The Impact of "Keyhole" when Discussing Spine Surgery – A Deep Dive into Patients' Perception of Minimally Invasive Spine Surgery

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Introduction: Patient perspectives on spine surgery remain underexplored, particularly their preferences regarding minimally invasive techniques. This study aims to evaluate the impact of "keyhole" on patient awareness, perceptions, and demand for Minimally Invasive Spine Surgery (MISS).

Methods: A cross-sectional survey was conducted from June to November 2024 in Tan Tock Seng Hospital. Patients completed an anonymous 30-question questionnaire addressing their understanding of spine surgery, perceptions of "keyhole" surgery and techniques, and willingness to opt for MISS under varying circumstances. This study included symptomatic participants with degenerative lumbar pathologies for lumbar decompression and fusion surgery. Cervical pathologies, or lumbar pathologies secondary to trauma, infection, inflammation or tumors were excluded.

Results: A total of 50 patients participated (mean age: 54 years; 56% female). Most patients (80%) perceived spine surgery as high-risk, with top concerns including complications (70%) and poor outcomes (50%). Yet, more patients view "keyhole" surgery as a minor surgery (44%) than a major surgery (18%), with 74% believing most-to-all patients are suitable candidates. 92% will choose "keyhole" surgery over open surgery, citing lower complication risks (62%) and better outcomes (50%) as primary reasons. More than 50% of patients are willing to wait longer, pay more, and travel further for MISS. Despite this preference, 63% would defer to their surgeon's recommendation if MISS was not advised. However, only 60% of patients were aware that "keyhole" surgery referred to MISS, tubular or endoscopic surgery. Almost all patients (88%) were unaware of the difference between endoscopic, tubular and MISS.

Discussion: The term "keyhole" heavily influences patients' interest in spine surgery, even amongst those with limited knowledge of MISS. Despite majority deeming spine surgery high-risk, almost 50% regard "keyhole" as a minor surgery and over 50% believe majority-to-all patients are suitable candidates. Patients perceive MISS as safer and more effective than open surgery but often underestimate its complexity and limitations. These findings underscore the importance of patient education and the surgeon's role in aligning expectations with clinical realities through shared decision-making. A surprising majority of patient opting for open spine surgery if MISS is deemed inappropriate emphasizes open surgery's continued relevance, although the integration of robotic assistance in MISS opens a new frontier to address a growing demand for MISS across a wider range of spine pathologies.

Conclusion: This study underscores the strong patient preference for MISS and the impact "keyhole" has on patient perception, emphasizing the need for evidence-based patient education to address misconceptions and align expectations, fostering trust and satisfaction in the advancement of MISS.