

Evaluation of medicolegal death cases sent from abroad to Denizli province

Yurt dışından Denizli iline gönderilen medikolegal ölüm olgularının değerlendirilmesi

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Abstract

Purpose: In this study, we aimed to contribute to the literature by discussing the difficulties encountered in the approach to suspicious death cases reported abroad and sent to our country.

Materials and methods: The findings were obtained by retrospectively reviewing all medico-legal death cases sent from abroad to Denizli province between January 2012 and December 2022, in which postmortem examination and autopsy were performed.

Results: Of the 12 cases included in the study, 3 were female and 9 were male, the youngest case was 2 years old and the oldest case was 66 (median 49) years old. Germany was the country with the highest number of suspicious deaths with nine cases (75%), while one case each was sent from Turkmenistan, the Netherlands and Austria. When the cases were evaluated in terms of origin, it was observed that 5 (41%) cases were of natural origin followed by 4 (33%) cases of suicide origin.

Conclusion: In order to minimize the problems encountered in the re-evaluation of medico-legal death cases from abroad, we think that it would be appropriate for all countries to perform medico-legal autopsy in accordance with international standards for suspicious death cases sent abroad, and to share the report containing the autopsy findings and all documents that may help to clarify the cause of death of the person with the forensic medicine experts in the country of destination.

Key words: Abroad, autopsy, embalming.

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Öz

Amaç: Bu çalışmada, yurt dışında şüpheli ölüm olarak bildirilen ve ülkemize gönderilen şüpheli ölüm olgularına yaklaşımda karşılaşılan zorluklar bulgularımızla tartışılarak literatüre katkıda bulunulması amaçlanmıştır.

Gereç ve yöntem: Bulgular Ocak 2012-Aralık 2022 yılları arasında yurt dışından Denizli iline gönderilen, ölü muayene ve otopsi yapılan tüm medikolegal ölüm olguları retrospektif olarak taranarak elde edilmiştir.

Bulgular: Çalışmaya alınan 12 olgunun 3'ü kadın, 9'u erkek, en genç olgu 2 yaşında, en yaşlı olgu ise 66 (medyan 49) yaşındadır. Dokuz (%75) olgu ile en fazla şüpheli ölüm olgusu gönderen ülke Almanya olurken, Türkmenistan, Hollanda ve Avusturya'dan birer olgu gönderilmiştir. Olgular orijin yönünden değerlendirildiğinde, doğal orjinli 5 (%41) olguyu, intihar orjinli 4 (%33) olgunun takip ettiği görülmektedir.

Sonuç: Yurt dışından gelen medikolegal ölüm olgularını yeniden değerlendirmede karşımıza çıkan sorunları en aza indirebilmek için tüm ülkeler tarafından yurt dışına gönderilen şüpheli ölüm olgularına uluslararası standartlar dahilinde medikolegal otopsi yapılması, yapılan otopsi bulgularını içeren raporun ve kişinin ölüm sebebini aydınlatmaya yardımcı olabilecek tüm belgelerin gittiği ülkedeki adli tıp uzmanları ile paylaşılmasının uygun olacağı düşüncesindeyiz.

Anahtar kelimeler: Yurt dışı, otopsi, tahnitleme.

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Introduction

The approach to suspicious death cases, the methods of investigating these cases and the scope of such investigations vary greatly from country to country [1, 2]. In order to minimise these differences, there are studies such as "Medical Autopsy Rules" established between the member countries of the European Union and the United Nations "Minnesota Protocol" [3, 4]. Brinkmann emphasised that although autopsies are carried out, they are extremely inadequate and attributed the main reasons for such shortcomings to: the lack of sufficiently specialised doctors, the lack of adequate provisions in the country concerned guaranteeing the investigation of suspicious cases, deficiencies in sampling and planning of further investigations, lack of quality control, problems of independence of the investigating doctor, etc. [5].

With the development of transportation and especially after the industrial revolution in Europe, there has been an increase in the number of people migrating from Türkiye to abroad. According to current official data, 6.5 million Türkiye citizens live abroad [6]. When citizens of the Republic of Türkiye who are reported as suspicious deaths or non-natural deaths abroad are brought to Türkiye for burial, the judicial authorities may request the determination of the exact cause of death and for this purpose, these cases are re-evaluated by forensic medicine specialists. Procedures such as the evaluation of medico-legal death cases, the need for autopsy and embalming procedures may vary from country to country. For this reason, the cases sent to us may have gone through different procedures.

