

Hakan Ahmet ACAR<sup>1</sup>  
Yücel YÜCE<sup>2</sup>  
Kutlu Hakan ERKAL<sup>2</sup>



## CASE REPORT

# FACIAL BURN ASSAULT OF A GERIATRIC WOMAN: A CASE REPORT

### ABSTRACT

Violence against women is a social, developmental, economic, legal, educational and human rights issue. Regardless of culture, religion, education level or financial status of those involved and the country's level of development, violence against women has been identified as a serious public health problem. It is a preventable cause of morbidity and mortality in women. Violence against women may also be observed in geriatric patients. In these patients burning and/or an attempt at burning as a physical assault can cause serious problems.

Geriatric patients, usually defined as those older than 65 years, comprise approximately 10% of the major burns population. Burn injuries continue to be among the most serious and devastating health threats for human beings, with a long and permanent effect on the patients' health and quality of life.

Worldwide, burns caused by criminal acts mostly concern women and are acts of domestic violence.

In this case report; a 68-year-old female patient who had facial burns due to an assault by her husband and who had been followed up at a burn intensive care unit has been presented.

**Key Words:** Violence; Burns; Aged.



## OLGU SUNUMU

# BİR GERİYATRİK KADIN HASTAYA UYGULANAN ŞİDDET SONUCU YÜZ YANIĞI: OLGU SUNUMU

### Öz

Kadına uygulanan şiddet sosyal, ekonomik, hukuki, eğitimsel ve insan haklarını ilgilendiren bir konudur. Kültür, din, eğitim düzeyi ve finansal durumdan ve ülkenin gelişmişlik düzeyinden bağımsız olarak kadına yönelik şiddet ciddi bir halk sağlığı problemi olarak belirlenmiştir. Bu durum kadınlarda önlenemez morbidite ve mortalite nedenidir. Kadına yönelik şiddet geriyatrik hastalarda da görülebilmektedir. Bu hastalarda fiziksel şiddet amaçlı yakma ve/veya yakma girişimi oldukça ciddi problemlere neden olabilir.

Geriyatrik hastalar genellikle 65 yaş üstü hastalar olarak tanımlanırlar ve toplumdaki majör yanıkların %10'unu oluştururlar. Yanık hasarları insanlar için hastaların sağlıkları ve yaşam kaliteleri üzerinde uzun ve kalıcı etkileri ile en ciddi ve en yıkıcı sağlık tehdidi olmaya devam etmektedir.

Tüm dünyada kriminal etkilerle oluşan yanıklar en sık kadınları ilgilendirmektedir ve aile içi kadınlara yönelik şiddete bağlı oluşmaktadır.

Bu olguda kocası tarafından şiddete maruz kalması sonucu yüz yanığı oluşmuş ve yanık yoğun bakım ünitesinde takip edilmiş 68 yaşında bir kadın hasta sunulmuştur.

**Anahtar Sözcükler:** Şiddet; Yanıklar; Yaşlı.

### Correspondance

Yücel YÜCE  
Kartal Dr. Lütfi Kırdar Training and Research Hospital,  
General Surgery Clinic, İSTANBUL

Phone: 0216 458 30 00  
e-mail: dryyuce@gmail.com

Received: 29/10/2015

Accepted: 28/01/2016

<sup>1</sup> Kartal Dr. Lütfi Kırdar Training and Research Hospital,  
General Surgery Clinic, İSTANBUL

<sup>2</sup> Kartal Dr. Lütfi Kırdar Training and Research Hospital,  
Anesthesiology and Reanimation Clinic, İSTANBUL



## INTRODUCTION

Violence against women by intimate partners is an important conditioning factor for female health (1). Overall 35% of women worldwide have experienced physical intimate partner violence (2).

For physical assault against women combustible materials are frequently used. Geriatric patients, usually defined as those older than 65 years, comprise approximately 10% of the major burns population (3). In particular, elderly burn patients suffer from greater morbidity and mortality than younger patients with similar extent of burns.

In general, burns covering >30% of the total body surface area in the elderly have a very poor prognosis. Reasons for the increased mortality rate are concomitant medical disease, burn wound sepsis and multisystem failure (4).

## CASE

A 68-year-old Syrian patient was admitted to our burn centre after an assault by her husband with flaming oil at refugee camp. She was admitted at our emergency department 6 hours after the incident by a helicopter ambulance and at her first examination we found erythema and edema which encompassed her entire face, scalp, left eyelid and both shoulders (Figure 1).

