

From North to Further North

A Paediatrician's Year in Iqaluit



Disclosures



Grants/Research Support: None to disclose

Speaker's Bureau/Honoraria: None to Disclose

Consulting Fees: None to Disclose

Other: None to Disclose

Why.....??









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NUNAVUT NUNANGANI
NUNAVUT TERRITORY
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MAP-2016-1060

TAAKTILIQINIRMUT MALIGAQ
MEDICAL PROFESSION ACT
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TAAKTILIQINIRMUT UKIUQ TAMAAN LAISIA
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I HEREBY CERTIFY that
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To practice
For the period commencing
And expiring
Subject to the following condition:

Justin Jagger
Thunder Bay, Ontario
Medical Registry
MEDICAL PROFESSION ACT
Pediatrics
September 1, 2016
March 31, 2017
NIL




Krista Ilgok

Coordinator, Professional Licensing
Operations & Professional Practice Unit
Department of Health

crime prevention programming that can benefit all Inuit in the city.

RED BOAT

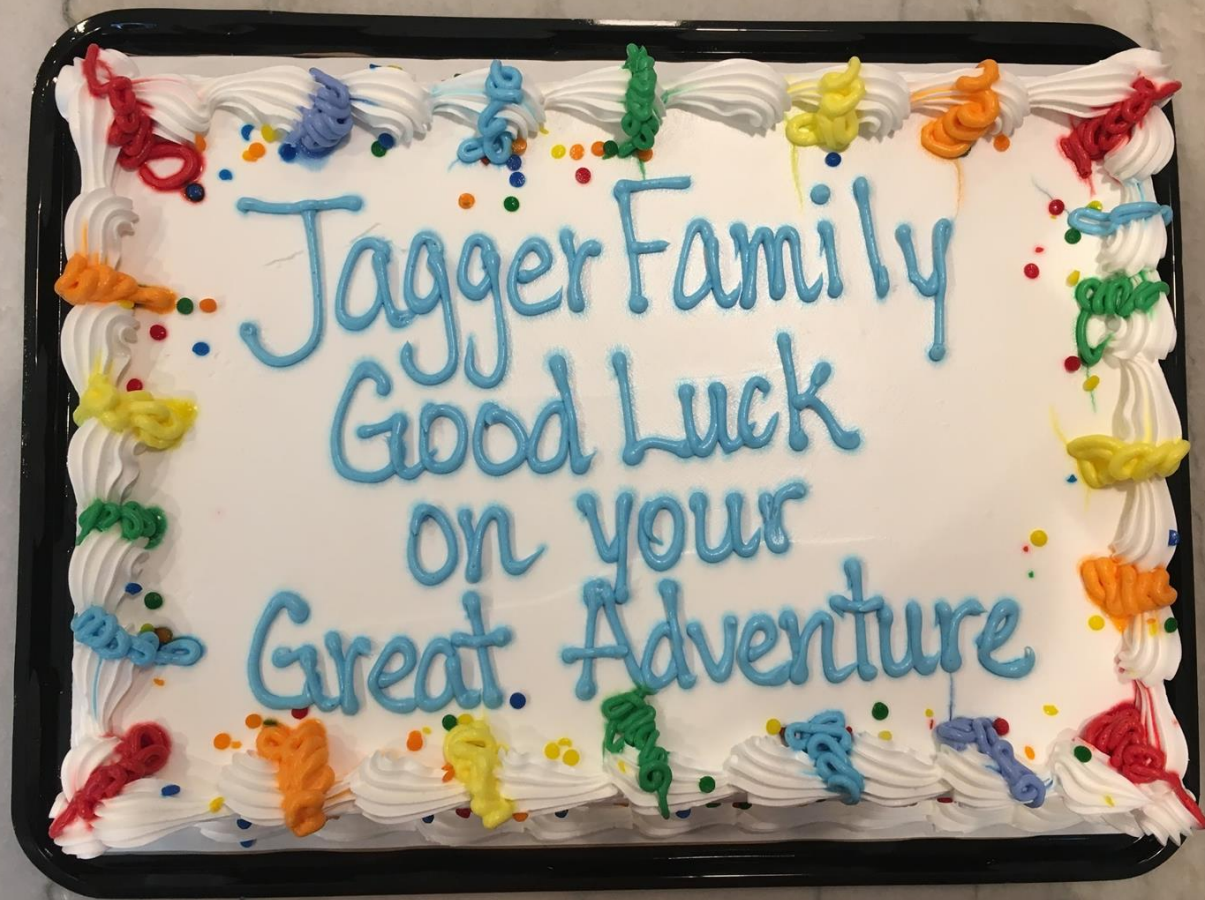
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CANADIAN NORTH

