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Perspective

Surgery in the West Indies: A perspective from Trinidad

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ARTICLE INFO

Article history:

Received 4 May 2014

Accepted 9 June 2014

Available online 30 June 2014

Keywords:

adrenalectomy

morbidity and mortality

aneurysmorrhaphy

The English speaking Caribbean is made up of a number of island states, separated by long transoceanic distances that are usually traversed by air transport. Their relatively small populations and separation by sea present specific challenges to the practice of surgery. Of 19 island states (Table 1) only 4 have populations exceeding 250,000 persons and most have fewer than 100,000 inhabitants (Fig. 1).

Small populations, especially when isolated, both by sea and Governmental administrations, often define how surgery is practised. There is too little work for many subspecialties such as plastic surgery, urology, paediatric surgery, vascular surgery, oncology and so on. In such circumstances, the general surgeon has to cover a wide range of specialities. While often doing the same total number of operations annually as surgeons in developed countries, Caribbean surgeons will have a smaller number of individual cases in a much wider range of conditions.

The landmark paper by Birkmeyer et al demonstrating lower mortality rates for complex procedures in high volume hospitals would virtually prohibit such procedures in almost all Caribbean islands.¹ The surgeon either has to perform the procedure in isolation, deny the patient treatment or engage in the impractical practice of transporting the individual to a distant island or developed country. In the majority of cases circumstances dictate that complex procedures have to be undertaken by a surgeon who performs under three cases per year. Conditions such as adrenalectomy, nephrectomy, pancreatectomy, hepatectomy or even gastrectomy may be only occasionally performed in these low-volume islands. Topal et al suggest that undertaking high-risk surgery at low-volume centres could result in increased morbidity and mortality.² Yet in spite of these data, Caribbean surgeons have to perform major procedures in the low-volume setting because service centralisation or inter-island transfer is almost always impractical. However, we

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<http://dx.doi.org/10.1016/j.cmpr.2014.06.001>

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Table 1 – List of Caribbean countries and their populations.

| Country (or dependent territory) | Population |
|--|------------|
| Jamaica | 2,715,000 |
| Trinidad and Tobago | 1,344,000 |
| Bahamas | 368,000 |
| Barbados | 276,000 |
| Saint Lucia | 170,000 |
| Grenada | 103,000 |
| Saint Vincent and the Grenadines | 97,000 |
| Antigua and Barbuda | 88,000 |
| Dominica | 71,000 |
| Cayman Islands (UK) | 60,000 |
| Saint Kitts and Nevis | 55,000 |
| Saint Maarten (Kingdom of the Netherlands) | 41,000 |
| Saint Martin (France) | 39,000 |
| Turks and Caicos Islands (UK) | 33,000 |
| British Virgin Islands (UK) | 32,000 |
| Caribbean Netherlands (Kingdom of the Netherlands) | 23,000 |
| Anguilla (UK) | 14,000 |
| Saint Barthélemy (France) | 10,000 |
| Montserrat (UK) | 5000 |

have been able to produce acceptable results for some procedures, even in our limited resource setting.^{3,4}

Apart from the surgeon doing small numbers, the entire multidisciplinary team may have limited experience with some conditions. With pheochromocytoma for example, the anaesthetist, internist and intensivists teams may face challenges with limited drug availability and inadequate monitoring facilities.

If major cases are routinely transferred elsewhere, not only are the local surgeons denied the opportunity to manage challenging cases, but junior surgeons and those in training will only be exposed only to relatively minor procedures.⁵ In fact, it is better to bring a subspecialist to one's country to perform the procedure so that the entire local fraternity might benefit from exposure to the operation (by a master). In keeping with this philosophy, in the year 2013 we organised workshops in hepatopancreatobiliary surgery and advanced laparoscopy during which live surgery was performed by visiting specialists with real-time audio–visual transmission from the operating room (Fig. 2).

Apart from the obvious advantage of seeing a master at work, local surgeons had the opportunity to see how a surgeon functioned with limited equipment in our resource-poor setting. We also invited colleagues from neighbouring islands to attend.

In addition to importing expertise, we also have to develop creative ways to work with limited resources while attempting to achieve acceptable results.⁶ For example, the surge in minimal access surgery emphasises the advantages of early mobilisation, minimal scarring, decreased pain and early return to work. However there are limitations that seriously challenge the widespread implementation minimally invasive services in our resource-poor setting, such as the acquisition and maintenance of expensive equipment, high cost of disposable instruments, challenging learning curve, the need for a significant volume to maintain skills and increased operating time. In these circumstances, we have firmly established the value of mini laparotomy cholecystectomy that produces results similar to laparoscopic cholecystectomy, but requires no special equipment and instrumentation (Fig. 3).⁷ This is extremely important for Caribbean surgeons



Fig. 1 – Map showing the West Indian territories.



