

*LETTER TO THE EDITOR***TRAUMA AND LYMPHATIC INJURY**

I have for some time wanted to write to you about an issue that should be raised in Lymphology. What concerns me is that the gracile, vulnerable often fluid filled initial lymphatics with their anchoring filaments, are on a daily basis exposed to severe physical trauma without showing clinical evidence of injury. What is the explanation?

As an example I wonder what happens to the subepidermal network of capillary lymphatics (as well as blood capillaries) when a football (soccer) player uses his forehead to return a ball which comes at great speed, or a volleyball player exposes the same structures of the hand to similar trauma. In both instances, there is only a thin layer of skin to the outside and bone on the inside, and no apparent permanent damage. Equally strange is the fact that these structures survive a tumbler's performance in the rings or horizontal bar.

Could the explanation be that these tiny structures are not so vulnerable after all, or that they are so numerous, with such speedy reparative abilities, that the injuries are hard to detect? I should like to know whether there are studies where subdermal structures are examined seconds, minutes, and hours following traumas of the order of magnitude I have mentioned.

I have searched the literature without finding any answers, but my limited vision prevents me from being thorough. What I pose as an issue may already have been studied and explained and no longer represents a problem. Uncertainty about this causes me to write a letter in the hope that an

86 year old may have missed out on recent developments. If so, you can limit yourself to sending me appropriate references. If the issue I raise still has relevance, maybe it could be presented as a Letter to the Editor.

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Reply:

Whereas I don't have a definitive answer to your question, I suspect that repeated minor injuries undergo rapid lymphatic and venous repair. For example, in playing baseball (our national pastime), I often sustain bruising and blunt trauma particularly to my left hand when catching the ball. Seldom is it painful and most of the bruising and repair and absorption of injured byproducts occurs within several days and there is, as you point out, little residual to show for it. That is why I think that trauma, unless sustained and extensive, is seldom a cause of lymphatic and/or venous insufficiency. The only study I am aware of was done by Eliska and Eliskova [Lymphology 28:21, 1995(1) (also see accompanying Editorial by E. Földi 28:1, 1995) (2)], who studied direct pressure or pneumatic effects on initial and terminal lymphatics and demonstrated transient damage. He argued that indeed such therapy might be harmful but I tend to agree with you that whatever detrimental effects occur are short-lived and

that reparative processes (i.e., lymphangiogenesis) quickly restore lymphatic continuity.

The probing question you raised should be contemplated by others. Parenthetically, let me add, as a trauma surgeon, I have observed severe injury to limbs and torso and seldom is lymphatic insufficiency a documented outcome. On the other hand, on occasion a contained hematoma in the thigh may ultimately end up with secondary lymphedema with impairment to lymphatic flow presumably from sclerosis in the femoral canal of Cloquet. Similarly, I have seen Achilles tendon repair end up with foot and ankle edema that is permanent. Even something as seemingly innocuous as the vesicant cantharidin (Spanish fly) topically applied for the treatment of plantar warts may induce a local lymphangitis that results in permanent localized lymphedema (3).

In general, most of the rules and the concepts that we promulgate are only partially accurate. But there are certain individuals and circumstances that occur where proper imaging can show damage to lymphatics. Even interruption of the thoracic

duct, which can usually be ligated with impunity and often is for treatment of chylous effusion particularly after trauma, is not entirely innocuous. On rare occasions, I have seen extraordinary intraabdominal lymphatic lakes and peripheral lower extremity lymphedema from such interruption (4).

Charles L. Witte, MD
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4. Guzman, AE, L Rossi, CL Witte, et al: Traumatic injury of the thoracic duct. *Lymphology* 35 (2002), 4-14.