> Iqaluit

GATE 29 FLIGHT 436
PORTE VOL

On Time / À l'heure 09:15

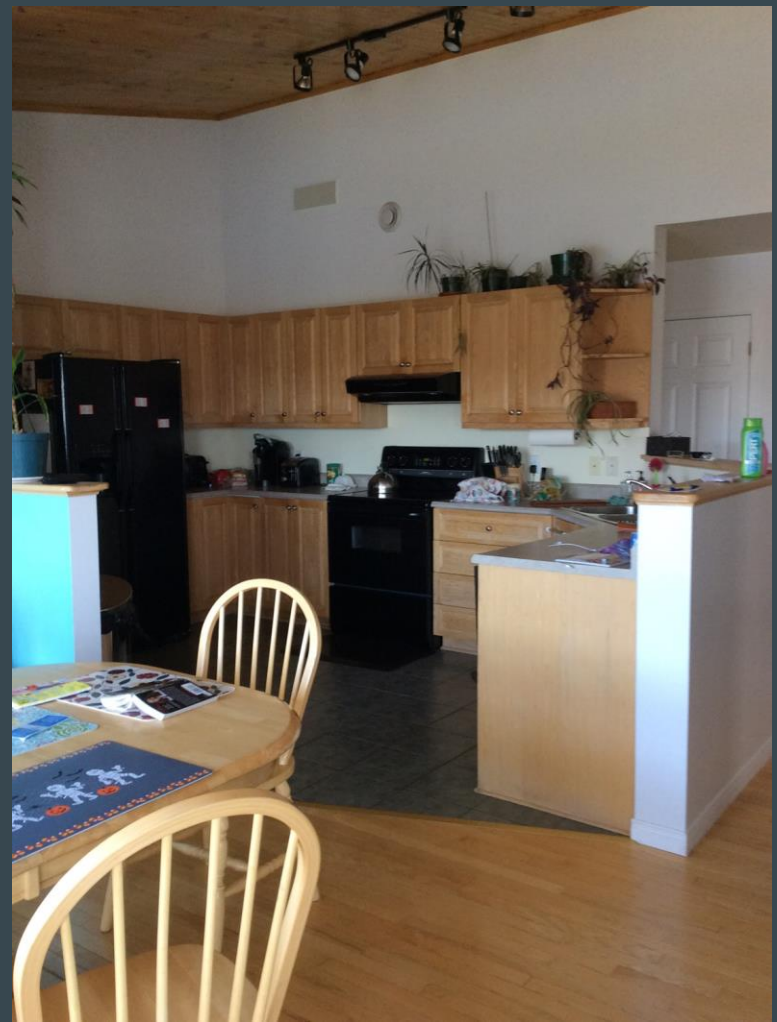
Destination: 08:52 7°C

SOMETHING, SAY SOMETHING. VOUS VOYEZ QUELQUE CHOSE. DITES QUELQUE CHOSE. 813-248-2847









































**NUNAVUT COUNTRY
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979-4458

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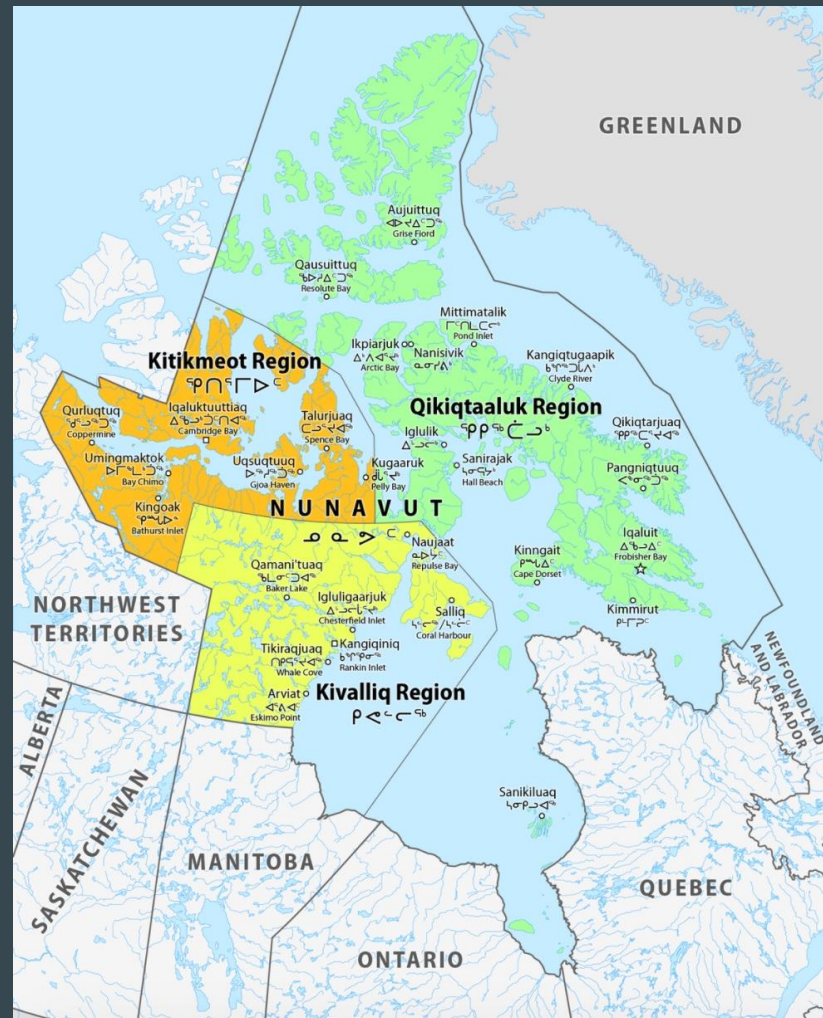












Case: A.N. Friday, Sept 1, 2017

4 y.o. female presents to Health Centre in Kimmirut

7 day history of “warm to the touch”

Rash for the last 3 days when febrile.

