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1. Kerala man infected with rare bacterial disease: What to know about murine typhus

Introduction

A 75-year-old man from Kerala who recently travelled to Vietnam and Cambodia was recently diagnosed with the bacterial disease murine typhus.

After completing his trip, the patient sought medical attention on September 8, complaining of body pain and fatigue. Tests for rat-induced and flea-borne diseases were inconclusive, although it was found that his liver and kidney functions were deteriorating.

After considering his travel history, the doctors suspected his ailment to be a case of murine typhus. This marks the first case of the rare disease reported in the state.



What is murine typhus?

Murine typhus is an infectious disease caused by the flea-borne bacteria *Rickettsia typhi*. It is transmitted to humans through the bites of infected fleas. The disease is also known as endemic typhus, flea-borne typhus or flea-borne spotted fever. Rodents like rats, mice and mongoose, are known to be reservoirs of the disease.

The disease-carrying fleas can also live on other small mammals, including pets such as cats and dogs. Once a flea is infected, it can spread the disease for the rest of its life.

How does murine typhus spread?

The disease is spread when infected flea faeces come into contact with cuts or scrapes in the skin. Transmission can also happen through exposure of mucous membranes to infected flea faeces. Murine typhus is not spread from one person to another, or from person to fleas.

The disease has been reported in coastal tropical and subtropical regions, where rats are prevalent. In India, cases of murine typhus have been reported in the Northeast, Madhya Pradesh and Kashmir.

What are the symptoms of murine typhus?

The symptoms usually appear seven to 14 days after the exposure and include fever, headaches, body aches, joint pains, nausea, vomiting, and stomach aches. Some people may later develop rashes on the skin, days after the initial symptoms. The illness seldom lasts longer than two weeks, but may last for months with complications if not treated.

In the case of the Kerala patient, Next Generation Sequencing (NGS) technology, which uses microbial DNA, was used to identify the diagnosis. Further tests were conducted in CMC Vellore for confirmation.

What is the treatment for murine typhus?

There is no vaccine currently available against the disease. The antibiotic doxycycline is considered effective in therapy, but early diagnosis is vital for treatment. Without timely treatment, the disease could turn severe in one or two weeks, and become fatal in rare cases.

How can one prevent themselves from murine typhus?

Households with pets should ensure that fleas are kept off them, through regular washing and awareness about the signs of fleas. A flea treatment should be done if needed.

Rodents should be kept away from households and kitchens in particular, with food items properly covered.

Relevance: GS Prelims & Mains Paper III; Science & Technology

Source: Indian Express

2. Han Kang Wins 2024 Nobel Prize in Literature

Introduction

South Korean author Han Kang won the 2024 Nobel Prize in literature, marking a significant achievement for Korean literature on the global stage. Though not among the favorites, her win aligns with a broader global recognition of South Korean culture. Han's international breakthrough came in 2016 when she won the Man Booker International Prize for her novel *The Vegetarian*. Since then, her literary success has continued with several prestigious European awards.



South Korean author Han Kang wins 2024 Nobel Prize in Literature

The 2024 Nobel Prize in Literature is awarded to the South Korean author Han Kang "for her intense poetic prose that confronts historical traumas and exposes the fragility of human life."

Rising Popularity of Korean Authors

Alongside Han Kang, other South Korean authors have made a strong impact internationally. For example:

- **Bora Chung:** Her collection *Cursed Bunny* was shortlisted for the 2022 International Booker Prize.
- **Kim Young-ha:** Won the Deutscher Krimi Preis in 2020 for *Diary of a Murderer*.
- **Cho Nam-joo:** Gained widespread recognition for *Kim Ji-young, Born 1982*, which has been translated into over 18 languages.

South Korean Pop Culture's Global Influence

While Korean literature is gaining recognition, South Korea's most visible

cultural exports are in music, films, and TV series. The global success of Netflix's *Squid Game*, K-pop groups like BTS and Blackpink, and Bong Joon-ho's Oscar-winning *Parasite* have brought Korean pop culture to the forefront in the West.

