

Current status of laparoscopic surgery in Chile

Laparoskopska kirurgija v Čilu

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Abstract

Background. Laparoscopic surgery was introduced in Chile in 1991; the first operation performed by a minimally invasive approach was laparoscopic cholecystectomy. The technique has been widely adopted and has become the most commonly performed procedure in the country.

Material and Methods. An overview of all reports on laparoscopic surgery published in the Chilean medical journals *Revista Chilena de Cirugía* and *Revista Médica de Chile* in the past five years.

Results. Currently, many gastric and oesophageal operations are performed by a minimally invasive approach, the most common among them being bariatric and antireflux procedures. Laparoscopic cholecystectomy is used in elective and acute settings, in elderly patients and as an outpatient day-case procedure. It is associated with intraoperative cholangiography and biliary tree exploration. Colonic surgery, which has evolved over the past 12 years, is mostly used for the treatment of colorectal cancer and diverticular disease. Laparoscopic splenectomy was introduced in Chile in 1999, and has become a firmly established procedure. Laparoscopic urologic surgery has been successfully used since 1994. In selected cases, the laparoscopic approach has been employed for the exploration and repair of diaphragmatic lesions and for treating appendicitis and abdominal trauma. Inguinal and incisional hernioplasties are routinely performed in many centres.

Conclusions This review shows that the current status of laparoscopic surgery in Chile is comparable to the status of minimally invasive surgery in most countries in the world at the beginning of the 21st century.

Key words. Laparoscopy, surgery, Chile.

Izveleček

Izhodišča. Laparoskopska kirurgija se je v Čilu začela leta 1991; prva **laparoskopska** operacija je bila holecistektomija. V kratkem času je to metodo prevzela večina kirurgov in je sedaj najpogosteje izvajana operacija v državi.

Metode. Pregledani so bili vsi prispevki (publikacije, objave) o laparoskopski kirurgiji, objavljeni v zadnjih petih letih v dveh čilenskih medicinskih revijah: *Revista Chilena de Cirugía* in *Revista Médica de Chile*.

Rezultati. Številne operacije želodca in požiralnika se izvajajo z minimalno invazivno kirurgijo; najpogostejši med njimi so bariatrična kirurgija in antirefluksne operacije. Laparoskopna holecistektomija se izvaja v elektivnih (programskih) in akutnih primerih, pri starejših bolnikih in kot dnevna ambulantna kirurgija; s holecistektomijo povezana postopka sta medoperativna holangiografija in pregled žolčnih izvodil. Kirurgija širokega črevesa se v Čilu izvaja zadnjih 12 let; večina operacij na širokem črevesu je zaradi kolorektalnega raka in divertikulitisa. Prva laparoskopna splenektomija je bila v Čilu opravljena leta 1997 in je danes splošno uveljavljen operativni poseg. Laparoskopija se uspešno uporablja pri uroloških operacijah od leta 1994. Laparoskopija v izbranih primerih se uporablja za pregled in rekonstrukcijo poškodb prepone, diagnostiko apendicitisa in poškodb trebuha. Ingvinalne in pooperativne hernioplastike se rutinsko izvajajo v številnih centrih.

Zaključki. Pregled laparoskopne kirurgije v Čilu kaže, da je trenutno stanje minimalno invazivne kirurgije v Čilu primerljivo s stanjem v večini držav v svetu v začetku XXI. stoletja.

Ključne besede. Laparoskopija, kirurgija, Čile.

Introduction

Chile is one of ten South American countries; it runs along 3,000 kilometers of the coast facing the Pacific Ocean, and has a population of 15,000,000. Together with Brazil, Argentina and Colombia, Chile has attained high general health care standards, particularly in surgery. Laparoscopic surgery was introduced in Chile in 1991; laparoscopic cholecystectomy was the first operation performed by a minimally invasive approach. Soon, it was widely adopted by surgeons and has become the most common procedure in Chile, performed in approximately 10,000 cases per year.

Material and methods

This review is based on all reports on laparoscopic surgery published in the past five years in two most important Chilean medical journals: *Revista Chilena de Cirugía* (Chilean Surgical Journal) and *Revista Médica de Chile* (Chilean Medical Journal), and on some articles by Chilean authors appearing in international journals.

Oesophageal and gastric surgery

The contributions of Professor Attila Csendes to the development of oesophageal surgery are recognized worldwide. The *Hospital Clínico de la Universidad de Chile*, where he works, is one

of the leading medical schools in Chile, and has pioneered numerous laparoscopic esophageal and gastric surgical procedures (1-6). Minimally invasive techniques are currently used in many gastric operations; most commonly in bariatric surgery for morbid obesity (7-10) (Table 1).

Biliary tract surgery

Since it was introduced in Chile laparoscopic cholecystectomy has been used in thousands of patients every year, with minimal complication and conversion to open surgery rates (11-14). Laparoscopic cholecystectomy has been performed in elective and acute settings, in elderly patients and as a day-case outpatient procedure (15-17). Other procedures done during cholecystectomy include intraoperative cholangiography and instrumental exploration of the biliary tree (18,19) (Table 2).

