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CASE REPORT

Re-Autopsy: Dealing with Almost Impossibility?

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Abstract:

Performing an autopsy on a body, that was autopsied before, becomes a very difficult situation; especially for the cases, that there is no first autopsy report or any information. Depending on the impossibilities to reach the findings detected in the first autopsy; it becomes a very difficult procedure; which is almost impossible. Practically it seems that the important point in such cases is developing trust by sharing the findings and information as much as possible.

We would like to discuss the situation on three cases that were re-autopsied after the first autopsy procedures performed abroad.

Keywords: Re-Autopsy, Second Autopsy, Methanol Intoxication, Embalming

Öz:

Üzerinde daha önce otopsi yapılmış genellikle yurt dışından gelen bir ceset üzerinde yeniden ve tekrar bir otopsi işlemi yapmak; özellikle ilk otopsiye ait rapor veya adli soruşturmaya ilişkin herhangi bir bilgi olmadığında sonuç alınması imkânsıza yakın, güç bir işlem halini alabilmektedir. Mevcut uyum ve standardizasyon çalışmalarının yanı sıra pratikte bu olgular için en önemli hususun güven oluşturmak ve bu amaca yönelik olarak olabildiğince çok bilgi ve veri paylaşımını mümkün kılmak olduğu düşünülmektedir.

Buna yönelik olarak yurt dışında yapılan ilk otopsileri sonrası gerçekleştirdiğimiz üç tekrar otopsi olgusu üzerinden konunun tartışılması amaçlanmıştır.

Anahtar Kelimeler: Tekrar Otopsi, İkinci Otopsi, Tahnitleme

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1. Introduction

Suspicious deaths and their legal investigations may vary from country to country (1-3). In order to harmonize the autopsy procedures there are some international efforts as "Medico-legal Autopsy Rules" among the countries of European Union and "Minnesota Protocol" of the United Nations; but in practice the application of legislations may vary according to the conditions and working styles of the countries; even in the same country according to the institutions and staff (3-5).

On the other hand for the cases autopsied abroad usually a second autopsy becomes a necessity in the homeland. In such cases there may be a possible loss of findings because of the first autopsy. In addition to the loss of the findings; being unable to reach any information about the first autopsy and about the legal investigations; makes the issue much more difficult.

There were three cases sent by the public prosecutors to Muğla directorate of Forensic Medicine for re-autopsy; one autopsied at first in Greece and the other two in Saudi Arabia.

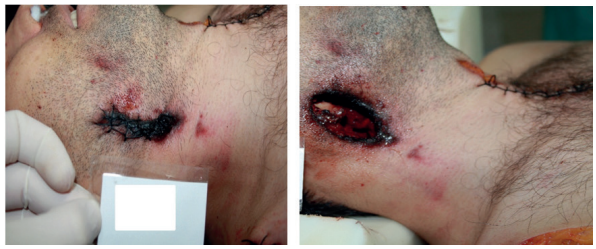
Case 1

29-year-old male case died of a gunshot wound disobeying the stop warnings of military forces in Greek territorial waters was sent after the first autopsy and embalming procedures; without any report, document, information about crime scene investigations and the legal procedures.

In the external examination there were sutures related with the first autopsy and signs of embalming together with the sutured lesions at the lower part of the right cheek and right shoulder; thought to be occurred due to the firearm injury (Picture 1,2). During the examination under the scope there was a bullet left in the atlanto-occipital region.

During the re-autopsy it was seen that the all of the organs were in their anatomical positions left without any sign of dissection; but pieces were taken from all organs probably for sampling.

Picture 1. Probable firearm exit/entrance wounds on right shoulder



Picture 2. Probable firearm wounds at the lower side of the right cheek.

During the autopsy the mandible was seen fractured from the right side, the bullet was left in the atlanto-occipital region lacerating the right jugular vein and right carotid artery and the atlanto-occipital joint was separated. There was a hematoma on the right side of the thyroid cartilage and around the right greater horn of hyoid bone. The right greater horn of hyoid bone was fractured proximally and there was blood in trachea thought to be due to the aspiration.

