Paediatric Surgery Training in Papua New Guinea

Pacific Island Project - Royal Australasian College of Surgeons

A Report for Feb/March 1998

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Overview

Subspecialty Paediatric Surgical training has been conducted in Papua New Guinea since 1993. The training program has involved two Paediatric Surgeons, with a total of 10 visits. The training is now linked to the University Surgical training program and includes association with both the Paediatric Anaesthetic and Paediatric Medical training. This trip was my eighth visit funded by the IDP/MONAHP or PIP and is the first of three planned visit for 1998. For this visit, a significant proportion of the funding has come from the Huon Gulf Rotary Club, specifically for accommodation and equipment. As a result of the efforts of the Huon Gulf Rotary Club and the staff of the Surgery Departments in Port Moresby, Lae and Rabaul, the productivity of the project has continued to improve. Again, further significant progress was made in extending the teaching beyond that for medical student, particularly, directed toward the Paediatric Medical Staff. Some work on curriculum development, formulating exam questions, development of protocols and development of an on-going audit system was undertaken.

Important discussions were held with the President of the Society of Surgeons, the Professor of Surgery and the Administration of the Angau Memorial Hospital, Lae, with the development of improved relationships with these people. The important contribution of these discussions pertains to future Paediatric Surgical manpower planning, particularly to the consideration for future training of Dr Maclee Mathew. It would appear that there is a reasonable consensus that two surgeons with a strong Paediatric Surgical interest should be trained, one to be based in Port Moresby and the other in Lae: the Society of Surgeons should continue to be pivotally involved in the selection of both the candidate and the formulation of their training program.

Summary of Activities for 1998

Teaching

Teaching was conducted during the following sessions, involving mainly medical students and the Surgical trainees:

Consultations	**92**
Ward Rounds	**25**
All Day Theatre Sessions	**15**
Operations	**67**
Lectures	**3**
Tutorials	**4**
Outpatients	**2**

Ward Rounds*:* More attention was given to ward round teaching than during previous visits. This was made possible by the enthusiasm of the nursing staff and the dedication of Dr Maclee Mathew. The peri-operative management of the patients treated and the general principles of the care of the child after operation was focused on. There was a disappointing level of involvement of the registrars and residents on these rounds in Port Moresby. Pre-operative preparation, catheter care, wound care and appropriate surgical planning were also covered.

Theatre Sessions/Operations: Education during the operative episodes focused on the Paediatric surgical trainees, and was augmented by the large number of cases, facilitated by the staff in each of the theatre complexes used. The techniques of Paediatric Surgery were taught and practiced, but unfortunately, there were only few minor cases and many of the complex cases were redo surgery. New techniques were developed for dealing with the frequent complication of colostomy prolapse. With a Paediatric Anaesthetist present for much of the trip, teaching of the skills required was also undertaken. The focus remains to be the training of a Paediatric Surgeon, rather than teaching a surgeon how to do one or two operations.

Lectures + Tutorial: Most of the lectures were given to combined groups of Physicians and Surgeons in Port Moresby. The attendance at lectures given by Paediatric Surgery trainees, as the students were nearing exams. Again the outpatient sessions were highly successful, clinical teaching sessions, which included a oral-exam, case-presentation morning with both the Paediatric and Surgical candidates. The themes were common urological and abdominal problems in children and the neurogenic bladder.