One episode of vomiting 2-3 days previous

“Coughing”

Eating, drinking and voiding normally

Dental caries -- awaiting extraction at end of September

Case A.N. -- Friday, Sept 1, 2017

O/E: HR: 132, T: “132C”, RR: 24, SO₂: 98%

No distress. Awake, alert and “very interactive”

Normal cardioresp

No AOM

Throat “mild erythema”, “midline uvula”, “white spots on R tonsil”

Palpable, non-tender “tonsillar nodes”

No rash, moist mucous membranes

Case A.N. -- Friday, Sept 1, 2017

Rapid strep negative

Swab sent for C&S

Now what....?

Case A.N. -- Friday, Sept 1, 2017

- A. Sounds viral. Rest, fluids, antipyretics.
- B. Phone Community Pager and review with MD in Iqaluit
- C. Start empiric antibiotics
- D. What? This case made your Power Point presentation for a reason! Rapid sequence induction, intubation, IV fluids, broad-spectrum antibiotics, Medi-vac to Iqaluit.....

Case A.N. -- Friday, Sept 1, 2017

Possible viral etiology

Fluids, rest

Acetaminophen, ibuprofen prn

Case A.N. -- Saturday, Sept 2, 2017

Mom phoned clinic requesting to be seen

Fever X 7 days

Headache X 7 days, worse the last 3 days “+++ crying”, no photophobia

Resolves with Tylenol “but returns”

No cough, rhinorrhea, ear/abdo/throat pain, no urinary symptoms

Emesis X 1 a couple of days ago

No diarrhea

Case A.N. -- Saturday, Sept 2, 2017

O/E: T: 36.7C HR: 98 RR: 22 BP: 103/59 SO2: 97%

Looks ++ tired, irritable, tearful ++

“Just lays in stretcher” “not interactive”

Neck supple

“White spots” on tonsil and soft palate

TM X 2 normal

Dental caries -- no frank abscess/swelling

Case A.N. -- Saturday, Sept 2, 2017

Normal cardioresp

Benign abdo

“Red rash” to chest

PMH: Amoxil X 7 days on Aug 14 for presumed dental infection

Now what.....?

Case A.N. -- Saturday, Sept 2, 2017

- A. Still sounds viral to me.....rest, Tylenol, fluids
- B. Maybe those white spots are something. I know the rapid strep was negative but let's start Amoxil anyway.....
- C. Phone Community Pager and review with MD in Iqaluit
- D. You're not fooling me Jagger! This kid should have transferred to Ottawa three slides ago.....oh.....and I'm calling CMPA.....

Case A.N. -- Saturday, Sept 2, 2017

Case reviewed with Community Pager

Suspected viral illness. Regular Tylenol/Advil

Community MD will be present on Sept 4th or 5th -- can be assessed then

Case A.N. -- Saturday, Sept 2, 2017

Mom “+++ frustrated” with plan of care “nothing done”

Further history -- patient fell “backwards off a fuel tank” on Aug 27th. Witnessed by mother. No LOC. No vomiting. Had a “scratch” on top of the head.

Head/scalp examined -- normal. No signs of infection/inflammation

Mom worried fevers and headache are related to the fall

Nurse reassured Mom this wasn't the case

Nurse comments patient looks better 1 hour post Tylenol

Case A.N. -- Sunday, Sept 3, 2017

Presented back to Health Centre at 1100h, D/C'ed at 1140h, returned at 1300h

“Not doing well”

Not tolerating PO fluids, vomiting afterwards, H/A, nausea persisting

Void X 1 in last 15 hours

Fevers persist, Mom treating with Advil

Fatigued

Diarrhea X 1

Case A.N. -- Sunday, Sept 3, 2017

O/E: T: 37.5C HR: 120 RR: 24 BP: 101/59 SO2: 100%

Looks fatigued

Normal cardioresp

Benign abdo

Normal TM X 2

“Tonsillar lymphadenopathy”

“2 white spots” on tonsils

Neck supple

Case A.N. -- Sunday, Sept 3, 2017

Case reviewed with community pager

Presumptive viral illness and dehydration

IV attempt X 4 unsuccessful

“Aggressive oral rehydration”

Zofran, antipyretics, fluids, popsicles

Improves clinically. No emesis in Health Centre

Disposition: Zofran PO q8h, fluids and F/U tomorrow

Case A.N. -- Monday, Sept 4, 2017

At Health Centre at 1245h

Fever and headaches since 1 day after she fell off fuel tank

Dad says fall occurred Aug 24th (not 27th) → 12 days of fever and headaches

Fever and headaches worsened over last 4-5 days

No cough/rhinorrhea/ear pain/sore throat

Decreased appetite

Emesis at 0400h

Case A.N. -- Monday, Sept 4, 2017

No diarrhea

Some abdo pain

Improved appetite today (?)

