



REVIEW ARTICLE

Visceral and gastrointestinal complications in robotic urologic surgery[☆]



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KEYWORDS

Robotic surgery;
Bowel injury;
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Abstract

Introduction: With the widespread use of minimally invasive techniques, robot-assisted urologic surgery has become widely adopted. Despite their infrequency, visceral and gastrointestinal complications could be life-threatening.

Objectives: To identify the main gastrointestinal injuries that occur in a robot-assisted urologic surgery. To know the overall incidence and how is their management.

Acquisition of the evidence: Search in PubMed of articles related to visceral and gastrointestinal complications in robot-assisted urology surgery, written in English or Spanish. Relevant publications as well literature reviews and chapters from books were reviewed.

Synthesis of the evidence: Along with vascular injuries, visceral and gastrointestinal lesions are among most dangerous complications. A complete preoperative study to individualize each patient characteristics and the correct use of imaging could help us to avoid complications in the first place. To know all the risky steps in the different robotic urologic procedures will let us anticipate the damage. Knowledge of main and most dangerous injuries in the different abdominal and pelvic organs is fully recommended. Early diagnosis and evaluation of lesions will let us an acute management during surgery. Recognition delay could change a repairable injury into a life-threatening situation.

Conclusions: Despite the undeniable benefits of robotic approach, there are minor and major gastrointestinal injuries that all urologic surgeons must know. Those related with trocar placement are especially important. Immediate diagnosis and management is mandatory.

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PALABRAS CLAVE

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Complicaciones viscerales y gastrointestinales en la cirugía urológica robótica**Resumen**

Introducción: Con el uso generalizado de técnicas mínimamente invasivas la cirugía urológica asistida por robot ha sido ampliamente adoptada. A pesar de su infrecuencia, las complicaciones viscerales y gastrointestinales podrían poner en peligro la vida.

Objetivos: Identificar las principales lesiones gastrointestinales que ocurren en una cirugía urológica asistida por robot. Conocer la incidencia general y cómo es su manejo.

Adquisición de la evidencia: Búsqueda en PubMed de artículos relacionados con complicaciones viscerales y gastrointestinales en cirugía urológica asistida por robot, escritos en inglés o español. Se revisaron publicaciones relevantes, así como revisiones de literatura y capítulos de libros.

Síntesis de la evidencia: Junto con las lesiones vasculares, las lesiones viscerales y gastrointestinales se encuentran entre las complicaciones más peligrosas. Un estudio preoperatorio completo para individualizar las características de cada paciente y el uso correcto de la toma de imágenes podría ayudarnos a evitar complicaciones en primer lugar. Conocer todos los pasos arriesgados en los diferentes procedimientos urológicos robóticos nos permitirá anticipar los daños. El conocimiento de las lesiones principales y más peligrosas en los diferentes órganos abdominales y pélvicos es altamente recomendable. El diagnóstico precoz y la evaluación de las lesiones nos permitirán un manejo agudo durante la cirugía. El retraso en el reconocimiento podría convertir una lesión reparable a una situación potencialmente mortal.

Conclusiones: A pesar de los beneficios innegables del enfoque robótico, hay lesiones gastrointestinales menores y mayores que todos los cirujanos urológicos deben saber. Los relacionados con la colocación de trocates son especialmente importantes. El diagnóstico y el manejo inmediatos son obligatorios.

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Introduction

With the widespread use of minimally invasive techniques, robot-assisted urologic surgery has become widely adopted worldwide. Despite the great advantages of this technique, associated complications must also be considered. Along with vascular injuries, visceral and gastrointestinal lesions are among the most dangerous complications, and it is crucial to recognize them. Despite their infrequency, these complications could be life-threatening, and early diagnosis and management is crucial.¹ Our objective is to identify the most important gastrointestinal injuries that occur in the main robot-assisted urologic procedures, to know the overall incidence of these complications and the best way to manage them.

Acquisition of evidence

A systematic search in PubMed of articles related to visceral and gastrointestinal complications in robot-assisted urology surgery was carried out. Articles written in English and Spanish until 2016 were considered. The key words used were: *robotic surgery, urologic surgery, gastrointestinal complications, trocar insertion, bowel injury, bowel preparation and rectal injury*. Relevant publications as well literature reviews and chapters from books were reviewed.

Synthesis of evidence**Overall incidence**

Reports from large multi-institutional studies of laparoscopic and robotic urologic procedures show overall complications rates from 4.4% to 16%.² Focusing on gastrointestinal injuries, the reported incidence of bowel injury is approximately 1.3 per 1000 cases.³

Access-related gastrointestinal injury has an incidence rate of 0.13%. The most frequent such injury is to the small intestine, with an incidence of 41.8%. Incidence of non-access-related bowel injury is 0.8%.³

Regarding general bowel complications (including ileus, small bowel obstruction, and port-site or incisional hernia), the overall incidence with robot-assisted laparoscopic surgery is 0.85–8.2%.

Impact on outcomes and management: Clavien–Dindo and Martin–Donat classifications

Several publications have assessed complications after robot-assisted urologic procedures, but many studies are limited by their small sample size, short follow-up, and lack of risk factor analysis. In addition, a lack of uniformity exists in documenting and reporting these complications. This lack

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