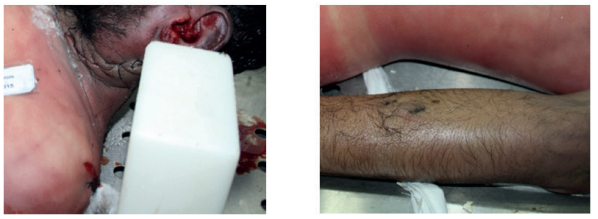
It was seen that the bullet; entered from the 2x2 cm lesion on the right shoulder; fractured the clavicle and the caput humeri; and by moving through the soft tissues left the body from the upper side of the right scapula. Samples were taken from the skin lesions that were thought to be due to the fire-arm injury. During toxicological examinations 13mg/dl ethyl alcohol, 21 mg/dl methyl alcohol was detected in blood and gunshot residues were found on skin samples.

As a result there were two bullets found during autopsy. The one entered from the right cheek was solely responsible from the death. The death cause was reported as the fire arm injury; that caused laceration of great vessels.

Case 2

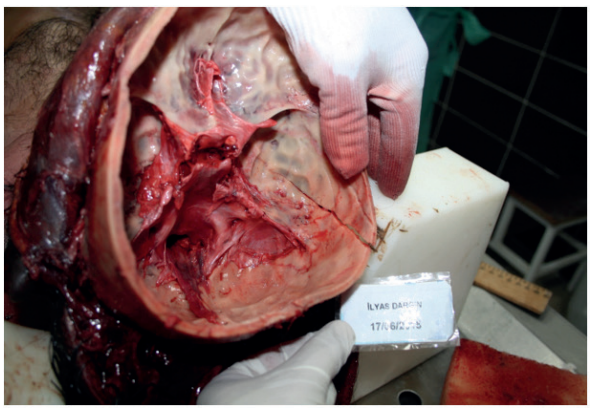
40-year- old construction worker male dealing with electric work was died in Saudi Arabia and sent to our directorate. The public prosecutor was asking if the case had died because of the fractures of the skull with related cerebral hemorrhage or because of the electrocution.

In the external examination; there were sutured lesions due to the first autopsy and signs of embalming together with three lesions on left forearm largest of which was 2 cm in size and at the backside of the left shoulder there were lesions 3x3 cm in size (picture 3) thought to be due to electrocution.



Picture 3. Left shoulder and left forearm lesions probably due to electrocution.

During the autopsy on the right occipito-temporal region linear fracture was seen (picture 4), all organs were found dissected seemingly according to the protocols and the samples were appropriately taken as well. Despite embalming there were signs of putrefaction and discoloring on brain tissue and no macro pathology of other organs were seen.



Picture 4: Linear fracture on the right occipito-temporal region

Skin samples were taken from the lesions; thought to be the entrance of electrocution; for histopathology together with blood samples for toxicology. The results of the histopathology were reported as being compliant with electric burns; if supported by other information and findings related with the case.

During toxicological examinations 338mg/dl methyl alcohol was detected in blood. As a result the cause of death was undefined; since it was not possible to differentiate if the cause of the death was cerebral hemorrhage due to the fracture of the skull or electrocution

Case 3

28-year-old male case was found dead on ship-board and sent by the public prosecutor for re-autopsy after the first autopsy in Saudi Arabia.

The case was hardly taken from the coffin and placed on the autopsy table because of the intense formaldehyde smell and had to be aerated for a while. This was thought to be due to the excessive formaldehyde usage.

In the external examination there was only a 25 cm sutured lesion of incision; beginning from the xifoid process ending at the lower side of the umbilicus and there were no other traumatic findings.

During the autopsy a huge piece of cotton was found in the abdominal cavity thought to be impregnated with formaldehyde. The ileum, jejunum and colon were shrunk and from place to place there were cuts and liquefied parts on colon; all other organs were in their anatomical positions not dissected, staying as a whole and besides there were no signs of sampling.