No urinary symptoms

Case A.N. -- Monday, Sept 4, 2017

O/E: T: 38C HR: 106 RR: 22 BP: 99/61

Looks tired, tearful, not much interaction

Watching movie on portable DVD

PERL

Supple neck. Normal TM X 2. White spots on tonsil. Dental caries noted. No frank swelling/abscess. No rash noted. Normal scalp exam.

R/W community pager

Case A.N. -- Monday, Sept 4, 2017

Presumptive viral infection. Antipyretics. Fluid. To be schedi-vacced tomorrow to Iqaluit

Family MD then subsequently reviewed case with Peds-on-call

Phoned back to Health Centre -- pt. to be medi-vacced this evening

Addendum notes no erythema to hands/feet and that the tongue is not “cherry red”

Pt flown out around 1800h to Iqaluit.

A 2 slide break....





Case A.N. -- Monday, Sept 4, 2017 (Iqaluit)

Arrives to ED at 1840h

Aug 24th fell off fuel truck, landed on head

Fevers since Aug 27th

Associated headache, nausea and vomiting

Last emesis Aug 31

No hemetemesis, dysuria, pharyngitis, rash, cough, ear pain, rhinorrhea.

No sick contacts. No travel

Case A.N. -- Monday, Sept 4, 2017 (Iqaluit)

O/E: BP: 88/60 HR: 90 RR: 20 T: 36.8C SO2: 100%

Looks happy, playful, running around

Normal oropharynx. No conjunctivitis. No cervical lymphadenopathy. Healed scalp laceration. Good A/E to bases. No crackles. Soft abdo. No CVA tenderness. PERL. No photophobia. Neck supple.

Case A.N. -- Monday, Sept 4, 2017 (Iqaluit)

Ix:

U/A: trace leuks

WBC: 7.8, Hb: 104 Plt: 389

K+: 3.2, Na: 143 Normal LFTs, bili

CRP: 6.6

Blood culture P

Disposition: "RTED tomorrow AM for CXR and R/A"

Case A.N. -- Tuesday, Sept 5, 2017

RTED and Peds-on-call consulted

HPI as outlined with one addition --

Mom reports an episode of her “eyes not moving together” on Saturday that “lasted a few minutes”

O/E: T: 38.4C HR: 131 RR: 30 BP: 108/77 SO2: 100%

“Non-toxic, sleepy”

Otherwise normal exam

Case A.N. -- Tuesday, Sept 5, 2017

Persistent fever, headaches, vomiting and a possible cranial nerve palsy

CT head indicated to R/O “mass/intracranial bleed”

Done under sedation

Case reviewed by phone with CHEO radiology. Normal head CT. No signs of raised ICP, mass, bleed

Given signs and symptoms and absence of concerning findings on CT, lumbar indication to R/O meningitis

Case A.N. -- Tuesday, Sept 5, 2017

LP performed under 2nd sedation in ED

Admitted to hospital under Pediatrics

Started on ceftriaxone and vancomycin “until cultures negative at 48 hours”

CSF results:

Clear/colorless CSF. WBC: 1880 RBC: 870 PMN(%): 5 lymphs(%): 95 glucose: 2.3mM Total protein: 0.93

Given increased WBC, “concerns for bacterial meningitis” and dexamethasone was given X 1

Case A.N. -- Wednesday, Sept 6, 2017

Case handed over from Pediatrician A to Pediatrician B

“Interesting case. Chart reviewed. Pt examined”

HPI reiterated

Fall and head injury not felt “to be related” to symptoms

WBC > 1000 suggestive of bacterial meningitis

“Whether related or not, symptoms have settled over last 12 hours after initiation of ceftriaxone, vancomycin, dexamethasone”

Case A.N. -- Wednesday, Sept 6, 2017

Afebrile. No headache. No vomiting.

Eating/drinking well

O/E: Sitting up. Eating potato chips. Full ROM of neck. Negative Kernig/Brudzinski's sign. No petechiae. Good A/E. No murmur. Well perfused

Gram stain negative

CXR negative

Plan is "at least 48 hours culture/cover with broad spectrum Ab"

Await culture results.

Case A.N. -- Thursday, Sept 7, 2017

Note from Peds Resident

HPI reviewed and documented again

Well over last 24 hours. 36 hours of antibiotics, dexamethasone

Afebrile. Eating/drinking well. No further headaches. No vomiting.

No history suggestive of chronic sinusitis

Full neurological exam. Negative signs of meningismus

Will R/W Peds ID (CHEO) for suggestions re: duration of therapy given pleocytosis and what will likely be a negative CSF culture. Differential includes TB meningitis.

Public Health consult for TST placement

Case A.N. -- Friday, Sept 8, 2017

Clinically well. Afebrile since admission. No headaches, vomiting. Playful. Eating and drinking well. Mom keen to “go home”

Case R/W Peds ID (CHEO)

CSF counts reviewed (but not differential)

Recommendation was to D/C vancomycin, dexamethasone and continue 7 days of IV ceftriaxone

Arrangements made for IV q24h dose of ceftriaxone to be given through ED Sat/Sun and through home care next week to complete course. Public Health to read TST on Saturday. Pediatrics to follow up Monday. Pt. D/C'ed to Boarding Home

Case A.N. -- Friday, Sept 8, 2017

Public Health notified local TB physician about case later in the day

Patient brought back to ED for further assessment

Father of child has active TB

Case re-reviewed with Peds ID (CHEO) and patient's presentation felt to be consistent with TB meningitis. To be started on quad therapy.

