Pacific Island Project

Paediatric Surgery Training in Papua New Guinea

A Report for October 1999

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Overview

Paediatric Surgery as a subspecialty in PNG is now coming of age. There are now two candidates at different phases of their training, Dr Mathew currently in Melbourne and Dr Poki in PNG. In addition there are large numbers of cases referred for subspecialty care, a greater level of understanding amongst the medical students and improved results for paediatric colostomies by PNG surgeons. The abilities of the registrars, with the use of subcuticular suturing and transverse incisions in children, can be seen to have improved, and there is better understanding of the management of Hirschsprung's disease. The teaching and complex clinical work is increasingly becoming the role of Dr Mathew, who will act as the team leader for the first of two Paediatric Surgical visits for 2000. The involvement of Dr Poki has enhanced the momentum notably.

However, children still have more surgery and greater risk of adverse outcome because some of the basic principles are not being broadly applied. Part of the problem lies in the lack of community knowledge of surgical disease in children as a differential diagnosis for malnutrition, malaria or pneumonia, and surgical renal disease continues to escape detection. Early treatment will of the renal tract pathology will not only prevent death and suffering, but will save money. A further problem is the continuation of the practice of unsupervised registrars, who have little experience, being the surgeon for Paediatric Surgical cases.

The training program has involved two Australian Paediatric Surgeons, funded by the Ausaid funded IDP/MONAHP or PIP management groups. The program was again supported from a number of additional sources, with the greatest support from the Huon Gulf Rotary Club, specifically for accommodation, equipment and meals in theatre, in Lae; the Lae Lionesses also assisted with the provision of theatre staff. Kendall-Sherwood-Davis and Geck, Bard, Taylor Bryant and Ansell International donated company products, and recycled items were collected by the nursing and other staff in the theatres of several Victorian Hospitals, including The Royal Children's Hospital, Western Hospital Sunshine, Mercy Private Hospital, The Geelong Hospital and St John of God Hospital, Geelong: Qantas and Air Niugini kindly transported these items free of charge. Also, Robyn and Scott Massie provided transportation in Lae.

The team travelling from Australia consisted of Dr Mclee Mathew (Paediatric Surgical trainee), Dr Rick Horton (Anaesthetist), Mr Darren Pickering (Paediatric Nurse) and myself (Paediatric Urologist/Surgeon). Dr Poki traveled from Mt Hagen to work in both Lae and Port Moresby. Two surgical trainees were closely associated with the visit, ie Dr Benjamin Yapo and Dr Garo. The following staff members were involved in Lae:

Anaesthetists:

Dr. Zhang (SMO)	Dr. Daoni (Registrar)	Mr. Ariana (Tech. Assistant)
Mr. Geba (ATO)	Dr. Piamnok (RMO)	Mr. Longe (Tech. Assistant)
Mr. Manub (ATO)	Ms R. Eliab (RHEO)	Mr. Aivan (ATO)

Operating Theatre Nursing Staff:

Sr. Nombe (SIC)	Nr. Omae	Student Nurses
Sr. Seidam	Nr. Gware	SN. Lipen
Sr. Soronane	Nr. Paheki	SN. Kisipgna
Sr. Waesa	Nr. Alu	SN. Ila
Sr. Lai	Nr. Narum	SN. Taena
Sr. Jinangi	Sr. Frank	Sr. Zebedee
Sr. Ponowan	Sr. Bakiri	

A similar profile of staff was involved in Port Moresby, with the addition of one group of students. The surgical trainees were not as involved as previously, because of the concurrent exams. Never the less, the program is focused on teaching the teachers. Professor David Watters, Mr Jacob and Mr Osborne Liko also participated during some of the cases and were in attendance at the lecture, along with roughly 30 members of the surgical, nursing and student groups.

In addition to the teaching, clinic work and surgery, this visit involved participation in discussions about the development of Paediatric Urology within Paediatric Surgery, planning for equipment and assistance with the examination of candidate for the MMed and the Urology Diploma – both candidates were successful.

The project is now entering another new and exciting phase with the continuation of the appointment of Dr Mclee Mathew to a Surgical Registrar position in Melbourne, at which he has been most successful. It is anticipated he will return to PNG, briefly, to lead a PIP visit in early 2000. The second visit will be in November when Dr Poki and I will travel together. It is hope that Dr Poki will be appointed to a registrar post in Australia when Dr Mathew returns to PNG in 2001.

