

The History of Laparoscopic General Surgery in the Caribbean

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ABSTRACT

Objective: The first world witnessed a laparoscopic revolution in the 1990s. At the start, laparoscopic surgery was heavily criticized and ridiculed. Despite this, the specialty has blossomed where almost any procedure can be done laparoscopically with the now obvious tremendous benefit to the patients. The objective of this paper is to examine where the Caribbean is placed relative to the rest of the world in terms of laparoscopic surgery and to understand why we are here.

Design and Methods: The literature written on laparoscopy in the region was reviewed and contributions were taken from key surgeons in three main islands, Trinidad and Tobago, Barbados and Jamaica.

Results: Though the first laparoscopic cholecystectomy in the Caribbean, in most islands, took place in the early 1990s like the rest of the world, there was relative dormancy for at least a decade in Trinidad and Tobago and even longer in other islands with regards to implementing advanced procedures or increasing case volumes. Reasons for this included lack of funding, lack of operating time in public facilities, lack of information of the public and the medical fraternity but most importantly lack of trained laparoscopic surgeons. This last factor was proven to be the key one in Trinidad and Tobago in 2003, Jamaica 2005 and Barbados 2011/12, when the return of trained personnel engineered the transition from basic to advanced laparoscopy.

Conclusion: Despite the delay of approximately 10 years in Trinidad and Tobago and 15 years in other islands, the return of trained surgeons has seen a rapid increase in case variety and volumes in laparoscopy. The wheels of motion of the laparoscopic revolution in the Caribbean have finally begun.

Keywords: Bariatric surgery, cholecystectomy, developing nations, laparoscopy

Historia de la Cirugía General Laparoscópica en el Caribe

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RESUMEN

Objetivo: El primer mundo fue testigo de una revolución laparoscópica en los años 1990. Al comienzo, la cirugía laparoscópica fue muy criticada y ridiculizada. A pesar de ello, la especialidad ha florecido, siendo el caso que ahora casi cualquier procedimiento puede hacerse laparoscópicamente, con evidentes grandes beneficios para los pacientes. El objetivo de este trabajo es examinar donde se encuentra el Caribe en relación con el resto del mundo en lo que se refiere a la cirugía laparoscópica, y asimismo el por qué nos hallamos en ese lugar.

Diseño y Métodos: Se examinó la literatura sobre laparoscopia escrita en la región, y se tomaron contribuciones de cirujanos claves de tres islas principales, a saber, Trinidad y Tobago, Barbados y Jamaica.

Resultados: Aunque las primeras colecistectomías laparoscópicas en la mayoría de las islas del Caribe, tuvieron lugar a principio de los años 1990 como en el resto del mundo, hubo un período de relativa inactividad por espacio de casi una década en Trinidad y Tobago, y aun por más largo tiempo en otras islas, en relación con la implementación de procedimientos avanzados o el aumento del volumen de casos. Las razones para esta relativa inactividad incluyeron la falta de fondos, la falta de tiempo de operación de los centros públicos, la falta de información del público y la fraternidad

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médica, pero sobre todo la falta de cirujanos entrenados en laparoscopia. Esto último resultó ser el factor clave en Trinidad y Tobago en 2003, Jamaica en 2005 y Barbados en 2011/12, cuando el regreso del personal entrenado hizo técnicamente posible la transición de una laparoscopia básica a una avanzada.

Conclusión: *A pesar de la demora de aproximadamente 10 años en Trinidad and Tobago, y de 15 años en las otras islas, el regreso de los cirujanos entrenados ha visto un rápido aumento en la variedad de casos y los volúmenes de laparoscopia. El motor de la revolución laparoscópica en el Caribe ha por fin echado a andar.*

Palabras claves: colecistectomía, cirugía bariátrica, países en desarrollo, laparoscopia

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INTRODUCTION

The development of laparoscopic surgery began in the 1800s by Bozzini who used endoscopic instruments to examine various orifices of the body. By 1901, Georg Kelling created a pneumoperitoneum in a dog and performed the first laparoscopy. Laparoscopic sterilization was first performed in the United States of America (USA) in 1941. Kurt Semm in the 1960s–80s developed an electronic insufflator among other laparoscopic tools and performed the first laparoscopic appendectomy in 1980. He was heavily criticized.

