

NOTES & COMMENTS

Silicone-rich syringes can cause granuloma-rich reactions in platelet-rich plasma injections



To the Editor: We read with great interest the case report presented by Izhakoff et al.¹ The authors described a 62-year-old woman with no history of injections with foreign material who developed sarcoid lesions at sites of platelet-rich plasma injection therapy. They attributed the lesions to the Koebner phenomenon; however, they neglected to consider the effect of the foreign material that is expelled in injections from lubricated syringes, the syringe lubricant, silicone oil.²

Silicone oil is a well-known inducer of granulomas and is added to commercial syringes as a lubricant in the inner part of the barrel so that the plunger can be sealed and glide easily. There is sound evidence that lubricated syringes release silicone oil droplets, especially when agitated by flicking.^{3,4} Silicone oil-contaminated injected solutions can cause health complications; the 2- to 4- μ m droplets will undergo phagocytosis,² with subsequent granuloma formation and migration through the lymphatics.⁵ Enlarged lymph nodes and skin lesions, like those observed in the patient, are commonly diagnosed as sarcoidosis because of difficulties in the standard histopathology technique, which removes microdroplets of silicone oil during xylene deparaffinization of formalin-fixed paraffin-embedded tissue blocks (unpublished data).

Silicone oil may cause nonspecific rheumatic clinical symptoms that could trigger autoimmune or autoinflammatory diseases. The most concerning long-term effect of silicone oil deposition is the development of autoimmune/inflammatory syndrome induced by adjuvants,⁵ which has been widely described in many studies and incorporates 5 immunomediated conditions, all linked to exposure to various agents such as vaccines and silicone implants.⁶ There is undoubtedly an inflammatory and immunologic association with the presence of silicone oil droplets; therefore, it is a strong possibility that the sarcoid lesions observed were actually

secondary to silicone oil released from lubricated syringes.

It is wrong to assume that platelet-rich plasma injections contain no artificial materials because silicone oil is the commonly used syringe lubricant, and contamination with it has been well reported in literature.²⁻⁴ Whether the patient has a history of receiving a specific injection of a foreign material such as silicone oil itself could matter; however, the awareness that silicone oil is inside every syringe, even before blood is drawn for platelet-rich plasma, is of paramount importance. The number of syringes used in the process adds foreign material volume, similar to botulinum toxin: one syringe for reconstitution and another for injection. Physicians should be aware of every step involved in the administration of injections so that clinically significant reactions can be attributed to silicone oil and properly communicated to the Food and Drug Administration. Without awareness, the diagnosis of siliconoma caused by syringe lubricant will be missed and many more patients will experience adverse consequences. Physicians can use silicone oil-free syringes or perform the previously described flush technique to minimize such rare but important reactions.²

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Funding sources: None.

Conflicts of interest: None disclosed.

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