Peds ID concerned about potential complications from initiating therapy in the context of possible disseminated miliary disease (eg: sepsis, shock)

Pt started on RIPE therapy plus ceftriaxone and medivac-ed to CHEO later that night

Case A.N. -- Ottawa Postscript

Admitted Friday, Sept 9th

Clinically, well. Asymptomatic. No evidence of disseminated miliary disease.

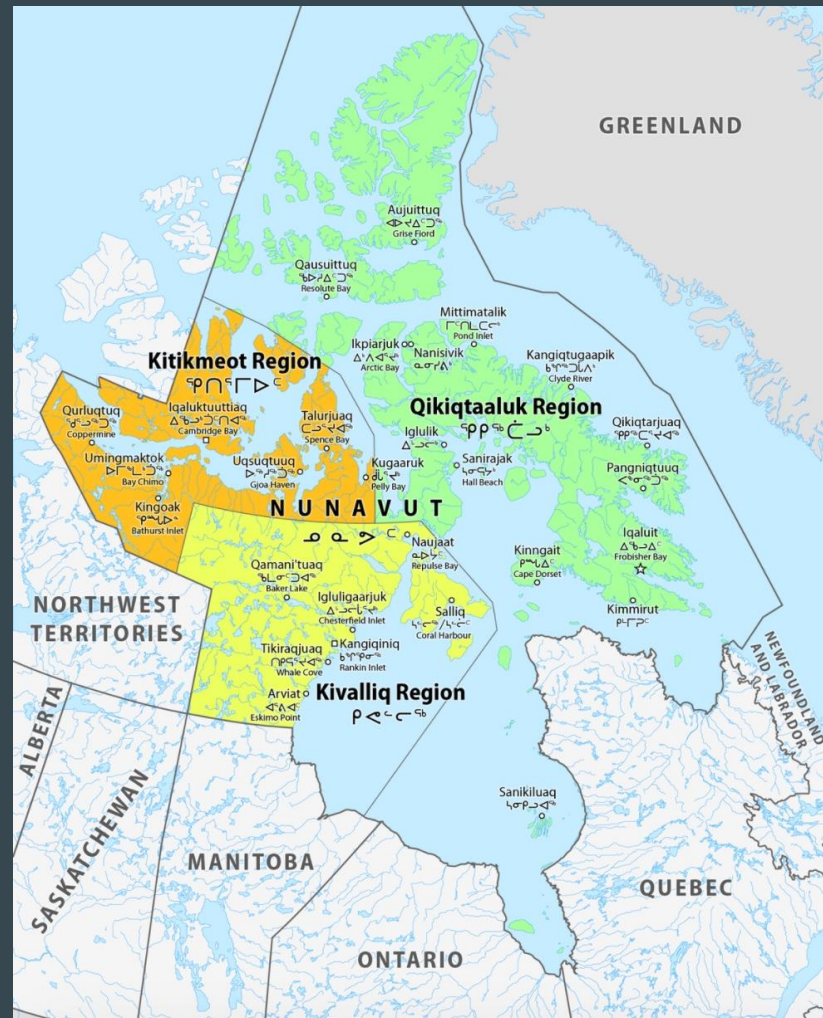
Repeat CXR -- normal

AUS -- normal

Head MRI -- normal

Ophthalmology consult -- normal

D/C'ed on Sept 13th. To complete TB treatment in Kimmirut under auspices of Public Health



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Nunavut Government
Nunavut Miqusi
Division des aéroports du Nunavut

Kimmirut



-6°C

Gate

5



830

14:15
On Time

Iqaluit :  -7°C

Tue, Nov 20
13:36





















עברית
WELCOME

How do I know if I'm sick with TB?

If you have these symptoms...

- A cough that lasts more than 4 weeks...
- Loss of weight...
- Tired a lot...
- Fever and night sweats...



...See your doctor or nurse!



Let's eliminate TB!