When tachypnea and oxygen desaturation ( $SpO_2 < 91\%$ ) occurred she was immediately intubated orotracheally and

pressure support mechanical ventilation was started. The wounds were covered with 0.5% chlorhexidine acetate and petrolatum gauze. After the initial dressing, the patient was taken to the intensive care unit. Central venous catheterization from the right femoral vein and arterial, urinary, and nasogastric catheterizations were performed. With sedation and analgesics mechanical ventilation with SIMV-P mode was started. Fluid resuscitation was maintained after calculating the body surface area. Blood, urine and tracheal culture samples were drawn from the patient. Leucocyte counts in blood and CRP, lactate and procalcitonin levels were measured for follow up infection.

Altogether, 35% of the total body surface area (TBSA) was burned by flame (2nd- 3rd degree). The regions affected were the face, anterior neck, right anterosuperior trunk and right upper extremity. After sedation with midazolam and ketamine the burned areas were scrubbed with distilled water and 7.5% povidone iodine in our burn unit washroom.

Fluid resuscitation was completed using the Parkland formula (4 ml/kg/ %TBSA) in relation to urine output as 1.5-2 ml/kg/day after the first 24 h follow up (5). Albumin, erythrocytes and colloids were administered to the patient for the treatment of acidosis.

*Pseudomonas aeruginosa* was isolated from the blood culture on day 7. Appropriate antibiotic therapy using a sensitive antibiotic was performed. Oral nutritional support solutions were commenced. Caloric replacement was estimated using the Currier formula (6) (25 kcal/kg actual BW + 40 kcal/%TBSA burn).

We assessed the patient's hypotensive state on day 10 and therapy with an inotropic agent was initiated. After 4 days inotropic therapy was terminated. On day 13 of hospitalization, mechanical ventilation was terminated. During hospitalization, dressings were changed daily under sedation. The patient was hospitalized for a total of 30 days after which she was discharged upon completion of treatment (Figure 2).

## DISCUSSION

Violence against women is a phenomenon that persists worldwide. It is a major contributor to the ill health of women. No country in the world is free from violence against women. It is known that combustible materials causing burns are used in physical assaults against women. In particular, violence against women still exists in our society too. However, burn assaults by throwing flaming oil on women are very rare.

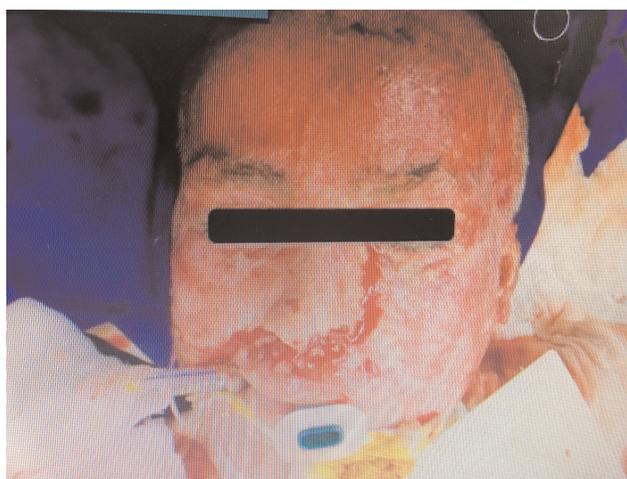


Figure 1— Erythema and edema.



Figure 2— After the treatment.

Unfortunately, burn injuries rank fourth among the causes of injury-related deaths in the geriatric age group (7). In geriatric patients, pre-morbid conditions, such as chronic obstructive pulmonary disease and coronary artery disease may lead to longer hospital stays, increased ventilation requirements and elevated complication rates. The mortality rate also increases owing to an impaired response to infection and sepsis, in addition to a decreased ability to tolerate prolonged stress and physiological insult (8).

Mortality in young adults with an 80% TBSA burn is 50%, whereas in adults aged 60-70 years with a 35% TBSA burn is 50% (9). The deficient nutritional state observed in geriatric burned patients may also cause impaired wound healing. Co-morbid factors are responsible for this increase in morbidity and mortality. Elderly people have thinner skin, poorer microcirculation, and increased susceptibility to infection. In addition, rates of inhalation injury, pulmonary pathology, septicemia and renal failure are higher than those in younger people (10).

Geriatric people have decreased pulmonary reserves for gas exchange and lung mechanics and they are prone to pulmonary failure, which is a major cause of death in all burn patients (11). Facial burns found in our patient are generally considered severe. This is due to the possibility of respiratory complications. Although there were no signs of inhalation injury, no respiratory failure was observed in our patient after fast respiratory support.