Eric Muhe (Germany) performed the first laparoscopic cholecystectomy in 1985 and by 1987 presented his series of 97 patients to the Congress of German Surgeons (1, 2). In 1988, McKernan and Saye performed the first laparoscopic cholecystectomy in the USA in Atlanta (3). Reddick *et al* of Nashville soon followed (4).

The 1990s witnessed the laparoscopic revolution where numerous advances in technology afforded more and more procedures being attempted and completed laparoscopically. It was also the period where skeptic surgeons underwent a paradigm change in their view of laparoscopy and also when the population clamoured for minimal invasiveness. At this time also, the field of laparoscopic surgery, which was essentially owned by gynaecologists for predominantly diagnostic purposes, became the territory of the general surgeon for therapeutic value.

Continued development of laparoscopy has resulted in even inconceivable procedures being performed successfully, for instance the “Whipple Procedure” (5). Almost every surgical procedure is now possible. Robots are now used routinely in many centres with excellent advantages (6). Single port laparoscopy is currently in vogue (7, 8). Having reached this far, maybe the next frontier of natural orifice surgery and distant robotic surgery once considered impossible may soon be the norm (9, 10).

This article reports the history of laparoscopic general surgery in the English-speaking Caribbean and assesses where we are in relation to the rest of the world.

The West Indian Story

The Caribbean is a unique environment with its own share of peculiar problems and challenges. Prime among these is the

stature of ‘developing’ or “third world” nations (11). Consequently, change especially where financial input is required comes with utmost difficulty. In general, there is a significant lag time to the developed world due to the perceived high set-up costs involved [generally without feasibility studies] (12, 13). The culture, not only of the population, but also of the medical fraternity towards new techniques is based on skepticism and doubt [usually associated with ignorance or fear] (14, 15). This further delays the willingness to try or accept new innovations. At public facilities in all Caribbean islands, the priority generally is dealing with emergency surgery and clearing the long surgical waiting lists. With the extremely limited operating time available, the administrations are generally hesitant to promote new procedures which are usually time consuming as surgeons ascend the learning curves.

It is customary for established Caribbean surgeons to learn new techniques by trial and error or by travelling abroad to short workshops or conferences. The difficulty of arranging these, together with enormous costs (at the surgeon’s expense), generally account for the inertia. If, however, one who is skilled in advanced techniques returns to an environment where there is skepticism or fear, implementation of new techniques is much more facile. This was the Trinidad and Tobago experience of the early 2000s where the return of Dilip Dan (having had residency training and advanced laparoscopic training in the USA) transformed the practice of laparoscopic surgery in Trinidad and Tobago and the Caribbean (16).

The first laparoscopic cholecystectomy in Trinidad and Tobago was performed in 1991 (17), in Jamaica in 1993 (18) and in Barbados in 1994 (19). Though this procedure was performed in the 1990s, albeit in small numbers, it was not accepted as the standard (except in Barbados, a unique environment which will be discussed) until the early 2000s, in spite of the worldwide laparoscopic revolution taking place at the time. Also, procedures were still being restricted to cholecystectomy and occasional appendectomy for 12 years in Trinidad and Tobago and 15 years in Jamaica and Barbados (12, 15).

Dilip Dan returned to Trinidad and Tobago in 2002 with full advanced laparoscopic and bariatric training

followed by Joseph Plummer to Jamaica in 2005 with training in laparoscopic colorectal surgery. In 2011/2012, two more laparoscopic surgeons returned to Jamaica (Dr Lindberg Simpson and Dr Pierre Leake) and one in Barbados (Dr Sahle Griffith). Barbados has also been lucky to have Professor David Rosin settle there in 2008; he was a pioneer of laparoscopic surgery in Great Britain in the 1990s. Numerous training courses and preceptorships have been arranged in all three islands to assist local surgeons and residents improve their skills. Despite all of these and the availability of the internet and the increasing availability of training courses, progress in most islands remained too slow. However, by late 2010/2011, there was another surge and hopefully this will take us on par with the developed world.