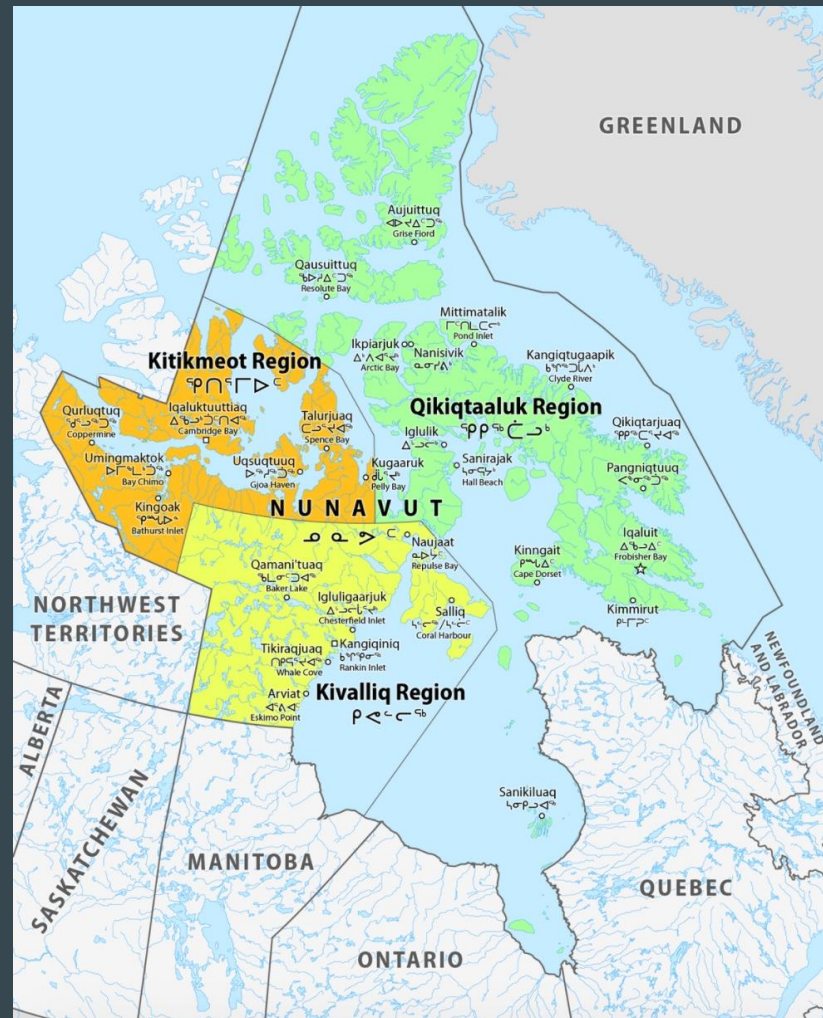












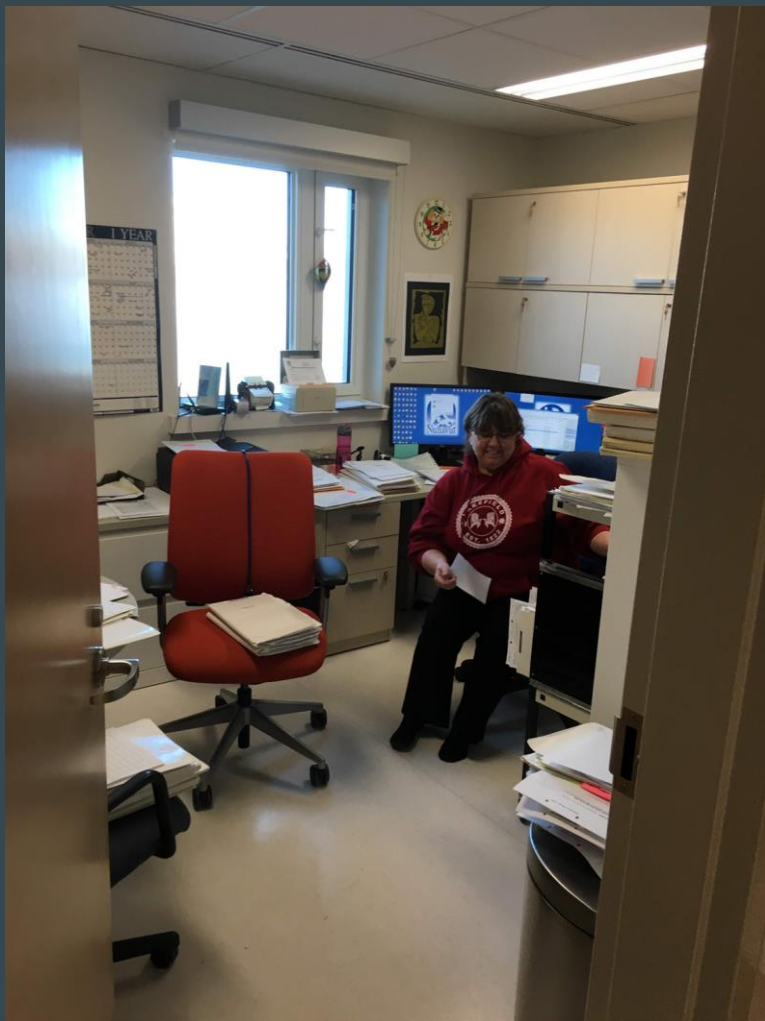
























Case Presentation

NB Male born to a 26 y.o. G2T2 mother from Cape Dorset

Born via stat C/S

U/S today concerning for asymmetric IUGR, oligohydramnios and BPP: 0

Mom thinks her membranes ruptured > 18 hours previous

Previous U/S (up to 30 weeks GA) were normal. No IUGR. Normal anatomy.

GBS negative, no other septic setup

Antenatal History

Distant HSV infection

Started acyclovir at 36 weeks GA. Compliant with medication. No active lesions.

No GDM. No HTN.

On PNV, vitamin D

Occasional cannabis use. Denies nicotine / EtOH

Protective serologies.

Delivery Note

Breech positioning

? meconium present.

Cried at birth. Good tone.

