The patient was a 63-year-old female with right knee osteoarthritis (severe medial tibiofemoral compartment and patellofemoral compartment, figures 1 and 2) and complex tear of the posterior horn of the medial meniscus with extensive oblique tear into the root attachment. Past medical history was notable for depression, hypertension, and allergic rhinitis. Medication list at that time consisted of Cetirizine, Fluticasone, Hydrochlorothiazide, and Sertraline. She had no recent illnesses per chart review. The patient underwent right intra-articular knee PRP injection with ultrasound guidance. The Arthrex ACP Double Syringe System was used to draw blood and prepare PRP (PLRA classification: P: 2-3x baseline platelets count, L: <1% (-), R: < 1% (-), A: none (-)). There was difficulty with the blood draw and multiple attempts were made prior to obtaining the 15cc of blood that was required to prepare PRP for the injection. The injection itself was uneventful and without complications. A few hours after the injection, the patient noted increased swelling, pain, and redness around her right knee. This was followed by a rash, hives, fever, and vomiting later that night. She did not note any angioedema, laryngospasms, or wheezing. The following day the vomiting and fever resolved, however, the rash, pain, and swelling remained. The patient presented to a walk-in clinic for evaluation on day 10. At that time, her symptoms had largely resolved, although she was still noted to have some swelling and warmth around the right knee. The patient was ultimately diagnosed with serum sickness triggered by PRP injection. Given that her symptoms were dissipating, no medications were prescribed at that time. The patient reported that her symptoms resolved entirely a few days later.

### XRAY Images

**Figure 1.** AP view of the right knee demonstrates severe medial compartment osteoarthritis (red arrow)

**Figure 2.** Lateral view of the right knee demonstrates moderate patellofemoral osteoarthritis.

### Case Reports of Hypersensitivity Reactions Related to PRP Injections

<table>
<thead>
<tr>
<th>Type of Reaction</th>
<th>Injection Indication</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Type I</td>
<td>14-year-old boy with simple bone cyst on tibia.</td>
<td>He experienced skin rash, pharyngitis, tonsillar enlargement, and eyelid swelling within 24 hours of injection. Found to have allergy to the calcium citrate administered with the PRP. Treated with anti-histamines and discharged after 4 days.</td>
</tr>
<tr>
<td>Type III</td>
<td>41-year-old female with history of alopecia areata undergoing revitalization of face and neck (dermatologic procedure).</td>
<td>She developed erythematous wheals with arthralgia, fatigue, and fever 2 weeks after her third procedure. She also developed a new alopecia lesion during this time. Symptoms resolved with prednisone 60mg/day.</td>
</tr>
</tbody>
</table>

There are only two documented cases of hypersensitivity reactions to PRP in the literature. In the above case of the type III hypersensitivity reaction, the authors advised that PRP injection during active phase of autoimmune disease is contraindicated. Here, our patient had no identifiable prior triggers, yet experienced an adverse reaction to PRP. An outside physician diagnosed her with serum sickness based on her clinical symptoms. One hypothesis to consider is if erythrocyte shearing or blood extravasation from a difficult blood draw could lead to this adverse reaction. Although there are no studies done on PRP to corroborate this hypothesis, adverse reactions to autologous blood transfusions have been documented in the literature and perhaps can provide further insight. One retrospective review noted adverse reactions related to an antileukocyte antibody-mediated reaction and/or accumulation of pro-inflammatory cytokines.

### Conclusion

Given the rare but potential risk of hypersensitivity reactions to PRP injections, we should consider how and if it should change practice patterns. Documentation of these reactions and potential causes is necessary in order to obtain a more comprehensive risk profile of PRP.

### References

5. The patient underwent right intra-articular knee PRP injection with ultrasound guidance.

---

Stanford Medicine

Physical Medicine & Rehabilitation