Dr Poki & Dr Mathew operate together.

Medical students in Port Moresby theatre.

Teaching

Surgical Teaching was conducted during 72 consultations, 18 ward rounds, 10 theatre sessions, 50 operative cases, one lecture, five tutorials and one formal outpatient clinic. Paediatric Surgical nursing was taught by involvement of the visiting nurse in ward management, with particular focus on the care of patients having bowel and urological surgery. Anaesthetic training was conducted during most operative sessions, when trainees and ATO's were available for Dr Horton to work with.

Ward Rounds: Ward rounds were held in the morning and evening on most days in both Port Moresby and Lae. As for previous visits the teaching during these sessions was focused on the post-operative care of the patients, aimed at the Paediatric Surgical trainee, the resident staff and more so on this visit at the nursing staff. This nurse-teaching role was enhanced by the presence of student nurses during most of the rounds and the involvement of Darren Pickering.

Theatre Sessions/Operations: Once again the service and teaching commitment of the Paediatric Surgical development was exemplified by the amount of operating and teaching performed in the theatre. The 50 operative cases with 113 hours of theatre time were mainly focused on the honing of the skills of Dr Mclee Mathew and Dr Poki. Two other surgical staff took the opportunity to be closely involved in the operative surgery: Dr Garo in Port Moresby and Dr Benjamin Yapo in Lae. The Urology team in Port Moresby was also involved to a limited extent. Again, the main advantage of the other staff being involved was the participation in discussion on the appropriate use and performance of a Paediatric colostomy. Teaching of the junior staff and anaesthetic technical officers was also achieved, by the concurrent visit of Dr Rick Horton, who has subspecialty skills in Paediatric Anaesthesia.

Lectures + Tutorials: The one lecture was at the end of the stay in Port Moresby, and was attended by the surgical staff and nurses from theatre. The lecture was again a revisit of the lessons learnt during the Paediatric Surgical visit. The surgical tutorials were aimed at the registrars and the Paediatric Surgical trainees; these usually occurred when time would otherwise have been wasted while the staff was setting up for surgery. Medical students were available for tutorials in theatre in Port Moresby, which would be an advantage in future visits. The following is a list of the main topics covered in the surgical lectures and tutorials:

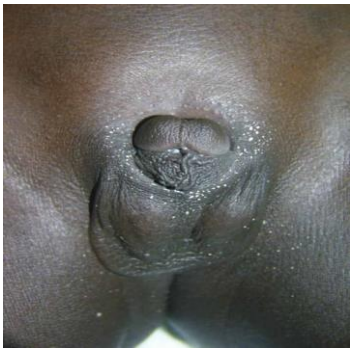
1. *Urological catheter management*
2. *Electrolyte disturbance*
3. *Post operative care in Paediatric Surgery*
4. *Post operative care in Paediatric Urology*
5. *Long-term follow-up of Paediatric Surgery*
6. *Hirschsprung's disease*
7. *Intussusception and fluid management*
8. *Pyloric stenosis: diagnosis and management*
9. *Anorectal anomalies*
10. *Intussusception*
11. *Urinary tract infection*
12. *Paediatric Surgery in PNG - Rotary*
13. *Hospital management in PNG Paediatric Surgery*
14. *Acute Urology*
15. *Inguinoscrotal pathology and Surgery*

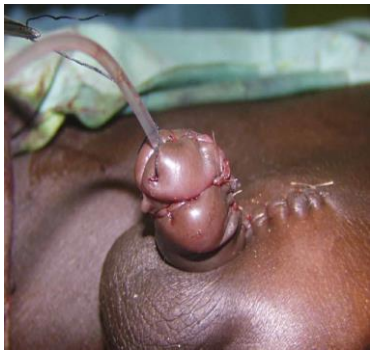
Consultations

The following consultations were conducted during the visit. Most of the patients were seen in the ward in Lae and in a specially convened clinic in Port Moresby. Twenty-one of the 32 patients in Lae came to surgery, because of the effective screening process in that centre, largely because of the efforts of Dr Benjamin Yapo. Non-operative cases included premorbid hydrocephalus, a child with an encephalocele and a child with a large facial Burkitt's lymphoma. Only 17 of the 40 consultations seen in Port Moresby. The advantage of seeing the non–operative cases was the ability to teach on a wide range of topics that would not have otherwise been covered.

