

Visual Diagnosis in Emergency Medicine

ARTHUS REACTION

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CASE REPORT

A 6-year-old boy presented to the emergency department (ED) with fever and skin rash (Figure 1) over his left thigh. He had just received a combination vaccine with diphtheria, tetanus, pertussis, and poliomyelitis (DTaP-IPV) on his left thigh 12 h prior to his visit to the ED. His vital signs were body temperature of 36.6°C, respiratory rate of 20 breaths/min, blood pressure of 104/83 mm Hg, and heart rate of 100 beats/min. The results of laboratory examinations showed a white blood cell count of 11,500/ μL , with neutrophils and eosinophils of 61.9% (reference value 45–70%) and 6.6% (reference value

0–4%), respectively, and a C-reactive protein level of 9.1 mg/L. Blood culture was collected but showed no bacterial growth. Physical examination showed an erythematous skin rash with swelling and severe pain over the vaccination site. Acetaminophen was given for pain relief and fever. Steroid (methylprednisolone 20 mg every 8 h) and an antihistamine (cyproheptadine 2 mg three times a day) were prescribed for suspected allergic reaction. After treatment, the fever subsided and the painful swelling and erythema over the left thigh resolved within 1 day. The diagnosis of Arthus reaction was made based on the typical clinical course and appearance of the rash.

DISCUSSION

Arthus reaction, a type III hypersensitivity reaction, is an acute response that develops a local vasculitis associated with deposition of immune complexes and activation of complement. This hypersensitivity reaction can occur at sites of injection after tetanus toxoid-containing or diphtheria toxoid-containing vaccines (1). In addition to vaccination, Arthus reaction can be caused by repeated insect stings. The clinical manifestations of Arthus reactions include severe pain, swelling, induration, edema, hemorrhage, and occasionally necrosis, mimicking the presentation of cellulitis. However, patients with arthus reaction usually develop symptoms and signs 4–12 h after vaccination in a previously sensitized person, while cellulitis may take days to develop. The characteristic clinical

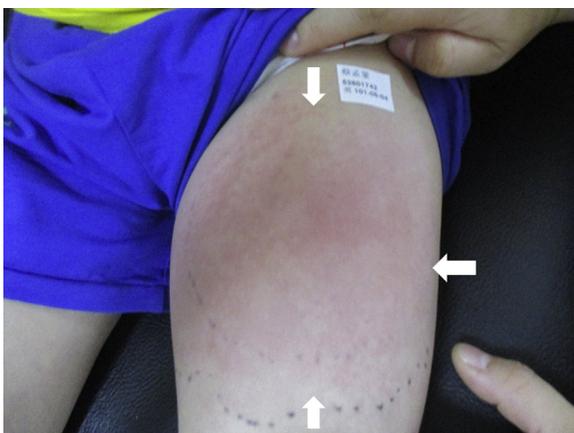


Figure 1. The skin rash with swelling on the left thigh.

history is the hint in diagnosing Arthus reaction (2). In this clinical condition, steroids and antihistamines can help alleviate the inflammatory response associated with presenting symptoms and signs. In conclusion, clinicians should keep Arthus reaction in mind when performing differential diagnoses of children after vaccination.

REFERENCES

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