Surgery in the “New” Hong Kong

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The sovereignty of Hong Kong was handed over to the People’s Republic of China by the United Kingdom on July 1, 1997, after almost 150 years of British rule. Hong Kong became a special administrative region (Hong Kong SAR) of China, maintaining its own legal structure governed by law based on the principle of “1 country 2 systems.” The basic law continues to recognize the autonomy of medicine and other professions and of professional organizations to monitor standards and accredit qualifications as they did in the past. At the political level, the Legislative Council of Hong Kong SAR has a medical representative who is elected by the medical profession.

On the economic front, despite the recent financial crisis in Asia, Hong Kong’s population of 7 million has achieved a per capita gross domestic product of US $22000. They also have a life expectancy of 79 years, literacy rate of 93%, and an infant mortality of 4 per 1000.

Most (95%) of the Hong Kong population live in urban areas, with an overall population density of 6000 persons per square kilometer. With efficient public transportation in almost all areas of Hong Kong, access to the accident and emergency departments of acute care hospitals is rapid. About 2 million visits are made to these departments every year. Easy access, geographical proximity, and a minimal charge for this care have also created a large demand on the acute care services by patients who do not require emergency attention and who could have been managed at primary care facilities.

REGISTRATION OF SURGEONS

The Medical Council of Hong Kong, in accordance with the Medical Registration Ordinance, issues practicing certificates to all registered medical practitioners. A specialist registration in surgery and other specialties was introduced in 1997, which includes specialists who have been awarded Fellowship of the Hong Kong Academy of Medicine, are certified by the academy to have completed at least 6 years of postgraduate training, and have fulfilled the continuing medical education requirements for the relevant specialty. As of July 2000, 367 surgeons, including 216 general surgeons, 65 urologists, 28 neurosurgeons, 30 plastic surgeons, 17 pediatric surgeons, and 11 cardiothoracic surgeons, had registered with the medical council as specialists. Ophthalmologists, orthopedic surgeons, and otorhinolaryngologists have their own specialist registers.

Once a registered medical practitioner is included in the specialist register in surgery, he or she must participate in continuing medical education as required by the College of Surgeons of Hong Kong, which is 1 of the 14 constituent colleges of the Hong Kong Academy of Medicine.

The College of Surgeons of Hong Kong was established in 1990 and regulates basic and advanced surgical training in Hong Kong SAR. Basic surgical trainees must obtain membership in the College of Surgeons before they enter a higher level training program. A basic surgical trainee registered with the college is only allowed to sit for membership examination if he or she has satisfactorily completed 4 surgical rotations of 6 months’ duration each.
Each trainee is assessed by his or her supervisor every 3 months, and progress is monitored by the college every 6 months. The assessment has to be endorsed by the censor in chief of the college or by the chairperson of the accreditation committee of the Hong Kong Intercollegiate Board of Surgical Colleges at the basic and higher levels, respectively.

Trainees maintain a logbook as a record of their training and practical activities and must undertake a certificate course in basic surgical skills. It is also recommended that the trainee obtain a certificate in advanced trauma life support.

After completion of 2 years’ basic surgical training and satisfactory performance on the membership examination of the College of Surgeons of Hong Kong, trainees receive 4 years of higher level training before they are eligible for fellowship in the College of Surgeons. Surgical trainees from Hong Kong SAR are also eligible to apply for membership and fellowship in the Royal College of Surgeons of Edinburgh in Hong Kong, based on satisfactory performance on conjoint examinations between the College of Surgeons of Hong Kong and the Royal College of Surgeons of Edinburgh.

The Royal Australasian College of Surgeons also holds fellowship examinations in Hong Kong SAR for eligible higher level trainees in general surgery.

The American College of Surgeons, through its Hong Kong chapter, organizes advanced trauma life support and other postgraduate courses for physicians and nurses.

SURGERY AND UNDERGRADUATE EDUCATION

The medical faculties of The University of Hong Kong and The Chinese University of Hong Kong, Shatin, award bachelor of medicine and bachelor of surgery degrees to graduates who pass a final examination after 5 years of undergraduate education. This is followed by 12 months of internship, including 6 months of surgical rotations, before registration with the medical council to practice.