By toxicological examinations; 10 mg/dl ethyl alcohol, 47 mg/dl methyl alcohol and 1000 ng/ml paracetamol was found in blood. Since there were no signs of trauma or any other pathologic findings; and by considering the detected methyl alcohol levels were due to the oxidation of formaldehyde; the death cause was not definite and it was concluded that the case was died because of an underlying illness.

3. Discussion And Conclusion

The prosecutors rarely send re-autopsy cases. A second autopsy becomes a really hard procedure because of a probable loss of essential findings in concluding the death cause (1) In order to overcome these difficulties; reaching the reports and examination findings of the first autopsy procedure is very important; but usually this becomes impossible. This is usually same also in other countries. In a study on 25 cases autopsied outside their own country; there was only one autopsy report available for only one case during the re-autopsy (6). It was not possible for us to reach any information, report or examination result for all three of our cases.

The education of staff and doctors dealing with the autopsy, names of their specialties, organization of institutions varies according to the conditions of the countries (5-7). Despite the standardization and harmonization efforts; there are differences among autopsy procedures (6, 7). Our first case was a captain died of a gunshot wound violating the stop warning of Greek military forces in territorial waters of Greece. In the first autopsy procedure in Greece tissue samples were taken from all organs without any dissection, the death cause was concluded as fire arm injury. There was no available information about toxicology and pathology. It was seen that the first autopsy procedure was not in compliance with the internationally accepted autopsy rules despite the fact that the cause of death was clearly understood without a detailed autopsy procedure (2, 3).

It was reported that considering the first autopsy procedures outside the home country with suspicion is very natural; where there is no provided international standards with differing applications and approaches (7). Even for cases autopsied according to the internationally accepted rules; the second autopsy becomes a hard situation to deal; where it is impossible to reach information about the first autopsy report or it is impossible to communicate with the institution where the first autopsy procedure was done. Our second case was a prototype of this condition. The first autopsy was understood to be performed according to the internationally accepted rules; but the medico-legal problem "if the case was died because of skull fracture causing cerebral hemorrhage or because of electrocution?" could not be defined.

Our third case was autopsied in Saudi Arabia at first as our second case; but unlike our second case the autopsy procedure was not performed according to the internationally accepted rules; the organs were left in their anatomical positions without sampling. In histopathology of the re-autopsy procedure; there were no significant findings except the findings of chronic gastritis. It was concluded that the case was died because of an underlying illness; since there were no significant findings in pathologic and toxicological examinations.

It was thought that the most important thing is providing trust by enabling information sharing about autopsy report, legal investigations and other procedures as much as possible by establishing an international network.

Grellner et al reported that in their study; there were 5 cases autopsied abroad; 4 of which were completely or almost completely found inadequate and in such cases re autopsy becomes a necessity (8). Nevertheless we have the opinion that re-autopsies will not make any sense; without fulfilling the missing information; when we also consider the probable loss of the findings during the first autopsy. Similar conclusions were also reported by Boukis (9). Boukis reported that many re-autopsies performed in Athens were characterized by missing findings, false information, useless efforts and feeling of discontent; with only a few exceptions(9).

The defined death cause of first case was same with the death cause reported after the first autopsy; but the bullet was left in place so there were suspicions if the medico-legal assessments as the analysis of bullet trajectory were properly done or not. On the other side; there may be video recordings of crime scene, statements of witnesses and so the forensic staff dealing with the autopsy probably did not feel any need to do further examinations for advanced medico-legal assessments. However for a second evaluation of the case in the home country; since there was no information about investigation procedures or any other report about the first autopsy; a second autopsy naturally becomes a necessity. Whenever this very important information is not available; a second autopsy will not be considered as healthy as in the study of Boukis et al (9).

The cause of death for our second case could not be defined even though the first autopsy was performed in compliance with protocols; since there was loss of findings.

The second and third case were both autopsied in Saudi Arabia; but only one of them was seemed to be properly autopsied; showing that even in the same country autopsies may differ.