The Trinidad and Tobago Experience

Though the first laparoscopic cholecystectomy was performed in 1991 by Vijay Naraynsingh (17), laparoscopic surgery in general was fairly dormant in Trinidad and Tobago until 2002. During this period, equipment, instruments and training in advanced laparoscopic techniques were all deficient. There was a perception that laparoscopic surgery was not cost-effective (12). Laparoscopic cholecystectomy was for the most part offered at private facilities and even so in a very limited capacity. The main pioneers were Professor Vijay Naraynsingh, Professor Alan Butler, Mr Martin Haynes, Dr Michael Lawrence and Dr Fitzclarence Griffith. With the return of Dilip Dan, an advanced laparoscopic surgical service was set-up at the San Fernando General Hospital (SFGH) and all advanced procedures were introduced to the public and private sector in Trinidad and Tobago (16, 20). Procedures ranged from foregut surgery including anti-reflux and achalasia surgery, splenectomy, adrenalectomy, liver, bariatric surgery, colorectal, thoracoscopy and hernia surgery. All of these were started in 2003.

There was emphasis on training and safety with numerous training courses for local as well as regional surgeons. Also improved techniques for cholecystectomy were taught to local surgeons. The first of these training programmes was in August 2003. Numerous preceptorships were arranged for local surgeons at various hospitals both in public and private practice in Trinidad and Tobago. Preceptorships were not limited to Trinidad and Tobago but included St Lucia, Jamaica, Barbados and the non-English-speaking islands of the Dominican Republic and Puerto Rico in various procedures ranging from colorectal and foregut surgery to bariatrics. At this same time, the surgery residency programme was started in Trinidad and Tobago which saw residents getting first-hand training in basic and advanced laparoscopic surgery.

The first graduate of the DM surgical programme in 2011, Dr Yardesh Singh is competent in most advanced procedures and is currently accepted for a laparoscopic training fellowship in Alberta, Canada. Competent residents allowed consultants the comfort to attempt procedures and the

residents themselves to gain confidence. Progress was so rapid that every public and private hospital has the most advanced laparoscopic equipment and almost every surgeon in practice is capable of at least basic laparoscopic procedures and a few advanced procedures. Also the regional health authority is in full support of bariatric surgery which has also started at the SFGH (21).

Coming out of this new surge are numerous publications in various international journals (22–35). Though financial battles were faced, the more important factor of having someone trained to teach and preceptor surgeons made the Trinidad and Tobago laparoscopic revolution possible. The population had an expectation of minimal invasive procedures and demanded it. This also helped to fuel the drive.

The Barbados Experience

The first laparoscopic cholecystectomy in Barbados was done in 1994 by Arthur Edghill as part of a workshop. In 1996, Dr Ramesh Jonnalagadda did the first laparoscopic cholecystectomy at the Queen Elizabeth Hospital [QEH] (19) and in the same year performed the first thoracoscopy with Dr Anthony Harris, also at QEH (36). Barbados is unique in that the population is small and most care is centred at one hospital, the QEH. It is the main location for both public and private care. Unlike other islands, all patients in Barbados were offered laparoscopic cholecystectomy and it became the first island where laparoscopic cholecystectomy was accepted as the standard of care. This evolution came fairly rapidly with 0% cholecystectomies being done laparoscopically before 1996, 53% between 1996 and 1997, 75% by 2002 and 95% presently (unpublished data – Ramesh Jonnalagadda).

In 2003, the first Caribbean workshop on minimal access surgery was staged in Barbados where numerous surgeries (including advanced procedures) were performed by Professor David Rosin of England and Dilip Dan from Trinidad and Tobago and transmitted to an audience of 150 delegates. Many other workshops and preceptorships have since been arranged using other surgeons from Great Britain and Dilip Dan from Trinidad.