The Hong Kong College of Medicine for Chinese was established in 1887, renamed the Hong Kong College of Medicine in 1907, and became the Faculty of Medicine at The University of Hong Kong in 1912. The Faculty of Medicine introduced a new medical curriculum in 1997 that emphasizes an integrated approach, with problem-based learning, small group teaching, and early clinical contact.

Educational scenarios in the new medical curriculum that present surgical problems are ideal for teaching and learning applied anatomy and physiology, pathology, various investigative modalities, communication skills in obtaining informed consent and in breaking bad news, practical skills, and quality-of-life issues. Recognizing these needs, the surgeons at the teaching hospitals in Hong Kong, despite their heavy clinical and research responsibilities, have taken a leading role in the implementation of the new medical curriculum.

SKILLS DEVELOPMENT CENTER

A Skills Development Center in surgery, housing a skills laboratory, seminar rooms, an audiovisual library, videoconferencing facilities, and laparoscopy and open surgery training equipment, was inaugurated in 1996 at Queen Mary Hospital, Hong Kong, through a generous donation from the Hong Kong Jockey Club. Approximately 60 courses in basic to advanced surgery for medical students, nurses, interns, surgical residents, and surgeons are held every year at the center. Some of these courses are organized in collaboration with the American College of Surgeons and the Royal Colleges of Surgeons from the United Kingdom. Other facilities have also been built. The medical faculties of The University of Hong Kong and The Chinese University of Hong Kong also organize courses for trainees and surgeons.

SURGICAL SERVICES

More than 90% of the secondary and tertiary surgical services in Hong Kong is provided by the public hospitals administered by the Hospital Authority (HA). Extended and long-term surgical care is almost exclusively provided at these hospitals. The HA, established in 1990, governs 44 hospitals and institutions with 28,500 beds (+2 beds per 1000 persons). By contrast, the number of beds at 12 private hospitals in Hong Kong is 3500.

The HA is a major employer of Hong Kong surgeons, and 233 (63%) of the 367 surgeons registered as specialists are employed by the HA. The academic surgeons employed by the 2 medical faculties also carry out their clinical work at HA hospitals affiliated with their respective medical schools.

The creation of the HA has added impetus to the upgrading of hospitals and has provided modern and advanced surgical, diagnostic, and intensive care facilities at the larger hospitals. A major shifting of surgical patients from private to public hospitals has also occurred. The cost of inpatient care and outpatient visits to the specialist surgical clinics is subsidized by the taxpayers through government funding to the HA. An inpatient pays only HK $68 (US $8.70) per day for all services, and an outpatient visit to a specialist clinic costs HK $44 (US $5.70). The salary remuneration for medical and nursing staff has increased considerably under the HA. This, together with the Asian financial crisis, has led to a loss of only 2% per annum of specialist surgeons from the public service to private practice, compared with 7% before establishment of the HA.

Less than 5% of the gross domestic product of Hong Kong is spent on health care. Like other jurisdictions, with increasing costs of hospital care for the growing population of older people, public sector financing has become unsustainable and is an important issue of debate in the community. Proposals have been put forward to ease these burdens by increasing outpatient and hospital charges, establishing mandatory health protection accounts, and encouraging the public to have private health insurance. These are not likely to be popular.

Twenty-four hour acute surgical care is provided at 13 HA hospitals and 3 private hospitals. Inpatient admissions through the accident and emergency departments of HA hospitals totaled 90,100 (+1% of all surgical admissions) in 1999. Almost 155,000 (70% of all surgical admissions) required either endoscopic or open surgical op-
operations as emergency or elective procedures. These open operations were further classified as ultramajor or major (34%), intermediate (33%), and minor (33%). In addition, 13500 minor operations and 18500 endoscopies were performed at outpatient clinics.

Specialized surgical units and centers in neurosurgery, burns, neonatal surgery, transplantation, and other disciplines are established in a few large hospitals. Although statistics were not available for private hospitals, it is estimated that most procedures performed at these institutions are elective and straightforward in nature.

