Cuban Paediatric Urology and Anaesthesia

A Report for 29th April - 9th May 2003

Professor Paddy Dewan, Dr Andrew Jeffreys

Fund by
The Cuban Department of Health,
ACTU Overseas Aid Organisation – Cuban Children's Fund
And
Kind Cuts for Kids Foundation

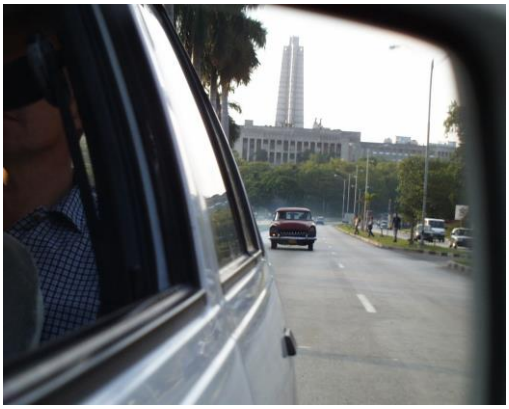
Overview

Cuba is a fascinating country with a rich history, and wonderful people to work with. The Paediatric Urology and Anaesthesia visit resulted from a request from the executive members of the Cuban Children's Fund of the Australian Council of Trade Unions for involvement in the care of a Cuban boy by the name of Daniel. The Cuban Department of health, through Mr Tas Bull*, the President of the Cuban Children's Fund Board, and his contacts at the William Soler Children's Hospital, agreed to provide the funding for the stay in Cuba, and the Cuban Children's fund provided much of the equipment and transport necessary.

The Cuban Consulate in Australia, working with others in Havana, enabled the contacts with the Paediatric Urologists and Surgeons at the Paediatric Hospitals, that resulted in a large number of patients and Surgeons coming to participate in a program of skill transfer, while operating on 14 complex cases.

The warmth and friendship, and the excellent cooperation with the visit, were second to none, and are reflected in the output during the stay. Certainly, there is room for further contribution and visits in the future, the next of which is planned for November 2003.

Havana is a wonderful place. Lenin Park, the bill-boards, Revolutionary Plaza, and the Camel Buses are some of the features of the city.



* Sadly, Mr Tas Bull passed away on the 29th May; at least he was able to learn of the wonderful result of his hard work and vision

The Director of the William Soler Hospital and the Cuban Minister of Health both had a significant input into the planning and promotion of the visit, which was to one of the eight Paediatric Hospitals in the capital. The clinical planning was lead by Dr Rosario Calviat, who heads the Paediatric Urology Unit at the William Soler Hospital. Her efforts were supported and encouraged by the Division of Surgery Director Dr Ruperto llanes. It was a pleasure to see a large number of surgeons involved in the pre-surgical clinic and to have more than 10 surgeons involved in the operative sessions. The Cuban Anaesthetic team was also interested and participated actively with the visiting team.

The images above show the degree of enthusiasm for participation by the Cuban doctors in the events unfolding during the Anaesthesia and Surgery.

Consultations (Appendix 1)

The majority of patients were seen during a clinic on the 30th April, during which both Professor Dewan and Dr Andrew Jeffreys attended, as did surgeons from a number of hospitals, including the founding father of Cuban Paediatric Urology. A total of 22 patients were presented, all were complex and few had not had previous surgery. The level of active discussion reflected the high standard of academic ability of the Cuban Surgeons, but perhaps a lack of some of the concepts that had become more common place in Australia.

Fourteen patients went on to have Surgery, and a small group of patients were unable to have planned surgery because of the number and complexity of the procedures that were performed. Those requiring subsequent surgery include:

- **Two patients with bladder exstrophy.**
- **A boy with a urethral stricture who requires a perineal urethroplasty.**
- **A girl who requires a bladder neck repair, wound revision + omphaloplasty.**
- **A boy who had an epispadias repair requires bladder neck surgery.**

Operative Surgery (Appendix 2)

During approximately 70 hours of operation time (including all day Saturday and Sunday), 14 patients had a total of 49 procedures. Most of the patients had long and complex surgery, with the two most difficult patients requiring 7 and 8 hours of operative time. A total of ten surgeons scrubbed for the operations, with Dr Amarilis assisting with most operations because of her dedication, availability and skill as an interpreter.

Surgery performed included operations on three patients who had bladder augmentation, including two using ureter; bladder neck reconstruction in one, penile repair for epispadias in five, colostomy closure in one, who also has a left hemicolectomy; two cystoscopies, including one in which a techniques was developed for treating the obstruction. Three patients had a bladder exstrophy, all of whom had had previous surgery, and two of who had bilateral inguinal herniotomies. Described in detail (Page 7) is the girl who had a Mitrofanoff continent diversion. Four patients with bladder exstrophy had an omphaloplasty as part of their bladder closure and/or continence procedure, and four had both posterior iliac and superior pubic ramus osteotomies, while one had the anterior osteotomies only.

