Orthopedic Mission to Jinotega, Nicuragua January 2005

A Report

Carried out under the auspices of Project Health for León
(1401 Dixie Trail, Raleigh, NC 27607, Dr. John Paar)

Team Members

Chris Chamberlain (Surgical Technician/ Smith and Nephew Product Representative)
Laurence Dahners (Orthopedic Surgeon – Trauma)
Young Ae Kim (CRNA)
Soma Lilly (Orthopedic Resident)
Miles Lilly (Emergency Medicine)
Mary Harrington (Orthopedic OR head nurse)
Jan Leo (Orthopedic Surgeon - Hand)
John Lohnes (Physician's Assitant)
Gerald McNamara (Orthopedic Surgeon - General)
Vicki Moore (Anesthesiologist)
Tim Pickard (Architect, general repairs in OR)

Contacts in Jinotega

Dr. Felix Balladeres (Ortopedista Hospital Victoria Motta)
Dr. Noel Blandon (Director Hospital Victoria Motta)
Dr. Felix Gonzales (Ortopedista Hospital Victoria Motta)
Dr. Felipe Paredes (Ortopedista Hospital Victoria Motta)

The Location

Nicaragua is very poor as a result of the Sandinista war but seems to recovering at a rapid rate with significant improvements noted each year when we return. Jinotega (the city of the mists) is located about 100 kilometers north of Managua, Nicaragua at an altitude of about 1,000 meters. The drive from Managua took about three hours, the first half on a portion of the Pan American Highway which is in very good condition but the second half on a badly potholed, twisting mountain road, though it is much improved from the first two years. Like other tropical cities at higher altitudes Jinotega has a very pleasant climate and ranged from 65-75 degrees during our stay there. It is placed in a small valley in the coffee growing mountains and has a population of about 100,000 people. We stayed three blocks away from the hospital in the Hotel Café, a very nice facility which was very clean and had a fine restaurant. We went out to several other nice restaurants during our stay and they also provided good food. The tap water is apparently not treated but other than some mild diarrhea no one got sick (however most of us were taking daily Doxycyline for Malaria and diarrhea prevention).

The Facility

The hospital is in the middle of the city and moderately old with large multibed wards in narrow wings for ventilation. There are some "private" wards with private rooms for patients with insurance but we didn't visit them.

The operating theater has three rooms, of which they kindly allowed us the use of the two largest. The third was mostly used for C-sections during our stay. Much of their equipment is in poor condition. Sterile practice was unusual to our way of thinking, as they place great emphasis on shoe covers and not leaving the OR in scrubs, but allow people in the OR with noses (and often mouths) out of their (cloth) masks. They are not careful about the sterile field and gowns and drapes often have perforations. They do not use sterile waterproof barriers on their back tables or surgical field. Circulators and Anesthesia Technicians (who provide the anesthesia) often leave the rooms for extended periods of time.

They do not have a fluoroscope and because their portable x-ray machine is broken are no longer able to shoot portable x-rays in the. They are using the two Black and Decker 12v Firestorm drills we brought (and left) last year, wiping them down with alcohol for "sterile" surgical procedures. We brought some battery powered drill-saw combos last year and they are using them, however, they do not have a flash autoclave and so cannot sterilize the batteries (which still must be wiped with alcohol and covered with stockinette or a glove). They have a video tower with which they have done a few arthroscopies over the past year using the arthroscopes and instruments we brought last January.

The hospital has three orthopedists (listed above) who are all quite young (2-3 yrs out of residency) and were very enthusiastic, scrubbing in with us on all the cases and going out with us every night. The director of orthopedics at the hospital is older but took vacation during our visit so we did not see him.

The Schedule

We traveled all day Saturday arriving in the evening.
We held clinic from 8 to 3 on Sunday
We operated from 8 to 3-5 on Monday – Thursday.
Friday we put on a miniconference with demonstrations of tibial external fixation, retrograde femoral IM nailing technique, knee arthroscopy and a minilecture on tendon transfers for radial nerve palsy.
We left for Managua Friday afternoon and flew out on Saturday at 8AM.

The Patients

We saw about 90 patients in the clinic on Sunday with about 20 more "consults" during the week between surgical cases. Many of the patients had conditions that were untreatable or that we did not have the expertise to treat.

We performed 31 operations who are listed in the table below.

Solis Dolores	88	L femoral neck fx, L distal radius fx	L Austin Moore Hemi arthroplasy, CRIF radius
Elias Herida	26	L knee lateral meniscus	L knee arthroscopy
Carlos Lanos	59	Varus Malunion L proximal tibia	High tibial osteotomy L
Leonardo Gonzales	67	Infected machete wounds to R knee	Irrigation and debridement
Edwin Cano	2	B radial clubhands	Centralization L clubhand
Velkis Aguillera	3	Diplegic CP	B TAL
Carlos Paiz	19	Recurrent shoulder disloc	Bankart repair
Dina Ubeda	14	Laceration L EPB APL	Repair tendons
Victor Herrera	11	B Severe Clubfeet	R talectomy, cuboidectomy tibial shortening osteotomy
Gerardo Alvardo	53	B varus gonarthosis	R HTO
Fernando Gonzales	23	MMT	R Knee arthroscopy
?	?	Diabetic toe infection	Great toe amputation
?	?	Radius ulna fracture	CR cast
Wilton Gutierrez	4	Residual clubfoot	R TAL posterior capsule release partial cuboidectomy
Jason Hernandez	9	L dorsal wrist ganglion	Gangloinectomy
Wilfredo Jaquin	37	L recurrent shoulder dislocation	L Bankart repair
Glen Lopez	28	R shoulder impingement	R acromioplasty
?	?	R forearm machete wound to extensors radius-ulna	Irrig debride, ORIF radius ulna
Ivan Herrera	4	B Severe Clubfoot	L talectomy, cuboidectomy tibial shortening osteotomy
?	9	Severe (135) R Knee flexion contracture (polio)	Hamstring release, femoral shortening
Leonardo Gonzales	67	Infected machete wounds to R knee	Irrigation and debridement, R knee arthrodesis with external fixator
Denzel Gomez	12m	Down syndrome with equines	B TAL
Leonard Gonzalez	15	L hemiplegia with finger in palm clawing	L Radius-ulna shortening to relax musculature
Juan Centeno	20	R recurrent shoulder dislocation	R Bankart repair
Aristeo Mairena	24	R shoulder impingement	R Acromioplasty