Operative Surgery

The following cases were operated on during the visit, all had the involvement of the delegated Paediatric Surgical Trainees, usually Dr Maclee Mathew:

Port Moresby 23/2/98 - 27/2/98

	Age (mths)	Pathology	Operation
1.	12	Hirschsprung's	Laparotomy + Bx + colostomy
2.	48	Haemangioma	Excision of haemangioma
3.	18	Hypospadias	MAGPI
4.	7	Anorectal anomaly	Pena
5.	11	Cloaca	Colostomy revision
6.	12	Hypospadias	First stage repair
7.	8	Hernia - BIH	Herniotomy
8.	8	Hirschsprung's	Laparotomy + Bx + colostomy
9.	168	Hirschsprung's	Colostomy revision
10.	7	Cloaca	Colostomy revision
11.	7	Anorectal anomaly	Colostomy closure
12.	180	R-Vaginal fistula	Cystoscopy
13.	48	Anorectal anomaly	EUA - faecectomy
14.	54	Hernia - RIH	Herniotomy
15.	20	Hirschsprung's	Soave
16.	120	Anorectal anomaly	Pena - redo + plication
17.	24	Hirschsprung's	Colostomy revision
18.	30	Hirschsprung's	Soave

Rabaul 1/3/98 - 3/3/98

	Age (mths)	Pathology	Operation
1.	70	PUJ obstruction	Pyeloplasty
2.	14	R-Vestibular fist.	Pena + plication
3.	132	Urethrocut. fist.	Cystoscopy
4.	60	Anorectal anomaly	Pena - redo + plication
5.	60	Anorectal anomaly	Cystoscopy
6.	60	Urethral calculus	Urethrotomy
7.	59	Anorectal anomaly	Pena - redo + plication
8.	1	Cystic Hygroma - large	Excision of cystic hygroma
9.	24	Hirschsprung's	Soave
10.	132	Urethrocutaneous fistula	Excision
11.	11	Hirschsprung's	Laparotomy + Bx + colostomy

Lae 4/3/98 - 11/3/98

	Age (mths)	Pathology	Operation
1.	3	COPUM, Urachus	Circumcision
2.	3	COPUM, Urachus	Cystoscopy
3.	54	PUJ obstruction	Pyeloplasty
4.	4	Anorectal anomaly	Colostomy revision
5.	1	COPUM	Vesicostomy
6.	165	Anorectal anomaly	Colostomy closure
7.	165	Anorectal anomaly	Appendicectomy
8.	165	Ear tag	Excision
9.	20	Hernia - recurrentBIH	
10.	16	Anorectal anomaly	Pena - redo
11.	45	Hirschsprung's	Swenson
12.	48	Anorectal anomaly	EUA anus
13.	30	Hirschsprung's	Colostomy closure
14.	10	Anorectal anomaly	Pena - redo + plication
15.	504	Urethroplasty - 1995	Cystoscopy + Dilatation
16.	14	Anorectal anomaly	Pena - Minimal
17.	14	Prolapsed colostomy	Colostomy closure
18.	23	Anorectal + fistula	Pena - redo
19.	18	Hirschsprung's	Swenson
20.	0.2	SB Atresia	Laparotomy - Ileocaecal anastomosis
21.	2	Anorectal anomaly	Colostomy revision
22.	4	Anorectal anomaly	Pena
23.	13	Hypospadias	Cystoscopy
24.	13	Hypospadias	Chordee release
25.	228	Testicular separation	Scrotoplasty
26.	228	Urethral fistula	Repair of urethral fistula
27.	81	Anorectal anomaly	Colostomy
28.	58	Anorectal anomaly	Pena + plication
29.	58	Colostomy stenosis	Colostomy closure
30.	58	Enlarged rectum	Rectal plication - anterior
31.	58	Mobile caecum	Appendicectomy
32.	6	Anorectal anomaly	Colostomy revision
33.	0.05	Hirschsprung's	Laparotomy + Bx + colostomy
34.	1	Annular pancreas	Laparotomy
35.	46	Umbilical vein thrombosis	Shunt - Splenorenal
36.	33	Urethral duplication	Cystoscopy
37.	33	Urethral duplication	Excision of accessory urethra
38.	17	Anorectal anomaly	Pena

