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Editorial

CHICKENPOX (VARICELLA)

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Many people are familiar with chickenpox as a childhood illness, feeling itchy and uncomfortable with red spots all over the body. In recent times, Nepal witnessed a few sporadic cases and outbreaks. The largest epidemiological outbreak of chickenpox was reported in Baidauli VDC of Nawalparasi, Nepal in 2015 with 55 cases.¹ There was chickenpox outbreak among male military personnel in a military training centre, Shree Mahabir Ranger Regiment Training School, situated in Nagarkot, and those admitted to Shree Birendra Hospital (SBH), a tertiary care hospital of Nepal Army, from the same training school. The first case (index case) was reported to Shree Birendra Hospital on February 5, 2020.² In April 2018, according to Sukraraj Tropical and Infectious Disease Hospital cases of chickenpox were increasing in Kathmandu valley; three to four patients suffering from chickenpox visited the hospital daily. More than 40 people from Bhairabpur in Lalbandi Municipality-3, Sarlahi, suffered from chickenpox in 2019 and majority of them were women and children.³ An epidemic of chickenpox has broken out at Kokhe, a village in Ward No. 12 of Waling Municipality in Tanahun district, 23 children have been found infected in June 2023, reported by health section of Waling Municipality.

Varicella zoster virus (VZV) identical to herpes simplex virus (HSV) produces vesicular eruptions (rashes) on the skin and mucus membranes in the form of two different clinical manifestations: Chickenpox or varicella and herpes zoster/zoster or shingles. Contact with either chicken pox or zoster patient may lead only to chicken pox, but not zoster. Thus, chicken pox is caught but not zoster.⁴

Chickenpox or varicella is an acute, highly contagious disease characterized by generalized, diffuse bilateral vesicular skin rashes that form small itchy blisters which scab over following primary infection, in non-immune hosts, usually affecting children. The disease spreads by air-borne droplets and sometimes by contact with skin eruptions. The route of infection is the mucosa of the upper respiratory tract or the conjunctiva, followed by spread to the regional lymph nodes. After an incubation period of about 2 weeks (7-23 days), the lesions begin to appear. Fever, malaise, headache are the earliest symptoms, soon followed by the eruption (rash) on skin and mucosa, centripetal in distribution, affecting first on the trunk and then on the face and spreads to the extremities, and buccal and pharyngeal mucosa in the mouth, sparing distal parts of limbs. Rash progresses through macule,

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papule, vesicle (blister), pustule and scab. The lesions of chickenpox are initially vesicles, which become pustular, crusted and then scabbed prior to healing. Lesions are superficial, does not involve deep layers of skin resembling dew-drop lying on skin. Rashes appear in multiple crops, so that all stages of the eruption can be seen at the same time on same patient. Healing occurs without scarring. Differential diagnosis includes impetigo, small pox, drug eruptions, insect bites, and dermatitis herpetiformis. Complications include varicella pneumonia, fulminant hepatic failure, encephalitis, and bacterial skin infections.⁴

The disease is more severe in adults, pregnant women, newborn babies and immunocompromised individuals (AIDS cases, organ or bone marrow transplant recipients) than in children. The patient is considered to be infectious 2 days before and 5 days after the onset of lesions. Complications are rare in normal children. When varicella occurs in adults, systemic symptoms may be severe. The rash is very profuse and overall the disease is much more intense than in children. It may become hemorrhagic; occasionally bullous lesions appear. Varicella pneumonia is more common in adults, and often fatal in the elderly. Other complications like myocarditis, nephritis, acute cerebellar ataxia, meningitis, and encephalitis may ensue. Secondary bacterial infections, usually due to staphylococci or streptococci may occur, and can present as cellulitis, impetigo or erysipelas. Reye's syndrome may follow chickenpox in some cases with a history of administration of salicylates.⁵