The standard of care in recovery was similar to what one would expect in Australia, with a high standard of postoperative nursing, with often a spare anaesthetist being available to deal with any problems that arose. Postoperative analgesia usually consisted of paracetamol and tramadol, with opiate infusions not being popular. Intensive care and high dependency facilities were available, and used by a small number of our patients, but none of our patients required postoperative ventilation.

Fortunately only very few complications occurred, including;

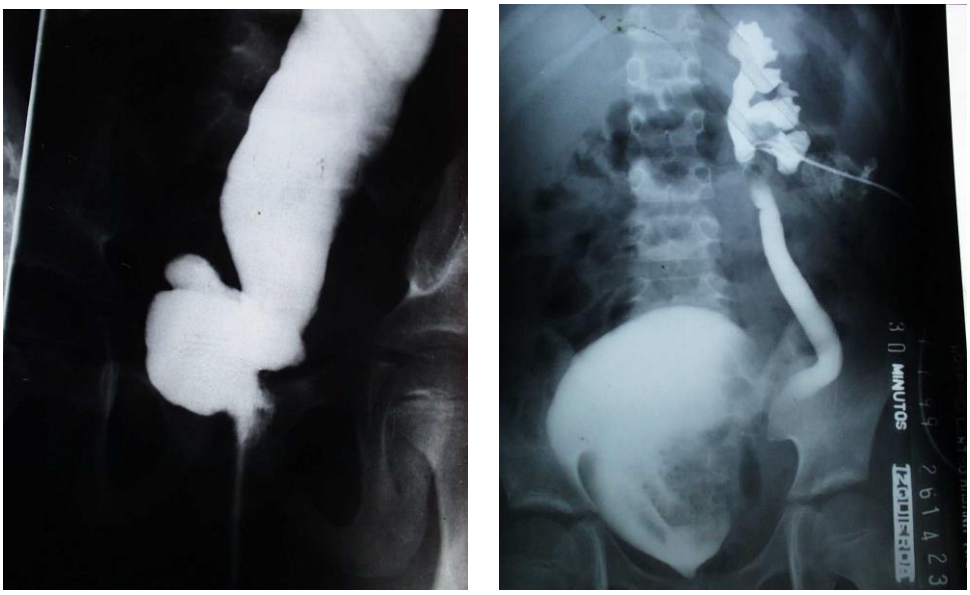
1. A baby with bladder exstrophy repair had a post-operative bleed.
2. Daniel had lower lobe pneumonia, but cooperated poorly with physiotherapy.
3. A seroma was seen in the ureterocystoplasty/nephrectomy boy.
4. Significant blood loss occurred in a girl during 7 hours of surgery (Case description 2).

Professor Dewan and the Cuban Surgeons invent a solution to the lack of equipment by performing fulguration of an obstructing lesion in the urethra, using a plastic sheath and a guide-wire introduced via the suprapubic cystostomy

Three patients had closure of an exstrophic bladder, all of whom had had previous surgery. Note the marking for the formation of the umbilicus, which was part of the Surgical procedure for four children.

Case Description 1

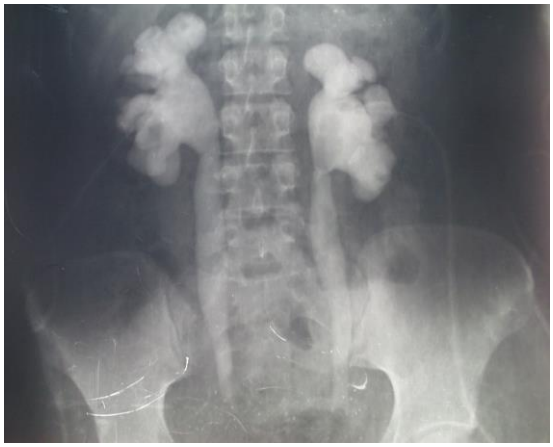
Daniel had previously had surgery for Hirschsprung's, for which he had two attempts at definitive repair. Misadventure during the surgery resulted in an obstructed left ureter, and incontinence, with the need to reestablish the colostomy. He was found to have a huge rectum filled with a large amount of faeces, and he had lived with a nephrostomy tube in his kidney for at least two years. During an eight hour operation he had the left ureter connected to the right to allow for drainage of urine into the bladder, and he had an abdominoperineal operation, with the outcome being that the colostomy was joined to the anus. Postoperatively he was relieved of his nephrostomy tube within three days, and he was passing bowel motions with control. Daniel was the boy who was to come to Australia for treatment, that resulted in the visit to Cuba.

