Open wound drainage versus wound excision in treating the modern assault rifle wound

M. L. Fackler, MD, J. P. L. Breteau, DVM, L. J. Courbil, MD, R. Taxit, DVM, J. Glas, DVM, and J. P. Fievet, MD, San Francisco, Calif., and Marseille, France

Military dogma of the past 20 years preaches that excision of all injured tissue around the path of a penetrating projectile is essential in wound treatment. To find out whether excising injured muscle surrounding a bullet path benefits healing over and above the benefit provided by a simple release of tension by incision, two groups of 90 kg swine were shot in the hind leg with a replica of the AK-74 assault rifle projectile. One group was treated by excision of injured tissue around the projectile path; in the other group no tissue was excised. Both groups were given parenteral penicillin for 5 days, and simple gauze dressings were used to cover the wounds. No difference in healing time occurred; the wounds in both groups had closed, and no epithelial defect remained by 20 to 22 days. These results indicate that the simple extremity wound caused by the modern-generation assault rifle, provided with adequate open drainage and systemic penicillin, heals as rapidly as when the body defense mechanisms handle the disrupted tissue as when an attempt is made to excise it surgically.2

From the Division of Military Trauma Research, Letterman Army Institute of Research, Presidio of San Francisco, Calif., and Surgical Research Laboratory of the French Army Medical Corps, Institute of Tropical Medicine, Marseille, France

The body's reaction to local injury results in swelling. If this engorgement caused by increased circulation and transcapillary protein and water loss is confined, as in fascial compartments of the extremities, it may cause strangulation of circulation with destruction of far more tissue than that disrupted by the initial injury. French surgeons as early as Paré understood this concept and its practical consequences. They incised or dilated the projectile path to relieve tissue tension around wounds. In 1737 LeDran used "débrider" to describe incision to relieve tension on the underlying parts and establish drainage, as did Percy in 1792 and Larrey in 1812. In this context, the French verb "débrider" (from which the noun débridement is derived) means "to remove constriction by incision."5

Severely disrupted tissue might also have been removed during the procedure, but the emphasis was distinctly on the release of tension and drainage by incision. Although débridement continues to be used in this meaning by present-day French surgeons, it means wound excision to most English-speaking surgeons. This confusion of terms appears to have originated from the 1917 Inter-Allied Surgical Conference in Paris.*

Although modern military dogma, especially since the Vietnam conflict, has stressed wound excision as the sole savior of life and limb on the field of battle,* we have been unable to find any valid clinical or experimental data to show that excising the injured tissue around a wound added any benefit over that obtained from incision to release pressure and establish adequate drainage.

*The confusion generated in the wound ballistics literature by the mistranslation/misinterpretation of the Inter-Allied Surgical Conference's French text persists to this day. Rather than débridement we will use the terms wound incision and wound excision to avoid misunderstanding.