Chicken pox in pregnancy can spread vertically via the placenta and infect the fetus, and can be dangerous for both the mother and baby. Infection of the fetus during the first 20 weeks of pregnancy can cause fetal death or congenital varicella syndrome, manifesting as cicatrizing skin lesions, hypoplasia of the limbs (underdeveloped toes and fingers), structural eye damage (chorioretinitis), neurological disorder (CNS defects), and anal and bladder malformation. Some babies may not exhibit any defects (asymptomatic), but may carry latent VZV infection. If the fetus is infected in utero during the second 20 weeks, the infant can develop subsequent herpes zoster infection in

early life without having obvious chickenpox previously.^{4,6}

If maternal infection occurs 7 days before delivery and up to 8 days following birth, the baby may develop **neonatal varicella** within 2 weeks of birth, with presentation ranging from mild rash to disseminated infection, and are at a high risk of pneumonia and other serious complications. If the mother's rash begins a week or more before delivery, she develops antibodies which are passed, along with the virus, to the fetus transplacentally. Such a baby, though infected, usually escapes clinical disease. If the mother develops chickenpox shortly before (less than a week) or within 2 days of delivery, the baby receives from the mother only the virus and not the antibody, and hence develops neonatal varicella. This is usually a serious, disseminated disease with a high risk of pneumonia and encephalitis. Such babies are given varicella-zoster immune globulin (VZIG) and chemotherapy immediately after birth.^{4,6}

While varicella is typically a disease of childhood, **herpes zoster/ shingles** (from herpein, meaning to creep and zoster, meaning girdle) is one of old age, being common after the age of 50 years or immunocompromised persons. The disease may, however, occur at any age. Following primary infection, the virus remains latent in neural ganglia and in about 10-20% of cases it is reactivated to cause herpes zoster, or shingles, generally in persons over 50 years of age or immunocompromised individuals. The virus, which remains latent in the sensory ganglia, may be reactivated, and travels along the sensory nerve to produce zoster lesions on the area of the skin or mucosa supplied by the nerve. The likelihood of reactivation increases with age and depressed CMI, probably due to depletion of VZV-specific cytotoxic T cells. E.g. AIDS, high dose of corticosteroids, congenital T lymphocyte deficiencies or combined immunodeficiency, children with chronic cutaneous or pulmonary disorders, and in children with long term salicylate treatment. This reactivation is associated with inflammation of the nerve, which accounts for the neuritic tingling pain may occasionally result in permanent damage to the nerves or visual impairment. Within a few days after onset, a crop of vesicles appears over the

dermatome supplied by the affected nerves. For this reason, rashes are typically unilateral, segmented, confined to skin innervated by a single sensory ganglion. The most commonly affected sites are the areas innervated by spinal cord segments D3 to L2 and the trigeminal nerve, particularly its ophthalmic branch. The rash heals in about 2 weeks. Pain and paraesthesia at the affected area may persist for weeks or months. Other complications are lower motor neuron paralysis-which sometimes ensues-meningoencephalitis and generalized zoster, where the lesions are scattered widely, perhaps due to the haematogenous dissemination of the virus. Herpes zoster ophthalmicus is a common and troublesome presentation. The Ramsay hunt syndrome is a rare form of zoster affecting the facial nerve, with an eruption on the tympanic membrane and the external auditory canal, and often, facial palsy. Chronic or recurrent zoster is often seen in the HIV-infected.^{5,7}

A lyophilized form of the live attenuated **varicella vaccine** is now available. All children should routinely receive the first dose of varicella vaccine (live attenuated Oka strain of VZV) at 12-15 months of age. The second dose of the vaccine is recommended at 4-6 years of age. It is safe and

effective. The vaccine is not considered safe in pregnancy.⁶

Treatment with antiviral drugs acyclovir, valacyclovir, vidarabine are indicated in adults, immunodeficient, and pregnant women, as this group is more prone to complications, and can be started within one to two days of the onset of the rash. The preferred treatment is oral therapy, but for immunocompromised patients, intravenous antivirals are indicated. Varicella-zoster immune globulin (VZIG) is used to manage immunocompromised patients. Supportive care such as increasing water intake and use of antipyretics and antihistamines are an important part of the management. Corticosteroids are contraindicated in varicella as they enhance the risk of pneumonia and disseminated disease. Ibuprofen should not be used for fever control with chicken pox due to the established risk of developing necrotising fasciitis.^{6,7}

Health care workers, community people, school administrators must be provided with health education and awareness about recognizing patients with mild symptoms. Varicella vaccine must be made available in every part of Nepal to prevent the disease.

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