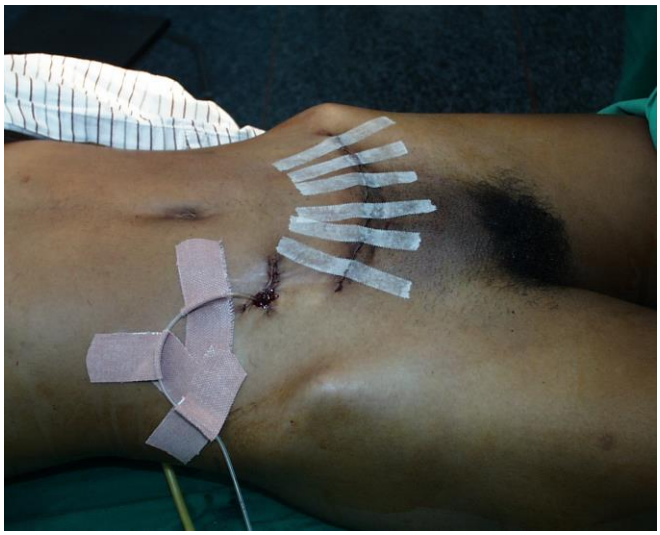


The top two pictures show the preoperative barium enema and urinary tract contrast study, which shows an abnormal rectum, and a blocked left lower ureter. The lower two images show the previous abdominal wound and colostomy, as well as the nephrostomy tube in Daniel's side.

Case Description 2

Yanet is a teenager who had a seven hour operation for a very difficult abnormality, complicated by the presence of severe scarring. She was found to have bilateral cystic ovaries, fibrotic pelvic ureters, a pinhole orifice between the upper and lower parts of her vagina, and virtually no bladder. She had been living with tubes in her kidneys for four years, and had two failed attempts to insert the ureters into the bladder. The surgery formed a urethra from her urogenital sinus, then through an abdominal incision (and with a great deal of difficulty), the ureters were mobilised and joined, then connected to the right lower abdomen as a cutaneous ureterostomy. In the process it was recognised that the bladder was unusable, and an upper and lower vaginal component were connected to allow for normal menstrual flow.





Difficult surgery in this girl resulted in high blood loss, but altimately a good outcome.

Anaesthesia

Fourteen patients who were operated on were generally aged from five years to nineteen years, with only one child younger than one year (eight months of age).

Involvement in the Anaesthesia was as an adviser on appropriate anaesthetic techniques for surgery with which the Cuban Anaesthetists were not familiar and to provide extra manpower given the extent and duration of the surgery; local staff largely administered the anaesthesia.Anaesthetic issues included the long duration of surgery (up to nine hours) with the accompanying problems of temperature control, fluid management and the availability of blood products. All of these concerns were adequately dealt with. Apart from some nausea and vomiting there was no anaesthetic morbidity.

The standard of general health of the children was good, with all patients being well nourished. There was no evidence of problems such as recurrent malaria, tuberculosis and constant viral infections encountered in visits to other third world countries.

Staffing

Anaesthetic consultants and specifically trained anaesthetic nurses were assigned to the theatre each day. There was no contact with trainees. The standard of medical and anaesthetic knowledge and skills was quite high. The difficulties the doctors had in gaining knowledge from beyond Cuba was reflected in some practices that we would consider outdated. The approach taken was different to the 'Australian way' at times but this did not appear to effect the outcomes.

Anaesthetic machines and equipment

Anaesthetic machines were relatively new. A servo ventilator with halothane vaporiser was used for neonates and infants. Ohmeda type anaesthetic machines were used for the older children. Halothane was used routinely. Isoflurane is available but the isoflurane vaporiser was not functioning. The depressed economy and the embargo meant that resources were limited, however disposable endotracheal tubes were used, pulse oximetry, ECG and non-invasive blood pressure was routinely available. Capnography was not available in every theatre, and agent monitoring and laryngeal masks were not available.

Drugs

Propofol was not available and Morphine was not readily available; fentanyl was the most commonly used opiate.; thiopentone and ketamine were widely used, and Suxamethonium, pancurnium and atracurim were available. Most common antibiotics were available. Needles, disposable syringes, IV cannulas and giving sets were of an acceptable standard. Burettes were not widely used. Infusion pumps did not appear to be available. IV fluids (Hartman's, normal saline and dextrose solutions) were presented in glass bottles.

Donations

Many people and companies assisted with the equipment for the visit to Cuba including; Bard, Ansell, Tyco, Qantas, Smith-Kline Becham. Recycled items came from theatres at Royal Children's Hospital, Mercy Private Hospital, St John of God, Geelong Hospital, Sunshine Hospital. All items sent via London arrived safely.

