Varicella arthritis in a child

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SUMMARY A 2½-year-old girl developed arthritis in a metatarsophalangeal joint concomitantly with varicella. As she recovered within 2 days without antimicrobial treatment, it was considered that the arthritis was directly due to the viral infection. The importance of differentiating viral arthritis from septic arthritis, a well-known complication of varicella, is stressed.

Arthritis is one of the rare complications of varicella and has been reported in only 10 children. In most of these children the joint involvement was of nonbacterial origin, although septic arthritis in chickenpox patients has also been described.¹⁻²

Case report

A 2½-year-old girl was referred with fever of one-day's duration, and the inability to bear weight on her left foot which had developed several hours earlier. On admission there were a few elements of papular rash on the trunk. Examination of the limbs showed a tenderness on the dorsal aspect of the left foot with some limitation of movement of the toes, but no other sign of inflammation. Rectal temperature was 39.2°C. On the next day a typical varicella eruption

appeared on the scalp, the buccal mucosa, the trunk, and extremities. The 2nd and 3rd metatarsophalangeal joints of the left foot were swollen, warm, and erythematous. The white blood count (WBC) was $7.4 \times 10^9/l$ with 59% polymorphs, 29% lymphocytes, and 12% mononuclear cells; erythrocyte sedimentation rate (ESR) was 28 mm/1st hour; x-ray of the foot and a ^{99m}Tc technetium pyrophosphate bone scan showed no lesion. Blood cultures proved sterile.

By the third day of the illness the local signs of arthritis had disappeared and the girl was able to stand and walk without limitations. The varicella eruption followed the usual course. At follow-up 3 months later no additional complications were noted.

Discussion

In the present case of chickenpox, arthritis was most probably related to the varicella virus infection. The very rapid recovery without antimicrobial treatment makes it unlikely that a bacterial agent was responsible for the joint involvement.

This case showed the same clinical findings and the usual benign course reported previously. However, some clinical features are remarkable: the early

Table Reported cases of arthritis associated with varicella

Authors	Age (years)	Sex	Joint affected	Interval between arthritis and eruption (days)	Duration of arthritis (days)	Fever	ESR mm/1st h	WBC ($\times 10^9/l$)
<i>Nonbacterial arthritis</i>								
Priest <i>et al.</i> ³	8	F	Knee (L)	3	4	No	27	4.2
Brook ⁴	6	F	Knee (R+L)	7	4	No	Normal	16.7
Brook ⁴	7	F	Knee (R)	7	5	No	Slightly raised	7.2
Ward and Bishop ⁵	5	F	Knee (L)	2	4	Yes	7	5.4
Sekanina and Frana (cited by Brook) ⁴	3½	M	Carpal (R+L) elbow (R+L)	5	15	Yes	?	
Di Liberti <i>et al.</i> ⁶	5	F	Ankle (R)	3	4	Yes	35	13.3
Mulhern <i>et al.</i> ⁷	10	M	Knee (R)	2	3	Yes	Not done	6.4
Friedman and Naveh ⁸	4	F	Knee, wrist, ankle (R+L), spine	5	6	Yes	25-107	10.5
Present case	2½	F	Metatarsophalangeal (L)	1	2	Yes	28	7.4
<i>Bacterial arthritis</i>								
Buck ¹	4	F	Hip (R)	7		Yes	Not done	14.25
Sethi and Schloff ²	1½	M	Ankle (L) acromioclavicular (L)	3 and 6		Not known	Raised	12.1 to 22.0

appearance of the articular signs concomitantly with the first elements of the varicella eruption, the involvement of the metatarsophalangeal joints (not previously reported), and the short duration of the symptoms. The Table gives data on the reported cases, including this one, and on 2 additional children with bacterial arthritis complicating varicella. It is interesting that 7 of the 9 children with viral arthritis were girls, including our patient. The age range was between 2½ years (our patient) and 10 years. In all of the earlier cases, large articulations were involved (6 of them in the knee joint). In 3 children smaller joints were also affected. Our patient was the only one in which *only* small articulations were affected. The joint symptoms appeared concomitantly or several days after appearance of the eruption. The duration of the articular involvement was between 2 and 15 days. Six of the 9 patients presented with fever. The ESR was normal in 2 children and slightly raised in 4. In only 3 cases was the WBC $>10 \cdot 0 \times 10^9/l$.

In most of the patients with chickenpox, the arthritis was probably due to a direct invasion by the varicella virus. The virus was recently isolated from the synovial fluid in one affected patient.³ Rarely was the arthritis the result of bacterial invasions; two such cases have been reported.¹⁻² In these patients the origin of the infection was via blood spread from infected varicella skin lesions.¹

As antimicrobial treatment is urgently indicated in all cases of pyogenic arthritis, it is important to differentiate between a bacterial and nonbacterial

process as quickly as possible. Although microscopical examination of synovial fluid aspirated from the affected joint and its culture is the only way to establish the diagnosis with certainty, arthrocentesis is not a completely harmless procedure and may be very difficult to accomplish in small joints, particularly in young children. As the inflammatory articular signs lasted for only 2 to 4 days in most of the cases reported, it seems reasonable that in patients in whom arthrocentesis may be a problem, this procedure should be postponed for 1 or 2 days.

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Cutaneous polyarteritis nodosa in a young child

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SUMMARY A 5½-year-old girl presented with an acute febrile illness associated with limb and facial swelling, and a skin eruption. She was diagnosed as suffering from cutaneous polyarteritis nodosa. She was told to stay in bed and was given soluble aspirin. Now, more than 3 years later, she is well and symptom-free. The important diagnostic feature of this benign condition, which is distinct from the systemic disease, is the presence of skin nodules showing the histology of a necrotising arteritis at the junction of dermis and subcutaneous tissue.

Polyarteritis nodosa, a rare disease at any age, can be benign and affect only the skin, or it may affect the skin, skeletal muscles, and peripheral nerves. Clinically, cutaneous polyarteritis nodosa presents as painful nodules generally on the lower part of the legs. These nodules are usually associated with livedo reticularis—a physical sign with many causes which signifies capillary and venular stasis in cooled skin, influenced by factors including obstruction or constriction of the small subcutaneous arteries. It is the nodulation rather than the livedo that is the hallmark of the cutaneous disease. In the systemic