The Spread of the Korean Wave ("Hallyu")

The term Hallyu, or "Korean Wave," was coined in the mid-1990s to describe the growing popularity of South Korean culture. It first gained traction in East and Southeast Asia before spreading globally. By 2008, South Korea's cultural exports exceeded the economic value of its imports, signaling the international demand for Korean entertainment.

A Breakthrough Moment with "Gangnam Style"

The global breakthrough for South Korean music came in 2012 with Psy's viral hit "Gangnam Style," which amassed over a billion views on YouTube. Psy's success demonstrated that language was no longer a barrier for global recognition of K-pop.

Social Media and K-pop's Rise

Social media platforms like YouTube played a crucial role in the rise of K-pop. Fans could directly engage with their favorite artists online, fostering a sense of connection and community. The polished production quality of K-pop music and videos, combined with the relatable yet fresh appeal, made it highly attractive to global audiences.

Social Commentary in South Korean Media

South Korean TV shows and films often carry deep social messages. For instance, *Squid Game* explores themes like poverty and social inequality, which resonate universally. Similarly, *Parasite* offers a critique of economic disparity, depicting the harsh realities of life in modern South Korea.

Han Kang's Exploration of Violence and Oppression

Han Kang's novels delve into the complexities of human violence and oppression. In *The Vegetarian*, the protagonist resists patriarchal oppression through an extreme transformation. Her novel *Human Acts* reflects on the brutal history of the 1980 Gwangju Uprising. Han views her writing as a form of resistance to violence, aiming to question human nature and societal injustices.

Conclusion

Han Kang's Nobel Prize win is a testament to South Korea's growing influence in global culture. Whether through literature, music, or film, South Korean creators are leaving an indelible mark on the world.

Relevance: GS Prelims; International Organisations

Source: Indian Express

3. What are 'dragon drones', the latest weapon being used in Russia-Ukraine war?

Introduction

A deadly new weapon has taken to the skies in the Russia-Ukraine war. Both sides have posted visuals of drones appearing to rain down fire — earning this weapon the moniker of "dragon drone".

What these drones are spewing, however, is a molten metal that burns at 2,427 degrees Celsius.



What are 'dragon drones'?

Dragon drones essentially release a substance called thermite — a mixture of aluminium and iron oxide — developed a century ago to weld railroad tracks.

When ignited (usually with the help of an electrical fuse), thermite triggers a self-sustaining reaction that is quite difficult to extinguish. It can burn through almost anything, from clothes to trees to military-grade vehicles, and can even burn underwater. On humans, it causes severe, possibly fatal, burns and bone damage.

Combining thermite with high-precision drones that can bypass traditional defences makes dragon drones 'highly effective' and 'dangerous'. Dragon drones are believed to have been first deployed in the Russia-Ukraine war around September. Ukrainian forces used them to "ignite the vegetation that Russian troops use for cover and burn it out,

exposing them and their equipment to direct attack." Soon, the Russians too began to produce and deploy their dragon drones.

Has thermite been used in weapons before?

Yes. Thermite was used in both world wars. During World War I, German zeppelins dropped thermite-laden bombs which were considered an innovation at the time.

By World War II, thermite-laden high incendiary explosives became a part and parcel of both the Allies and Axis forces' aerial bombing campaigns. According to some estimates, the Allies dropped some 30 million 4-pound thermite bombs on Germany and another 10 million on Japan during World War II. Thermite hand grenades were also used during the war to disable artillery pieces, without an explosion.

In modern conflict, thermite is most often used by espionage agents, or special operations teams due to its ability to burn intensely but without a bang.

Is it legal to use thermite in weapons?

The use of thermite in war is not prohibited under international law. However, the use of such incendiary weapons against civilian targets is barred under the Convention on Certain Conventional Weapons — Cold War-era guidance issued under the auspices of the United Nations.