- 100 x 3 WAY TAPS
- 50 x IV CANULAR 24 GAUGE
- 10 x IV EXTENSION LEADS
- 5 BOXES OF 100ea NEEDLES
- 100 x 2ml SYRINGES
- 100 x 1ml SYRINGES
- 100 x SAFE SITE VALVES
- 100 x TEGADERM IV SITE DRESSINGS
- 6 ROLLS – SLEEK
- 50x 22 IV CANULARS
- 20 x IV BURRETTES
- 6 x 40 STERILE GLOVES
- 24 BOXES OF SUTURES
- 100 x 5ml SYRINGES
- 6 x 100ml BETADINE

Dr Rosario Calviat receives a Denis Brown ring retractor from Professor Dewan, which will make intracavity surgery easier.

- 130 x GLOVES
- 8 x NASO GASTRIC
- 12 x CATHETER INTRODUCERS
- 5 x GUIDE WIRE
- 30 x NALATON CATHETERS
- 10 x URINE DRAINAGE BAGS
- 1 BOX – SCALPEL BLADES
- 1 BOX – 5cm ELASTOPLAST
- 1 BOX – 7.5cm ELASTOPLAST
- 20 x HYPERFIX DRESSINGS
- 30 x URETHRAL CATHETERS
- 10 x CLINY CATHETERS
- 10 x DIATHERMY PADS
- 1 x DENNIS BROWN RETRACTOR
- 7 x DIATHERMY HANDLES

Catheters were donated by BARD, and were used for most cases.

Ansell gloves and donated diathermy handles were used for al procedures.

Teaching

Lessons were learnt by both the Cuban and Australian members of the William Soler team. Exchange of ideas occurred mainly during the theatre time, but also during the outpatient clinic and on the ward rounds, particularly on the final day.

Particular focus was on bladder exstrophy and major urological reconstruction, but the epispadias repairs allowed for some of the aspects of hypospadias to be highlighted. The lack of Spanish language for the visiting surgeon and anaesthetist, and the relatively limited English of the Cuban Doctors reduced to some extent the value of the learning experience, but not to an untoward extent.

For Anaesthesia training, the language barrier made it impossible to easily provide tutorials. Some of the consultants were particularly interested in regional analgesia and anaesthesia. The lack of equipment prevented the use of techniques such as lumbar epidural analgesia however I was able to demonstrate the use of caudal epidural analgesia. This technique was adopted with enthusiasm by some of the staff.

Resource Limitations

The William Soler Hospital provides most of what is required to given a good standard of basic care, but within a building which lacks many of the “fancy” trimmings in an Australian Hospital.

The theatre complex provides excellent service given the resource limitations, particularly that of suture materials, containers to safely discard sharp items, and Paediatric Surgical Instruments. Also there is a lack of ureteric catheters. And patients tend to have their urinary tract managed with a permanent catheter, because of the lack of stoma bags. While much of the equipment is in need of upgrading, the Urology Unit is privileged to have a state of the art endoscopic video tower, and there appears to be good access to blood and blood products.

The radiological back-up to Paediatric Urology appears to be limited by some equipement deficiencies, the use of a home video player overcame the need to review the fluoroscopy studies prior to surgery. The availability of pictures of the ultrasound studies and of the nuclear medicine investigations would also be of assistance.

Recommendations for Future Visits

Language:

It would be of great benefit if both the visiting team and those who are acting as host learned more of the Spanish/English that is not their native language.

Surgical Topics:

The range of material covered during this visit was limited by the complexity of the cases treated. It would be of value to complete the complex cases, provide the support for the on-going management of the bladder exstrophy patients, then to move toward developing a program of interchange on such subjects as hypospadias, prenatal hydronephrosis and anorectal anomalies.

Radiological Services:

The standard of Radiology appeared to relatively high, but there does seem to be a problem of the radiation exposure for the patients and staff during the investigations.

Theatre Management and Equipment:

Prior to the next visit it would be appropriate for the surgical team in Cuba to identify the areas that they feel are most in need of improved resources, so that some of the deficiencies can be addressed.

At present there does not appear to be best practice in the handling of sharps, swab counts are not conducted during surgery, although chacks are certainly made. Providing a theatre nurse as part of the team for the next visit would help to understand and to develop methods of changing the current system.

Donations in kind:

Items of value would be appropriately collected between now and when the next visit to help supplement the materials available in Cuba, and to prevent waste in Australia.

Paediatric Anaesthesia:

Topics that are specifically identified by the Cuba Anaesthetist would be best developed into picture presentations to help overcome the language barrier.