One remarkable point for all three cases was the detection of methanol. As it is known formaldehyde is the oxidation product of methanol and there may be methanol in formaldehyde solutions in varying concentrations and that is the reason why the methanol free formaldehyde solutions should be used for embalming procedures; at least for the cases that will be sent abroad.

There are no detailed legislations for re-autopsy. The law no. 87-89 of 5271 Turkish code of criminal procedures is related with external examination and autopsy; but there is no explanation about re-autopsies. In the 4th sub-article of Law no. 87, it says "*A buried body may be exhumed to observe or to perform an autopsy. The decisions about these procedures are made by the public prosecutors during the investigation period and made by the court during the trial period. The decision of the exhumation should be declared to a relative; if the aim of the investigation will stay safe; if it is not too hard to reach him/her*" (10). The cases we presented were not exhumed but the difficulties that were encountered seem to be similar. In studies on autopsy procedures after exhumation, it was emphasized that as the time spent in the grave increases; the incidence of finding an evidence decreases; histopathology and toxicological examinations becomes harder; because of artifacts (11-13). It was reported that for 39, 7 % of exhumed cases in Trabzon and for 56, 9 % exhumed cases in Bursa the causes of death could not be defined. Besides all these difficulties; in gathering evidences; autopsy procedures should certainly be performed either in case of exhumation or in case of a second autopsy. Even limited; it is possible to find important findings in both cases. Macroscopic pathologies may be seen as fractures and anomalies. Gök et. al reported a case of a single ventricle diagnosed during an autopsy of an exhumed body (14). In the second case we presented there was a linear fracture on right occipito-temporal region; but the brain was dissected and the effects of putrefaction were

present; so the detection of cerebral hemorrhage and its localization was not possible. Especially for the tissues resistant to putrefaction; histopathology were reported to be helpful as in the myocardial necrosis (15-16). By the toxicological examinations; the detection of chemicals as heavy metals, barbiturates, organic phosphates were reported (17). The results of histopathology of skin samples for our second case were in compliance with the electrocution; the problem with that case was elucidation of the death cause since there was no information about the first autopsy procedure, about the results of toxicological or pathologic examinations and about the legal investigation. Actually making the decision of death cause for such cases - as our second case- in routine practices also; when there is no additional document or information about the legal investigations; is not very easy.

Another fact about these re-autopsies is the question; that if it will be possible to perform these autopsy procedures within the frame of the "Expert Opinion". Within the 6th sub-article of law no.67 of criminal court law titled as "Expert Report, Expert Opinion" it is stated that "*Public prosecutor, constituent, attorney, suspected, counselor, legal representative may offer for scientific consideration from an expert about the trial issue in preparing export reports or about the interpretation of export reports and no additional time is allowed* "(10) Autopsy procedures are expert examinations. Actually the re-autopsy procedures for the cases autopsied and investigated by an expert before might be considered within the frame of "Expert Opinion". In practice these re-autopsy procedures are done by Council of Forensic Medicine and by its related directorates. In case of an offer for scientific consideration from an expert without a re-autopsy; the findings of first autopsy procedure, toxicological and pathologic examination results and the information about legal investigation should be provided and if a re-autopsy procedure is also a necessity; proper conditions and a proper place for re-autopsy procedures should also be provided. The expert should be invited to that proper place together with formerly mentioned information. In our cases re-autopsies were performed in the same way as the routine autopsy procedures. In practice; expert opinions are given by joining the autopsy procedure - performed by the official experts - as an observer and then interpreting the prepared autopsy reports by adding also opinions. It is thought that popularizing this detailed form of autopsy may increase the quality of autopsies. A standard international protocol is a necessity for re-autopsies in different countries; but in practice another fact that should be emphasized is the effective information sharing. It is concluded that in case of a re-autopsy a detailed report about the first autopsy, histopathology, toxicology and any information available is very important and establishing information sharing network at least for these cases is an international necessity.