A total of 67 operations were performed on 53 patients. Not unexpectedly, the majority of cases were children with an Anorectal Anomaly (22) or Hirschsprung's disease (12). The commonest operations were Anorectoplasty (12) and colostomy revision, closure or formation (16). Two new cases of pelviureteric juncion and two of urethral obstruction (COPUM) were treated, one of the latter two being the only significant complication. The necessary focus of education evident from these cases includes:

1. The colostomy for an imperforate anus child should be in the left iliac fossa, using the proximal sigmoid colon.
2. The colostomy for an imperforate anus child should involve a skin crease incision.
3. A loop colostomy should have a fascial or skin bridge.
4. Colostomy complications should be dealt with pro-actively.
5. A laparotomy in children should be conducted through a transverse incision
6. If Hirschsprung's Disease is likely a barium enema should be performed preoperatively.
7. An anorectoplasty should only be performed by a surgeon after adequate supervised training in Paediatric Surgery and anorectoplasty.
8. Neonatal, bile-stained vomiting and abdominal distension are likely to be due to a surgical cause.
9. Hydronephrosis, due to pelviureteric junction should usually be treated by pyeloplasty.
10. Fluid and electrolyte balance in children is poorly understood by the nursing staff and residents.

Considerations for Further Development

Outcome of previous Paediatric Surgical visit recommendations

Radiological Support: The level of cooperation and interaction with the Radiology Departments continues to improve in Lae and Rabaul, but access to radiology services for Paediatric surgical patients continues to be a problem in Port Moresby. Paediatric surgery will be unable to develop appropriately unless resources are also put into improvement of Paediatric Radiology. Ultrasound equipment and training would be a cost effective measure.

Baby Warmers: Keeping babies warm in the air-conditioned theatres remains a problem. Appropriate warming devises and temperature monitoring facilities are still not available, particularly in the two centres that are likely to provide subspecialty services to children, where longer operations will take place. The understanding of the theatre staff, about the important of thermal control for children has improved. The cooling of babies was less of a problem on this trip because the airconditioning was usually not working!

Theatre Equipment: Sr Joy Jensen, in Lae, in cooperation with the Huon Gulf Rotary Club, the medical, nursing staff and CEO of Angau Hospital have progressed with the "donation in kind" program for recycled equipment from Melbourne and Queensland. This equipment, including Endotracheal tubes, betadine antiseptic, diathermy pads, sutures and gloves will be transported free of charge and distributed by Sr Jensen.

Hygiene and Infection Control: Minimal gains have been made since the last report, however, poor cleaning of the perianal region after a anorectoplasty, and the leaking from poor quality urine bags continues. The provision of colostomy bags, via the "donation in kind" program, has improved the general hygiene for patients.

Private Medicine: I am unsure of developments since my last visit, but the retention of trained people in the system continues to be a major concern for the development of any speciality. The candidates who leave the public system work as a specialist in Private; they usually become essentially GP's, with a loss of their skills to the country, not only to the public system. Development of a compromise seems essential to the care of public patients.

Organisation of Specialist Visit: The data-base of the Paediatric patients has undergone further development, with input from the information gathered in Port Moresby and the improved form of the data collection developed in Lae. Dr Mathew is to continue to work with Dr Mark Leach (PhD) and Sr Joy Jensen to coordinate the patients for follow-up care, both for the specialist visits and for the interim management. This system worked particularly well for this visit.

Theatre resource management: Sr Joy Jensen has work with the staff in Lae to assist with resource management and to provide access to otherwise unavailable supplies. This is being extended to include the distribution of "donation in kind" material to other centres on the northern side of the ranges, with the assistance of the medical officers in those centres. A similar organisational structure in Port Moresby would be useful.

Paediatric Anaesthesia in Port Moresby continues imporved for this trip, in particular because of the presence of Dr Ken Brownhill. He was aided by the attendnce of an anaesthetic registrar. I would strongly recommend the expansion of the teaching of Paediatric anaesthesia, by linking visits with the Paedatric surgeon and by PNG anaesthetics have education in Australia.