Suprapubic cystoscopy and fulguration of the COPUM successfully managed a 7-month old boy (396066), from Madang, with posterior urethral obstruction.

An 8 year old boy (009067), from NCD, with epispadias, seen before and after surgery.

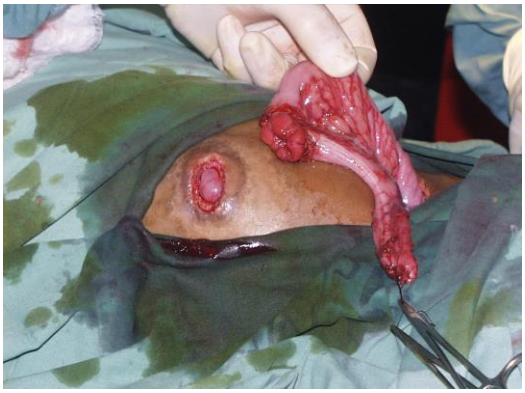




Operative Surgery

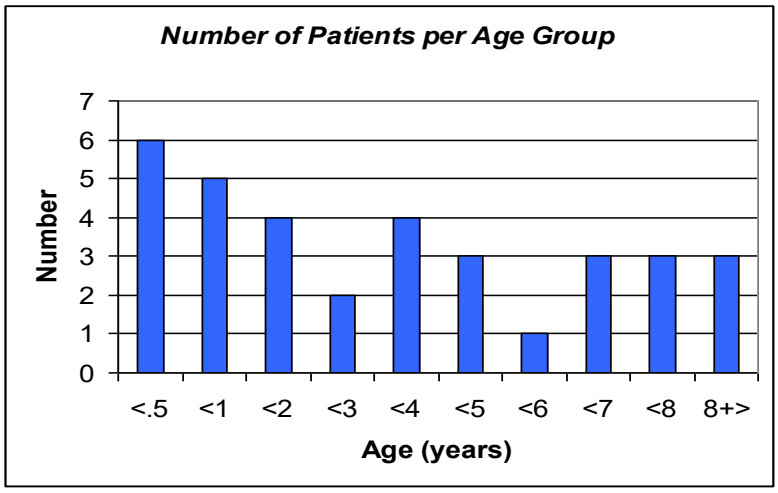
The cases listed below were operated on during the visit; all had the involvement of Dr Mclee Mathew and Dr Poki, who were also involved in the pre and post-operative management. There were a total of 50 operations on 38 patients. Once again the majority of children seen were pre and post-operative cases with an anorectal anomaly (16) or Hirschsprung's disease (7) and, during this visit, 9 cases had a Paediatric Urology procedure.

Lae 25/10/99 - 30/10/99



This 13 months old boy from Western Province (144515) had a rectosigmoid junction colostomy in the right upper quadrant. He therefore required a laparotomy and colostomy closure at the time of his anorectal anomaly repair; he was a good case instruction on the correct placement of a colostomy in such patients.

Port Moresby 31/10/99 - 4/11/99



Advances which have occurred in the care of PNG children requiring surgery include survival of boys with urethral obstruction, correct management of some of the patients with Hirschsprung's disease – ie the biopsies are being taken and the colostomies are more often being formed correctly. Unfortunately, patients continue to have an inappropriate mid-line laparotomy and incorrectly place colostomies, which seems partly due to registrar staff, with relatively little experience, operating unsupervised.

However, the large number of cases with failed previous surgery for Hirschsprung's disease no longer exists. Most importantly, Dr Mclee Mathew is performing an increasing amount of the surgery, and Dr Poki has obviously been refining his skills based on the lessons learnt since the previous PIP Paediatric Surgical visit.

Outcome of Previous Paediatric Surgical Visit Recommendations

Surgical Technique: Much has improved in the overall expectation of an early favourable outcome for children with Hirschsprung's disease and those with an anorectal anomaly. Tissue handling, wound closure, colostomy formation and the location of the colostomies are now more likely to be appropriate. In particular the Paediatric tissue handling skills of Dr Mclee Mathew and Dr Poki have advanced to significantly.

Radiological Support: Renal anomalies in children continue to be under diagnosed. A prospective study of children with fever, in which a dipstick of the urine would lead to a portable ultrasound examination of the kidneys, would provide an important insight into the profile of renal disease.

