

By Braj Mohan

UK-based clinical toxicologist Carin Smit recently came out with startling revelations that traces of uranium and other heavy metals were found in the hair samples of children and adults in Faridkot district. But there are no uranium mines in Punjab. So where is the contamination coming from?



Ever since the startling news broke, in March 2009, that traces of uranium and other heavy metals had been found in the hair samples of children and adults at the Baba Farid Centre for Special Children in Faridkot district, Punjab, the Centre has become the focus of intense government and media scrutiny. The revelations were made by UK-based clinical toxicologist Carin Smit who noted the bizarre medical condition of the children who, until now, had been considered extreme cases of mental disability. Their limbs are deformed, they have bulges on their heads, and their eyes have grown well beyond normal size.

Dr Prithpal Singh, a naturopath and social activist who heads the Centre, says: "The children do not feel pain even if they get hurt or are bitten. They are unable to carry out any normal daily activities." A majority of them are below 13 years of age and most are from Punjab. There are a few from Tamil Nadu, West Bengal and other countries. They were all thought to be suffering from autism, cerebral palsy and mental impairment.

South Africa-born Smit, who works for Defeat Autism Now (DAN), a UK-based NGO, first came to the Baba Farid Centre for Special Children in 2008 to follow up the case of Ankit Sharma, an autistic child who had come to her eight years ago from Botswana. Ankit's parents brought the child to the Faridkot centre in 2006.

While she recalls being happy with Ankit's progress, Smit was intrigued by the development disorders among the other children, some of whom had entered adulthood. Wanting to delve deeper, she collected hair samples of the children in May, June and July 2008 and sent them for laboratory testing in Germany. An alarmed Smit was back in Faridkot in the last week of March 2009 to collect more samples. She took 43 urine samples before and after administering chelating agents to remove the heavy metals, including uranium. Smit said this would show the level of uranium present in the body.

The latest test results are expected in June.

Long before Smit's revelations, researchers at Guru Nanak Dev University, Amritsar, had found concentrations of uranium and heavy metals above the safe limit in water samples collected from various locations in Bhatinda district which borders Faridkot.

A copy of the 2002-03 paper, titled 'Uranium content measurement in drinking water samples using track etch technique', by researchers from the university's departments of physics and chemistry was accessed by this author. It is available on www.sciencedirect.com.

According to the WHO's recommendations, the maximum concentration of uranium in water should be 20 micrograms/litre. Concentrations of uranium in water samples collected in Bhatinda were found to be "very high and very unsafe from the health hazard point of view". The researchers had suggested "more detailed investigations in the area to reach some conclusion".

What is interesting about the study is a reference to "radioactive-rich granites of Tosham hills in neighbouring Haryana" whose activities were already referred to by concerned researchers in 1989. The Guru Nanak Dev University study clearly suggests that the high levels of uranium in Punjab may have something to do with radioactivity in Haryana's granite hills.

"The study was conducted under a CSIR research project. But it was not highlighted as it should have been," says Dr Chander Prakash of the Faridkot-based NGO Kheti Virasat.

Smit says she had suspected the presence of other heavy metals like tin, lead, aluminium, manganese and iron even before sending the first samples to Trace Minerals, the lab in Germany. But she had not anticipated the presence of uranium in most of the hair samples -- some 87% of the 149 samples.

The uranium traces Smit stumbled upon have now prompted the state government to send a team of five experts to collect water and soil samples from the Baba Farid Centre for Special Children for testing at the Punjab Agricultural University, Ludhiana. The team also collected hair, blood and urine samples from five children and their parents which, a member on condition of anonymity said, have been sent to the Bhabha Atomic Research Centre in Mumbai.

The Department of Atomic Energy (DAE) has also begun investigations to discover the source of the radioactivity. A three-member team was rushed to Faridkot from Mumbai on April 6. "We have collected hair samples and soil, water and food samples from the Faridkot centre," says Swapnesh Malhotra, a member of the investigating team.

For the victims and their caretakers, the unending wait has only just begun. “We have been left with literally no clue since there is no apparent source of uranium in Punjab,” Prithpal Singh says. Devinder Singh, the father of seven-year-old Yuvaraj who is being treated at the Centre for cerebral palsy, is distressed: “I don’t know what will happen to my child now.”

The Punjab government remains helpless, with no clue as to the source of the uranium. State health minister Laxmi Kanta Chawala tried to evade responsibility by saying: “We have no idea as to why such high concentrations of uranium are present here. The Centre must look into this.”

Meanwhile, speculation abounds. What baffles many is that there are no uranium mines in Punjab. One of the theories doing the rounds is that the uranium may have come from Iraq where the US army uses it in its warheads. Some suspect air contamination caused by uranium-laden winds from Afghanistan, while others feel water contamination caused by toxic scrap dumped in the state’s Sutlej and Beas rivers may be the cause.

R Sreedhar, convenor of the non-profit Mines, Mineral and People, says the uranium could have originated from thermal power plants. “Coal, used in thermal power plants, is known to have radioactive material like radon and uranium,” he explains. Prithpal Singh too suspects thermal power plants in the neighbouring district of Bathinda. “Forty of the 149 samples tested were of children and adults from Bathinda,” he argues.

But there are those who warn against such speculation. “Punjab is already suffering due to a cocktail of pesticides and heavy metals present in the groundwater. It is too early to say uranium is causing autism etc. It could be one of the chemical-disrupting neuro-transmitters,” says Neelam Sodhi, a gynaecologist from Ludhiana.

Hair analysis may allow indirect screening of physiological excesses, deficiencies or mal-distribution of elements in the body. But, Smit says, it is important to carry out more tests to assess the exact levels of uranium present in the human body, because uranium is known to cause physical deformities and damage both the kidney and the liver.

Activists like Dr Chander Prakash and Dr Prithpal Singh hope the recent findings will also provide fresh insight into the high incidence of cancer in Punjab’s Malwa belt.

Smit is more concerned with the welfare of the special children, whom she describes as “exceptionally sick”, than with the source of the uranium. “You have to understand, many of them are extremely underweight, many are epileptic, and their brains are injured. I have consulted experts in many countries and can say that these children are extremely ill. I still can’t say this is happening because of uranium. But I can say that there is something very devastating that is causing such damage in them,” she says with passion.

She predicts only two possibilities: “The contamination of natural sources or the contamination of the children themselves. One has to choose from among these two.”

(Braj Mohan is a Chandigarh-based television journalist who has been covering agriculture and gender-related issues for a decade. He was one of the recipients of the UNFPA award in

2007)

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