



### G90 CT Multislice Guided Autopsy Methodology in a Fatal Body Packing Case

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The goal of this presentation is to provide information to show how acknowledged cases of body packing are quite rare and the phenomenon often goes unrecognized. Fatal cases are even more infrequent, despite the fact that drug abuse is a growing social phenomenon definitely worthy of notice. That's why further study of this subject is necessary in order to be able to recognize and adequately treat the specific case should the need arise. When presented with unexpected deaths of young persons coming from specific areas, we should actually take into account the possibility of drugs being transported, in order to perform preliminary instrumental examinations that may be helpful for a proper autopsy execution.

This presentation will impact the forensic science community by showing how instrumental examination, such as X-ray, CT scan, and RMN can be very useful as a complementary survey to the autopsy. These techniques of investigation should also be more important in specific and difficult cases, such as in advanced decomposition of bodies.

**Objectives:** Within the field of forensic medicine, acknowledged cases of body packing are quite rare and the phenomenon often goes unrecognized. Fatal cases are even more infrequent, despite the fact that drug abuse is a growing social phenomenon definitely worthy of notice. That's why further study of this subject is necessary in order to be able to recognize and adequately treat the specific case should the need arise. When presented with unexpected deaths of young persons coming from specific areas, we should actually take into account the possibility of drugs being transported, in order to perform preliminary instrumental examinations that may be helpful for a proper autopsy execution.

**Case:** In the autumn of 2012, a young Black man coming from Tanzania was found dead in his hotel room. The man had been rescued at a train station for symptoms compatible with opiates poisoning and treated with Naloxone. His health rapidly improved, so he refused further medical exams and left the hospital, against the will of doctors. Before the autopsy, a multi-slice total-body CT scan exam was performed, which showed the presence of a lot of ovoid-shaped objects distributed across the man's whole gastrointestinal tract, from his stomach down to his rectum. The gastrointestinal tract dissection revealed 87 ovoid packets, which were extracted and handed over to the police for further forensic analysis.

**Materials and Methods:** A CT Somatom 16 Slices was used to perform a Computed Tomography (CT) scan with a 3D reconstruction. Gas Chromatography/Mass Spectrometry (GC/MS) was used to perform biochemical analysis on the packets' contents. GC/MS, High Performance Liquid Chromatography with Diode Array Detector (HPLC-DAD), and Headspace Gas Chromatography Flame Ionization Detector (HS-GC-FID) were used to quantify free heroin and other drugs in blood and fluids.

Then histological preparations with seven micron sections were performed and, after that, stained with Haematoxylin and Eosin.

**Results:** After the autopsy findings, in the local Scientific Police Station, detailed biochemical analysis were performed in order to find out the content of the 87 ovoid packets. Each of these packets contained approximately 15g of light brown powder, which proved the subsequent analysis contained heroin, at the medium concentration of 14.8%. It was found, therefore, that the degree of purity of this substance was much lower compared with literature data. In fact, in drug smuggling, publications made by authors of different countries all over the world show degrees of purity of heroin in the range of 50 – 90%. A drug screen conducted on specimens of blood, received from the autopsy, found lethal values of opiates (in the urine there was a total morphine concentration of 45000µg/l and a codeine concentration of 3700µg/l; in blood samples there was a total morphine concentration of 220µg/l and a codeine concentration of 22µg/l). The toxicological analyses also revealed the presence of acetaminophen in the urine and caffeine in the blood. In conclusion, these evidences show that the man died as a result of heroin intoxication.

**Conclusions:** In this case report, the preliminary execution of CT scan, performed before the autopsy, was very helpful in substantiating that the man was a drug smuggler and showed exactly where to find the ovoid packets in the body, so as to guide the forensic pathologist during the autopsy, also facilitating the preservation and collection of the packets. This technique has been underutilized and poorly reported in literature, especially the 3D reconstruction, which has been so helpful in this particular case report. Instrumental examination, such as X-ray, CT scan and RMN, can be very useful as complementary survey to the autopsy. These techniques of investigation should be more important in specific and difficult cases, such as in advanced decomposition of bodies.

**Body Packer, Heroin, CT Multislice**