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## Review Article

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## Varicella - Zoster virus

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### Abstract

Chickenpox (chicken pox), also known as varicella, is a highly contagious infection caused by the varicella zoster virus. Although uncomfortable, most people recover within 1-2 weeks. A few people can get chickenpox more than once, but this is rare.

**Keywords:** Introduction, Symptoms, Causes, Diagnosis, Risk factors, Complications, Prevention

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### Introduction

**Varicella-zoster virus** (VZV) causes chickenpox and herpes **zoster** (shingles). Chickenpox follows initial exposure to the **virus** and is typically a relatively mild, self-limited childhood illness with a characteristic exanthem, but can become disseminated in immunocompromised children. Chickenpox is highly contagious to people who haven't had the disease or been vaccinated against it. Today, a vaccine is available that protects children against chickenpox. Routine vaccination is recommended by the Centers for Disease Control and Prevention (CDC). The chickenpox vaccine is a safe, effective way to prevent chickenpox and its possible complications.

### Symptoms

Before the rash appears, there will be:  
a general feeling of being unwell (malaise)  
fever, which is usually worse in adults than children  
aching muscles  
loss of appetite

in some cases, a feeling of nausea  
After the rash appears, there will be:

Rash: Severity varies from a few spots to a rash that covers the whole body.

Spots: The spots develop in clusters and generally appear on the face, limbs, chest, and stomach. They tend to be small, red, and itchy.

Blisters: Blisters can develop on the top of the spots. These can become very itchy.

Clouding: Within about 48 hours, the blisters cloud over and start drying out. A crust develops.

Healing: Within about 10 days, the crusts fall off on their own.

During the whole cycle, new waves of spots can appear - in such cases, the patient might have different clusters of spots at varying stages of itchiness, dryness, and crustiness. A few people have more severe symptoms.

If the following occur, a doctor should be contacted:

- the skin around the spots or blisters becomes painful and red
- there are breathing difficulties

Most healthy individuals make a full recovery, as with a cold or flu, by resting and drinking plenty of fluids.

### Causes

Chickenpox infection is caused by a virus. It can spread through direct contact with the rash. It can also spread when a person with the chickenpox coughs or sneezes and you inhale the air droplets.

### Diagnosis

A doctor or nurse will know whether a child or adult has chickenpox just by looking and asking a few questions. No medical tests are required to aid in the diagnosis. On rare occasions, chickenpox may be confused with scabies or some types of insect bites.

### Risk factors

Risk of becoming infected with the varicella-zoster virus that causes chickenpox is higher if haven't already had chickenpox or if haven't had the chickenpox vaccine. It's especially important for people who work in child care or school settings to be vaccinated.

### Complications

Adults are more susceptible to complications than children, but even in adults, they are rare.

If the blisters become infected with bacteria, the risk of complications is greater.

Pregnant women, newborns, and infants up to 4 weeks old, as well as those with weakened immune systems, are more likely to experience complications.

If the skin around the spots and blisters becomes red and tender or sore, they may be infected. Some people with chickenpox can go on to develop pneumonia. Encephalitis: An inflammation of the brain may occur. Reye's syndrome: This rare but serious condition can occur when children and teenagers are recovering from a viral infection, including chickenpox. It causes the liver and brain to swell.

Most people who develop complications will make a full recovery. Chickenpox and pregnancy.

During pregnancy, there is a slightly higher risk of developing pneumonia with chickenpox.

There is also a danger of passing the infection on to the fetus.

If infection occurs during the first 20 weeks of pregnancy, there is a higher risk of fetal varicella syndrome, which can lead to scarring, eye problems, brain drainage, and shortened arms or legs.

If the infection happens later in pregnancy, the varicella may be transmitted directly to the fetus and the baby can be born with varicella.

### Chickenpox and a weakened immune system

The risks of catching chickenpox and developing complications are higher in a person with a weakened immune system.

- A weakened immune system can result if a person:
    - is taking certain medications
    - has cancer
    - is undergoing treatment such as radio- or chemotherapy
    - has a chronic condition, such as lupus or rheumatoid arthritis
- Complications from chickenpox may include meningitis, sepsis or septicemia, or pneumonia.

### Stages

Chickenpox develops in stages.

### Transmission

Chickenpox, colds, and flu spread in a similar way. People can be infected by touching the blisters directly or from breathing in particles of the virus from the blisters or from the air around someone who is infected.

Chickenpox is mostly transmitted by:

- direct contact with the blisters of someone who has the varicella zoster virus
- breathing in the virus particles from someone's blisters
- breathing in small particles from the mouth of someone talking or coughing

Varicella has an incubation period of between 10 and 21 days. In other words, the rash will appear from 10 to 21 days after exposure to the virus.