The candidate selected for Paediatric Surgery training by the Professor of Surgery and the Society of Surgeons is to receive a range of ***text books***; the books have been purchased and will be delivered in the near future.

Guide-lines for the management of Imperforate anus and Hirschsprung's: Protocols have been developed for the management of both of these diseases. They will need to undergo further development as they are applied. They are as follows:

Protocol for Anal Dilatation
Post Anorectoplasty for Anorectal Anomalies

Introduction

Dilatation after the definitive procedure for correction of an anorectal anomaly is important to prevent stenosis developing at the site of the mucocutaneous anastomosis. The operation is know as PSARP, Pena and anorectoplasty.

Regime of Dilatation

1. Examination and dilatation under general anaesthesia, two weeks post operation.
   Remove residual sutures.
   Gently dilate to the size that fits without force.
   Dilated should be inserted into the anus for 6-8 cm.
2. Fashion a candle to the size to which the dilatation occurred.
3. In the ward, after the procedure, teach the parents to perform the dilatation. Ensure they are not simply indenting the skin, and that they understand the importance of the dilatation.
4. The dilatation should occur twice per day for the next 2 weeks.
5. If the anus is stabilising and becoming easier to dilate the dilatation can progressively decrease in frequency, with the following program:

Once ***per day*** for one month	then
Once ***every 2nd day*** for one month	then
Twice ***per week*** for one month	then
Once ***per week*** for one month	then
Once ***per month*** for three months	

6. If there is doubt about the success of dilatation the patient should be reviewed in the clinic and in theatre if stenosis has developed.
7. The size to which the anus should be increased will depend on the age and size of the child. After three months rectal examination with the fifth finger for a baby and with the index finger for a child over 10 years should be possible.
8. The colostomy can usually be closed at three months after the anorectoplasty, but only after an examination under anaesthetic has confirmed the anus is not strictured.

Protocol for Anastomotic Dilatation Post Soave or Swenson for Hirschsprung's Disease

Introduction

Hirschsprung's Disease is due to a congenital lack of the nerve supply to the lower part of the bowel. A colostomy is initially formed and often the colostomy site is used to form the anastomosis with the anus during the definitive repair. Dilatation after the definitive procedure anomaly is important to prevent stenosis at the anorectal anastomosis.

Regime of Dilatation

1. Examination and dilatation under general anaesthesia, two weeks post operation.
   Remove residual sutures.
   Gently dilate to the size that fits without force.
   Dilated should be inserted into the anus for 6-8 cm.

2. Fashion a candle to the size to which the dilatation occurred.

3. In the ward, after the procedure, teach the parents to perform the dilatation. Ensure they are not simply indenting the skin, and that they understand the importance of the dilatation.

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Further recommendations

1. A expansion of the program to include a contribution from a ***nurse involved in the peri-operative care of children*** would be of significant value.

2. ***Protocol*** and ***curriculum*** development should continue.

3. In the absence of a ***full-time Paediatric Surgeon*** in Papua New Guinea, it would improve the care of children, particularly the training of registrars, if one unit continued the care of new and old cases with General Surgical and Paediatric Urology cases.

4. The ***on-going co-ordination*** of the Paediatric Surgery Training should be with co-operation between the Professor of Surgery in the University of Papua New Guinea, the School of Medicine, The PNG Society of Surgeons, the Royal Australasian College of Surgeons, MONAHP and AUSAID. The principle curriculum advisor and co-ordinator would appropriately be a representative of the "Kind cuts for Kids" committee of the Australasian Association of Paediatric Surgeons. That person would be expected to work with the PNG surgeons, assisting in placement of PNG surgeons into training positions in Australia/New Zealand, and assisting with briefing and recruiting Australasian Surgeons to attachments in PNG. Reporting would be through the co-ordinator, to the funding and co-ordinating organisations and to the International Committee and the PIP committee, thus to the Royal Australasian College of Surgeons.