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References

1. Nithin M D, Rani S. Autopsies on foreign nationals-Practical problems and solutions. Egyption Journal of Forensic Sciences 2016; 6: 26-28. https://doi.org/10.1016/j.ejfs.2015.01.005
2. Green M A. Sudden and suspicious deaths outside the deceased's own country- time for an international protocol. Forensic Science International 1982; 20: 71-75. https://doi.org/10.1016/0379-0738(82)90108-6
3. Committee of Ministers. Council of Europe. Recommendation no. R (99) 3 of the Committee of Ministers to member states on the harmonization of medico-legal autopsy rules. Forensic Science International 2000;111(1-3):5-58.
4. The Minnesota Protocol on the Investigation of Potentially Unlawful Death (2016) The revised United Nations Manual on the Effective Prevention and Investigation of Extra-legal, Arbitrary and Summary Executions. https://www.ohchr.org/Documents/Publications/MinnesotaProtocol.pdf
5. Al-Waheeb S, Al-Kandary N, Aljerian K. Forensic autopsy practice in the Middle East: Comparisons with the west. Journal of Forensic and Legal Medicine 2015; 32: 4-9. https://doi.org/10.1016/j.jflm.2015.02.003
6. Williams E J, Davidson A. Autopsy findings in bodies repatriated to the UK. Medicine, Science and the Law 2014;54(3): 139-150. https://doi.org/10.1177/0025802413499325
7. Leadbeatter S. Deaths of British nationals abroad-a 10-year survey. Forensic Science International 1991;49(1):103-11. https://doi.org/10.1016/0379-0738(91)90177-K
8. Grellner W, Glenewinkel F, Madea B. Reasons,circumstances and results of repeat forensic medicine autopsy. Archiv fur Kriminologie 1998; 202(5-6):173-178.
9. Boukis D. Repeat autopsies on corpses from abroad. A futile effort?, Am J Forensic Med Pathol.1986;7(3):216-8.
10. Code of Criminal Procedure https://www.mevzuat.gov.tr/MevzuatMetin/1.5.5271.pdf date accessed: 06.01.2020.
11. Demirci Ş, Doğan K.H, Erkol Z, Deniz İ. Konya'da 2001-2007 yılları arasında gerçekleştirilen Fethi kabir olgularının değerlendirilmesi. Adli Tıp Bülteni, 2008; 13 (2): 63-8. https://doi.org/10.17986/blm.2008132673
12. Birincioğlu İ, Turan N, Yaşar Teke H. Trabzon'da fethi kabir otopsileri. Adli Tıp Dergisi 2009; 23:11-17.

13. Gök E, Baduroğlu E, Çetin S, Fedakar R, Aliustaoğlu FS. Bursa'da Otopsisi Yapılan Fethi Kabir Olgularının Değerlendirilmesi. Uludağ Üniversitesi Tıp Fakültesi Dergisi 39 (1) 55-60, 2013.
14. E Gök E , Akan O , Eren B , Fedakar R, Şahin E. Fethi kabir ve adli otopsi ile tanı konulan tek ventriküllü kalp: Bir olgu sunumu. Dicle Tıp Dergisi 2015; 42 (4): 522-524. https://doi.org/10.5798/diclemedj.0921.2015.04.0621
15. Karger B, Lorin de la Grandmaison GL, Bajanowski T, Brinkmann B. Analysis of 155 consecutive forensic exhumations with emphasis on undetected homicides. Int J Legal Med 2004; 118: 90-4. https://doi.org/10.1007/s00414-003-0426-z
16. Ortmann C, Pfeiffer H, Brinkman B. Demonstration of myocardial necrosis in the presence of advanced putrefaction. Int J Legal Med 2000; 114: 50-5. https://doi.org/10.1007/s004140000140
17. Grellner W, Glenewinkel F. Exhumations: synopsis of morphological and toxicological findings in relation to the postmortem interval. Survey on a 20-year period and review of the literature. Forensic Sci Int 1997; 90: 139-59. https://doi.org/10.1016/S0379-0738(97)00154-0