SURGICAL PRACTICE

The primary indication for elective ultramajor and major operations at tertiary hospitals is malignancies. It is the leading cause of death in Hong Kong, accounting for 32% of deaths. The anatomical sites or origin of malignancies, in descending order of occurrence, are lungs (29%), liver (12%), colon (8%), stomach (6%), rectum and anal canal (4%), nasopharynx (4%), esophagus (4%), breast (4%), pancreas (3%), non-Hodgkin’s lymphoma (3%), and others (23%), accounting for 159.5 deaths per 100000 persons.

The 5 most common acute general surgical emergencies at acute care hospitals are acute appendicitis, intestinal obstruction, perforated peptic ulcer, acute cholecystitis, and peritonitis of various causes. The 5 most common elective operations are for hernias, gallstones, benign prostatic hypertrophy, colorectal cancer, and breast neoplasm. The most common emergencies and elective operations at the major tertiary institutions, however, differ from those at other hospitals because of different referral patterns to these institutions.

Outpatient care is provided at 22 specialist surgical clinics associated with various HA hospitals.

The surgical departments at each hospital have a chief of service and specialty surgical teams consisting of consultants, associate consultants, senior and junior residents, and interns. As part of continuing medical education and the education of surgical trainees, journal article reviews, grand rounds, radiology meetings, research presentations, and morbidity and mortality meetings are held regularly at most institutions.

In 1997, trauma was the fifth leading cause of death in Hong Kong, accounting for 1500 deaths (5% of all mortalities). The management of major trauma, based on the principles of trauma call activation, advanced trauma life support, and a multidisciplinary approach, has seen marked improvement in trauma services in recent years.

Surgical diseases commonly seen in the past, such as recurrent pyogenic cholangitis, abdominal tuberculosis, and parasitic infestations, have declined considerably. However, with ease of migration in the region, small numbers of new patients with such conditions are being seen, AMBULATORY SURGERY

There has been a perception that patients in Hong Kong, and in Asia generally, prefer to stay in the hospital rather than to leave on the same day, even after a simple surgical procedure. Recent experience has shown that there has been a change in this notion, and increasing numbers of patients suitable for ambulatory surgery now accept this practice. However, the progress in establishing dedicated day surgery centers at HA hospitals has been slow. Most day surgery facilities are specialty-based rather than integrated, and they function as a part of existing surgical activities rather than as autonomous day surgery services. It is estimated that the present number of day surgery procedures performed under general anesthesia is about 15%.

VIDEOSCOPIC SURGERY

Facilities for videoscopic surgery are available at most hospitals in Hong Kong. Formal training for basic and advanced videoscopic surgery is obtained at skills centers and is followed by supervised training in the clinical setting. The use of videoscopic and laparoscopic surgery has paralleled the world trend since its introduction in the early 1990s in Hong Kong.

Although elective laparoscopic cholecystectomy is a routine operation at Hong Kong hospitals, other laparoscopic procedures, such as herniorrhaphies, colectomies, and appendectomies, are performed at only a few hospitals and are not numerous overall. Therapeutic endoscopies, such as those for gastrointestinal bleeding and colorectal lesions, and endoscopic retrograde cholangiopancreatographies are frequently performed by surgeons. With the widespread use of videoscopic surgery, the Hong Kong Society of Minimal Access Surgery, established in 1992, has attracted a large membership and created a conduit for endoscopic surgery workshops and links with centers abroad.

TRANPLANTATION SURGERY

Cornea and kidney transplantation has been performed in Hong Kong since the 1960s. Liver, heart, lung, and bone transplantation programs began in the early 1990s and are well established. The scarcity in obtaining cadaveric grafts has been a major problem in Hong Kong, as in other parts of Asia. The average waiting time for obtaining a suitable cadaveric liver graft in Hong Kong, for example, is 18 to 24 months.

An increased willingness of and acceptance by close family members to donate parts of their livers has prompted a significant shift to living related donor liver transplantations in Hong Kong since 1997.

Since the inception of the liver transplantation program in 1991 at the University of Hong Kong Medical Centre, Queen Mary Hospital, 150 liver transplants in 23 children and 121 adults (including 6 retransplants) had been performed by November 2000. Half of these were done in the latter 3 years. Common indications were cirrhosis of the liver, biliary atresia, fulminating hepatic failure, early liver cancer, and metabolic diseases. There were 74 cadaveric grafts and 76 living related adult donor grafts for these transplantations. All living donors were screened by various committees established under the Human Organ Transplant Ordinance of Hong Kong SAR.

