Actas Urol Esp. 2018;42(2):94–102

Actas Urológicas Españolas

www.elsevier.es/actasuro

ORIGINAL ARTICLE

Prospective study comparing laparoscopic and open radical cystectomy: Surgical and oncological results☆

C. Esquinas[a], J.M. Alonso[b], E. Mateo[a], A. Dotor[c], A.M. Martín[c], J.F. Dorado[d], I. Arance[a,b], J.C. Angulo[a,b,*]

[a] *Servicio de Urología, Hospital Universitario de Getafe, Madrid, Spain*
[b] *Departamento Clínico, Universidad Europea de Madrid, Laureate Universities, Madrid, Spain*
[c] *Servicio de Anatomía Patológica, Hospital Universitario de Getafe, Madrid, Spain*
[d] *Análisis Estadísticos Pertica SL, Madrid, Spain*

Received 18 February 2017; accepted 17 April 2017
Available online 10 January 2018

KEYWORDS
Bladder cancer;
Radical cystectomy;
Laparoscopy

Abstract
Introduction: Laparoscopic radical cystectomy with lymphadenectomy and urinary diversion is an increasingly widespread operation. Studies are needed to support the oncological effectiveness and safety of this minimally invasive approach.
Patients and methods: A non-randomized, comparative prospective study between open radical cystectomy (ORC) and laparoscopic radical cystectomy (LRC) was conducted in a university hospital. The main objective was to compare cancer-specific survival. The secondary objective was to compare the surgical results and complications according to the Clavien–Dindo scale.
Results: We treated 156 patients with high-grade invasive bladder cancer with either ORC ($n = 70$) or LRC ($n = 86$). The mean follow-up was 33.5 ± 23.8 (range 12–96) months. The mean age was $66.9 + 9.4$ years, and the male to female ratio was 19:1. Both groups were equivalent in age, stage, positive lymph nodes, in situ carcinoma, preoperative obstructive uropathy, adjuvant chemotherapy and type of urinary diversion. There were no differences between the groups in terms of cancer-specific survival (log-rank; $p = 0.71$). The histopathology stage was the only independent variable that predicted the prognosis. The hospital stay ($p = 0.01$) and operative transfusion rates ($p = 0.002$) were less for LRC. The duration of the surgery was greater for LRC ($p < 0.001$). There were no differences in the total complications rate ($p = 0.62$) or major complications ($p = 0.69$). The risk of evisceration ($p = 0.02$), surgical wound infection ($p = 0.005$) and pneumonia ($p = 0.017$) was greater for ORC. The risk of rectal lesion ($p = 0.017$) and urethrorectal fistulae ($p = 0.065$) was greater for LRC.

☆ Please cite this article as: Esquinas C, Alonso JM, Mateo E, Dotor A, Martín AM, Dorado JF, et al. Estudio prospectivo comparativo entre cistectomía radical laparoscópica y abierta: resultados operatorios y oncológicos. Actas Urol Esp. 2018;42:94–102.

* Corresponding author.
E-mail address: jangulo@futurnet.es (J.C. Angulo).

Conclusion: LRC is an equivalent treatment to ORC in terms of oncological efficacy and is advantageous in terms of transfusion rates and hospital stays but not in terms of operating room time and overall safety. Studies are needed to better define the specific safety profile for each approach.

PALABRAS CLAVE
Cáncer de vejiga;
Cistectomía radical;
Laparoscopia

Estudio prospectivo comparativo entre cistectomía radical laparoscópica y abierta: resultados operatorios y oncológicos

Resumen

Introducción: La cistectomía radical laparoscópica con linfadenectomía y derivación urinaria es una cirugía de empleo creciente. Se necesitan estudios que avalen la efectividad oncológica y la seguridad de este abordaje mínimamente invasivo.

Pacientes y métodos: Estudio prospectivo comparativo no aleatorizado entre cistectomía radical abierta (CRA) y laparoscópica (CRL) llevado a cabo en un hospital universitario. El objetivo principal fue comparar la supervivencia cáncer-específica, y el objetivo secundario comparar resultados operatorios y complicaciones según la escala Clavien-Dindo.

Resultados: Ciento cincuenta y seis pacientes con cáncer vesical invasivo de alto grado fueron tratados mediante CRA ($n = 70$) o CRL ($n = 86$). El seguimiento medio fue $33,5 \pm 23,8$ (rango 12-96) meses. La edad media fue 66,9 + 9,4 años y la proporción hombre/mujer 19:1. Ambos grupos fueron equivalentes en edad, estadio, ganglios positivos, carcinoma *in situ*, uropatía obstructiva preoperatoria, quimioterapia adyuvante y tipo de derivación urinaria. No hubo diferencias entre grupos en supervivencia cáncer-específica (log-rank; $p = 0,71$). El estadio histopatológico fue la única variable independiente predictiva de pronóstico. La estancia hospitalaria ($p = 0,01$) y la tasa de transfusión operatoria ($p = 0,002$) fueron menores para CRL. La duración de la cirugía fue mayor para CRL ($p < 0,001$). No hubo diferencias en la tasa de complicaciones totales ($p = 0,62$) ni complicaciones mayores ($p = 0,69$). El riesgo de evisceración ($p = 0,02$), infección de herida quirúrgica ($p = 0,005$) y neumonía ($p = 0,017$) fue mayor en CRA. El riesgo de lesión rectal ($p = 0,017$) y fístula uretrorrectal ($p = 0,065$) fue mayor en CRL.

Conclusión: La CRL es un tratamiento equivalente a la CRA en términos de eficacia oncológica, y ventajoso respecto a tasa de transfusión y estancia hospitalaria, pero no respecto a la ocupación de quirófano o a la seguridad global. Se necesitan estudios que definan mejor el perfil de seguridad específico de cada abordaje.

Introduction

Cancer of the urinary bladder is one of the most frequent malignancies, and Spain is one of the territories in Western Europe with the highest incidence of bladder cancer, especially in men.[1] Radical cystectomy consists of the exeresis of the bladder with extensive removal of the pelvic lymph nodes, and it is completed with the reconstruction of the urinary tract. It is a fundamental tool to carry out local control in high-grade invasive bladder cancer, and thus improve the survival of this lethal disease.[2] Therefore, when performing a demanding technique of cystectomy, it is mandatory to obtain negative margins and a high number of pelvic nodes removed.[3]

Laparoscopic radical cystectomy (LRC), as well as the robot-assisted laparoscopic radical cystectomy variety (RALRC), are minimally invasive alternatives to open radical cystectomy (ORC). Despite the wide spread of LRC, especially in environments lacking robotic surgery, most procedures continue to be performed globally using an open approach, despite the attractive results of minimally invasive techniques.[4,5] There is a fairly general consensus to consider that among the advantages admitted of the laparoscopic approach are less blood loss, earlier restoration of bowel function, and shorter hospital stay.[6–8] These advantages have led to a special interest for LRC in elderly patients.[8–10] However, some doubts persist about whether minimally invasive techniques can infer the patterns of dissemination[11] and also whether their use involves a reduction in the rate and severity of complications associated with the procedure.[12]

Most of the series describing the results of LRC are institutional experiences,[10,13–21] but comparative studies between ORC and LRC are scarce.[8,9,22–25] In addition, most of these comparative studies focus on evaluating operative results, and not so much on comparing oncological results and survival associated with one or another type of surgical technique.[8] For this reason, studies evaluating not only surrogate data on oncological effectiveness (positive margins, tumor recurrence), but also cancer-specific survival with different approaches, are lacking. The present study was carried out to know if the laparoscopic approach involves