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Suprapubic single incision laparoscopic appendectomy



Yanan Wang, MD,^a Wenjun Xiong, MD,^b Xiaoliang Lan, MD,^a
Jianming Zhang, MD,^a Tao Chen, MD,^a Hao Liu, MD, PhD,^a
and Guoxin Li, MD, PhD^{a,*}

^aDepartment of General Surgery, Nanfang Hospital, Southern Medical University, Guangzhou, China

^bGuangdong Province Hospital of Chinese Medicine, the Second Affiliated Hospital of Guangzhou University of Chinese Medicine, Guangzhou, China

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ABSTRACT

Background: The single incision method through the umbilicus is commonly used for laparoscopic appendectomy. To obtain a better cosmetic outcome and less surgical complexity, we have designed a new single-incision laparoscopic appendectomy technique performed above the pubic symphysis.

Methods: Between January 2011 and January 2012, patients with uncomplicated acute or chronic appendicitis, excluding those with abscess, perforation, peritonitis, and previous pelvic surgery, underwent this innovative laparoscopic appendectomy. During each operation, a multichannel trocar composed of a small wound protector and a size 6 sterile glove was deployed after a 2 cm transverse incision was made 1–2 cm above the pubic hair area.

Results: Of the 42 patients, 24 were male and 18 were female. Their mean age was 30 ± 11 y. The mean operative time was 58 ± 11 min, mean time to first flatus postoperatively was 17 ± 8 h, and mean postoperative length of hospital stay was 3 ± 1 d. No complications occurred during surgery. No patient required conversion to either multiport or open appendectomy. Postoperative wound inflammation was observed in one case (2.3%).

Conclusions: Our results suggested that suprapubic single-incision laparoscopic appendectomy seems to be safe and feasible for selected patients, in consideration of cosmetic outcomes.

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1. Introduction

Since laparoscopic appendectomy was first reported by Semm [1] in 1983, an increasing number of surgeons have chosen laparoscopic appendectomy in the management of patients with appendicitis. Although the debate regarding innovative technique continues, advancements in laparoscopic instruments and skills are encouraging surgeons to perform

more minimally invasive operations. As a result, single-incision laparoscopic surgery has been developed for appendectomy. Since single incision laparoscopic appendectomy (SILA) was first introduced by Esposito [2] in 1998, almost all reported laparoscopic appendectomies have been performed through an umbilical incision. However, an increasing number of patients want to preserve the umbilicus free of scars for cosmetic reasons. To improve the cosmetic results of SILA, we

Yanan Wang and Wenjun Xiong contributed equally to this work in the design of the study and preparation of the manuscript and should be both considered as co-first authors.

* Corresponding author. Department of General Surgery, Nanfang Hospital, Southern Medical University, North Guangzhou Road 1838, Guangzhou 510515, China. Tel.: +86 20 61641681; fax: +86 20 61641683.

E-mail address: gzliguoxin@163.com (G. Li).

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developed a technique in 2009 that is performed through an incision above the pubic symphysis [3]. Based on the promising result of our initial cases, we have continued to expand our use of the technique by improving the multichannel trocar and the methods of surgery to further establish the feasibility and safety of the procedure.

2. Materials and methods

2.1. Patients

From January 2011–January 2012, there were 112 patients who underwent appendectomy in our institution. Eleven patients with contraindications to laparoscopic surgery underwent open appendectomy. Fifty-nine patients underwent conventional three ports laparoscopic appendectomy, including 7 patients of <12 y, 5 patients with serious pelvic inflammatory or other pelvic disease, 10 patients previously undergoing pelvic surgery, 3 patients of body mass index >30 kg/m², and 34 patients with diffuse peritonitis. The remaining 42 patients (37.5%) underwent suprapubic single-incision laparoscopic surgery (Fig. 1). All patients signed an informed consent form and were treated by the same two-surgeon team experienced in laparoscopic surgery. The patients were administered third-generation cephalosporins and metronidazole as anti-infection therapy before anesthesia. A retrospective analysis of the medical records of all cases was performed to determine the clinical impression, surgical results, and post-operative complications.

