



DEATH DUE TO BEE STING: A CASE REPORT

Arı Sokmasına Bağlı Ölüm: Olgu Sunumu

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ABSTRACT

Allergic reactions to bee stings can manifest during both the early (local, toxic, systemic) and late phases (including serum sickness, neurological, vascular, and cardiopulmonary symptoms), potentially leading to long-term complications. Anaphylaxis is one of the most severe and potentially fatal reactions. Autopsy studies of fatalities linked to bee stings typically show non-specific pathological findings, although laryngeal edema, acute pulmonary emphysema, and pulmonary congestion may be present. A case is reported involving a 76-year-old male patient with a history of allergic reactions who had been hospitalized multiple times in the past. He died in an ambulance after being stung by a bee on his eyebrow. Autopsy findings indicated ecchymosis and mononuclear cell infiltration at the site of the sting, along with edema of the tongue and epiglottis, histiocytes, and congestion in the lungs. In most bee sting-related deaths, anaphylactic reactions are critical in the early stages, making airway management crucial. Consequently, when addressing bee stings, it is essential to inquire about the patient's allergic history and to evaluate the autopsy findings in conjunction with information gathered from the scene.

Keywords: Anaphylaxis, Autopsy, Bee sting

ÖZET

Arı sokmasına bağlı alerjik reaksiyonlar erken (lokal/toksik/sistemik) dönemde ortaya çıkabildiği gibi geç dönemde (serum hastalığı, nörolojik, vasküler ve kardiyopulmoner bulgular) şekillere yol açabilmektedir. Anafilaksi en ciddi ve mortal tabloyu oluşturan reaksiyonlar arasında yer almaktadır. Otopsi çalışmalarında arı sokmasına bağlı ölümlerde patolojik bulgular genelde nonspesifik olmakla birlikte, laringeal ödem, akut pulmoner amfizem ve pulmoner konjesyon saptanabilmektedir. Alerjik reaksiyon öyküsü bulunan ve bu nedenle geçmişte de birkaç kez hastane başvurusu olan 76 yaşındaki erkek olgu, sunulmaktadır. Olgu, kaşından arı sokması sonrasında ambulansla vefat etmiş ve otopsi bulgularında arı iğnesinin çıkarıldığı ciltte ekimoz ile mononükleer hücre infiltrasyonu, dilde ve epiglotta ödem, akciğerde histiyositler ve konjesyon bulguları tespit edilmiştir. Arı sokmasına bağlı ölümlerin çoğunda erken dönemde anafilaktik reaksiyonlar belirleyici rol oynamakta olup hava yollarının açık tutulması hayati öneme sahiptir. Bu nedenle arı sokmalarında alerjik öykünün sorgulanması, otopsi bulguları ile olay yeri incelemesinden elde edilen bilgiler bütüncül olarak değerlendirilmelidir.

Anahtar kelimeler: Anafilaksi, Arı sokması, Otopsi

INTRODUCTION

Bees produce honey and pollinate plants, contributing to the sustainability of the ecosystem. However, when threatened, they can become aggressive and cause life-threatening allergic reactions in some individuals (Kalyoncu, 2013). The earliest known case of bee allergy dates back to 2641 BC in Ancient Egypt, when Pharaoh Menes died of anaphylaxis after being stung by a wasp (Canitez, 2017). Allergic reactions are categorized into two groups based on the timing of symptom onset after a bee sting: early and late reactions. Early reactions, including local reactions, toxic effects, and systemic allergic reactions (anaphylaxis), generally occur within the first 15 minutes after the sting. Late-phase reactions, such as serum sickness, myasthenia gravis, peripheral neuritis, glomerulonephritis, myocarditis, and vasculitis, can emerge four hours after the bee sting (Kır et al., 2011). Anaphylaxis is the most critical allergic reaction resulting from a bee sting and is one of the leading causes of death. The incidence of anaphylaxis following a bee sting ranges from 0.4% to 5% in the general population (Müller, 1998). Studies in our country indicate that this rate is approximately 2% (Kalyoncu, 1997; Kalyoncu et al., 1997; Kalyoncu, 1998). Autopsy is a crucial tool for determining the cause of death in bee sting-related fatalities. The literature suggests that autopsies performed on cases of death due to bee stings often reveal no specific findings; pathological findings associated with anaphylaxis are frequently nonspecific or absent, though laryngeal edema, acute pulmonary emphysema, and pulmonary congestion may be present (Johansson et al., 1991; Riches et al., 2002; Janssen, 1966; Delage & Irey, 1972; Anolay et al., 2014). Our study aims to discuss the medicolegal aspects of the autopsy and histopathological findings of a 76-year-old male who underwent an autopsy at the Artvin Forensic Medicine Branch Directorate due to allegations of death from a bee sting. We also aim to contribute to the relevant literature. Necessary permissions were obtained from the Council of Forensic Medicine for this study.

