

Paediatric Orthopaedics in Singapore

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Abstract

This article traces the development of Paediatric Orthopaedics in Singapore. Ever since the formation of the University Department of Orthopaedics in 1952, orthopaedic surgeons have had a special interest in musculoskeletal problems in children. Special clinics called “Congenital Clinics” were held in the Singapore General Hospital to look after these children. These clinics were continued in the Singapore General Hospital after the University Department moved to the National University Hospital in 1985. In 1987, a Division of Paediatric Orthopaedics was formed at the National University Hospital to streamline the care of children with musculoskeletal problems. In 1997, the new KK Women’s and Children’s Hospital opened with a Department of Orthopaedic Surgery dedicated to paediatric patients. In the space of 50 years Paediatric Orthopaedics has become an established subspecialty in Singapore.

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Introduction

The name “Orthopaedic Surgery” is derived from the words “orthos” (meaning straight or to straighten) and “paido” (meaning child). Thus, it is not unexpected that paediatric orthopaedics was the first discipline within Orthopaedics to develop as a subspecialty. Even before paediatric orthopaedics was recognised as a subspecialty, many prominent orthopaedic surgeons around the world had a special interest in treating children with musculoskeletal problems. Singapore was no exception where, since the beginning of Orthopaedic practice, children’s musculoskeletal problems were dealt with quite often by the head of department and a small number of surgeons with a special interest in treating these children.

The Early Years

In the early years, there were few qualified orthopaedic specialists in Singapore. The first batch of local orthopaedic surgeons returned from their training in the UK in 1961. Dr V K Pillay and Dr K H Yeoh joined the University Department (C Unit) and Dr W G S Fung joined the Government Department (O Unit). At that time, the C Unit was headed by Professor Donald Gunn and the O Unit by Mr D W C Gawne. Subsequently, more young men returned

with orthopaedic qualifications from the UK. Notable amongst them was Mr N Balachandran who was destined to be the future leader of the Government Department and one of the most respected orthopaedic surgeons in Singapore. In both units, children with orthopaedic problems were managed primarily by the head of department assisted by the young junior surgeons. In 1967, Professor V K Pillay took over as the first local professor and head of the University Unit. Mr W G S Fung became the first local head of the Government Unit when Mr Gawne stepped down.^{1,2}

In those days, the Orthopaedic Departments were situated in the Norris Block and the children were looked after in the Mistry Wing, Singapore General Hospital (SGH). An Orthopaedic Clinic for children called the “Congenital Clinic” was held regularly. Orthopaedic surgeons with a special interest in children ran these clinics. Notable amongst them was Professor Kamal Bose who later became head of the University Department in 1980 after Professor Pesi Chacha stepped down. Others who were involved with running the congenital clinic included Dr Yeo Khee Quan, Assoc Prof Jimmy Daruwalla and Assoc Prof Aziz Nather.

In 1982, the Orthopaedic Department moved to the new SGH premises. Although clinics were held in the new

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premises, children with orthopaedic problems continued to be admitted to the Mistry Wing. The C and O Units co-existed in SGH with each Unit taking calls on alternate days and running parallel clinics and operating sessions. This continued until 1985 when the University Department moved to the new National University Hospital (NUH) on Kent Ridge.

St Andrew's Hospital (Siglap)

St Andrew's Hospital began as a hospital beside the sea in Siglap in 1937 for patients suffering from tuberculosis. Subsequently, it catered to children convalescing from orthopaedic surgery (e.g., scoliosis) and also provided respite care for children with disabilities (Figs. 1 to 3). From 1984, it served as the venue for the Seating Clinic, which was set up with the Spastic Children's Association of Singapore to provide specialised seating for children who were non-ambulant or who required special seats or mobility aids. This was a combined clinic with involvement of doctors, nurses, therapists and social workers. When St Andrew's Hospital closed down in 1987, the Seating Clinic was moved to NUH and the GRO Workshop run by the Spastic Children's Association of Singapore.

Paediatric Orthopaedics as a Subspecialty

After the University department moved to NUH, a decision was made to form subspecialty divisions in 1987. The first divisions formed were the Divisions of Paediatric Orthopaedics and Scoliosis, Hand Surgery, Spinal Surgery and Sports Injuries (which later was renamed Division of Adult Reconstructive Surgery). The Division of Paediatric Orthopaedics and Scoliosis was headed by Assoc Prof Jimmy Daruwalla with Professor Lee Eng Hin (at that time a senior lecturer who had done a fellowship in Sick Children's Hospital, Toronto) and Mr Peter Lee as members of the division. This development allowed paediatric cases to be channelled to the division. In 1989, Professor Lee Eng Hin took over as Head of the Division of Paediatric Orthopaedics. The Division began to hold its clinics in the Children's Clinic in NUH and all polyclinic referrals and paediatric trauma cases were directed there. Mr Peter Lee and, subsequently, Mr James Hui served as consultants in this division. Both of them had done a fellowship in paediatric orthopaedics in the Royal Melbourne Children's Hospital.

In SGH, clinics for paediatric orthopaedic problems continued to be run under the guidance of Clinical Professor N Balachandran, the Head of Department. Amongst the surgeons who helped to run the clinics were Mr Fidelis Chu, Mr Francis Wong, Mr Tan Seang Beng and, more recently, Mr John Chen.

