

## **Bullae in Comatose and Non-comatose Patients**

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*Sir,*

I read with interest the article by Kim et al. discussing two cases of coma-associated bullae with eccrine gland necrosis in patients without drug intoxication (1). The first case was a 4-year-old boy who had been in a motor vehicle accident and the second a 53-year-old man semi-comatose after severe alcohol ingestion. The authors mention that Kato et al. first reported bullous skin disease lesions in patients without drug history in 1996.

The history of bullae as a cutaneous sign of injury reflecting a variety of neurologic diseases and other

conditions actually goes back to the time of Napoleon. During the occupation of Berlin in 1806, Larry, the Emperor's surgeon, noted such lesions over pressure points in soldiers comatose from carbon monoxide intoxication (2). In 1973, my colleagues and I reported seven cases and reviewed this interesting area (3). Etiologic agents already identified at that time included carbon monoxide, barbiturates, a large variety of other central nervous system depressants and diseases, and immobilization of man and animals secondary to accidents such as have taken place during wartime. We also demonstrated that the histologic findings include not only subepidermal bullae but focal necrosis

of epidermis, dermis, subcutaneous tissue, and all epidermal appendages.

Experimental observations in animals have shown that obstruction to circulation is primarily responsible for this pressure-induced tissue damage, and that the duration of pressure is more important than its intensity (4, 5). The single factor common to all patients with these distinctive cutaneous lesions has been prolonged and uninterrupted external pressure. We will no doubt continue to see examples of these pressure-induced blisters related to a variety of situations, all of which have in common some neurologic damage or traumatic episode which results in prolonged and unremitting pressure on the skin.

*Note:* The authors of the original article were given the opportunity to comment in response to this letter from Dr Arndt, but did not find it necessary to do so.

#### REFERENCES

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