Orthopedic Mission to Jinotega, Nicuragua 2004

A Report

Carried out under the auspices of Project Health for León
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Team Members

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Contacts in Jinotega

Dr. Felix Balladeres (Ortopedista Hospital Victoria Motta)
Dr. Noel Blandon (Director Hospital Victoria Motta)
Dr. Felix Gonzales (Ortopedista Hospital Victoria Motta)
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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. 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 OR field. Circulators and Anesthesia Technicians often leave the rooms for extended periods of time.

They do not have a fluoroscope but are able to shoot portable x-rays in the OR though this stresses the system considerably. There is no power available though they are using the two Black and Decker 12v Firestorm drills we brought (and left) last year, wiping them down with alcohol. We brought some battery powered drill-saw combos this year and they are quite excited about 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 for laparoscopy which we used for arthroscopy this year with the arthroscopes and instruments we brought, completing nine arthroscopic knee cases.

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 other than briefly on one occasion.

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 and until 10:30AM on Friday.
Friday we put on a miniconference with demonstrations of IM nailing technique, TKR technique and external fixation of the wrist.
We left for Managua Friday afternoon but stopped in Masay to shop. Saturday morning some of us shopped in Managua before leaving at 2pm.

The Patients

121 patients were scheduled in the clinic on Sunday and apparently we saw most of them. We saw about 30 more "consults" during the week between surgical cases. Many of the patients had conditions that we did not feel we could treat.

We operated on 35 patients and unfortunately had to revise one when post op x-rays showed poor placement of a hip screw (for a total of 36 operations). We assisted with two closed reductions of the wrist. The patients are listed in the table below.

Albertina Gerrera	26	B hand amputation	R Krukenberg reconstruction
Castulo Ruiz	52	R index and thumb open fractures	R index ray amputation and thumb ORIF
Dimos Pineda	40	Bullet knee	Knee Arthroscopy, debridement and removal of bullet
Bravo	36	Internal derangement knee	Arthroscopy knee
Cruz Herrer	12	R residual clubfoot	R triple arthrodesis
Ceferino Zeledon	52	R chronic septic knee	R knee arthrodesis with I&D
Castro Altamirano	22	B equinus contracture	B Achilles lengthening
Lumbi Blnadon	63	L tibial nonunion	L tibial ORIF with bone graft
Rigos Lugo	74	R knee osteoarthritis	R TKR
Garcia Gutierrez	53	R knee medial gonarthrisis	R HTO
Rosario Guteirrez	53	Internal derangement knee	Arthroscopy knee
Noel Castillo	33	Internal derangement knee	Arthroscopy knee
Enrique Ortiz	2	L foot polydactyly	L toe amputation
Corazo Centano	5	Finger contracture	Z-plasty finger contracture
Juaquin Palacios	17	L foot polydactyly	L toe amputation
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
Alvarez Rodruquez	62	Internal derangement knee	Arthroscopy knee
Blandon Concepcion	36	Internal derangement knee	Arthroscopy knee
Chavarria Centeno	10	L foot ganglion	L ganglion excision
Yanet Blandon	17	L severe toe contractures, secondary to burns	L 1-3 toe amputation
Alvarez Collado	58	R medial gonarthrosis	R HTO
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
Gutierrez Pinedo	54	R ankle/subtalar osteoarthritis secondary GSW	R ankle/subtalar arthrodesis
Gonzalez Silas	77	R medial gonarthrosis	R HTO
Chavarria Gilfredo	46	L lat tibial plateau fracture	L tibial plateau ORIF

Seloya Valeria	36	Internal derangement knee	Arthroscopy knee
Cabeallero Hernandez	23	Internal derangement knee	Arthroscopy knee
Garcia Gonzalez	35	L foot plantar heterotopic ossicle	Excision
Gutierrez Espinoza	?	R hand muscle hernias L finger contracture	Release hernias and contracture
Cruz Lumbi	39	L Hemiplegia with dynamic equinovarus	L Achilles/FHL/FDL lengthening and P tibialis transfer to lateral cuneiform
Xiomara Jbarra	22	Internal derangement knee	Arthroscopy knee
Rone Gradeia	64	L index anthrax infection	L index fingertip amputation
Rodruguez Lumbi	32	Subcutaneous bullet knee	Excise bullet
Alanzo Lopez	83	L failed, infected fixation IT hip fracture	L rerevision fixation with I&D

We had one known complication, the failure of fixation of the infected intertrochanteric fracture due to poor pin placement which required revision.

The Equipment

We took approximately 1800 pounds of equipment and implants with us, most of which we left.

Results from the previous year's surgery

The doctors in Jinotega reported that

Kerwin Molina	7	L congen radioulnar synostosis (pronated)	L supination rotational ostetotomy

Had recovered from his radial nerve palsy

We saw three patients from the previous year's surgery. The doctors assured us that all of the others were doing well (a little hard to believe we were that lucky).

Rosa Altamirano	74	L Subtroch femur fx	ORIF with 95deg long plate
Christian Chavarria	6	CP with crouched gait	B Adductor rel B Hamstring lengthening
Blanca Castro	26	L untreated severe clubfoot (walking on dorsum) and post traumatic ankle DJD	L pantalar arthrodesis

Rosa Altamirano had developed a draining sinus over her plate. Her fracture had healed and they had removed the plate but drainage persisted and she complained of chonic pain. They plan another debridement.
Christian Chavarria walked into clnic upright and very happy. She is still a little unsteady on her feet.
Blanca Castro came to clinic with a plantigrade foot which she says no longer hurts. She was nearly ecstatic about it.

NEXT YEAR

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

Christina Wollman, a Peace Corps volunteer who will be there next year has volunteered to be a local connection for us at christinainnicaragua@yahoo.com

Repairs

It would be great to have someone who could fix broken equipment and contract out construction of useful items (Tim, Vicki Moore's SO, may do this if he comes next year). This would require bringing tools but a battery powered drill could be left behind for their use in the OR.

1. Repair oscillating saw which has a broken connection inside somewhere as it has to be shaken to get it to work sometimes.
2. Tighten OR lights to that they don't wander, replace bulbs
3. Repair wheelchairs and gurneys that don't roll properly
4. Add casters to their OR back tables so that they can be moved more easily.
5. Have canvas bags sewn up for sterilization of IM nails and reamers
6. Build/contract a shoulder positioner for OR table.
7. Bring a grinder and teach them to use it to sharpen drills, scissors and osteotomes.

Equipment to take

- Gowns and towels. Perhaps we can get Sterile Recoveries to donate some old gowns/towels.
- 10 and 11mm wrenches
- 3.2 and 2.5mm drill bits
- Steinman pins and K-wires
- vice grips, pliers, wirecutters 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?
- Autoclavable tubing for arthroscopy
  - Can we autoclave the "disposables" a few times?
  - Is there hardware store tubing that will tolerate autoclaving that we can put Stainless steel "spikes" onto?
- Method for sterilizing inside of unsterile drill chucks
  - Swab out with Qtip and alcohol?