Percutaneous pedicle screw implantation: en route to fully robotic intraoperative 2d/3d fluoroscopy

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Abstract

Many surgical treatments for chronic low back pain that is refractory to medical treatments focus on spine stabilization. One of the main surgical procedures consists of placing an interbody cage with bone grafts associated with pedicle screws. This technique can be performed using different approaches: a large open posterior approach, tubular approaches (minimal open) or percutaneously (minimally invasive percutaneous or MIP). One of the main difficulties is to precisely locate the screws into the pedicle avoiding especially infero-medial pedicle breaches. This difficulty is even greater when working percutaneously. This paper focuses on percutaneously placed pedicle screws (PPS), reports the use of a robotic multi-axis 2D/3D fluoroscopy to enhance the accuracy of pedicle screw placement and reviews other strategies and results reported in the literature.

Biography

Christian Raftopoulos worked to present his doctorate (Ph.D.) in Neurosurgery in 1994. In 1996, C. Raftopoulos was asked to assume the Chairmanship of the new neurosurgical department at St-Luc University Hospital in Brussels, which is the academic hospital of the Université Catholique de Louvain. C. Raftopoulos key scientific contributions include the development of a new classification of intracranial pressure waves and development of modified surgical techniques for Chiari malformation, meningoceles and intracranial aneurysms. Currently, C. Raftopoulos is particularly involved in epilepsy surgery and new minimally invasive spinal techniques.