and lymphoid tissues and investigate whether the environmental temperature conditions can affect these findings. For this reason spleen, brain, liver and lymphoid cells incubated with three different conditions at 4, 21 and 37 C and DNA degradation ratios were calculated at 24, 48, and 72 hours. This study is being performed on 22 forensic autopsies with known reason of death. Because of abnormal DNA histogram possibility of tumor cells, autopsies with malign tissues excluded from this study. All taken specimens were preserved in nonsterile phosphate buffer solution (PBS). The tissues were placed in a Petri dish, minced using a syringe, and diluted in PBS. Final cell suspension was collected in a test tube and centrifuged twice with PBS. The pellet is resuspended in PBS and cells are stained with propidium iodide for analyzing on Beckman Coulter EPICS XL model Flow Cytometry. Cells were gated on peak read fluorescence versus integrated fluorescence to exclude cellular aggregates and doublets. DNA degradation values of the cell suspension taken into account were obtained by calculating the relationship between the definitive values of cursor describing the normal content of DNA and the other cursor indicating partially or completely degraded DNA and their ratio. DNA