It is a very difficult procedure to perform a re-autopsy in a case where an autopsy has been performed due to various reasons such as the integrity of the organs being disrupted due to previous dissection, tissue samples being taken for histopathological examination, whether or not embalming has been performed, the onset of putrefaction, and difficulty in accessing the autopsy report and medical documents.

Materials and methods

The population of this study consisted of all medico-legal death cases that were sent from abroad to Denizli province between January 2012 and December 2022 and were examined and autopsied in the autopsy room of Pamukkale University Faculty of Medicine, Department of Forensic Medicine. All 12 cases identified in the population were included in the sample group. The aim of this retrospective study was to discuss the autopsy techniques, embalming procedures, international differences in the approach to suspicious death cases and the problems encountered in autopsy and re-autopsy with the information obtained from 12 cases.

This study was conducted in accordance with the principles of the Declaration of Helsinki by obtaining ethics committee approval from Pamukkale University Non-Invasive Clinical Research Ethics Committee.

Results

In this study, 12 cases that were sent from abroad as suspicious deaths and were examined and autopsied in the autopsy room of Pamukkale University Forensic Medicine Department were discussed in terms of gender, age, country, origin, whether autopsy and embalming were performed in the country where they were sent, and whether they had medical documents (Table 1).

Of the 12 cases, 3 were female and 9 were male, the youngest case was 2 years old and the oldest case was 66 years old (median 49). Germany was the country with the highest number of suspicious deaths with nine cases (75%), while one case each was sent from Turkmenistan, the Netherlands and Austria. When the cases were analysed in terms of origin, it was observed that 5 (41%) cases of natural origin were followed by 4 (33%) cases of suicide origin.

Autopsy was performed in 2 (16%) cases and embalming was performed in only 1 (8%) case. Three (25%) cases had medical documents issued by health institutions abroad, while in the other 9 (75%) cases, no documents other than the burial permit and transfer protocols were found.

Table 1. Distribution of cases

	Gender	Age	Year	Country	Origin	Was there an autopsy in the country of origin?	Embalming status	Medical Document
Case 1	Male	57	2020	Turkmenistan	Natural	No	Yes	Supplied
Case 2	Male	53	2015	Germany	Suicide	No	No	None
Case 3	Male	50	2012	Germany	Homicide	Yes	No	None
Case 4	Male	47	2012	Germany	Natural	No	No	None
Case 5	Woman	61	2017	Germany	Suicide	No	No	None
Case 6	Woman	66	2015	Germany	Natural	No	No	Supplied
Case 7	Male	59	2021	Austria	Suicide	No	No	None
Case 8	Male	48	2021	Germany	Traffic Accident	No	No	None
Case 9	Woman	2	2014	Germany	Natural	Yes	No	None
Case 10	Male	32	2017	Germany	Natural	No	No	Supplied
Case 11	Male	22	2021	Netherlands	Suicide	No	No	None
Case 12	Male	2	2022	Germany	Accident	No	No	None

Case-1

As a result of the examination of the medical documents, medico-legal autopsy, histopathological and toxicological examinations of the 57-year-old male case, who was sent to us from Turkmenistan without an autopsy and died in the hospital where he was hospitalized due to bronchitis, it was understood that he died due to acute pneumonia and related intense pulmonary edema and respiratory failure, and that he was embalmed with 15% formaldehyde.

Case-2

It was reported that the male case sent from Germany jumped into the river from a bridge, autopsy and embalming were not performed, and as a result of the postmortem examination and autopsy performed in the autopsy room of Pamukkale University Forensic Medicine Department and histopathological examinations performed afterwards; the person was reported to have died due to asphyxia caused by drowning in water.

Case-3

In the postmortem examination and re-autopsy of a 50-year-old man who was stabbed to death in Germany and autopsied in the autopsy room of Pamukkale University, Department of Forensic Medicine, dissection cuts and sharps injuries to the internal organs could not be clearly distinguished.

Case-4

As a result of the postmortem examination and autopsy performed in the autopsy room of Pamukkale University Department of Forensic Medicine, it was determined that the person died due to acute myocardial infarction developing on the basis of atherosclerotic coronary artery disease.

