

# Compartment Syndrome: Remain Vigilant

Joseph Borrelli, Jr., MD

**C**ompartment syndromes can be limb threatening as well as life threatening in certain circumstances. Although compartment syndromes were recognized, by some accounts, before the birth of Christ, their occurrence, pathophysiology, and the best means for early detection are still somewhat in question. Typically, they are associated with high-energy trauma and crush injuries, ischemia and reperfusion, and burns, but they have also been known to occur following low-energy trauma and sometimes otherwise innocuous situations.

The authors of the two case reports in the December e-publishing section do an excellent job of reminding us all that none of our patients are immune to the development of a compartment syndrome. They also remind us that all healthcare personnel need to remain vigilant for the signs and symptoms of a compartment syndrome, regardless of the patient's age or circumstances.

In "Delayed Presentation of Compartment Syndrome of the Proximal Lower Extremity After Low-Energy Trauma in Patients Taking Warfarin," Gaines and colleagues thoroughly describe the development of compartment syndrome in three older patients, each anticoagulated, after relatively minor trauma. In two of their patients, rapid diagnosis after presentation and prompt treatment preserved function and returned these patients to their pre-injury level of function. The third patient did not survive and this tragedy speaks to the life-threatening potential of this condition.

In "Compartment Syndrome of the Leg After Intraosseous Infusion: Guidelines for Prevention, Early Detection, and Treatment," Atanda and Statter bring back to our attention the association between intraosseous infusion during resuscitation and the development of compartment syn-



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drome in young patients. Although this is an admittedly rare scenario, the authors do an excellent job of describing this relationship and how compartment syndrome may be prevented when intraosseous resuscitation is necessary.

The take-home message from these reports is that, as clinicians, we can never let our guard down when it comes to diagnosing the presence of a compartment syndrome. The stakes are just too great. We must remain vigilant, considering every bit of information available about our patients. We must understand how our patients were injured and how their comorbidities and medications may encourage the development of a compartment syndrome. We must examine each patient at risk for a compartment syndrome carefully and over a course of time and document our findings. This documentation will aid us in detecting pain patterns and trends that might tip us off to the development of a compartment syndrome.

In addition to understanding how a patient's pain might be changing after an injury, we must also depend on our clinical acumen to diagnose a developing compartment syndrome, particularly in the obtunded or distracted patient. Pain "out of proportion to the injury," pain on "passive stretch" of the muscle transversing the compartments of interest, and paresthesias of the nerves running through the compartments of interest remain the most sensitive means of detecting the presence of, or the development of, a compartment syndrome. Actual pressure measurements of the compartments aid in confirming our clinical suspicion; as pointed out in each of the articles, pallor, paralysis, and pulselessness are extremely late findings and, when present, indicate irreversible muscle and nerve damage.

Treatment of acute compartment syndromes, no matter what the cause


Dr. Borrelli is Professor and Chairman, Department of Orthopaedic Surgery, University of Texas Southwestern Medical Center, Dallas, Texas.

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and no matter who the patient, is a fasciotomy. The constricting fascia of the compartment or compartments involved must be released summarily and completely, without delay. Of course, there are often confounding variables that may influence the timeliness of these fasciotomies, but, for the most part, in the treatment of an acute compartment syndrome “a chance to cut is a chance to cure.”

In summary, these two case reports remind us to remain vigilant.

**“Treatment of acute compartment syndromes, no matter what the cause and no matter who the patient, is a fasciotomy...”**



Compartment syndromes occur in patients of all sizes and ages following high- and low-energy trauma and can even follow life-saving interventions! Each physician and healthcare worker who comes in contact with patients must remain vigilant for this limb- and life-threatening condition. Signs and symptoms of a compartment syndrome are well described, and the treatment in most, if not all, cases is pretty straightforward: fasciotomy. ■