

## Congressional Consult

These responses correlate to the numbered congressional inquiries:

1. The MR report describes a crescentic fluid collection intimately related to the superficial fascia (perifascial) and surrounding nonlocalized (reticular) edema. These are typical findings of an inflammatory or reactive process. The crescentic shape or morphology of the fluid collection is also typical of an inflammatory or reactive process as opposed to a true infection or abscess formation which is usually round or oval.
2. I have been asked to evaluate the MR imaging appearance on the basis of two theoretical alternate possibilities: a commonly used water-based drug that is well-known to cause very few reactions and can be given subcutaneously or into the muscle, or a suspension of solid particles that are known to be more prone to cause local site irritation and should be injected into the muscle. While it is difficult to be definitive and surrounding reaction is variable in each individual, of these two theoretic possibilities it is my opinion that the history and MR imaging descriptions are more compatible with the Winstrol injection as the inflammatory component is prominent by report. It would be helpful to view the images and measure the overall size of the inflammatory reaction on the T2-weighted images as only the crescentic fluid collection was quantitated as to size. In addition, multiple injections of the irritant, as anticipated with Winstrol, might be expected to yield a higher volume of inflammatory tissue reaction than a single injection.

3. Injection sites are not typically imaged by MR as the vast majority are not associated with clinically significant untoward effects. However, fat necrosis and surrounding edema or inflammation can occur to a variable degree in response to subcutaneous and intramuscular injections (to the material or associated binding agents). I have personally observed inflammatory reaction related to injection on MR imaging.
4. The MR imaging description of this case is not typical of either hematoma or abscess. Both hematoma and abscess usually reveal mass effect, a wall of variable thickness and a round to oval configuration, none of which is described in the MR imaging report of this case. In addition, hematoma frequently demonstrates high signal intensity on both T1- and T2-weighting also which is not described in this MR report.
5. Yes, the clinical finding of "skin redness" is further confirmation of the prominence of the inflammatory reaction. Again while not definitive due to the variability of tissue reaction from patient to patient, this prominent degree of inflammatory reaction in my opinion is consistent with a more irritative or caustic material as the causative agent. I also suspect that the prominent clinical degree of inflammatory reaction is what led to the initial performance of MR imaging.
6. It is possible to deduce from MR multiple versus a single injections in some cases. I would search for several linear tracts extending from the skin as evidence of multiple injection paths. However, the time of those injections (one setting, multiple tracts versus differing episodes with single injections) would likely be very difficult to differentiate by MR imaging.
7. The reported MR abnormality would not have been caused by a muscular injury or strain as no intramuscular edema was mentioned on the MR report. In fact, the report

specifically identifies lack of associated gluteal musculature edema. Similarly a direct blunt blow/injury would be expected to cause edema from the skin surface and superficial subcutaneous tissue to the deeper subcutaneous areas, likely decreasing in severity/extent as the force was progressively dissipated.

8. The specific buttock location of the abnormality on the MR report and knowing that this is by far the most common site of medical injection makes this the logical explanation of the imaging appearance. The MR report identifying the deeper subcutaneous tissue as the primary site of edematous abnormality is also certainly typical of the pattern seen with deep subcutaneous injection.

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