

A history of paediatric surgery in Singapore

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INTRODUCTION

Singapore's children and their doctors have much to celebrate. With the 100th anniversary of the introduction of paediatrics in Singapore, we will also commemorate the 40th year of the establishment of paediatric surgery as a subspecialty in Singapore in September 2021.

Paediatric surgery first emerged as a recognised surgical subspecialty after the Second World War, with the formation of its first professional societies in the United States in 1948, the United Kingdom in 1953, Japan in 1964 and Asia in 1972 by groups of early visionary surgeons.^(1,2) They realised that in order to improve the outcomes of surgery in children, paediatric surgery must be considered a dedicated discipline and be performed by separately trained specialist surgeons, and that children must be treated differently, and not merely as small adults. The development of paediatric surgery in parallel with paediatric anaesthesia, intensive care and neonatal care has drastically reduced the mortality associated with newborn surgery as well as surgery for congenital malformations. Over the last four decades, the survival rates for surgically correctable congenital malformations in Singapore have improved to levels on par with those of first-world dedicated units.^(3,4)

THE BEGINNINGS OF PAEDIATRIC SURGERY IN SINGAPORE

In Singapore, the first medical specialties were introduced in the 1950s amidst a period of rapid socioeconomic development. At the Singapore General Hospital (SGH), Dr Yeoh Ghim Seng and Dr Yahya Cohen were appointed to head the surgical units 'A' and 'B', respectively. Despite a lack of distinction between adult and paediatric surgical practice at that time, the first conjoined twins, Karen and Kate, were separated by Dr Yeoh and Dr Choo Jim Eng at SGH on 12 December 1961.⁽⁵⁾

On return from an overseas attachment to a cardiothoracic unit in New Zealand, with no job openings available in cardiothoracic surgery, the then Dr V T Joseph joined the Surgery 'B' unit in SGH, under the headship of Dr Choo. Dr Joseph had a particular interest in paediatric surgery and worked tirelessly for the children, along with two other adult general surgeons, Dr Chua Wan Hoi and Dr J J Murugasu, who maintained a part-time paediatric surgical practice. Dr Chua and Dr Murugasu subsequently left for private practice, and following the restructuring of SGH, Dr Joseph established the first paediatric surgery unit in Singapore in October 1981.⁽⁵⁻⁷⁾

The first paediatric surgical inpatient unit was housed in Ward 9, Bowyer Block, where a section of the ward was separated

off from the adult area and made into a nursery. Patients who required critical care after major surgery were kept in Ward 10, where they were nursed alongside adult patients. The ward was later relocated to Block 5 Level 5. Sister Seah Siew Hua oversaw inpatient nursing care. Sister Nyan Lee Kian was in charge of the operating theatre, and the paediatric cases were performed in OTL4 and then in OTL1. The emergency theatres were shared with adult surgeons at night, with an elective surgical list dedicated to paediatric cases during the day. In 1991, the department commemorated its first decade with an academic meeting at the College of Medicine Building (Fig. 1).

The first trained paediatric surgeons were Dr Ong Nai Theow, Dr Cheah Siew Leng, Dr Sim Chiang Khi and Dr K Prabhakaran. All these surgeons went to Melbourne for overseas training at the Royal Children's Hospital (RCH). Among them, Dr Sim and Dr Cheah were the first to be formally accredited after passing the Australian College of Surgeons fellowship examination.⁽⁸⁾

The later paediatric surgeons included Dr Grace Tan and Dr Carolyn Tan. Following the establishment of the National University Hospital (NUH) on the campus of the National University of Singapore in 1985, the 'A' unit of the Department of Surgery at SGH shifted to the Kent Ridge campus.⁽⁷⁾ Dr Grace Tan left to practise in NUH, and Dr Carolyn Tan left NUH for SGH, subsequently taking over as the head of the department and, later, as the Division Chair in KK Women's and Children's Hospital (KKH). Subsequently, Dr Carolyn Tan left medical practice and moved to Perth.

In NUH, Dr K Prabhakaran began his practice following his training in RCH in 1983. He led the service at NUH and subsequently established a dedicated Department of Paediatric Surgery in 2001. In 1990, the NUH team established the Singapore Paediatric Transplantation Programme and performed the first paediatric kidney transplant in Singapore in 1989 and the first paediatric cadaveric liver transplant in 1991.

The foundation of a local postgraduate training programme in paediatric surgery followed closely after the establishment of the unit in SGH.⁽⁹⁾ At its inception, the programme required paediatric surgical trainee applicants to first complete a full training tenure in general surgery and pass the FRCS exit examinations before entering paediatric training. One of the early surgical trainees to be admitted to the programme was Dr Anette S Jacobsen, who exited her training in 1993 and was awarded the first FAMS (Paediatric Surgery) in May 1996.