All surgeons practising at QEH offer laparoscopic cholecystectomy and all residents become competent by their third year. Unfortunately though, it is only recently that advanced laparoscopic procedures are being done outside of workshop settings as a result of Professor Rosin and more recently the return of Dr Sahle Griffith. It is expected that there will be rapid progress from here onwards and local training in advanced procedures will blossom.

The Jamaican Experience

The first laparoscopic cholecystectomy was performed in 1993 by Mitchell *et al* at the University Hospital of the West Indies [UHWI] (18). Since then, because of the cost implications and the general economic slow down of Jamaica, laparoscopic surgery was relatively dormant with cholecystectomy being the only procedure done both in the public and

private sectors well until 2004/2005 (15). There have been several reports documenting the local experience on laparoscopic cholecystectomy (37–40). At UHWI, there has been a paucity of procedures (two per week) being done only electively and with long waiting times. Of all cholecystectomies, only 23% were done laparoscopically (40). The experience at the other public facilities ranged from very limited to non-existent.

In 2004, colorectal procedures were preceptored at the UHWI by Dilip Dan and, following this, Joseph Plummer entered a fellowship in Toronto in colorectal surgery. The first independent laparoscopic colectomy was recorded in Jamaica in 2005 (41) and since then another report on laparoscopic colectomy was documented (42). In 2006, Dr Clive Thomas and Dr McFarlane were preceptored by Dilip Dan on multiple occasions on anti-reflux surgery at St Joseph's Hospital, Jamaica, and this surgery as well as sleeve gastrectomy for morbid obesity is being done. In 2006, the first laparoscopic inguinal hernia repair was done by Cawich *et al* (43).

Also, Dr Shamir Cawich, having trained in laparoscopic liver resection in 2011, has started this service at UHWI (44–47). The most recent addition is in the return in 2011 of two surgeons trained in advanced laparoscopic and bariatric surgery (Dr Simpson and Dr Leake). Single port laparoscopy has also started and this is pioneered by Cawich (48–50).

The major challenges Jamaica faced with respect to laparoscopic surgery were funding (15, 51), the healthcare worker's attitudes [still perceived as experimental surgery] (14, 15) and the lack of trained surgeons (15). The economic issues will linger for a while to come. With education and the internet, the awareness of healthcare workers and the population has improved. Certainly the most positive progress is that there is a faculty now available to push local advanced training. It is now evident that the laparoscopic revolution in Jamaica, has begun.

Other Islands

Numerous other islands have the unfortunate experience of not having advanced trained surgeons and as such are limited to very basic laparoscopy or only open surgery. In St Lucia, Dr Andrew Richardson and Dr Charles Greenidge do offer laparoscopic cholecystectomy and appendectomy. Advanced laparoscopy including bariatrics and foregut procedures are done on a "preceptor" based environment. Basic laparoscopy is offered in St Kitts and Nevis. The experience in Guyana is limited to laparoscopic cholecystectomy in private facilities. Antigua and Barbuda at one point in time offered advanced procedures including bariatrics, but has returned to only cholecystectomy as the trained advanced laparoscopic surgeon returned to the USA. It is hoped that societies like the Caribbean College of Surgeons or The University of the West Indies (UWI) will pioneer development in these smaller territories.

CONCLUSION

Though there was tremendous inertia in joining the worldwide laparoscopic bandwagon, the future looks good for the three major islands in the Caribbean. There has been tremendous lethargy due to several reasons some of which were related to costs and culture, but most importantly, because of the lack of adequately trained surgeons. This problem is seemingly resolved in the three main islands but help is needed in the other smaller islands. Either fellowship programmes (regional or international), preceptorship/proctorship or tele-mentoring may be of value for these islands. The UWI and the Caribbean College of Surgeons will need to play an active role to ensure these islands are not left behind.

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