The problem with thermite is that it is rather indiscriminate. Therefore, while it is not banned per se, Protocol III of the Convention on Certain Conventional Weapons actually limits its use to strictly military targets, given the fact that this munition can produce severe burns and respiratory injuries."

Relevance: GS Prelims & Mains Paper II; International Relations

Source: Indian Express

4. Why SpaceX 'catching' Starship booster with robotic arms is significant

Introduction

A pair of giant robotic arms caught the more than 70-metre-long first stage booster of SpaceX's Starship recently, bringing Elon Musk's company a step closer to its goal of building a fully and rapidly reusable rocket system.



What is Starship?

Starship is a two-stage heavy lift vehicle comprising a booster (called Super Heavy), and an upper section (the Starship spacecraft).

Together, the rocket system is nearly 120 metres tall, making it the largest rocket ever — taller than even the Saturn V (111 metres), which

took Neil Armstrong to the Moon. For perspective, the Qutab Minar is 72.5 m tall, roughly the length of the first stage booster that was caught recently.

Starship is designed to carry crew or/ and cargo to Earth orbit, the Moon, Mars, and beyond, and once fully operational, can revolutionise space travel.

What was the mission?

The rocket system lifted off from Starbase in Boca Chica, Texas at 7.25 am local time on Sunday with the help of Super Heavy's 33 methane-burning Raptor engines. This was the rocket system's fifth test launch.

Three minutes and 40 seconds after the launch, the booster detached from Starship, flipped, and restarted 13 Raptors to return towards the Texas coast. Rather than splashing down in the ocean (as is generally the case with first stage boosters), SpaceX wanted to land Super Heavy safely at the launch site.

The booster slowed down from its speeds of more than 27,350 km/hr, descending at an angle, before straightening as it approached the gantry (the structure supporting a rocket before its launch). The gantry's arms, which have been given the moniker of "Mechazilla", literally caught the descending booster, which then switched off its engines.

Meanwhile, the Starship spacecraft continued to head to space, powered by its six Raptors. It completed one revolution around Earth, before carrying out a controlled, on-target splashdown in the Indian Ocean.

Why was this mission significant?

Most rocket systems are expendable, meaning they can be used only once. This makes rocket launches quite costly and time-consuming. For decades, engineers have attempted to devise reusable space vehicles — but with limited success.

SpaceX is the latest space organisation to want to transcend the limitations of expendable rocket systems, by creating a system that is fully and rapidly reusable. Catching the Super Heavy is a milestone to this end. In future, the company hopes it will be able to rapidly stack a Starship spacecraft back on top of the landed booster, allowing the rocket to launch again, almost immediately.

In an interview to YouTube channel Everyday Astronaut, Musk said that his vision is that Mechazilla will one day be able to turn around and set a rocket back on the launchpad, perhaps as little as 30 minutes after touchdown.

Notably, over the years, SpaceX has mastered the process of landing its smaller workhouse rocket, the Falcon 9. That process, however, is very different, with the booster landing on specially-built platforms using landing legs strapped to its side, rather than being caught in mid-air.

Why is Starship important for the future of space travel and exploration?

Starship is a key part of SpaceX's plans to send astronauts or/and cargo to celestial bodies. The company wants to use the Starship HLS (Human Landing System) to take NASA astronauts back to the moon by 2026 as a part of the Artemis III mission. SpaceX has received government

contracts worth up to around \$4 billion to complete the task, according to a report by CNN. Eventually, SpaceX hopes that Starship will put the first humans on Mars.

However, before executing these ambitious plans, the company needs to prove that Starship is safe and reliable, while keeping costs low. Historically, this has been a daunting task for space flight programmes.

For instance, while NASA's Space Shuttle programme (which ended in 2011) comprised partially reusable space vehicles, the cost of maintaining and refurbishing space shuttles turned out to be far greater than that of launching expendable rockets.

Relevance: GS Prelims & Mains Paper III; Science & Technology

Source: Indian Express

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