Letter to the Editor

Fibroxanthoma

A Complication of a Biodegradable Screw

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Published online: 29 September 2010
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To the Editor:

A recent case report in Clinical Orthopaedics and Related Research used the misleading term “fibroxanthoma” to describe the histologic findings of a biopsy obtained near the site of a previously inserted resorbable polymer screw [7].

Among the polymers currently used in degradable orthopaedic devices are polyglycolic acid (PGA), polylactic acid (PLA), poly-DL-lactide (PDLA), and poly-DL-lactide-co-glycolide (PLGA). The main degradative mechanism for these polymers is hydrolysis [9], a process that eventually releases the base monomers, such as lactic acid or glycolic acid that ultimately are metabolized into carbon dioxide and water. The rate of dissolution of a degradable polymer can be influenced by many factors, including the polymer composition and crystallinity, size of the device, additives, method of sterilization, local pH, and local mechanical factors [8]. The dissolution process leads to reduced polymer chain length, and loss of mechanical strength. If the device breaks into pieces, the larger fragments are relatively inert, but smaller fragments are phagocytosed by macrophages and giant cells. The highest tissue concentration of macrophages and giant cells correlates with the dissolution kinetics of the polymer [4, 6]. The process of biologic resorption is asymptomatic in most

patients, but if the degrading polymer is in a subcutaneous location, then the edema and inflammatory reaction can create a mass that will contain macrophages and giant cells [2]; special techniques may be needed to observe fragments of residual polymer. Some cases of tunnel widening and bone resorption also have been associated with degrading polymer screws [3], although this is nonspecific as it also has been reported associated with metal screws [1].

The term “fibroxanthoma” is rarely used nowadays, but usually is considered to be either a synonym for a benign fibrous histiocytoma, or to represent a subset of benign fibrous histiocytomas that contain prominent xanthomatous cells (“foamy” histiocytes) [5]. A fibroxanthoma (ie, benign fibrous histiocytoma) is a mass that, by definition, is not associated with a foreign-body reaction.

In the case report, Sadat-Ali and coauthors [7] describe a patient who had a soft tissue swelling develop at the site of the tibial tunnel, 3 years after a biodegradable screw had been used for ACL reconstruction. A biopsy “was sent for histopathologic examination, which resulted in a diagnosis of fibroxanthoma” [7]. Not surprisingly, the cells showed positive staining with CD-68, a marker for macrophages. Correct diagnosis of bone and soft tissue lesions often requires correlation between clinical and histologic findings, and in the context of this patient, the biopsy should not be interpreted as a fibroxanthoma any more than the similar macrophage reaction to a resorbable suture would be considered a fibroxanthoma. Whether this process is viewed as an inflammatory complication, or an expected, transient foreign-body reaction depends on the presence or absence of symptoms [2]. Although the process is asymptomatic and resolves without treatment in most patients, a symptomatic lesion could be associated with screw degradation, and debridement of the screw fragments is expected to be curative.

(Re: Sadat-Ali M, Azzam Q, Bluw M, Al-Umran AS. Case report: fibroxanthoma: a complication of a biodegradable screw. *Clin Orthop Rel Res*. 2010;468:2284–2287.)

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