Case-5

A 61-year-old woman who was sent to us from Germany without autopsy and embalming was learnt from her relatives that she had jumped from the fourth floor of her house. During the postmortem examination and autopsy performed in the autopsy room of Pamukkale University Department of Forensic Medicine, it was determined that there was laceration on the posterior surface of the left lung and haemorrhage/contusion in the parenchyma around this region and the person died due to lung laceration.

Case-6

As a result of the examination of the medical documents of the 66-year-old woman who was sent from Germany without autopsy and who died while being treated for subarachnoid haemorrhage due to vertebral artery aneurysm, and as a result of the postmortem examination and autopsy performed in the autopsy room of Pamukkale University Forensic Medicine Department, it was understood that she died as a result of subarachnoid haemorrhage due to right vertebral artery aneurysm.

Case-7

As a result of the postmortem examination and autopsy performed in the autopsy room of Pamukkale University Department of Forensic Medicine, it was determined that the 59-year-old male patient, who was sent to us from Austria without autopsy and embalming, died due to asphyxia caused by live hanging.

Case-8

A 48-year-old man who died at the scene as a result of a road traffic accident sent to us from Germany without autopsy and embalming was found to have died due to liver laceration and intra-abdominal haemorrhage during the postmortem examination and autopsy performed in the autopsy room of Pamukkale University Forensic Medicine Department.

Case-9

The case of a 2-year-old girl who was sent to us from Germany was thought to have died due to volvulus with the history taken from her relatives, and a more definite opinion could not be reported because almost all internal organs were removed in the first autopsy and medical documents could not be accessed.

Case-10

As a result of the postmortem examination performed in the autopsy room of Pamukkale University Department of Forensic Medicine and examination of the medical documents of the 32-year-old male case sent to us from Germany without autopsy and embalming, it was determined that the person died due to acute cardiac arrhythmia developing on the basis of cardiovascular disease.

Case-11

As a result of the postmortem examination and autopsy performed in the autopsy room of Pamukkale University Department of Forensic Medicine, it was determined that the 22-year-old male case who was sent to us from the Netherlands without autopsy and embalming died due to asphyxia caused by live hanging.

Case-12

As a result of the postmortem examination and autopsy performed by Pamukkale University Department of Forensic Medicine, it was determined that the 2-year-old boy, who was sent to us from Germany without autopsy and embalming, died due to diffuse SAH accompanied by comminuted skull bone fractures and contusion of the brain, cerebellum and brain stem.

Discussion

The first problem we encounter in the re-evaluation of suspicious death cases received from abroad is the inadequate access to the postmortem examination and autopsy reports and, if available, to the medical documents from the health institutions where the person was recently admitted. While medical documents could be accessed in 3 of the 12 cases in the study, the postmortem examination and autopsy report of 2 cases in which autopsy had been performed previously could not be accessed. In a study conducted in the UK, it was reported that in 15 of 44 cases (34%), documents related to the forensic investigation abroad could be accessed, but only the report of the first autopsy of 1 case could be obtained [7]. In our first case, the exact cause of death, which was reported as acute pneumonia after autopsy and histopathological examination, was found to be consistent with the medical documents. When the medical documents of our sixth case were translated into Turkish and analysed, it was understood that he had subarachnoid haemorrhage (SAH) due to right vertebral artery aneurysm, was operated and stenting was performed. In the autopsy, it was found that there was intense SAH on all surfaces of the brain and basis, cerebellum and medulla spinalis surfaces, metallic stent material in the right vertebral artery and the findings were found to be compatible with the medical documents. A review of the medical documentation of our tenth case revealed that the person died of acute cardiac arrhythmia secondary to cardiovascular disease.

It is controversial whether the second autopsy can provide sufficient information due to reasons such as dissection incisions left over