No resuscitation

Brought to OHIO. Dried and suctioned. APGAR 9/9

BW: 2722g Length: 45cm HC: 32.5cm

RECORD



RECORD # _____



To Nursery for Observation and R/O Sepsis

Spontaneous movement, responsive to exam but not “++ active”

Hyperreactive Moro

Normal plantar, sucking, rooting reflexes

“Thumb in fist” palmar positioning

“? dysmorphic” face “long and thin” “flattening of sides of head” “palate slightly arched”

Pectus carinatum noted

No other abnormalities noted on exam

Investigations

WBC: 10.9 Hb: 186 Plt: 211

Cap gas: 7.31/43/21

Glucometer: 1.5 mM (jittery)

CXR:

Exam Date: 01-Nov-2017, Exam Time: 16:22
Procedure Type: CHEST PEDIATRIC 2 VIEW, Modality: CR
Image Number: 1, Image Date: 01-Nov-2017, Image Time: 16:56
Accession number: QI0000134882
Chest supine AP



SU

Lossless 1:1



FRONTAL AND LATERAL VIEWS OF THE CHEST.

CLINICAL INDICATION: Term baby boy with abnormal shape with chest following C-section delivery and risk factors for early onset sepsis. Rule out pneumonia.

COMPARISON: No available.

FINDINGS: Both lungs appear clear without evidence of consolidation, pleural effusion or pneumothorax.

Cardiothymic silhouette appears within normal limits.

Frontal view shows dextroconvex scoliosis of the thoracolumbar spine, likely positional, for clinical correlation.

IMPRESSION: Possible dextroconvex scoliosis of the thoracolumbar spine, for clinical correlation.
Normal chest x-ray.

Now what....?

Plan

Treat for R/O sepsis

IV dextrose

Breast/bottle feed

Blood glucose monitoring

Bilirubin at 24 hours

No empiric coverage for HSV

Plan

Team bothered by new-onset oligohydramnios and borderline SGA

May be PROM and sepsis but given “? dysmorphisms” cannot “R/O genetic syndrome vs congenital renal anomaly”

Will “monitor closely”....

Day 2

Clinically well

Breast / bottle feeding

Weaning IV D10W

On amp/gent

Voiding well. Has passed stool.

“Increased peripheral tone in 4 limbs” Can not elicit Moro. Normal palmar/plantar/sucking reflexes. Ongoing “thumb in fist” positioning. Jittery “but suppressible”

Day 2

“No obvious dysmorphisms”

Murmur now noted. Loudest at ULSB and LLSB. No click. Normal femoral pulses. Cap refill < 2s.

Lungs clear. Not tachypenic. No distress.

Jaundiced.

“Well appearing. Stable” Not a “totally normal neurological exam”. “No focal defects, unilateral neglect or lethargy to raise suspicion for neonatal stroke, seizure or meningitis” Baby “does not meet criteria for HIE”

Day 2 Plan

Continue culture/cover

4 limb BP, pre/post ductal SO₂ and EKG (al normal)

Monitor blood glucose.

Neurology consulted over the phone

Recommended HUS

Day 3

*****ATTENTION *****
***** SIGNIFICANT OR UNEXPECTED *****
***** RADIOLOGIC FINDING *****

BRAIN ULTRASOUND

Clinical indication: 1-day-old. Increased right-sided tone and fisting present

Comparison to previous ultrasound no previous similar imaging is available for comparison.

Discussion:

Ventricles: The ventricular system is not dilated.

Hemorrhage: There is no evidence of intraventricular or parenchymal hemorrhage.

Brain echogenicity: There are mild increased periventricular echoes bilaterally but they appear to be less than the adjacent choroid plexus. There also appear to be linear small echogenic lines in the thalamus on both sides. Findings suggestive of lenticulostriate vasculopathy.

Midline shift: There is no midline shift.

The posterior fossa is normal.

Superior sagittal sinus: The visualized portions of the superior sagittal sinus is patent. Flow is seen in the anterior pericallosal artery. Resistive index appears to be satisfactory.

IMPRESSION: Findings suggestive of lenticulostriate vasculopathy as described above. This can be seen with many syndromes, hypoglycemia and TORCH infections. These should be evaluated. Brain parenchyma otherwise appears satisfactory.

Day 3

Reviewed results with CHEO Neurology who recommended head MRI

Reviewed with CHEO ID who recommended TORCH W/U (syphilis RPR and titre, urine CMV, HSV PCR, rubella IgG, “unable to find toxoplasmosis orders on Meditech”)

“ Given persistent murmur and constellation of findings above, is this patient best managed as an outpatient or as an inpatient at CHEO. Will liaise over the W/E....”

Transfer...

It takes a couple of days but in the end patient was D/C'ed to plane for Schedivac to CHEO. Admitted the same day and had multiple consults by multiple services.

CHEO admission from Nov 6 -17th.

On further history, Mom had a “severe itchy rash that was weeping clear, yellow fluid - along the front of her belly, and a drier rash on her arms and legs.” Resolved without treatment. This was in September.

Mom initially endorsed no unusual foods however later confirmed “consuming raw caribou, walrus, beluga, seal and arctic char” throughout pregnancy.