In geriatric patients the severity and extent of the burn lesions and the duration of hospitalization of the patients are defined as the main prognostic factors (11). In geriatric burn patients fluid resuscitation is also important. Fluids should be administered to patients with burn >5% TBSA burns. Resuscitation solutions should be initiated at a rate of 3- 4 ml/kg/%TBSA. Adequacy of resuscitation should be maintained at; 30- 50 ml/h urine output, clear mentation, and appropriate blood pressure (12).

Wound healing is of great concern in geriatric people. There are significant changes in the skin with ageing that are responsible for the greater percentage of deep burns in the elderly, including the progressive thinning of the dermis and epidermis. Many factors contribute to a higher proportion of deep burns and a decrease in healing rates. These factors include decrease in epidermal turnover and the amount of skin appendages, vascularity, collagens and matrices, fibroblasts, and macrophages (13).

These factors cause a delay in epithelialization, an increase in burn depth, particularly in second-degree burn areas, and healing complications at the donor site.

One such problem, protein energy malnutrition, has been reported to be present in at least one-third (30% -60%) of elderly patients admitted to hospital. By giving our patient a high-energy, calorie-rich diet 1 day after burn injury we prevented her from developing a state of protein energy malnutrition. As in other diseases age is an important factor affecting the treatment outcomes of burns (13).

Kartal Dr. Lutfi Kırdar Training and Research Hospital's Burns Unit is the biggest and best equipped burn center in Turkey. It functions in a multidisciplinary manner. It has 6 intensive care unit beds, 16 burn service beds and 2 separate operating rooms all housed in one building. It has a helicopter landing field and it accepts patients from every region of the country and from neighboring countries. The present case is unusual because it involves an assault against a geriatric woman who is part of the refugee population in our country.

## CONCLUSION

The government policy makers, program planners and other nongovernmental organizations should establish an appropriate strategy to prevent and control violence against women. Although burn treatment has improved during the past decade, the prognosis remains poor for older adult patients. With early respiratory support, fluid resuscitation, infection challenge and early surgery, it is possible to decrease the high mortality and morbidity rates in geriatric patients.



---

**REFERENCES**

1. Taft A, Small R. Preventing and reducing violence against women: innovation in community-level studies. *BMC Med* 2014;1(12):155. (PMID:25286152).
2. Sharma I. Violence against women: Where are the solutions? *Indian J Psychiatry* 2015;57(2):131-9. (PMID:26124518).
3. Pomahac B, Matros E, Semel M, et al. Predictors of survival and length of stay in burn patients older than 80 years of age: Does age really matter? *J. Burn Care Res* 2006;27(3):265-9. (PMID:16679891).
4. McGill V, Kowal-Vern A, Gamelli RL. Outcome for older burn patients. *Arch Surg* 2000 ;135(3):320-5. (PMID:10722035).
5. Greenhalgh DG. Burn resuscitation: the results of the IS-BI/ABA survey. *Burns* 2010;36(2):176-82. (PMID:20018451).
6. Wolfe RR. Herman Award Lecture, 1996: relation of metabolic studies to clinical nutrition-the example of burn injury. *Am J Clin Nutr* 1996;64(5):800-8.(PMID:8901806).
7. Wibbermeyer L, Amelan M, Morgan L, et al. Predicting survival in an elderly burn patient population. *Burns* 2001;27(6):583-90. (PMID:11525852).
8. Tejerina C, Reig A, Codina J, Safont J, Mirabet V. Burns in patients over 60 years old: epidemiology and mortality. *Burns* 1992;18(2):149-52. (PMID:1590932).
9. Pham TN, Cancio LC, Gibran NS. American Burn Association Practice Guidelines Burn Shock Resuscitation. *J Burn Care Res* 2008;29:257-66. (PMID:18182930).
10. Linn B.S. Age differences in the severity and outcomes of burns. *J. Am. Geriatr Soc* 1980; 28(3):118-23. (PMID:7354204).
11. Covington DS, Wainwright DJ, Parks DH. Prognostic indicators in the elderly patient with burns. *J Burn Care Rehabil* 1996;17(3):222-30. (PMID:8736367).
12. Atyeh BS, Dibo SA, Ibrahim AE, Zgheib ER. Acute burn resuscitation and fluid creep: it is time for colloid rehabilitation. *Ann Burns Fire Disasters* 2012 30;25(2):59-65. (PMID:23233822).
13. Heyland DK, Garland A, et al. Recovery after critical illness in patients aged 80 years or older: a multi-center prospective observational cohort study. *Intensive Care Med* 2015;41(11):1911-20. (PMID:26306719).