from the previous autopsy, tissue samples taken for histopathological examination, the onset of putrefaction, inability to access the autopsy report and medical documents. In a study conducted by Boukis, it is stated that many corpses were examined by performing second autopsies and that, with some exceptions, the second autopsy would not provide much information due to lack of information, incorrect data, dissatisfaction of the forensic pathologist and inability to access new information [8]. In a study by Holz et al. [9] it was reported that 62.6% of 91 previously autopsied cases were accompanied by a document stating the cause of death, in approximately 75% of these cases the cause of death stated in the first autopsy was compatible with the cause of death determined in the second autopsy, and in 5 (10.2%) cases the cause of death determined in the second autopsy was not the same as the cause of death stated in the accompanying document. In our third case who underwent re-autopsy, it could not be determined whether the sharps injuries were penetrating to the thorax due to the dissection of the intercostal muscles and the dissection incisions made in the lungs in the previous autopsy and no opinion could be expressed about which injuries were fatal. In addition, it was observed that the skull was filled with a paper-cardboard-like material, the sella turcica was opened and the pituitary gland was not present in it, all organs were dissected but not fixed and were in a bag in the thoracic cavity, internal organs could be evaluated suboptimally due to dissection incisions and sharps injuries could not be clearly distinguished and for these reasons, the lack of the previous autopsy report in this case constituted an important problem. In the autopsy of our ninth case who died probably due to volvulus, it was observed that the skull was filled with paper, the sphenoid sinuses were opened, the hyoid bone and thyroid cartilage were not dissected, and the brain, thymus, stomach, intestines, pancreas, bladder, internal genital organs and the majority of the right and left ventricles of the heart were absent. In this case, the medical documents from the health institution where the person was admitted or the documents related to the autopsy performed in Germany could not be accessed.

Embalming slows down the putrefaction of the corpse and prevents the loss of autopsy findings. However, it was observed that only one of our 12 cases was embalmed and decomposition started in 4 of the 11 non-embalmed cases. In a study by Williams et al. [7] it was reported that the organs were preserved in 9 of the 24 embalmed cases and partial or complete decomposition occurred in the others. In the toxicological examination of the first case, which was embalmed due to methanol in the formaldehyde used in embalming, high dose methanol was detected, but formic acid, which is its metabolite, was not detected. In addition, a 6 cm incision was found in the upper inner part of the right thigh in this case, and dissection of this area revealed that the embalming was performed from this area.

There may be differences in the approach to suspicious death cases between countries. In 4 of our twelve cases, we observe that the origin was suicide and autopsy was not performed in the countries of origin. In two cases in which autopsy was performed in the country of origin, homicidal and natural origin were observed. In our sixth case, although vertebral artery dissection and intense SAH were determined as the cause of death in the health institution where the patient was admitted before death, it was reported as suspicious death due to the argument of the patient's relatives with the doctors, but it was observed that the first autopsy was not performed in the country of origin.

Although there are some standardisation studies such as "Medico-legal Autopsy Rules" and the United Nations "Minnesota Protocol" established for the standardisation of autopsy procedures, differences in autopsy techniques and procedures can be seen from country to country and even within countries. In a study conducted by Grellner et al. [10] 4 out of 5 autopsies performed abroad and in a study conducted by Erbas et al. [11] it was reported that all 3 autopsies performed abroad were completely or partially inadequate. In our cases, no autopsy was performed in 6 cases of suicide and accident, and autopsy was performed only in the third and ninth cases of homicide and natural causes. In the first autopsy of the ninth

case, which was thought to have died due to volvulus, it was observed that the hyoid bone and thyroid cartilage were not dissected properly. In 2 other autopsy cases, it was determined that all three large body cavities were opened, all other organs were properly dissected as far as can be evaluated, and tissue samples were taken for histopathological examination.

In conclusion, it is a difficult and limited endeavour to obtain additional information about the death of the person through the re-autopsy procedure. According to the Convention on the Transfer of Corpses, signed by 23 countries, including Türkiye and many European countries, the international transfer of corpses requires the issuance of a passport containing information such as the name, age, date of death, cause of death and place of death [12]. In order to minimise the problems encountered in the re-evaluation of medico-legal death cases from abroad, we think that it would be appropriate for all countries to perform medico-legal autopsy in accordance with international standards for suspicious and non-natural death cases sent abroad, to send the report containing the autopsy findings and all documents that may help to clarify the cause of death of the person, such as crime scene investigation report, medical documents and hospital records, imaging information, and to share them with forensic medicine specialists in the country of destination.

Conflict of interest: No conflict of interest was declared by the authors.

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Authors' contributions to the article

K.A. and A.K.D. constructed the main idea and hypothesis of the study. A.I. and K.A. They developed the theory and arranged/edited the material and method section. K.A., A.K.D. and A.I. have done the evaluation of the data in the Results section. Discussion section of the article was written by A.I. and K.A.

K.A., A.K.D. and K.A.A. reviewed, corrected and approved. In addition, all authors discussed the entire study and approved the final version.