Rogelio Solarzano	14	B Calcaneo-navicular coalitions with severe flatfoot	R Talonavicular arthrodesis with shortening medial column
Isaac Zelayn	54	R knee DJD	R knee scope
?	?	R forearm machete wound to extensors radius-ulna	Irrig debride, pack wound open
Maria Marin	10m	Down syndrome B equines	B TAL
Felix Gonzalez	5	Torticollis	Release L SCM
Rodriquez	62	Trigger finger	Trigger finger release

We had one wound infection in the 36 hour old machete wound to the forearm which we took back for redebridement.

The Equipment

We took approximately 1600 pounds of tools, supplies, equipment and implants with us, most of which we left.

Results from the previous year's surgery

We saw four patients from the previous year's surgery. The doctors assured us that the others were doing well (although this is difficult to believe).

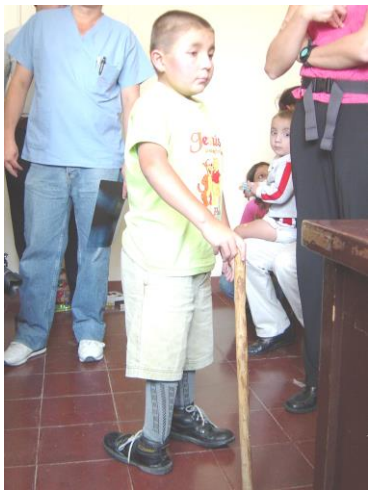
Issac Melendez	3	L tibial pseudoarthrosis, neurofibromatosis	L tibial pseudoarthrosis resection and placement of Ilizarov for transport
Alarcon Lindo	63	R knee osteoarthritis	R TKR
Victor Herrera Gutierrez	11	B SEVERE clubfeet	L Achilles tenotomy, talectomy, cuboidectomy, tibiocalcaneal arthrodesis, distal tibfib shortening osteotomy with external rotation
Alanzo Lopez	83	L failed, infected fixation IT hip fracture	L revision fixation with I&D

Issac had a good regenerate from his transport but had failed to unite at the docking site. A new Ilizarov device was in place to compress the nonunion.
Ms Alarcon was very happy with her TKR and just came in to tell us how grateful she was.

We did not personally see Ms Lopez but Dr Balladeres had recently seen her and her fracture had healed, her infection was resolved, she was walking and very happy.

Victor was ecstatic over his forward facing foot and came in to have the other one done.

Last year



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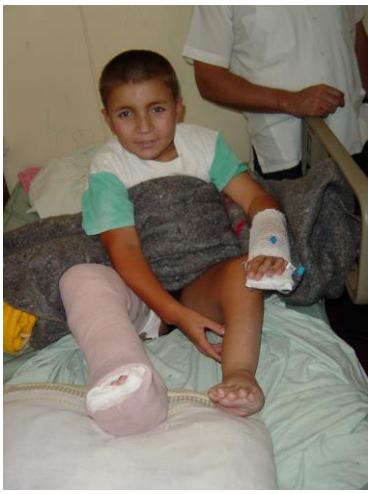

This year post op

He wrote us a sweet letter about how happy he was to be able to walk and (he claims) run and how much he looked forward to having the other foot done.

Non Orthopedic Services

Miles Lilly, a board certified Emergency Medicine physician went with us on this trip and worked with their Internal Medicine and Generalists. He gave daily lectures on topics such as ACLS/BCLS, Diabetic emergencies and fluid and electrolyte management which were very well received (so much so that they asked us repeatedly if we could bring someone from a medical specialty on every trip).

Construction and Repairs

Tim Pickard reinforced the legs of their OR back tables and installed casters so that they could be rolled about. He also installed a very nice set of shelves in their main storage room. A friend of Jan Leo's constructed a shoulder positioner for use in the OR.
Items that could still be done:

1. Tighten OR lights to that they don't wander, replace bulbs
2. Repair wheelchairs and gurneys that don't roll properly.
3. Have canvas bags sewn up for sterilization of IM nails and reamers
4. Bring a grinder and teach them to use it to sharpen drills, scissors and osteotomes.

NEXT YEAR

We all had a wonderful time with very gracious hosts, believe we did some good for the people of Nicaragua and are ready to go back next year.

Equipment to take

- Gowns and towels. Perhaps we can get Sterile Recoveries to donate some old gowns/towels.
- 3.2 and 2.5mm drill bits
- Steinman pins and K-wires
- pliers, wire cutters, out of chrome cobalt so they will tolerate autoclaving
- pin/bolt cutters
- videotapes or books (in Spanish if possible) that demonstrate
    1. sterile technique, how to setup the back table and drape the patient
    2. AO technique
    3. Campbell's

Equipment to invent

- Autoclavable impervious drapes for back table and "U" drapes for patient limbs
    - Tarps?
    - Plastic sheeting?
- Method for sterilizing inside of unsterile drill chucks
    - Swab out with Qtip and alcohol?