FEBRUARY 2011 – For most people, wisdom teeth are troublesome molars that overcrowd other teeth and have to be removed. Extracted wisdom teeth used to be nothing more than dental waste, but researchers at the National Institutes of Health recently discovered pulp from healthy teeth contain a rich source of stem cells that one day could be used in developing medical treatments for a variety of conditions, such as neurodegenerative diseases, heart disease, diabetes, bone diseases and brain and nerve injuries.

David Wise, MD, DDS, an oral and maxillofacial surgeon with CAMC Physicians Group at General Hospital, has partnered with StemSave Inc., the market leader in the field of stem cell recovery and cryopreservation, to enable his patients to recover and save stem cells from their own wisdom teeth. Patients who choose to enroll in the program can have their extracted wisdom teeth sent to an FDA-registered laboratory where their stem cells are cryopreserved (in controlled, sub-zero temperatures) for future medical use.

“I am so impressed with the potential benefits of dental stem cell preservation that I wanted to offer it to our patients,” Dr. Wise said. “It’s truly remarkable that extracted teeth, which used to have no value, could lead to potentially life-saving procedures.”

The discovery that stem cells exist in teeth could completely change the future of dentistry. Stem cells are the basis for the emerging field of regenerative medicine. For years, stem cells from umbilical cord blood have saved the lives of patients with leukemia, lymphoma, multiple myeloma, aplastic anemia, sickle cell and other diseases. Researchers believe the first practical use of dental stem cells probably will be to repair human teeth and jawbones.

When preparing wisdom teeth for preservation, Dr. Wise must extract them so they maintain a blood supply to keep them healthy. He then puts them in a temperature-controlled container and overnights them to the StemSave laboratory where the cells are cryogenically-preserved and securely stored and monitored until needed.

Patients interested in the StemSave program can discuss eligibility guidelines and fees during a regularly scheduled dental visit with Dr. Wise. There are various pricing and payment plans that include enrollment, processing and storage. For more information, contact the CAMC Physicians Group’s Facial Surgery office at General Hospital at (304) 388-3290.

FOR MORE INFORMATION...

What are stem cells?

Stem cells are immature, unspecialized cells in the body with the potential to develop into many different types of cells in the body. They serve as a repair system for the body. There are two main types of stem cells: embryonic stem cells and adult stem cells, the latter of which are found in many organs and tissues in the human body, including the dental pulp contained within teeth. Embryonic stem cells have the ability to grow into any cell type in the body. However, there is great ethical
controversy regarding obtaining and using these stem cells for medical research and treatment purposes. Until recently, it was thought that adult stem cells could only turn into cells that were the same as those in the tissues and organs in which they were found. It is now known that adult stem cells taken from one area of the body can be transplanted into another area and grown into a completely different type of tissue. This ability to grow and regenerate tissues is the focus of the emerging field of personalized medicine, which uses a patient’s own stem cells for biologically compatible therapies and individually tailored treatments.

How are stem cells used in medicine?
Doctors and scientists are excited about stem cells because they have potential in many different areas of health and medical research. Studying stem cells may help explain how serious conditions such as birth defects and cancer come about. Stem cells may one day be used to make cells and tissues for therapy of many diseases, including Parkinson's disease, Alzheimer's disease, spinal cord injury, heart disease, diabetes and arthritis. Currently, patients are being treated using stem cells for bone fractures, cancer (bone marrow transplants) and spinal fusion surgery. New stem cell therapies are continually under review, or have already been approved by the U.S. Food and Drug Administration.

Is it difficult to obtain stem cells to bank for future use?
In the case of dental stem cells, the process is easy. Healthy stem cells are discarded on a daily basis as the result of routine tooth extractions. The stem cells contained within the pulp of healthy baby, wisdom and permanent teeth are the most easily-accessible stem cells that can be recovered. When compared to other types of stem cells and their corresponding methods of recovery (i.e., stem cells obtained from embryos, cord blood, bone marrow, fat tissue and peripheral blood), obtaining stem cells from teeth is ethically uncontroversial, non-invasive, less dependent on timing and far less expensive. As opposed to stem cell recovery from cord blood, wherein there is one single opportunity immediately following the birth of a child, there are numerous opportunities to obtain stem cells from teeth. It is best, however, to recover and store dental stem cells at an early age.

Sources: National Institutes of Health; StemSave