2.2. Surgical techniques

Before operation, an internal catheter should be inserted to reduce the size of the bladder. The multichannel trocar

consisted of a small wound protector and a size 6 sterile glove. After cutting the distal part of three fingers of the glove, two 5 mm trocars and one 12 mm trocar were inserted through the fingers and tied with suture; these trocars served as ports for the instruments and laparoscope, respectively (Fig. 2A). Each patient was placed in modified Trendelenburg position with the right side elevated at 20–30°, while the surgeon stood between the patient's legs, the cameraman stood at the patient's left side, and the laparoscopic monitor was positioned beside the patient's right shoulder. A 1.5 cm transverse incision was made approximately 3–4 cm above the pubic symphysis, the subcutaneous fat tissue was subsequently incised, and the linea alba was cut vertically. The wound protector was introduced through this small incision, whereas the surgical glove was fixed to the outer ring of the wound retractor (Fig. 2B). One of the trocars inserted through the glove was used for insufflation of carbon dioxide gas and an abdominal pressure of 12 mm Hg was maintained. After mobilizing the mesoappendix with an ultrasonic scalpel, the appendix root was ligated twice with a "Tent-loop" node made of silk braided nonabsorbable suture (Fig. 3). The appendix was cut using an ultrasonic scalpel and removed through the wound protector. Intraperitoneal pus was cleaned by an endo-aspirator and endo-gauze. Drainage tubes placed through a 5 mm incision in the lower right abdomen were used in only four patients. The incision was closed by suturing in a layer-by-layer fashion (Fig. 4).

2.3. Follow-up

Usually, when the condition at which usual activities of daily life were recovered had been achieved, we considered that the patient fit the discharge criteria. All patients were recommended to visit the outpatient clinic on 1 wk and 1 mo after hospital discharge. Also, whenever a patient had an

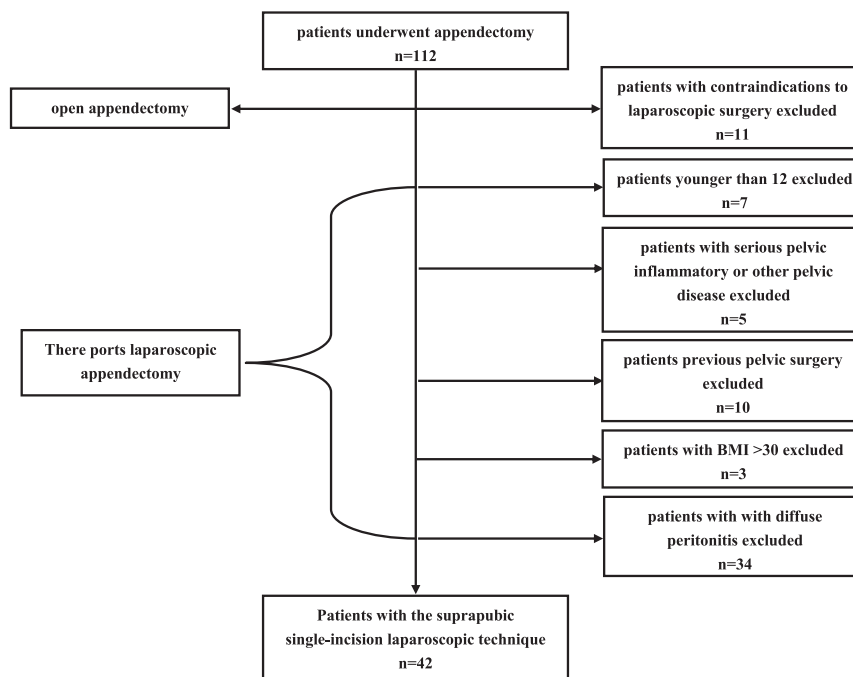


Fig. 1 – Patients selected process.

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