

## Septic Elbow Post Chickenpox

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### Abstract

Septic arthritis post-chickenpox is a rare complication of varicella zoster infection in immunocompetent individuals. Most frequently, septic arthritis affects the knee and is caused by Staphylococcus or Streptococcus species. We present a case of septic arthritis of the elbow caused by Group A Streptococcus pyogenes. The patient needed surgical intervention along with IV Cefazolin. In conclusion, under any circumstances, early action is the key role to avoiding consequential deterioration.

### Introduction

Despite the benign course of varicella zoster in immunocompetent children, individuals infected may have a public health burden on the nation in aspects of morbidity, mortality, and hospitalization. The epidemiology of the disease has dramatically dropped after the introduction of the vaccine and the emphasis of the WHO on its introduction as part of the vaccination program all around the globe [1]. Nonetheless, its shortage in developing countries has made it inaccessible. Taking that into consideration, specific types of complications tend to vary by the age of the infected patient, with an increased propensity in invasive bacterial superinfection cases documented in children and adults [2].

Although complications attenuate with immunocompetent individuals, those below 5 years of age are exposed to bacterial superinfections [3]. This includes but is not limited to skin infection, neurological, respiratory, and disseminated infection.

Septic elbow in children poses a life-threatening infectious disease that is mostly caused by hematogenous bacterial spread [4]. Fortunately, the occurrence of this serious infectious disease is rare, where it reaches between 4 and 5 cases per 100,000 children per year for all bodies' large joints, such as the knee, ankle joints, and hip [4].

This paper will introduce such a complication in a 6-year-old boy from Palestine.

### Case description

A six-and-a-half-year-old girl was referred to the emergency room after complaining of left elbow pain and swelling with restricted mobility for two days, which was preceded by swelling, redness, and climbing in the left knee. Six days before the presentation, she had a fever, a diffuse vesicular skin rash, and an intermittent cough; she had contact with numerous instances at school; thus, the doctor diagnosed chickenpox, which she was treated for with lotion and antipyretics.

She had febrile neutropenia two years ago, and before that, she had a history of recurrent joint pain, and the investigations were free. In addition, she has a history of recurrent UTI and primary nocturia, both of which were treated with medicines. According to family history, her mother had fibromyalgia, and she experienced prolonged muscle and joint discomfort in childhood that cured on its own.

Clinically, her left elbow was swollen, with redness, tenderness, and pain that limited her range of motion. She also had a dry skin rash. In addition, her left limb had a tender, small swelling inferior to the patella. A blood test reveals an increase in the ESR (50 mm/hr), the white blood cell count (18 x 10<sup>9</sup>/l), and the absolute neutrophil count (ANC) (15).

The orthopedic team decided to do an operation due to the deterioration of the patient's general state; thus, under sterilized techniques, joint aspiration was done under general anesthesia for the left elbow, and the incision was made with further dissection and release of the proximal origins of the extensor muscles; thus, an arthrotomy was completed with Pus release and irrigation with copious fluid; finally, a drain was applied and closure by layers was done.

Fluid analysis revealed an increase in white blood cell count (100000), and a sample taken from the fluid revealed the development of Group A streptococci. Diagnosis of elbow septic arthritis was confirmed; accordingly, the patient was treated with cefazolin IV (620 mg) and showed complete recovery both clinically and in her routine blood tests.

### Discussion

Most varicella cases in healthy children are mild, self-limiting, and uncomplicated. [5] As a result, and despite the fact that early antiviral medication might shorten the length of illness, treatment of uncomplicated varicella in children is typically limited to symptomatic relief. [5]

Adults and Immunocompromised Children are more prone to severe infections than healthy children. Secondary bacterial skin infection with Staphylococcus or Streptococcus is the most frequent consequence of VZV in children. [6] In our case, the blood cultures were positive for Group A Streptococcus pyogenes.