CASE

In the summer of 2025, a 76-year-old man in the Ardanuç district of Artvin fell ill after being stung by a bee in the garden of his village home. His son removed the bee sting, but it was noted that the man had a history of bee allergy and had previously visited the hospital multiple times due to bee stings. Following the incident, he experienced difficulty walking, and his medical condition worsened. Emergency ambulance teams were notified. Unfortunately, the man died during transfer to the medical facility. The prosecutor's office was informed, and an autopsy was conducted by the Artvin Forensic Medicine Branch Directorate. At autopsy, an external examination was conducted on the area from which a bee sting was reported to have been removed. A 0.3 cm oval-shaped ecchymosis was found lateral to the left eyebrow (Figure 1).



Figure 1. Ecchymosis on the lateral aspect of the right eyebrow where the bee sting is reported to have occurred

Internal examination revealed a 5 x 1.5 cm ecchymotic edematous area at the base of the tongue, a 3 x 3 cm edematous area in the left region of the tongue base, and edema of the epiglottis (Figure 2).



Figure 2. Ecchymosis and edematous area at the root of the tongue, oedema of the epiglottis

Toxicological analyses of samples taken at autopsy showed no findings other than medications used in the treatment of anaphylaxis. Histopathological examination revealed focal areas of mononuclear inflammatory cell infiltration and congestion in the upper dermis of the skin where the bee sting was reported, as well as pigment-laden histiocytes and congestion in the lungs. No pathological findings were observed in other organs that could have caused death; thus, it was determined that the person's death resulted from anaphylaxis due to the bee sting.

DISCUSSION

Although rare, serious systemic reactions can occur after bee stings. These reactions include anaphylaxis, respiratory distress, bronchospasm, generalized edema, vasculitis, acute renal failure, neurological involvement (such as neuritis or encephalitis), and serum sickness. However, documented cases of bee stings leading to myocardial infarction are extremely limited and have been reported infrequently in the literature. In our case, the autopsy revealed no external pathology capable of causing death, while the presence of edema in the tongue base and epiglottis, along with pulmonary findings, supported the diagnosis of anaphylaxis. Additionally, the

deceased's history of bee allergy, eyewitness accounts of the incident, and the consistency of histopathological findings reinforced the conclusion that the cause of death was anaphylaxis due to a bee sting. Histopathological examination of the skin sample taken from the lesion revealed mononuclear inflammatory cell infiltration in the upper dermis. Although these cells do not appear during the acute phase, they are associated with the individual's prior sensitization. Since the findings observed at autopsy are often nonspecific, the patient's history, scene information, and histopathological examination are crucial for diagnosing anaphylaxis. This highlights the importance of a multidisciplinary approach when evaluating similar cases. When evaluating anaphylactic deaths from a forensic medicine perspective, it is clear that autopsy findings alone are insufficient; all evidence must be considered collectively. In our case, the fact that the individual had previously sought medical attention for similar bee stings suggests an allergic predisposition, supporting the conclusion that the mechanism of death was consistent with anaphylaxis. A known history of allergy is one of the strongest predictive factors in diagnosing anaphylaxis. Furthermore, information gathered from the scene and witness statements reinforces this diagnosis. Witnesses observed the bee sting, reported that the stinger was removed, and noted that the individual became ill shortly afterward, aligning with the sudden-onset clinical course typical of anaphylaxis. The onset of symptoms within minutes to a few hours after exposure is a hallmark of anaphylactic reactions. Additionally, toxicological examinations revealed no findings indicative of suicide or accidental ingestion of drugs or poisons, effectively ruling out other causes and further supporting the diagnosis of anaphylaxis. This case demonstrates that measures taken for individuals with known severe bee allergy can be life-saving. All patients who develop an anaphylactic reaction after a bee sting should be counseled on avoidance of bee exposure and prescribed an adrenaline auto-injector. These patients should also be referred to clinics with allergy specialists for further diagnostic evaluation and possible immunotherapy planning. It is also very important to provide practical training on the correct use of the device to individuals who obtain