Fig. 2 – Local surgeons observing a foreign expert at a workshop in Trinidad.



Fig. 3 – Mini lap cholecystectomy for acute cholecystitis.

as laparoscopic equipment is available in Public Hospitals in only five of the 19 Caribbean territories.

Similarly, a specialist urologist is available in only four territories. Thus, many of our patients with urolithiasis do not have access to extracorporeal shock wave lithotripsy, ureteroscopy, nephroscopy or laser or lithoclast lithotripsy. In spite of these shortcomings, it is possible to do mini

laparotomy ureterolithotomy where stone removal is done via small, muscle-splitting incisions with shortened hospital stay, minimal morbidity and early return to work⁸ (Fig 4).

The absence of monitoring equipment also influences our practice. For example, in carotid endarterectomy (CEA), electroencephalographic monitoring, transcranial Doppler, somatosensory evoked potentials and carotid stump pressure monitoring are all unavailable. Consequently, we have found performing the CEA under local anaesthesia with neurological assessment of the awake patient can guide our utilisation of an intra operative shunt⁹ (Fig 5). This has allowed us to perform the procedure safely with limited facilities and, more recently; it is possible to assess the likely need for shunting preoperatively.¹⁰

Limited Intensive Care Unit (ICU) beds and blood banking stores also influence practice. Abdominal aortic aneurysmorrhaphy, done via the retroperitoneal route, results in decreased ICU, blood transfusion and hospital stay – hence its value in our setting¹¹ (Fig 6). For those unfamiliar with the retroperitoneal approach, transperitoneal exclusion can offer similar advantages.¹² Almost every surgeon has to be able to deal with ruptured aortic aneurysm, vascular trauma and acute vascular occlusion. While it is unlikely that the isolated general surgeon could achieve results similar to that from a specialised vascular centre, most such cases cannot be transferred to another country and must be managed locally.

Many other cases such as replant surgery, vascularised free tissue transfer, myocutaneous flaps and neonatal surgery fall under the lot of the general surgeon on a small island.

It is our view that the centralisation of services advocated by Birkmeyer et al¹ is both impractical and irrelevant to small island states. In such countries, the general surgeon must continue to perform a wide range of procedures with much smaller numbers than are defined as acceptable in the developed world.¹ Utilizing workshops and importing expertise, rather than exporting the patient, are methods by which Caribbean surgeons can improve their skills and results. In addition, many local surgeons visit other colleagues to learn new techniques and procedures. These challenges need innovative solutions and improved communication between the islands would help. The Caribbean College of Surgeons, now in its 12th year, is helping in this endeavour. Partnerships with international groups are also of great assistance. For example, we now (in Trinidad) run the Basic Surgical Skills course of the Royal College of Surgeons of England and also

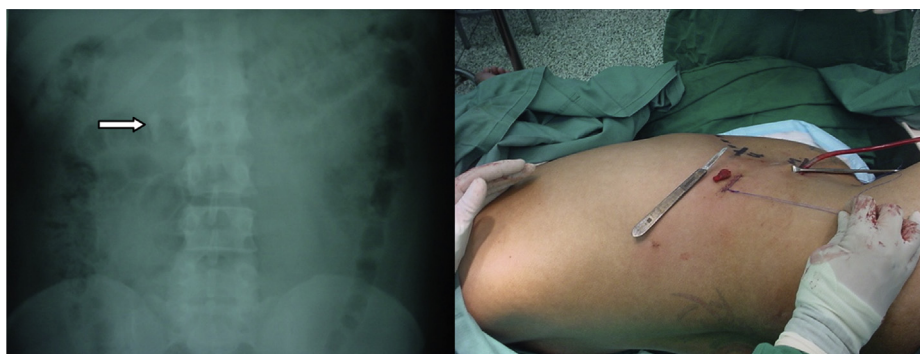


Fig. 4 – Minilap ureterolithotomy for upper ureteric calculus.



Fig. 5 – Cervical plexus block for eversion carotid endarterectomy.



Fig. 6 – Patient position for retroperitoneal aortic surgery. Incision along dotted line.

have our Residents do the American Board of Surgeons in Training Examination (ABSITE). Dealing with our unique challenges requires innovative solutions and we actively and continually pursue these as our internet-savvy people expect first-world results while we grapple with third-world facilities and low-volume work. Nevertheless, we must actively and continually pursue the goals of the delivering excellent care in spite of our circumstances.

Conflicts of interest

All authors have none to declare.

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