

Reactive arthritis following tetanus and rabies vaccinations

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Reactive arthritis (ReA) is a spondyloarthropathy and is mostly triggered by an infectious agent. Vaccines, such as Bacillus Calmette–Guerin (BCG), may cause reactive arthritis. We report a 39-year-old woman who developed reactive arthritis after receiving tetanus and rabies vaccines.

Case report

A 39-year-old, previously healthy woman presented with articular complaints for the last 3 months. She had a history of untamed cat scratch nearly 3.5 months ago. Five doses of rabies (0, 3, 7, 14, and 30 days) and a single dose of tetanus vaccine were applied then. Twelve days after the first injection, she had oligoarthritis involving both ankles and right knee. The third finger on the left foot, swollen and painful, was consistent with dactylitis (sausage finger). She did not have inflammatory low back pain, ocular or neurological symptoms. Her symptoms did not respond well to nonsteroidal anti-inflammatory agents. On admission to hospital, the oligoarthritis was persisting and there was effusion in the right knee joint. Patient's global assessment for pain on visual analog scale (VAS) was

84 mm. The erythrocyte sedimentation rate (ESR) and C-reactive protein (CRP) were elevated (ESR: 79 mm/h, CRP: 9.23 mg/dl). Urine analyses were normal. Rheumatoid factor, anti-nuclear and anti-cyclic citrullinated peptide antibodies were negative and serum C3 and C4 complements were within normal ranges. Synovial fluid was inflammatory and cultures were negative. Posterior–anterior chest X-ray and sacroiliac joint graph in Ferguson position were normal. Chlamydia serology was negative in serum. HLA-B27 was positive.

According to the ACR classification criteria, the patient's clinical findings were consistent with reactive arthritis. In addition to systemic treatment including indomethacin (75 mg/day), methyl prednisolone (8 mg/day), enteric coated sulphasalazine (2 g/day), oral methotrexate (15 mg/weekly), folic acid (1 mg/day), and local steroid (triamcinolone) injection was also given into the right knee joint. After 6 months, laboratory and clinical parameters including arthritis and dactylitis improved. VAS was 0 mm, ESR 11 mm/h and CRP was negative and she is still under remission for 6 months.

Discussion

Vaccinations may cause or exacerbate various autoimmune diseases such as multiple sclerosis and systemic lupus erythematosus [1]. Some vaccinations may produce arthritis and there are a lot of reports about vaccines associated with arthritis. However, arthritis following vaccinations has different aspects. While hepatitis B vaccine may cause symmetrical polyarthritis; intravesical BCG treatment may cause asymmetrical oligoarthritis on the other hand.

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The pathogenetic mechanisms leading to arthritis following vaccination are not clear, yet. However, generally accepted hypothesis is that the vaccine acts as the triggering peripheral agent in the genetically susceptible host. *Bacillus Calmette–Guerin* (BCG) vaccine used for the treatment of bladder carcinoma is the best-known vaccine to cause reactive arthritis [2]. On the other hand, Kaul et al. [3] was the first group who reported a case with reactive arthritis after tetanus vaccine. Although our case was exposed to rabies and tetanus vaccines simultaneously, we think that she may be the second case with reactive arthritis after tetanus vaccine. Rabies vaccine may have some adverse effects mostly being neurologic symptoms [4]. To our knowledge, there are no reported cases with arthritis following rabies vaccination.

In conclusion, reactive arthritis may develop as a systemic complication in a susceptible host following tetanus and rabies vaccinations.

References

1. Shoenfeld Y, Aron-Maor A (2000) Vaccination and autoimmunity-‘Vaccinosis’: a dangerous liaison? *J Autoimmun* 14:1–10
2. Tinazzi E, Ficarra V, Simeoni S, Artibani W, Lunardi C (2006) Reactive arthritis following BCG immunotherapy for urinary bladder carcinoma: a systematic review. *Rheum Int* 26:481–488
3. Kaul A, Adler M, Alokaily F, Jawad ASM (2002) Recurrence of reactive arthritis after a booster dose of tetanus toxoid. *Ann Rheum Dis* 61:185
4. Piyasirisilp S, Hemachudha T (2002) Neurological adverse events associated with vaccination. *Curr Opin Neurol* 15:333–338