

# Intralesional Human Papillomavirus Vaccine Therapy for Recalcitrant Plantar Wart Triggers Gout Flare

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## PRACTICE POINTS

- Human papillomavirus (HPV) vaccines are increasingly used for recalcitrant warts.
- We describe an unreported adverse effect of gout flare following HPV vaccine treatment of plantar wart.

To the Editor:

There is increasing evidence supporting the use of the human papillomavirus (HPV) vaccine in the treatment of recalcitrant common warts.<sup>1</sup> We describe a potential complication associated with HPV vaccine treatment of warts that would be of interest to dermatologists.

A 70-year-old woman presented with a plantar wart measuring 6 mm in diameter at the base of the right hallux of 5 years' duration. Prior failed therapies for wart removal included multiple paring treatments, cryotherapy, and topical salicylic acid 40% to 60%. The patient had no notable comorbidities; no history of gout; and no known risk factors for gout, such as hypertension, renal insufficiency, diuretic use, obesity, family history, or trauma.

Prior reports cited effective treatment of recalcitrant warts with recombinant HPV vaccines, both intralesionally<sup>1</sup> and intramuscularly.<sup>2,3</sup> With this knowledge in mind, we administered an intralesional injection with 0.1-mL recombinant HPV 9-valent vaccine to the patient's plantar wart. Gradual erythema and swelling of the right first metatarsophalangeal joint developed over the next 7 days.

Synovial fluid analysis demonstrated negatively birefringent crystals. The patient commenced treatment with colchicine and indomethacin and improved over the next 5 days. The wart resolved 3 months later and required no further treatment.

Prophylactic quadrivalent HPV vaccines have shown efficacy in treating HPV-associated precancerous and cancerous lesions.<sup>4</sup> Case reports have suggested that HPV vaccines may be an effective treatment option for recalcitrant warts,<sup>1-3,5</sup> especially in cases that do not respond to traditional treatment. It is possible that the mechanism of wart treatment involves overlap in the antigenic epitopes of the HPV types targeted by the vaccine vs the HPV types responsible for causing warts.<sup>2</sup> Papillomaviruslike particles, based on the L1 capsid protein, can induce a specific CD8<sup>+</sup> activation signal, leading to a vaccine-induced cytotoxic T-cell response that targets the wart cells with HPV-like antigens.<sup>6</sup> The HPV vaccine contains aluminium, which has been shown to activate NLRP3 inflammasome,<sup>5</sup> which may trigger gout by increasing monosodium urate crystal deposition via IL-1 $\beta$  production.<sup>7</sup> This may lead to an increased risk for gout flares, an adverse effect of the HPV vaccine. This finding is supported by other studies of aluminium-containing vaccines that show an association with gout.<sup>6</sup> It is noted that these vaccines are mostly delivered intramuscularly or subcutaneously in some cases.

We reported a case of gout triggered by intralesional HPV vaccine treatment of warts. It is unclear whether the gout was induced by the vaccine itself or whether it

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The authors report no conflict of interest.

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was due to trauma caused by the intralesional injection near the joint space. Based on our findings, we recommend that patients receiving intralesional injections for wart treatment be advised of this potential adverse effect, especially if they have risk factors for gout or have a history of gout.

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