

Special sponge saving 'bleeding' soldiers on border

TNN | Oct 7, 2016, 05.43 AM IST



BENGALURU: A specially designed live-saving sponge has been to the rescue of 'bleeding' Indian Army soldiers in J&K. Axiostat, a patented innovation by a 31-year-old, can stop bleeding in quick 3-4 minutes and holds blood flow for 48 hours, giving enough time for relocation of jawans to the base camp or a hospital.

The sponge, which has been very effective, is being used by the Army for the past three years. It was also used during the 2014 Russia-Ukraine conflict, earning its inventor and patent holder Leo Sebastian Mavelly accolades.

Axiostat uses chitosan, a naturally occurring (636) polymer found in Shellfish which stops profuse bleeding in just a few minutes even in case of a bullet wound or blast injury, and can keep that way for almost two days. Chitosan, said Mavelly "has an amazing binding quality and it acts as a seal when put in contact with blood".

The live-saving sponge is manufactured in Ahmedabad by Mavelly's firm Axio Biosolutions Private Limited, which started as an incubator in 2008. The firm has its R&D centre in Bengaluru.

The Indian armed forces, which were earlier dependent on an expensive US Army product costing Rs 12,000 per pack, now relies on the indigenous sponge that costs almost 1/5th - Rs 2,500 per pack. The Army's Northern Command, Border Security Force (BSF) and Armed Forces Medical Services Depot are some of Mavelly's top clients.

How the Sponge Works

Chitosan has a lot of positive charge and human blood (because of the RBC and platelets) has a lot of negative charge. So, when the sponge comes in contact with blood it forms a seal (like a strong adhesive), stopping blood from flowing out.

"The sponge is completely sterile with military-grade packaging. Once the seal is formed it holds on for two days," said Mavelly, who belongs to Irinjalakuda in Kerala.

The best part, Mavelly said, was that the sponge didn't produce any heat like the US product. "It can also be easily removed by irrigating with saline water as it doesn't harden," the 31-year-old added.

The sponge comes in three sizes: 5cmX5cm (small), 8cmX5cm (medium) and 8cmX8cm (military use). The military use sponge also comes in camouflage packaging.

Supplies 1,000-1,500 packs per month

Axio has been supplying at least 1,000 packs per month to the armed forces, including paramilitary forces like NSG, CRPF, besides military hospitals. "The supply has gone up in the last few weeks," said Mavelly, adding that the BSF is its largest customer. "I have supplied 25,000 packs in the past three years," he said.

Axio, which also caters to the UK's ambulance service, supplied 5,000 sponge packs during the Russia-Ukraine conflict. "We are also in talks with the UK military," Mavelly said, adding that some of India's premier hospitals, including AIIMS, also use the sponge from traumatic injuries.

The Magical Sponge (For Graphic)

2008: Axio starts as an incubator with support from Dept of Science & Tech

2010: Gets patent for Axiostat

2011: Nod for use in India; begins supply to hospitals

2013: Gets CE approval (European Conformity)

2014: Supplies 5,000 packs to Ukraine; bags order by Indian armed forces

25,000: Total packs supplied to Indian armed forces

1 lakh: Total sales including exports & hospitals