Recognising the need for specialists in paediatric

orthopaedics, young surgeons from the other restructured hospitals were also sent overseas for fellowships in paediatric orthopaedics. Among them were Dr Lam Khee Sien from the Changi General Hospital who spent a year with Mr Anthony Caterall in London, and Mr Sarbjit Singh



Fig. 1. St Andrew's Hospital in the 1940's when it was still beside the sea prior to land reclamation.



Fig. 2. Inside St Andrew's Hospital showing some children lying in plaster shells, and some in hip spicas in the ward.



Fig. 3. Children enjoying themselves out in the sun at St. Andrew's Hospital. Note some of them have prostheses on.

from the Tan Tock Seng Hospital (TTSH) who spent a year in the Sick Children's Hospital in Toronto. When they returned, they looked after the paediatric orthopaedic cases in their respective hospitals.

Multidisciplinary Clinics

Multidisciplinary clinics for cerebral palsy, spina bifida and other neuromuscular disorders were held in SGH with the participation of orthopaedic surgeons, paediatricians and therapists, who provided their expert opinions and services in these combined clinics. These continued in NUH when the University staff moved there in 1985. Monthly combined clinics were also held in TTSH with Dr Lim Kim Whee and these became very popular teaching sessions for the medical students as well as trainees in paediatrics and orthopaedic surgery. These clinics are currently conducted in NUH and KK Women's and Children's Hospital (KKWCH).

KK Women's and Children's Hospital

In the mid-1990s, plans were made for a women's and children's hospital in Singapore. Professor Lee Eng Hin was invited to set up a Department of Orthopaedic Surgery for children in the new hospital. KKWCH opened its doors in May 1997. Mr Lam Khoo Sien, Mr Tan Seang Beng, Mr Sarbjit Singh and Mr Peter Lee were appointed as orthopaedic consultants to this department with Professor Lee Eng Hin as Head. After his appointment as Dean of the Faculty of Medicine, National University of Singapore, Professor Lee stepped down as Head and Dr Tan Seang Beng took over in January 2002.

Currently, KKWCH and NUH look after most of the children with musculoskeletal problems (including injuries) in Singapore.

Involvement with Volunteer Welfare Organisations

Paediatric Orthopaedic practice is closely linked to many volunteer welfare organisations (VWOs) which care for disabled children with many musculoskeletal problems. Over the years, orthopaedic surgeons with a special interest in children not only volunteered their professional services as consultants, but also gave their time to help run many of these organisations in their Management Boards.

The following are some of the VWOs that the orthopaedic surgeons were involved with: Asian Women's Welfare Association (AWWA), Balestier Special School (BSS), Margaret Drive Special School (MDSS), Movement for the Intellectually Disabled (MINDS), Red Cross Home and Spastic Children's Association of Singapore (SCAS). Clinical Professor Tan Ser Kiat is the current President of MINDS, Professor Lee Eng Hin is the current President of Rainbow Centre, which runs BSS and MDSS and Assoc

Prof Aziz Nather is the current President of SCAS.

Free clinics are held in many of these schools by volunteer orthopaedic surgeons. Children requiring special seats are referred to the Seating Clinic which is currently held in the GRO Workshop once a month.

Research in Paediatric Orthopaedics

Over the years, significant contributions to the scientific literature on the management of children's musculoskeletal problems have been made by our orthopaedic surgeons.

In the early years, there were no research laboratories in the orthopaedic departments, so most of the research was clinical in nature. Nevertheless, important papers were published on some of the conditions that were prevalent in Singapore that were not as commonly seen in the West, e.g. constriction band syndrome and muscular torticollis. Because of the association with the Spastic Children's Association, many significant publications were made on the treatment of cerebral palsy. Clubfoot, scoliosis and limb lengthening were also areas of clinical research which resulted in significant publications. Professor Donald Gunn wrote a book entitled "Orthopaedic Surgery in South and East Asia", published in 1969, which contained numerous examples of very difficult cases of musculoskeletal problems seen in children in those days.

In the 1970s, Professor Pesi Chacha, who was then Head of the University department, started some laboratory-based research. Of note was the work on microvascular surgery which led to the success of microsurgical repair of amputated digits and hands by Professor Robert Pho. Major developments in research in Paediatric Orthopaedics did not occur till the 1980s when Professor Kamal Bose, then Head of the University Department, set up the Gait Analysis Laboratory initially at SGH in 1982. This led to many studies on gait in cerebral palsy and other neuromuscular diseases in children, resulting in significant contributions to the scientific literature. With the move to the National University Hospital in 1985, the Gait Analysis Laboratory was set up at its current site. With this move, the academic staff had access to the NUS facilities in the Animal Holding Unit to conduct animal experiments. Subsequently, a Biomechanics Laboratory was also set up in the department. In 1982, the department recruited a Bioengineer, Associate Professor James Goh, who had obtained a PhD from Strathclyde to help with the basic science part of the research. With these facilities in place and recruitment of more research staff, the department began to perform research of a high quality.

Amongst the projects undertaken were studies on the repair of physeal defects with tissue engineering approaches by Professor Lee Eng Hin and his team. This research has won awards at the Annual Meetings of the Paediatric

Orthopaedic Society of North America in 1993 and 1996. Professor Lee Eng Hin presented this work at the Yahya Cohen Lecture in 2000.

An attempt has been made to source and collate the publications in Paediatric Orthopaedics by the whole orthopaedic community in Singapore. The publications have been presented chronologically in Appendix I. The author apologises for any omission as it is difficult to obtain information from every individual orthopaedic surgeon.

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APPENDIX I: LIST OF PUBLICATIONS IN PAEDIATRIC ORTHOPAEDICS

Publications from 1952 to 1960

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