them from feeling hot water, sharp objects or ill-fitting shoes, she added. It’s also a good time to encourage patients to buy shoes that fit correctly, she said.

**DEEP TISSUE INJURY: A STICKY WICKET**

Many hospitals across the U.S. are being sued because they have labeled deep tissue injuries (DTIs) as stage I or II pressure ulcers, Dr. Black said. While the latter should heal in a couple of days once pressure is removed, DTIs will not, and patients end up with amputated legs and diverting colostomies that attorneys claim resulted from poor care, Dr. Black said.

The problem with DTIs is that by the time they are detected—through the appearance of purple or maroon localized areas of discolored intact skin, or blood-filled blisters—the areas of the body can’t always be rescued, Dr. Black said. DTIs come from fracture damage to muscle cells; the injury is to the muscle-bone interface, not just the skin, she said.

“What you are seeing on the skin is reflected, poorly perfused skin lying over the top of very damaged purple tissue,” she said.

Often, a DTI was precipitated by an event outside the hospital. Dr. Black has noticed that a pressure event usually precedes development of a DTI’s purple tissue by about 48 hours.

“For the other 47 hours, the tissue looked normal, then the purple tissue appeared. So, 48 hours ago, Martha was on the kitchen floor, then she came into our facility looking fine, then the day after admission she has these purple pressure ulcers that look hospital-acquired, but they are not,” Dr. Black said.

Such cases illustrate the importance of taking a careful patient history—in this case, the causative factor is that the patient was on the kitchen floor 48 hours ago.

Clinicians should also note the position a patient was in when she was found. Patients who were face down don’t tend to develop DTIs, while those on their back do, particularly on the buttocks and heel, Dr. Black said.

Hospitalists may, in some cases, be able to catch a DTI before it worsens. DTIs are sometimes preceded by skin that is painful, mushy, boggy, and/or warmer or cooler than the adjacent tissue. DTIs often evolve from looking like a bruise to resembling a thin blister over a dark wound bed covered by thin or thick eschar to exposing additional layers of tissue, she said.

Differentials for DTIs include the purple skin and epidermal slough that can appear directly over a hematoma (history is important in making this distinction); the purple skin that develops from venous engorgement, but changes colors when the patient is moved; the bruising that occurs from blunt trauma; and the ulcers that can form on peripheral tissue from prolonged hypotension and use of norepinephrine bitartrate (Levophed). They could also be Kennedy terminal ulcers: necrotic, superficial ulcers of unknown etiology that develop rapidly about 48 hours before death, Dr. Black said.

“What we know about DTIs is this: The location is always on the tissue on the side where there has been pressure. We know there is an approximately 48-hour delay in timing from the pressure to the appearance of the injury. We know they are not red but maroon or purple, and we know they rapidly deteriorate,” she said. “That makes them a unique pressure ulcer.”

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**Pressure ulcer staging**

Use a standard staging method to describe pressure ulcers, as follows:

<table>
<thead>
<tr>
<th>Stage*</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>I</td>
<td>Nonblanchable erythema with extravasation of erythrocytes into the interstitium, without damage to deeper layers.‡</td>
</tr>
<tr>
<td>II</td>
<td>Ulceration that involves the epidermis and dermis; depth is no more than several millimeters; underlying tissue should appear normal.</td>
</tr>
<tr>
<td>III</td>
<td>Full-thickness ulcerations through the dermis; ulcerations can be extensive and deep, and may involve subcutaneous fat; underlying tissue should appear normal.</td>
</tr>
<tr>
<td>IV</td>
<td>Ulcerations exposing muscle, tendon, or bone; stage IV heel ulcers can be only 4-5 mm deep; stage IV sacral ulcers in obese patients can be many centimeters deep.</td>
</tr>
</tbody>
</table>

*Pressure-related deep tissue injury: Use this term for pressure-related damage when the extent of injury is not clear; only assign stage numbers when the full extent of injury is established. (Other similar terms include “closed pressure ulcer,” “deep tissue damage,” and “unstageable.”)

‡ Recent guidelines correctly highlight the difficulty of identifying stage I pressure ulcers in darkly pigmented persons (NPUAP, Stage I Assessment in Darkly Pigmented Skin, 1998). Unfortunately, these guidelines still allow for the inclusion of “boggy” and blue- or purple-hued lesions, which most likely represent deep tissue injury rather than superficial pressure damage. Thus, until new definitions are established based on an improved understanding of the natural history of pressure damage under intact skin, avoid assigning stage I and simply describe the lesion instead.

**Source:** Physicians’ Information and Education Resource (PIER), American College of Physicians.