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Expandable Corpectomy Cage for Cervical and Thoracolumbar Spine

The spine is made up of a series of bones called “vertebrae”; between each vertebra are strong connective tissues which hold one vertebra to the next, and acts as a cushion between the vertebrae. The inter vertebral disc (IVD) allows for movements of the vertebrae and lets people bend and rotate their neck and back. The degeneration of the IVD is a leading source of chronic back pain. Collectively, disc-degeneration related problems account for 80% of all elective surgeries on the spine and an annual healthcare cost of over \$30 billion. For those patients for whom nonoperative treatment fails, there are few effective treatment options. A current methods of surgically treating back pain and IVD degeneration involve fusing the two vertebrae on either side of the IVD. The spine is stabilized by fusing together two or more vertebrae, using bone grafts and metal rods and screws. Spinal fusion eliminates motion between vertebral segments and will take away some spinal flexibility. Most spinal fusions involve only small segments of the spine and thus do not limit motion very much. However, the outcome of disc fusion using current techniques is unpredictable and often leads to other serious problems. Therefore, a variable height vertebral body replacement implant has been designed to reconstruct the spinal column after part or all of a vertebral body has been removed. The implant is used to space vertebrae and provide a cage like enclosure that can contain bone graft material and consists of a top and bottom ring joined by telescoping rods and includes a ratcheting mechanism to allow the cage to be secured and released once implanted.

The University of Toledo is seeking a company interested in utilizing this variable height vertebral implant used in corpectomy surgery to provide support in place of a removed or damaged vertebrae, and contain and compact bone graft material.

Applications:

Patients requiring spinal fusion

Advantages:

1. Consists of an open design
2. Allows for variable height adjustments
3. Bone graft material is enclosed in the implant
4. Allows for a complete packing of bone graft material
5. Bone growth occurs rapidly

This invention is patent pending

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