In 1997, the children's services of SGH were moved to the newly constructed KKH. The move also allowed several other dedicated paediatric surgical subspecialties to flourish, such as

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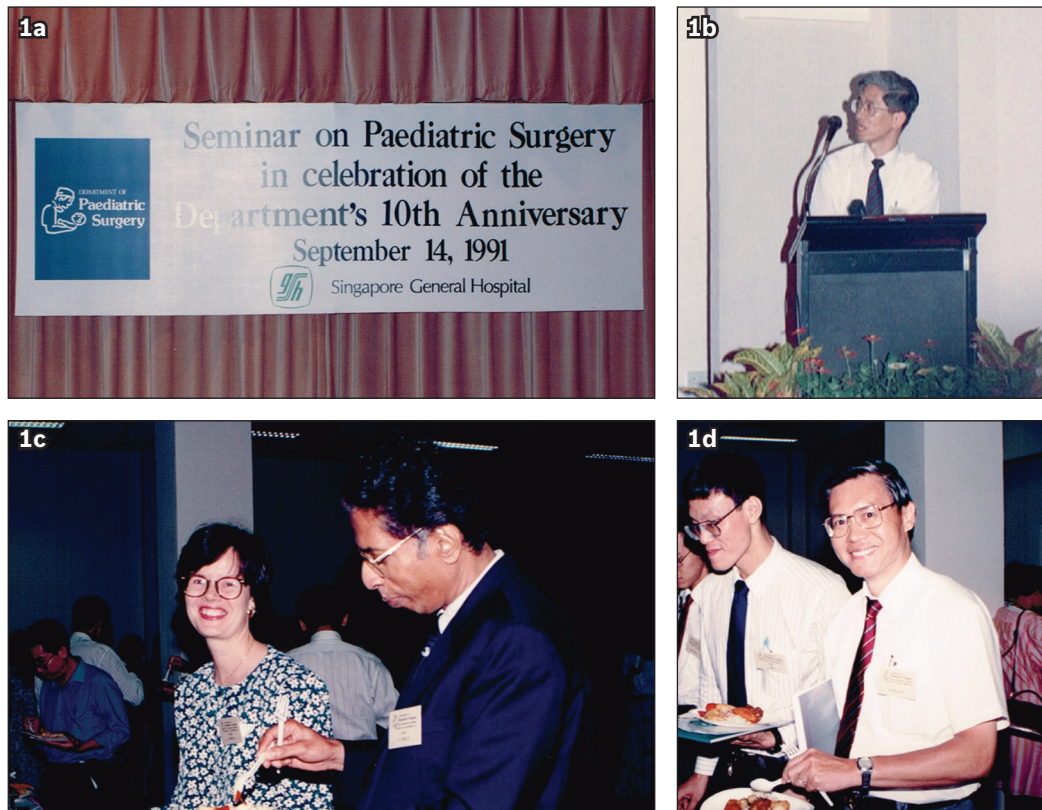


Fig. 1 Scenes from the commemoration of the 10th anniversary of the establishment of the Department of Paediatric Surgery, Singapore General Hospital. (a) Event banner; (b) Dr Phua Kong Boo; (c) Dr Anette Jacobsen (left) and Dr VT Joseph (right); (d) Dr Wong Keng Yeon (left) and the late Dr Tan Cheng Lim.

otolaryngology, ophthalmology, neurosurgery, orthopaedics and cardiothoracic surgery. Being supported by dedicated paediatric anaesthetists, neonatologists and radiologists, the multidisciplinary setup in the new children's hospital served to further improve the outcomes for childhood surgical diseases. The advancements in these other aspects of paediatric care implied gentle pressure on the paediatric surgeons to develop in their field.

DEVELOPMENT OF PAEDIATRIC SURGICAL SUBSPECIALTIES

With miniaturisation of instruments in the late 1990s, paediatric surgeons began utilising more minimally invasive approaches. This led to faster postoperative recovery, less requirement of analgesia, and quicker return to normal activities and play. Dr Tan Hock Lim first introduced minimally invasive surgery for children at SGH in 1991 during the years he worked in Singapore.

Together with Dr Phua Kong Boo in the area of paediatric gastroenterology and hepatology, surgeons and paediatricians worked closely on the management of patients with biliary atresia, introducing stepwise improvements to surgical methods and medical care.⁽¹⁰⁾ Dr Phua also worked closely with the newly formed department at KKH on one of the earliest international collaborative studies on intussusception in Singapore.^(11,12)

Other early pioneering paediatricians such as the late Dr Tan Cheng Lim and Dr June Low took an interest in the management of paediatric oncology cases. On her return from an overseas attachment at RCH, Dr Grace Tan introduced and developed

the implantation of long-term indwelling central venous access devices and gastrostomy buttons, and developed a local device for air enema reduction of intussusception. She was the earliest surgeon to focus on paediatric surgical oncology, a rapidly progressing subspecialty. In 1999, Dr Chui Chan Hon was sent as the first paediatric surgeon from Singapore to be formally trained in paediatric surgical oncology at the renowned St Jude Children's Research Hospital.

Paediatric urology has always been an integral part of paediatric surgical practice. In 1989, Dr Joseph, along with the late Dr Julian Wee, first described the Singapore flap – a pudendal thigh flap used in vaginal reconstruction.^(13,14) In the same year, laser circumcisions were introduced. Now commonly used, the approach substantially reduced bleeding complication rates and operative time.^(15,16) Dr Joseph was also known for the various novel flap techniques he described for hypospadias repair.^(17,18) Later, Dr Cheah introduced urodynamic evaluations for children, and Dr Yap Te-Lu and Dr Chao Sin Ming established the first voiding dysfunction clinic.

Since then, the national fraternity of paediatric surgeons in Singapore has continued to grow, establishing the chapter of paediatric surgeons of the Academy of Medicine, Singapore in 2005. Among other national efforts, the Southeast Asia Paediatric Endosurgery Group was established in Singapore in 2008, building on shared interests in endosurgery among the local paediatric surgical community. The current paediatric surgery department at KKH comprises four teams of surgeons with various areas of subspecialisation, and the department at NUH has

developed dedicated expertise in paediatric transplantation.⁽¹⁹⁾ Paediatric surgery specialty training is now a six-year programme with a regular stream of applicants, which ensures a bright future for the specialty in Singapore in the decades to come.

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