

Medical News

Swimming through the blood stream: Stanford engineers create wireless, self-propelled medical device



The current prototype chip

The idea of implantable medical devices is not new as for 50 years, scientists have been searching for the secret to make tiny implantable devices that could travel through the bloodstream. But most of today's implements are challenged by the size of their batteries, which are large and heavy and must be replaced periodically. Half the volume of most of these devices is consumed by battery.

Ada Poon, an assistant professor of electrical engineering, Stanford University, USA is developing a new class of medical devices that can be implanted or injected into the human body which is small enough to fit through blood vessels and powered wirelessly using electromagnetic radio waves. No batteries to wear out and no cables to provide power.

For 50 years, scientists have been working on wireless electromagnetic powering of implantable devices, but they ran up against mathematics. According to the models, high-frequency radio waves dissipate quickly in human tissue; fading exponentially the deeper they go. Low-frequency signals, on the other hand, penetrate well, but require antennae a few centimeters in diameter to provide enough power for the device, far too large to fit through any but the biggest arteries. The antenna on the



Through the blood stream

device Poon demonstrated is just 2 millimeters square, small enough to travel through the bloodstream. More significantly, however, her revelation meant that antennae inside the body could be 100 times smaller and yet deliver the power needed by the medical device.

They hope it will be used for a wide range of biomedical applications, from delivering drugs to cleaning arteries. Some of these new devices, like heart probes, chemical and pressure sensors, cochlear implants, pacemakers and drug pumps, would be stationary within the body. Others, like Poon's most recent creations, could travel through the bloodstream to deliver drugs, perform analyses, and perhaps even zap blood clots or remove plaque from sclerotic arteries.

"There is considerable room for improvement and much work remains before such devices are ready for medical applications," said Poon. "But for the first time in decades the possibility seems closer than ever."

The era of swallow-the-surgeon medical care may no longer be the stuff of science fiction.

Available from: <http://news.stanford.edu/news/2012/february/micro-device-implant-022212.html>

Medical Joke

House call

One afternoon a doctor went to attend a house call. Eager husband received him and showed his wife's room where she was in terrible pain. The doctor came out of the room a minute after and asked the husband "Do you have a hammer?" Puzzled husband went inside another room and returned with a hammer. The doctor thanked him and went back into the patient's room. A moment later, he came out and asked, "Do you have a chisel?" The husband complied with the request.

In the next ten minutes, the doctor asked for and received a pair of pliers, a screwdriver and a hacksaw. The wife was still crying due to pain. Angry husband asked the doctor, "What are you doing to my wife?"

"Nothing," replied the doctor. "I am still trying to open my instrument bag."

Collected by

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Obituary News

BMA would like to express deep condolence on deaths of the following notable physicians in recent past :

Serial Number	Name	Age	Name of District	Date of Death
1	Dr Abdul Hakim Chowdhury	96	Chittagong	01/01/2014
2	Dr Abdul Khaleque	70	Dhaka	13/01/2014
3	Dr Humayun Kabir	-	Riad, KSA	15/01/2014
4	Col Dr M M Ali	98	Dhaka	24/01/2014
5	Dr Mofizur Rahman Khan	81	Borguna	30/01/2014
6	Dr Salauddin Ahmed	71	Japan	28/01/2014
7	Dr Md Monirazzaman	63	Dhaka	01/02/2014
8	Dr Z H M Wahid Ashraf Delwar	-	Chuadanga	06/02/2014
9	Dr A K M Obaidul Hafiz	67	Nilphamari	04/02/2014
10	Dr Abdul Hai	80	Dhaka	05/02/2014
11	Dr Asma Sultana	30	Dhaka	07/02/2014
12	Professor Dr Ahsan Ullah	78	Dhaka	11/02/2014
13	Dr A F M Masud	80	Dhaka	21/02/2014
14	Professor Dr Yusuf Ali	93	Dhaka	05/03/2014
15	Professor Dr M A Mutalib		Chittagong	05/03/2014
16	Dr Amio Choudhury	84		19/03/2014

May Almighty bless the departed souls.

Our heartiest commiseration to the deceased's family. Our prayers are with them during this difficult moment of their life.