Varicella arthritis in a child

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SUMMARY A 24-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 24-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 h; 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 |
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| **Authors** | **Age (years)** | **Sex** | **Joint affected** | **Interval between arthritis and eruption (days)** | **Duration of arthritis (days)** | **Fever** | **ESR mm/1st h** | **WBC ($\times 10^9/l$)** |
| **Nonbacterial arthritis** | 8 | F | Knee (L) | 3 | 4 | No | 27 | 4:2 |
| Priest et al. | 6 | F | Knee (R+L) | 7 | 4 | No | Normal | 16:7 |
| Brook | 7 | F | Knee (R) | 7 | 5 | No | Slightly raised | 7:2 |
| Ward and Bishop | 5 | F | Knee (L) | 2 | 4 | Yes | 7 | 5:4 |
| Sekanina and Frana | 3½ | M | Carpal (R+L) | 5 | 15 | Yes | 7 | |
| (cited by Brook) | 4½ | M | Elbow (R+L) | 5 | | | 7 | |
| Di Liberti et al. | 5 | F | Ankle (R) | 3 | 4 | Yes | 35 | 13:3 |
| Mulhern et al. | 10 | M | Knee (R) | 2 | 3 | Yes | Not done | 6:4 |
| Friedman and Naveh | 4 | F | Knee, wrist, ankle (R+L), spine | 6 | Yes | 25–107 | 10:5 |
| Present case | 2½ | F | Metatarsophalangeal (L) | 1 | 2 | Yes | 28 | 7:4 |
| **Bacterial arthritis** | 4 | F | Hip (R) | 7 | | Yes | Not done | 14:25 |
| Buck | 1½ | M | Ankle (L), acromioclavicular (L) | 3 and 6 | | Not known | Raised | 12:1 to 22:0 |

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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 >10·0 × 10⁹/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. Rarely
was the arthritis the result of bacterial invasions; two
such cases have been reported. In these patients
the origin of the infection was via blood spread from
infected varicella skin lesions.

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