Dissemination to other organs can happen because varicella infection commonly accompanies a viremia. [6] Superinfection manifests as a recurrence of fever along with or without localized signs of pneumonia, bone and joint infections, or cellulitis (infection of the skin and subcutaneous fat tissue). [5]

According to the English literature, two major articles have made tables collecting all reported cases from 1960 until 2015. They conclude that the median age of septic arthritis post-chickenpox is 3.5 years, with an early onset of joint involvement up to four to ten days post-chickenpox viral infection, and monoarthritis being the most common presentation, and the knee is the commonest location. [8,9]

In our patient, the age of presentation is 6 years, and the elbow is the affected joint. The onset of joint involvement was six days post-varicella viral skin infection, which is consistent with the literature.

In the literature, 3 articles have reported cases of elbow septic arthritis in association with varicella; two out of three articles reported the age of onset is 5-6 years, and Group A streptococcus is the organism mostly detected by blood cultures; in contrast, the third article reported the age of onset to be around three years, and blood cultures were positive for Staph aureus. [7,9,10]

The management of septic elbow arthritis relies on a combination of surgical intervention, antibiotic therapy, and joint immobilization. Immediate implementation of procedures like drainage, decompression, irrigation, and debridement stands as the fundamental surgical approach. [11] In terms of initial antibiotic treatment, commonly, a first-generation cephalosporin or penicillin is prescribed in order to cover the Gram-positive species, particularly against pathogens like staphylococcal or streptococcal species. In regions with a higher prevalence of MRSA (methicillin-resistant Staphylococcus aureus), vancomycin or clindamycin are used to cover this specific antimicrobial resistance. [12] Our patient had an arthrocentesis for her left elbow and was started on IV Cefazolin Later.

## Conclusion

Septic arthritis post-chickenpox is a rare complication; however, when there is a delay in diagnosis and without proper treatment, the outcomes can be quite devastating, with joint destruction. If diagnosed and treated promptly, the outcomes can be favorable. Our suggestion is to maintain a high index of suspicion regarding the potential occurrence of septic arthritis as a sequelae of Varicella infection in children, irrespective of their baseline health status. This aims to decrease the risks associated with this condition and enhance preventive strategies moving forward.

## References

1. Raja Lope RJ, Goldstein A, Gray J. (2004). Delayed disseminated Staphylococcus aureus infection following chickenpox. 40(5-6):320-321.
2. Review of 26 year's hospital admissions for chickenpox in North London. (1998). Journal of Infection. 1: 17-23.
3. Estimation of the burden of varicella in Europe before the introduction of universal childhood immunization. BMC Infectious Diseases.
4. Kaziz H, Triki MA, Mouelhi T, Bouattour K, Naouar N, Ben Ayeche ML. (2019). Septic elbow arthritis in children: Epidemiology and outcome. 26(1): 38-43.
5. Gershon AA, Breuer J, Cohen JI. (2015). Varicella zoster virus infection. 1:15016.
6. Blair R. (2019). Varicella Zoster Virus. 40(7): 375–377.
7. Konyves A, Deo SD, Murray J, Mandalia V, Von Arx OA, Troughton AH. (2004). Septic arthritis of the elbow after chickenpox. 13(2): 114-117.
8. Bevilacqua S, Poircuite J-M, Boyer L, May T, Lascombes P, Venard V. (2011). Varicella arthritis in childhood: a case report and review of the literature. 30(11): 980-982.
9. Bilir Göksügür S. (2015). A case report of septic arthritis following varicella. 9: 34–37.
10. Bradley TM, Dormans JP. (1997). Streptococcus pyogenes septic arthritis of the elbow complicating the chicken pox. 13(6): 380-381.
11. Brown DW, Sheffer BW. (2019). Pediatric Septic Arthritis: An Update. 50(4): 461-470.
12. Pääkkönen M, Peltola H. (2013). Treatment of acute septic arthritis. 32(6): 684-685.