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SURGICAL TECHNIQUE

''Knotless'' laparoscopic extraperitoneal adenomectomy☆

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Abstract

Introduction: Laparoscopic adenomectomy is a feasible and effective surgical procedure. We have progressively simplified the procedure using barbed sutures and a technique we call ''knotless'' laparoscopic adenomectomy. We present a prospective, multicenter, descriptive study that reflects the efficacy and safety of this technique in an actual, reproducible clinical practice situation.

Methods: A total of 26 patients with benign prostatic hyperplasia of considerable size (> 80 cc) underwent ''knotless'' laparoscopic adenomectomy. This is an extraperitoneal laparoscopic technique with 4 trocars based on the controlled and hemostatic enucleation of the adenoma using ultrasonic scalpels, precise urethral sectioning under direct vision assisted by a urethral plug, trigonization using barbed suture covering the posterior wall of the fascia, capsulorrhaphy with barbed suture and extraction of the morcellated adenoma through the umbilical incision.

Results: The median patient age was 69 (54–83) years, the mean prostate volume was 127 (89–245) cc, the mean operative time was 136 (90–315) min, the mean estimated bleeding volume was 200 (120–500) cc and the hospital stay was 3 (2–6) days. All patients experienced improved function in terms of uroflowmetry and International Prostate Symptom Score and quality of life questionnaires. There were complications in 6 patients, 5 of which were minor.

Conclusions: ''Knotless'' laparoscopic adenomectomy is a procedure with low complexity that combines the advantages of open surgery (lasting functional results and complete extraction of the adenoma) with laparoscopic procedures (reduced bleeding and need for transfusions, shorter hospital stays and reduced morbidity and complications related to the abdominal wall). The use of ultrasonic scalpels and barbed sutures simplifies the procedure and enables a safe and hemostatic technique.

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Seguridad

Adenomectomía laparoscópica extraperitoneal «sin nudos»

Resumen

Introducción: La adenomectomía laparoscópica es una cirugía factible y efectiva. Progresivamente simplificamos el procedimiento empleando sutura barbada, mediante una técnica que denominamos adenomectomía laparoscópica «sin nudos». Presentamos un estudio prospectivo multicéntrico descriptivo que refleja eficacia y seguridad de dicha técnica en una situación de práctica clínica real reproducible.

Métodos: Un total de 26 pacientes con hipertrofia prostática benigna de gran tamaño (> 80 cc) fueron sometidos a adenomectomía laparoscópica «sin nudos». Se trata de una técnica laparoscópica extraperitoneal con 4 trocares basada en la enucleación controlada y hemostática del adenoma empleando bisturí ultrasónico, sección uretral precisa bajo visión asistida por una bujía uretral, trigonización empleando sutura barbada que cubre la pared posterior de la celda prostática, capsulorrafia con sutura barbada y extracción del adenoma morcelado a través de la incisión umbilical.

Resultados: La mediana de la edad fue de 69 (54–83) años, el volumen prostático 127 (89–245) cc, el tiempo operatorio 136 (90–315) min, el sangrado estimado 200 (120–500) cc, la estancia hospitalaria 3 (2–6) días. Todos los pacientes presentaron mejoría funcional objetivada por uroflujometría, cuestionario de IPSS y calidad de vida. Hubo complicaciones en 6 pacientes, 5 fueron menores.

Conclusiones: La adenomectomía laparoscópica «sin nudos» es un procedimiento de escasa complejidad que combina las ventajas de la cirugía abierta (resultados funcionales duraderos y extracción completa del adenoma) con los procedimientos laparoscópicos (disminución del sangrado y de transfusiones, menor estancia hospitalaria, morbilidad y complicaciones relacionadas con la pared abdominal). El empleo de bisturí ultrasónico y sutura barbada simplifica el procedimiento y permite realizar la técnica de forma segura y hemostática.

Introduction

The guidelines of the European Association of Urology establish that retropubic or suprapubic prostatectomy is a recommended option for the surgical treatment of large benign prostatic hyperplasia (BPH) (> 80–100 cc) in centers where there is no option for Holmium laser prostate enucleation, because it guarantees the complete enucleation of the adenoma allowing for excellent long-term functional results.[1] Laparoscopic adenomectomy (LA) is a feasible and effective alternative with functional results equivalent to open surgery that provides multiple benefits for the patient, because it combines the advantages of minimally invasive procedures (less pain, less analgesic requirement, less bleeding, lower transfusion rate, shorter irrigation time, lower morbidity, shorter hospital stay, faster recovery) with the functional results of retropubic adenomectomy.[2,3]

The first surgical description of LA was made by Mariano et al.[4] in 2002, who reproduced the surgical steps of conventional open surgery. Since then, this procedure has been consolidating as an effective therapeutic alternative in evolution and constant improvement, even joining the indications of robotic surgery.[2,3,5–36] In addition, LA is an interesting model to be able to incorporate the generations of young urologists to laparoscopic surgery practice, and in our experience, it is a safe technique for patients[5–9] and it facilitates the exercise to perform radical prostatectomy, a more complex technique that needs to get oncological and functional quality results.

We have progressively modified the performance of extraperitoneal LA, simplifying its implementation and incorporating interesting developments such as the use of barbed suture (BS) in a technique we call ''knotless'' LA. We present the technique step by step and describe the achieved surgical results and complications. This is a prospective multicenter experience in which different surgeons with different levels of experience in laparoscopic surgery have collaborated, and therefore, a situation of actual clinical practice widely reproducible is described.

Patients and methods

A prospective study was conducted at 2 institutions with extensive experience in urological laparoscopic surgery programs. Consecutive patients were included who were considered candidates for surgical treatment for symptomatic BPH with increased prostate volume (> 80 cc) and lower urinary tract symptoms during a period exceeding 3 months and refractory to medical treatment, or some of the following indications for surgery: urinary retention, urinary recurrent or persistent infection, recurrent macroscopic hematuria, large bladder stone not subject to endoscopic fragmentation and changes in the kidneys, ureters, or bladder secondary to prostatic obstruction with incomplete bladder emptying.

All patients underwent preoperative evaluation and informed consent was obtained. Demographic,