A highlight of this program in Hong Kong has been the use of the right lobe of the liver of living related do
Historically, Hong Kong has kept to the fore of the international surgical scene, beginning in the 1850s when patients undergoing surgical procedures in Hong Kong received ether anesthesia soon after its introduction in Boston, Mass.

The credit for putting Hong Kong surgery on the map goes to Prof. G. B. Ong, whose vision, skills, and innovations attracted many international visitors to Hong Kong. Professor Ong was invited on numerous occasions to overseas centers to demonstrate his operative techniques and share his experience in surgery of the esophagus and liver.

The evolution of surgery in Hong Kong and the high standards of care in specific diseases have brought many overseas fellows to receive training at academic surgical departments in Hong Kong. The involvement of Hong Kong surgeons in international organizations is also well recognized. Collaborative research and trials between local and overseas academic surgical departments have also flourished.

**TOWARD ZERO OPERATIVE MORTALITY**

Significant progress in achieving zero operative mortality in complex elective procedures has been made in Hong Kong and has been documented in the surgical literature. In 1989, the mortality following hepatectomies for hepatocellular carcinoma at the University of Hong Kong Medical Centre was 28%, while in 1997 it was 0%. The mortality in the same hospital for esophagectomy for squamous cell carcinoma between 1982 and 1986 was 17.6%. This dropped to a mean of 3.2% between 1993 and 1996, and since 1997 it has remained at 0%. This was achieved by sub-specialty teams performing these operations frequently on a large number of patients, with stringent peri-operative measures and randomized controlled trials to provide the best evidence to guide practice.

**RESEARCH AND PUBLICATIONS**

In 1999, Hong Kong surgeons published approximately 350 articles and 110 abstracts in local, regional, and international journals. Most articles were on clinical surgery. Surgical research in molecular biology, immunology, developmental biology, and other areas requiring research laboratories is conducted almost exclusively by the academic surgical departments of the 2 medical faculties. The laboratory units providing animals for surgical research follow strict guidelines set by the Committee on the Use of Live Animals in Teaching and Research. In clinical research trials, surgeons in Hong Kong have made special contributions to the fields of esophageal, hepatocellular, and head and neck cancer surgery and in therapeutic upper gastrointestinal endoscopies.

Hong Kong is home to 2 surgical journals. The *Asian Journal of Surgery*, published since 1988, is the official publication of the Asian Surgical Association, Asian Association of Pediatric Surgeons, Asian Vascular Society, Asian Association of Endocrine Surgeons, and College of Surgeons of Malaysia. A second journal, *Annals of the College of Surgeons of Hong Kong*, established in 1997, is the official publication of the College of Surgeons of Hong Kong, Hong Kong Neurosurgical Society, Hong Kong Society of Coloproctology, and Hong Kong Society of Minimal Access Surgery.

**HONG KONG AND INTERNATIONAL SURGERY**

Communication, collaborations, and conferences between surgical colleges and institutions in Hong Kong and China were in place long before 1997. The pace of this exchange has now accelerated. Any apprehension because of perceived political changes after the handover of Hong Kong from the British has proved unwarranted. The number of visiting fellows from mainland China’s surgical departments is on the increase. Joint workshops and meetings between surgeons at mainland and Hong Kong venues are also becoming a common feature. Overseas experts visiting Hong Kong often continue their trips with a visit to China.

It is anticipated that Hong Kong, with its well-established international connections, will play a major role in the advancement and promotion of surgical education and research in China.

**MAINLAND CHINA AND HONG KONG SAR**

Prosperity has brought about phenomenal change in the public hospital services and care in Hong Kong, from crowded wards, “camp beds,” and less than satisfactory infrastructure to modern facilities in new or renovated hospitals. This has also brought about changes in the community’s expectations. There is an increased demand for prompt care, sophisticated investigations, and good outcomes. Scrutiny of physicians, particularly of surgeons, by local media and patients’ rights groups has increased considerably. The surgeons and surgical profession in Hong Kong, however, have viewed this new environment as an opportunity to improve the quality of surgical care. The patients and population of Hong Kong, on their part, have maintained their respect and trust in the standard of surgeons and surgical care in Hong Kong.