Further education in the subtleties of some of paediatric surgical material has increased the ability of those who have been involved in the Paediatric Surgical visits; medical students are better at interpretation of the radiology involved in Paediatric Surgical conditions than their counterparts in previous years. However, further input into training sessions for Radiographers, Radiologists, Surgical and Paediatric trainees and medical students would be useful.

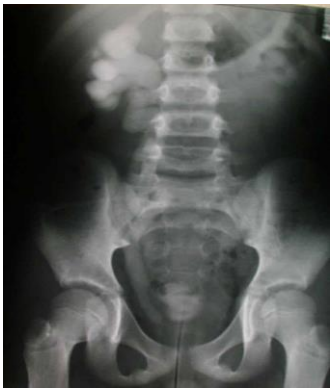
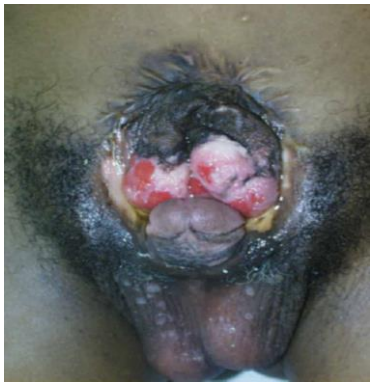
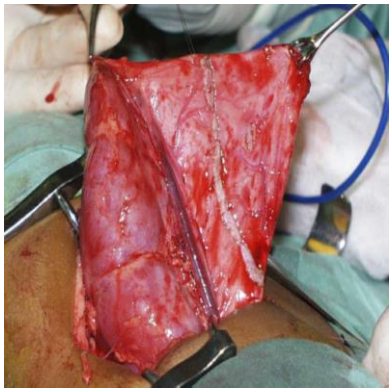
Theatre Equipment: Donations-in-kind and the Department of Health supplies have improved, but there continue to be significant shortfalls in the provision of suture material, diathermy leads and pads, quality theatre linen and paediatric surgical instruments. Unfortunately, development of inventory systems has not kept pace with some of the donations, resulting in there being a surplus of some items that are not readily accessible, although were present in the hospital. Through the Rotary Club mechanism some of the needs are now being met, particularly the linen and diathermy equipment.

Organisation of Specialist Visit: Dr Poki, from Mt Hagen, together with Dr Benjamin Yapo in Lae have took the role of coordinators on this occasion. The development of the teaching program and the incorporation of Paediatric Surgery into the medical student, Paediatric and Surgical training programs will need further development, particularly when PNG Paediatric Surgeons have returned from their training in Australia. The Rotary Club of Huon Gulf has continued to be important to the organisation and overall success of PNG Paediatric Surgical training.

Considerations for Further Development

Future issues should now focus on the training of Dr Mclee Mathew in Melbourne during the year 2000 and his return to PNG in 2001. He will need the support of the Department of Health, the Surgical Association, the University and the Nursing fraternity to be able to deliver a cost saving, life saving service and education program in Paediatric Surgery. Protocols for the management of conditions will need to be developed along the lines of those now used for the post-operative care of the anorectal anomaly and Hirschsprung's disease patients. The next development will be the formulation of a protocol for the performance of a colostomy.

Paediatric Urological Disease: Lives are being lost because these diseases continue to be under-diagnosed, a situation which will hopefully improve once Mclee Mathew has returned with good training in both Paediatric Urology and the use of ultrasound in the identification of renal tract anomalies. The pictures below show adversely affected kidneys, the delayed management of the 16 year old boy with bladder exstrophy and a late presenting pelviureteric junction obstruction kidney at operation.

Paediatric Surgical Nursing and Radiological Training: As yet, the *ad hoc* addition of a nurse to this visit has been the only response to these suggestions in the past. Attention to these areas of expertise is important to the development of services to children with a paediatric surgical disease.

Pediatric Surgical Training: Dr Mclee Mathew should continue his training in Paediatric Surgery until the end of 2000, and participate as the team leader for one of the visit to PNG to enable "training" of a further Australasian surgeon in the management of Paediatric Surgical conditions in PNG. Dr Poki should be involved in the subsequent visits and be encouraged to embark on Australasian training in 2001, if he is given the approval of the PNG Surgical Association. Visits of subspecialty Paediatric Surgeons should subsequently proceed according to the perceived needs of the PNG Paediatric Surgeons.

Paediatric Surgical Diploma: An examination should be developed with the cooperation the PNG Association of Surgeons, PIP associated Paediatric Surgeons, the Australasian Association of Paediatric Surgeons and the University of PNG.