### The rash

An infected person is contagious about 2 days before the rash appears. The rash can involve 250 to 500 itchy blisters.

Chickenpox continues to be contagious for another 5 to 7 days, or until all of the blisters have become scabs.

When all the lesions have crusted over, those infected can no longer pass it on to others, but individuals with weakened immune systems may be contagious for longer.

In most cases, the pox marks heal without scarring.

### Chickenpox and shingles

If you had chickenpox, at risk of a complication called shingles. The varicella-zoster virus remains in your nerve cells after the skin infection has healed. Many years later, the virus can reactivate and resurface as shingles — a painful cluster of short-lived blisters. The virus is more likely to reappear in older adults and people who have weakened immune systems.

The pain of shingles can persist long after the blisters disappear. This is called postherpetic neuralgia and can be severe.

Two shingles vaccines (Zostavax and Shingrix) are available for adults who have had chickenpox. Shingrix is approved and recommended for people age 50 and older, including those who've previously received Zostavax. Zostavax isn't recommended until age 60. Shingrix is preferred over Zostavax.

### Prevention

The chickenpox (varicella) vaccine is the best way to prevent chickenpox. Experts from the Centers for Disease Control and Prevention (CDC) estimate that the vaccine provides complete protection from the virus for nearly 98 percent of people who receive both of the recommended doses. When the vaccine doesn't provide complete protection, it significantly lessens the severity of chickenpox.

The chickenpox vaccine (Varivax) is recommended for:

- **Young children.** In the United States, children receive two doses of the varicella vaccine — the first between ages 12 and 15 months and the second between ages 4 and 6 years — as part of the routine childhood vaccination schedule.

The vaccine can be combined with the measles, mumps and rubella vaccine, but for some children between the ages of 12 and 23 months, the combination may increase the risk of fever and seizure from the vaccine. Discuss the pros and cons of combining the vaccines with your child's doctor.

- **Unvaccinated older children.** Children ages 7 to 12 years who haven't been vaccinated should receive two catch-up doses of the varicella vaccine, given at least three months apart. Children age 13 or older who haven't been vaccinated should also receive two catch-up doses of the vaccine, given at least four weeks apart.

- **Unvaccinated adults who've never had chickenpox and are at high risk of exposure.** This includes health care workers, teachers, child care employees, international travelers, military personnel, adults who live with young children and all women of childbearing age.

Adults who've never had chickenpox or been vaccinated usually receive two doses of the vaccine, four to eight weeks apart. If you don't remember whether you've had chickenpox or the vaccine, a blood test can determine your immunity.

The chickenpox vaccine isn't approved for:

- Pregnant women
- People who have weakened immune systems, such as those who are infected with HIV, or people who are taking immune-suppressing medications
- People who are allergic to gelatin or the antibiotic neomycin

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### Conflict of interest

The authors declare no conflict of interest.

