

Supplementary Materials

Artificial intelligence for real-time surgical phase recognition in minimal invasive inguinal hernia repair: a systematic review on behalf of TROGSS - the robotic global surgical society

Aman Goyal^{1,2}, Mathew Mendoza³, Alfonso E. Munoz³, Christian Adrian Macias^{4,5,6}, Adel Abou-Mrad⁷, Luigi Marano^{8,9,10,11}, Rodolfo J. Oviedo^{3,12,13}

¹Department of General Surgery, Mahatma Gandhi Medical College and Research Institute, Puducherry 607402, India.

²Department of Surgery, Adesh Institute of Medical Sciences and Research, Bathinda 151001, India.

³Department of Surgery, University of Houston Tilman J. Fertitta Family College of Medicine, Houston, TX 77001, USA.

⁴School of Medicine, Universidad Catolica de Santiago de Guayaquil, Guayaquil 090615, Ecuador.

⁵Department of Health and Sciences, Hillsborough College, Tampa, FL 33614, USA.

⁶Visiting External Researcher, Center for Space Emerging Technologies, Lima 15046, Peru.

⁷Department of Surgery, Centre Hospitalier Universitaire d'Orléans, Orléans 45000, France.

⁸Department of Medicine, Academy of Applied Medical and Social Sciences-AMiSNS: Akademia Medycznych i Społecznych Nauk Stosowanych, Elbląg 52-300, Poland.

⁹Department of General Surgery and Surgical Oncology, "Saint Wojciech" Hospital, "Nicolaus Copernicus" Health Center, Gdańsk 80-000, Poland.

¹⁰Department of Surgery, Dnipro State Medical University, Dnipro 49044, Ukraine.

¹¹Department of Medicine, Surgery, and Neurosciences, University of Siena, Siena 53100, Italy.

¹²Department of Surgery, Nacogdoches Medical Center, Nacogdoches, TX 75962, USA.

¹³Department of Surgery, Sam Houston State University College of Osteopathic Medicine, Conroe, TX 77301, USA.

Correspondence to: Dr. Aman Goyal, Department of General Surgery, Mahatma Gandhi Medical College and Research Institute, Puducherry 607402, India. E-mail: doc.aman.goyal@gmail.com

Supplementary Table 1. Search strategy

Table 1: Search terms for the Systematic Review in PubMed, Scopus, Web of Science, Embase, Cochrane and Science Direct databases. Last date of Search 12th November, 2024	
Databases	Search Strategy
PubMed (n=224)	("hernia, inguinal"[MeSH Terms] OR "hernias inguinal"[All Fields] OR "Inguinal Hernias"[All Fields] OR "Inguinal Hernia"[All Fields] OR "inguinal hernia indirect"[All Fields] OR "hernia indirect inguinal"[All Fields] OR "hernias indirect inguinal"[All Fields] OR "Indirect Inguinal Hernia"[All Fields] OR "Indirect Inguinal Hernias"[All Fields] OR "inguinal hernias indirect"[All Fields] OR "inguinal hernia direct"[All Fields] OR "Direct Inguinal Hernia"[All Fields] OR "Direct Inguinal Hernias"[All Fields] OR "hernia direct inguinal"[All Fields] OR "hernias direct inguinal"[All Fields] OR "inguinal hernias direct"[All Fields] OR ("Herniorrhaphy"[MeSH Terms] OR "Herniorrhaphies"[All Fields] OR "Hernia Repair"[All Fields] OR "Hernia Repairs"[All Fields] OR "repair hernia"[All Fields] OR "repairs hernia"[All Fields] OR "Hernioplasty"[All Fields] OR "Hernioplasties"[All Fields])) AND ("Artificial Intelligence"[MeSH Terms] OR "intelligence artificial"[All Fields] OR "Computer Reasoning"[All Fields] OR "reasoning computer"[All Fields] OR "ai artificial intelligence"[All Fields] OR "Machine Intelligence"[All Fields] OR "intelligence machine"[All Fields] OR "Computational Intelligence"[All Fields] OR "intelligence computational"[All Fields] OR "Computer Vision Systems"[All Fields] OR "Computer Vision System"[All Fields] OR "system computer vision"[All Fields] OR "systems computer vision"[All Fields] OR ("Artificial Intelligence"[MeSH Terms] OR ("artificial"[All Fields] AND "intelligence"[All Fields]) OR "Artificial Intelligence"[All Fields] OR ("vision"[All Fields] AND "system"[All Fields] AND "computer"[All Fields])) OR ("Artificial Intelligence"[MeSH Terms] OR ("artificial"[All Fields] AND "intelligence"[All Fields]) OR "Artificial Intelligence"[All Fields] OR ("vision"[All Fields] AND "systems"[All Fields] AND "computer"[All Fields])) OR "Deep Learning"[MeSH Terms] OR "learning deep"[All Fields] OR "Hierarchical Learning"[All Fields] OR "learning hierarchical"[All Fields])
Scopus (n=61)	(TITLE-ABS-KEY("inguinal hernia" OR "inguinal hernias" OR "hernia, inguinal" OR "hernia repair" OR "herniorrhaphy" OR "direct inguinal hernia" OR "indirect inguinal hernia" OR herniorrhaphies OR hernioplasty OR hernioplasties)) AND (TITLE-ABS-KEY("artificial intelligence" OR "deep learning" OR "machine intelligence" OR "computational intelligence" OR "computer vision systems" OR "hierarchical learning"))
Web of Science (n=33)	TS=("inguinal hernia" OR "inguinal hernias" OR "hernia, inguinal" OR "hernia repair" OR "herniorrhaphy" OR "direct inguinal hernia" OR "indirect inguinal hernia" OR herniorrhaphies OR hernioplasty OR hernioplasties) AND TS=("artificial intelligence" OR "deep learning" OR "machine intelligence" OR "computational intelligence" OR "computer vision systems" OR "hierarchical learning")
Embase (n=317)	('inguinal hernia'/exp OR 'inguinal hernia' OR 'hernia repair' OR 'herniorrhaphy' OR 'direct inguinal hernia' OR 'indirect inguinal hernia' OR herniorrhaphies OR hernioplasty OR hernioplasties) AND ('artificial intelligence'/exp OR 'artificial intelligence' OR 'deep learning' OR 'machine intelligence' OR 'computational intelligence' OR 'computer vision systems' OR 'hierarchical learning')
Cochrane Library (n=0)	("inguinal hernia" OR "inguinal hernias" OR "hernia, inguinal" OR "hernia repair" OR "herniorrhaphy" OR "direct inguinal hernia" OR "indirect inguinal hernia" OR herniorrhaphies OR hernioplasty OR hernioplasties) AND ("artificial intelligence" OR "deep learning" OR "machine intelligence" OR "computational intelligence" OR "computer vision systems" OR "hierarchical learning")
ScienceDirect (n=268)	("inguinal hernia" OR "hernia, inguinal" OR "hernia repair" OR "herniorrhaphy" OR hernioplasty) AND ("artificial intelligence" OR "deep learning" OR "machine intelligence" OR "computational intelligence")