an adrenaline auto-injector (Yakar et al., 2019; Çatal et al., 2014).

CONCLUSION

Although autopsy findings are often non-specific, anaphylactic reactions caused by bee stings can be correctly diagnosed in forensic practice by evaluating the scene, medical history, witness statements, and detailed histopathological findings together. This case highlights the importance of multidisciplinary collaboration in forensic death investigations and the need for educating patients with known allergies about preventive measures. Community-based awareness programs and thorough inquiries into allergy histories in primary care will be crucial in

reducing similar preventable deaths.

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REFERENCES

- Anolay, N., Arslan, M. N., Kumral, B., & Büyük, Y. (2014). Death caused by honey bee stings: Case report. *Medicine Science*, 3(2), 1305–1314.
- Canitez, D. D. Y. (2017). Arı alerjisi. *Klinik Tıp Pediatri Dergisi*, 9(2), 109–116.
- Çatal, F., Topal, E., Çeliksoy, M. H., Söğüt, A., Şahin, M. K., Şahin, G., Dikici, M. F., & Sancak, R. (2014). Aile hekimlerinin arı venom alerjisi, tedavisi ve adrenalin oto enjektör kullanım becerisi konularındaki bilgi düzeyleri. *Journal of Turgut Ozal Medical Center*, 21(1), 33–36.
- Delage, C., & Irey, N. S. (1972). Anaphylactic deaths: A clinicopathologic study of 43 cases. *Journal of Forensic Sciences*, 17(4), 525–540.
- Janssen, W. (1966). Plötzliche Todesfälle durch Insektenstiche: Morphologie, Toxikologie und forensische Bedeutung. *Deutsche Zeitschrift für die gesamte gerichtliche Medizin*, 58(1), 3–17.
- Johansson, B., Eriksson, A., & Örnehult, L. (1991). Human fatalities caused by wasp and bee stings in Sweden. *International Journal of Legal Medicine*, 104(2), 99–103.
- Kalyoncu, A. F. (1997). Honey allergy and rhinitis in Ankara, Turkey. *Allergy*, 52(8), 876–877.
- Kalyoncu, A. F. (1998). The prevalence of Hymenoptera stings and allergy in primary school children in Ankara. *International Review of Allergology and Clinical Immunology*, 4, 136–138.
- Kalyoncu, A. F. (2013). Türkiye’de arı alerjisi. *Asthma Allergy Immunology*, 11(2), 71–75.
- Kalyoncu, A. F., Demir, A. U., Özcan, Ü., Özkuyumcu, C., Şahin, A. A., & Bariş, Y. I. (1997). Bee and wasp venom allergy in Turkey. *Annals of Allergy, Asthma & Immunology*, 78(4), 408–412.
- Kır, M. Z., Ketenci, H. Ç., Başbulut, A. Z., Uzkeser, M., & Emet, M. (2011). Arı sokmasına bağlı iki ölüm olgusunun değerlendirilmesi. *Adli Tıp Dergisi*, 25(3), 223–228.
- Müller, U. R. (1998). Hymenoptera venom hypersensitivity: An update. *Clinical & Experimental Allergy*, 28(1), 4–6.
- Riches, K. J., Gillis, D., & James, R. A. (2002). An autopsy approach to bee sting-related deaths. *Pathology*, 34(3), 257–262.
- Yakar, Ş., Baykan, N., & Taşlıdere, B. (2019). Arı sokmasına bağlı akut myokard infarktüsü: Kounis sendromu. *Anatolian Journal of Emergency Medicine*, 2(1), 27–29.