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### References

- Ashikujaman Syed. (2018). Chikungunya Virus: An Infectious Disease. *Int. J. Curr. Res. Biol. Med.* 3(10): 20-30. DOI: <http://dx.doi.org/10.22192/ijcrbm.2018.03.10.003>
- Jadad AR, Haynes RB. The Cochrane Collaboration: advances and challenges in improving evidence-based decision making. *Med Decis Making.* 1998;279:611-614.
- Ashikujaman Syed. (2018). Mixed Connective Tissue Disease (MCTD) in the World. *Int. J. Curr. Res. Biol. Med.* 3(10): 48-54. DOI: <http://dx.doi.org/10.22192/ijcrbm.2018.03.10.006>
- Egger M, Davey Smith G, Schneider M, Minder C. Bias in meta-analysis detected by a simple, graphical test. *BMJ.* 1997;315:629-634.
- Ashikujaman Syed. (2019). Up Dated Concepts of Cirrhosis. *Int. J. Adv. Res. Biol. Sci.* 6(3): 7-10. DOI: <http://dx.doi.org/10.22192/ijarbs.2019.06.03.002>
- Jadad AR, McQuay HJ. Meta-analyses to evaluate analgesic interventions: a systematic qualitative review of their methodology. *J Clin Epidemiol.* 1996;49:235-243.
- Ashikujaman Syed. (2018). Nipah Virus outbreak in the World. *Int. J. Adv. Res. Biol. Sci.* 5(9): 131-138. DOI: <http://dx.doi.org/10.22192/ijarbs.2018.05.09.013>
- Assendelft WJJ, Koes BW, Knipschild PG, Bouter LM. The relationship between methodological quality and conclusions in reviews of spinal manipulation. *JAMA.* 1995;274:1942-1948.
- Ashikujaman Syed. (2019). Ebola Virus Disease. *Int. J. Curr. Res. Med. Sci.* 5(3): 18-23. DOI: <http://dx.doi.org/10.22192/ijcrms.2019.05.03.004>
- Sacks HS, Reitman D, Pagano D, Kupelnick B. Meta-analysis: an update. *Mt Sinai J Med.* 1996;63:216-224.
- Ashikujaman Syed. (2019). 'Snake Bites Problem in over the world'. *Int. J. Curr. Res. Med. Sci.* 5(2): 16-19. DOI: <http://dx.doi.org/10.22192/ijcrms.2019.05.02.003>
- Berlin JA for the University of Pennsylvania Meta-analysis Blinding Study Group. Does blinding of readers affect the results of meta-analyses? *Lancet.* 1997;350:185-186.
- Ashikujaman Syed. (2019). 'A review of Filariasis'. *Int. J. Curr. Res. Med. Sci.* 5(2): 26-30. DOI: <http://dx.doi.org/10.22192/ijcrms.2019.05.02.005>
- Ashikujaman Syed. (2018). Jaundice it is not a disease, it is a symptom of several possible underlying illnesses. *Int. J. Curr. Res. Med. Sci.* 4(11): 16-26. DOI: <http://dx.doi.org/10.22192/ijcrms.2018.04.11.002>
- Ashikujaman Syed. (2018). Alzheimer Disease Research. *Int. J. Curr. Res. Med. Sci.* 4(11): 40-46. DOI: <http://dx.doi.org/10.22192/ijcrms.2018.04.11.006>
- Ashikujaman Syed, Saptarshi Panigrahi, Somnath Surai. (2019). 'Body Check up in Diabetes Patients'. *Int. J. Curr. Res. Biol. Med.* 4(3): 5-22. DOI: <http://dx.doi.org/10.22192/ijcrbm.2019.04.03.002>
- Md Rashedul Islam Rashed, Ashikujaman Syed, Md AlSabah, Mia Md Momin. (2018). Review of diabetes types and Care. *Int. J. Curr. Res. Med. Sci.* 4(11): 27-32. DOI: <http://dx.doi.org/10.22192/ijcrms.2018.04.11.003>
- Herpes zoster: Risk and prevention during immunomodulating therapy. Tran CT, Ducancelle A, Masson C, Lunel-Fabiani F. *Joint Bone Spine.* 2017 Jan;84(1):21-27. doi: 10.1016/j.jbspin.2016.04.001. Epub 2016 May 28.
- Serious infection during etanercept, infliximab and adalimumab therapy for rheumatoid arthritis: A literature review. Downey C. *Int J Rheum Dis.* 2016 Jun;19(6):536-50. doi: 10.1111/1756-185X.12659. Epub 2015 Jul 22.
- Varicella zoster virus encephalopathy in a patient with psoriatic arthritis treated with anti-TNF agents. Miyagi T, Yamaguchi S, Yamamoto Y, Ohira A, Yasumura R, Nakasone N, Uezato H, Takahashi K. *Eur J Dermatol.* 2014 May-Jun; 24(3):398-9. doi: 10.1684/ejd.2014.2331. No abstract available.
- Clinical use of anti-TNF therapy and increased risk of infections. Ali T, Kaitha S, Mahmood S, Ftesi A, Stone J, Bronze MS. *Drug Healthc Patient Saf.* 2013;5:79-99. doi: 10.2147/DHPS.S28801. Epub 2013 Mar 28.

22. Varicella zoster virus encephalitis during treatment with anti-tumor necrosis factor-alpha agent in a psoriatic arthritis patient. Buccoliero G, Lonerio G, Romanelli C, Loperfido P, Resta F. *New Microbiol.* 2010 Jul;33(3):271-4.
23. Infectious complications associated with immunomodulating biologic agents. Koo S, Marty FM, Baden LR. *Infect Dis Clin North Am.* 2010 Jun;24(2):285-306. doi: 10.1016/j.idc.2010.01.006.
24. Heininger U, Seward JF. *Lancet.* 2006 Oct 14;368(9544):1365-76. Review. Erratum in: *Lancet.* 2007 Feb 17;369(9561):558.
26. Second varicella infections: are they more common than previously thought?
25. Hall S, Maupin T, Seward J, Jumaan AO, Peterson C, Goldman G, Mascola L, Wharton M. *Pediatrics.* 2002 Jun;109(6):1068-73.

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