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ORIGINAL ARTICLE

Prospective study comparing laparoscopic and open adenomectomy: Surgical and functional results☆

A. Garcia-Segui[a,*], J.C. Angulo[b]

[a] *Servicio de Urología, Hospital General Universitario de Elche, Elche, Alicante, Spain*
[b] *Servicio de Urología, Hospital Universitario de Getafe, Departamento Clínico, Universidad Europea de Madrid, Laureate Universities, Getafe, Madrid, Spain*

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Abstract

Introduction: Open adenomectomy (OA) is the surgery of choice for large volume benign prostatic hyperplasia, and laparoscopic adenomectomy (LA) represents a minimally invasive alternative. We present a long-term, prospective study comparing both techniques.

Patients and methods: The study consecutively included 199 patients with benign prostatic hyperplasia and prostate volumes >80 g who were followed for more than 12 months. The patients underwent OA ($n = 97$) or LA ($n = 102$). We recorded and compared demographic and perioperative data, functional results and complications using a descriptive statistical analysis.

Results: The mean age was 69.2 ± 7.7 years (range 42–87), and the mean prostate volume (measured by TRUS) was 112.1 ± 32.7 mL (range 78–260). There were no baseline differences among the groups in terms of age, ASA scale, prostate volume, PSA levels, Qmax, IPSS, QoL or treatments prior to the surgery. The surgical time ($p < .0001$) and catheter time ($p < 0.0002$) were longer in the LA group. Operative bleeding ($p < 0.0001$), transfusion rate ($p = 0.0015$) and mean stay ($p < 0.0001$) were significantly lower in the LA group. The LA group had a lower rate of complications ($p = 0.04$), but there were no significant differences between the groups in terms of major complications (Clavien score ≥ 3) ($p = 0.13$) or in the rate of late complications (at one year) ($p = 0.66$). There were also no differences between the groups in the functional postoperative results: IPSS ($p = 0.17$), QoL ($p = 0.3$) and Qmax ($p = 0.17$).

Conclusions: LA is a reasonable, safe and effective alternative that results in less bleeding, fewer transfusions, shorter hospital stays and lower morbidity than OA. LA has similar functional results to OA, at the expense of longer surgical times and longer catheter times.

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* Corresponding author.
E-mail address: agarciasegui@gmail.com (A. Garcia-Segui).

PALABRAS CLAVE
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Complicaciones

Estudio prospectivo comparativo entre adenomectomía laparoscópica y abierta: resultados operatorios y funcionales

Resumen

Introducción: La adenomectomía abierta (AA) es el tratamiento quirúrgico de elección para la hipertrofia prostática benigna de gran volumen, y la adenomectomía laparoscópica (AL) supone una alternativa mínimamente invasiva. Presentamos un estudio prospectivo comparativo a largo plazo entre ambas técnicas.

Pacientes y métodos: Se incluyeron 199 pacientes consecutivos con hipertrofia benigna de próstata de volumen prostático > 80 g y un seguimiento > 12meses, intervenidos mediante AA (n = 97) o AL (n = 102). Se registraron y compararon datos demográficos, perioperatorios, resultados funcionales y complicaciones empleando un análisis estadístico descriptivo.

Resultados: La media de edad fue de 69,2 ± 7,7 años (rango 42-87) y el volumen de la próstata por ETR de 112,1 ± 32,7 mL (rango 78-260). No hubo diferencias basales entre los grupos con respecto a edad, escala de ASA, volumen prostático, PSA, Qmáx, IPSS, CdV o tratamientos previos a la intervención. El tiempo operatorio ($p < 0,0001$) y el tiempo de sonda ($p < 0,0002$) fueron mayores en el grupo AL. El sangrado operatorio ($p < 0,0001$), la tasa de transfusión ($p = 0,0015$) y la estancia media ($p < 0,0001$) fueron significativamente menores en el grupo laparoscópico. El grupo de AL tuvo menor tasa de complicaciones ($p = 0,04$), pero no hubo diferencias significativas entre grupos respecto a complicaciones mayores (Clavien ≥ 3) ($p = 0,13$) o en la tasa de complicaciones tardías (al año) ($p = 0,66$). Tampoco hubo diferencias entre grupos en los resultados funcionales postoperatorios: IPSS ($p = 0,17$), CdV ($p = 0,3$) y Qmáx ($p = 0,17$).

Conclusiones: La AL representa una alternativa razonable, segura y eficaz que aporta menor sangrado, menos transfusiones, menor estancia hospitalaria y menor morbilidad que la AA, con resultados funcionales equivalentes, a expensas de un tiempo operatorio prolongado y un mayor período de sonda.

Introduction

Open adenomectomy (OA) and endoscopic enucleation with holmium laser or bipolar resectoscope are the surgical treatments of choice for the management of lower urinary tract symptoms caused by benign prostatic hyperplasia (BPH) in adenomas >80 g. OA is one of the most effective and lasting procedures to perform the complete enucleation of the adenoma. However, it is an aggressive and morbid surgery.[1]

Mariano et al.[2] reported the first description of laparoscopic adenomectomy (LA) seeking the benefits of open technique minimizing the invasion. Years later, Sotelo et al.[3] reported the first series of robotic-assisted simple prostatectomy (RASP). Multiple published series show satisfactory functional outcomes and proven safety. Both procedures have been grouped with the term minimally invasive simple prostatectomy (MISP); however, there really is no standardization of the technique and the evidence in the scientific literature is still limited.[2–20]

Comparative studies available to date are scarce. Most studies are performed in centers specialized in laparoscopy.[17–21] Given the need for scientific evidence, we designed a prospective multicenter study to compare the efficacy and safety between OA and LA in a conventional hospital environment.

Patients and methods

A total of 199 patients with symptomatic BPH greater than 80 g measured by transrectal sonography and surgical indication were included in the study. Two groups of patients were formed: patients who underwent OA or LA, and in both cases consecutive nonrandomized patients were included. A total of 102 patients were operated by laparoscopic technique and 97 by open technique. The surgeries were performed by several surgeons and assisted or performed by an experienced urologist. In the LA group, interventions were also assisted or performed by an experienced laparoscopist with a learning curve greater than 80 laparoscopic radical prostatectomies. The informed consent of patients was obtained. All of them underwent a physical examination preoperatively, answered the International Prostate Symptom Score (IPSS) and the quality of life (QoL) questionnaire, digital rectal examination, PSA, prostate volume measured by transrectal ultrasonography, assessment of maximum flow (Qmax), ASA physical status classification system of the American Society of Anesthesiologists and registration of the treatment prior to the intervention and indication for surgery. Flowmetry and baseline IPSS was obviated in patients with indwelling catheter at the time of surgical indication.

Demographic and perioperative data, monitoring and complications were recorded prospectively in each case. The data was collected and centralized anonymously for the study. A first control was performed one month after the intervention to record postoperative IPSS, QoL and Qmax. Complications at 3 months were recorded according to the Clavien-Dindo classification. All patients were evaluated at 6 and 12 months after surgery; and a year later complications of surgery were also recorded.