Colonic surgery

Colonic surgery has evolved in Chile in the past 12 years. It has reached excellent standards, comparable to those in most published series in the world literature. The reported median perioperative complications and mortality rates were 10.5% (8% to 15%) and 0.8% (0.5% to 1.2%); the median conversion rate was 9.5% (7% to 14%). Most colonic procedures are performed for colorectal cancer (25% to 37%) and diverticular

disease (30.4% to 35%); other indications include: megacolon secondary to Hirschprung's disease (5%) and Chagas disease (7%), familiar adenomatous polyposis (4%), colorectal trauma (6.5%), transit reconstitution after Hartmann's operation (26% to 34%), prolapsed rectum (12% to 13.6%), intestinal inflammatory diseases (4% to 6%) and colon inertia (5%) (20-25) A broad range of procedures have been performed: from simple hemicolectomy to complex Miles abdominoperineal resection (Table 3).

Small bowel surgery

Laparoscopic intestinal resection is infrequently performed in Chile and most reports on this operation are anecdotic. The main indications included Crohn's disease, gastrointestinal stromal tumors and gallstone ileus. The procedures used included ileostomy and small bowel resection (26,27).

Spleen surgery

The first laparoscopic splenectomy in Chile was reported in 1997. Since then this procedure has evolved and has become firmly established (28-32). Laparoscopic splenectomy is a safe procedure, with the reported perioperative complication rates of 0% to 9%, mean conversion rate of 5.8% (0% to 14.3%), and with no associated mortality. Main indications for this procedure included haematologic diseases, principally idiopathic thrombocytopenic purpura (Table 4).

Urologic surgery

Laparoscopy has been successfully applied to operative treatment of urologic diseases. Many reports on laparoscopic renal and prostatic surgery have been published since 1994 (33-36). The most frequently described operations include laparoscopic radical prostatectomy, hand-assisted laparoscopic renal operation and retroperitoneal laparoscopic renal surgery. These procedures are indicated for the treatment of prostatic adenoma and carcinoma, renal cysts, renal tumors, ureterolithotomy and live donor nephrectomy. The reported conversion rates range from 0% to 0.5% and perioperative complication rates from 0% to 21.4%, with no associated mortality. Nephrectomy

was the most frequently performed procedure (Table 5).

Trauma and emergency surgery

Laparoscopy has been used for the exploration and repair of diaphragmatic lesions in selected cases (37). Also some cases of gallstone ileus resolved by laparoscopic surgery have been reported (27). Most reports refer to the laparoscopic management of selected cases of acute appendicitis and abdominal trauma (38,39).

Other procedures: inguinal and incisional hernioplasty, reconstructive surgery, adrenal gland surgery, and oncological procedures

Inguinal and incisional hernioplasty are routinely performed in many centres, however no series have been described in the Chilean surgical literature to date. Reports on these operations, mostly with expected outcomes, have been presented mainly at surgical congresses and meetings. Videoscopy is being used, but the technique for flap harvesting in plastic and reconstructive surgery is still under development. It has been applied to harvesting the gracilis, latissimus and rectus abdominis flaps (40). The main indication for adrenal gland laparoscopic surgery is adrenal pheochromocytoma; the technique has been used in a small number of patients. The published series reported no conversions to open surgery and no perioperative complications except in one patient who succumbed to uncontrollable intraoperative hypertensive crisis (41). In oncological patients, laparoscopy is employed for staging and for preoperative frozen-section biopsy and ultrasonography. It is well-established and its value has been proven (42).

Conclusions

This brief review of laparoscopic surgery in Chile shows that its current status is comparable to the status reported by most countries in the world at the beginning of the 21st century.

Table 1

Minimally invasive oesophageal and gastric surgery in Chile

- Heller myotomy plus Dor partial fundoplication for achalasia
- Nissen fundoplication for pathological gastro-oesophageal reflux
- Roux-en-Y long limb diversion for patients with Barrett's oesophagus
- Repair of hiatal hernia with and without prosthesis
- Combined laparoscopic and thoracoscopic oesophagectomy and gastric pull-up for oesophageal cancer and benign diseases requiring oesophagectomy
- Selective vagotomy for peptic ulcer
- Adjustable gastric band for morbid obesity
- Gastric bypass with or without resection of the excluded distal gastric segment for morbid obesity
- Distal and total gastrectomy for gastric cancer

Table 2

Biliary surgery: Characteristics and the associated procedures

	%
Complications	1.8 – 15.8
Conversion to open surgery	3 – 5.2
Biliary tree - minor lesions	0.2 – 1
Biliary tree - major lesions	0.1 – 0.3
Intraoperative cholangiography	9.1 – 12
Laparoscopic exploration of the biliary tree	3 – 4.5
Residual choledocholithiasis	0.1 – 0.5

Table 3

Colorectal laparoscopic operations

Procedure	%
Sigmoidectomy	17.4 – 38.1
Left colectomy	13 – 28.2
Right colectomy	9 – 13
Total colectomy	2.1 – 9
Proctocolectomy	1 – 4
Abdominoperineal resection (Miles)	0.5 – 3
Transit reconstitution after Hartmann's operation	26 – 34

Table 4

Indications for laparoscopic splenectomy

Indication	%
Idiopathic thrombocytopenic purpura	71 – 100
Splenic benign cyst	28.6
Autoimmune haemolytic anemia	11.7 – 18.2
Lymphoma	11.7
Systemic erythematous lupus	5.8

Table 5

Urologic laparoscopic procedures

Renal procedures	%
Simple nephrectomy	9 – 13.5
Radical nephrectomy	35.6 – 42.3
Partial nephrectomy	33 – 40.1
Radical nephroureterotomy	1.5 – 3.8
Prostatic procedures	
Radical prostatectomy	100

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