Diagnosis

Toxoplasmosis IgG+, IgM+

Toxoplasmosis PCR + on CSF

Other TORCH W/U negative

MRI: “Microcalcifications likely related to congenital toxoplasmosis”

Ophthalmology: “retinal scarring likely secondary to toxoplasma chorioretinitis”

Mom’s toxoplasma IgG was 1:8000 (positive is > 1:16), IgM 6.7 (positive is > 2)

Baby’s IgGi was 1:32,000 (4X maternal IgG is positive) and IgM positive (does not cross placenta so this represents infant IgM production)

Treatment

Started on sulfadiazine X 1 year

pyrimethamine X 1 year

leucovorin 3 X weekly X 1 year

Monitor for hydrocephalus

Also had a VSD on echocardiography

Follow-up

Brief admission in January for increased WOB and concern about CHF

Was started (and then discontinued on lasix)

Seen by cardiology

His VSD is small and highly restrictive and unlikely to cause him problems. Lasix has been D/C'ed

Follow-up

One Tele-Health visit at the end of April (~6 months of age)

More around a rash/eczema

“Doing well”

Mild gross motor delays.....

Why.....??



From North to Further North

A Paediatrician's Year in Iqaluit

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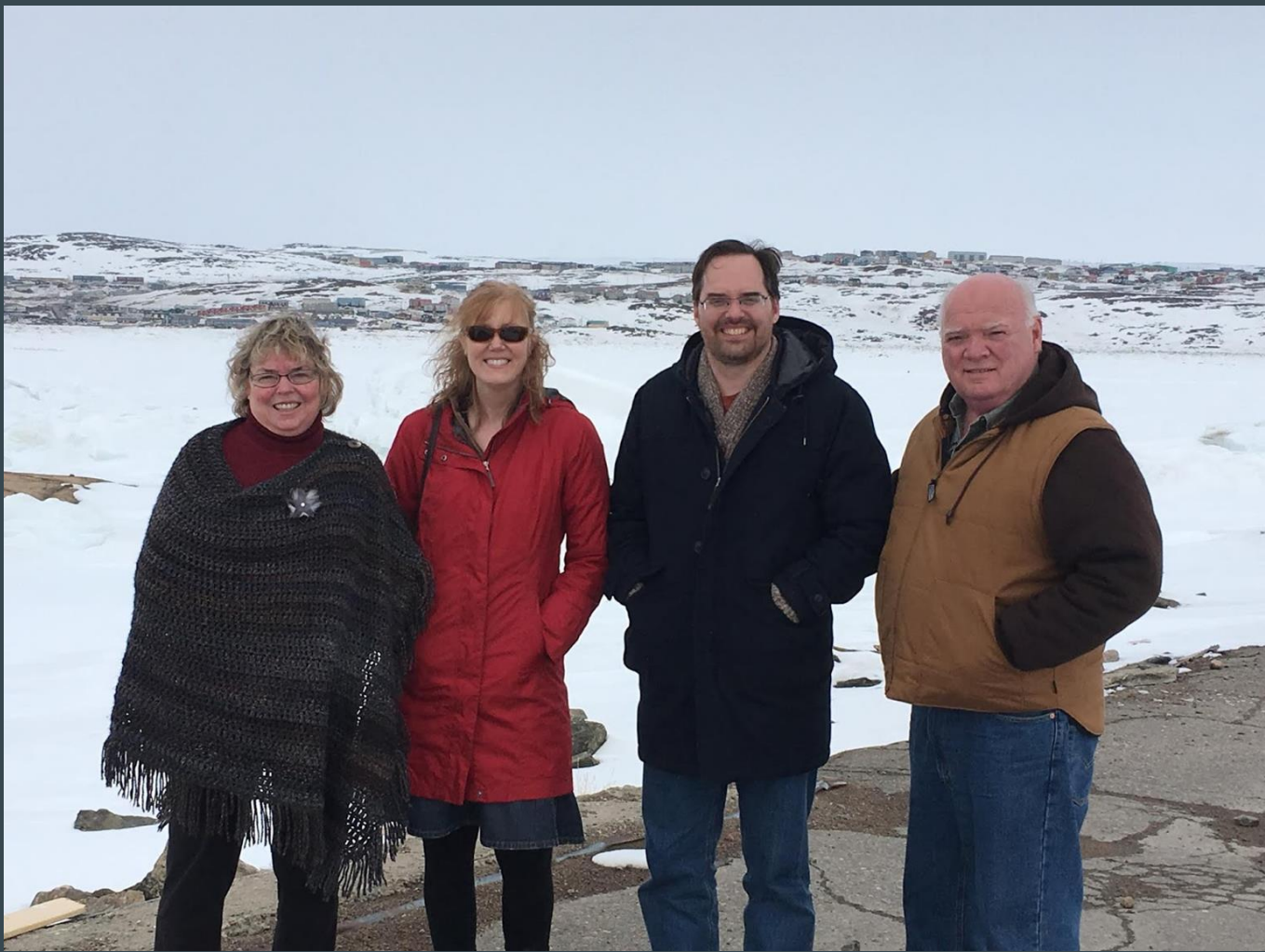












Congenital Toxoplasmosis (*Toxoplasma gondii*)

Obligate intracellular coccidian parasite (class: Sporozoa)

Infections occur worldwide

Associated with the consumption of raw meat

Humans ingest cysts present in raw or undercooked meat

Or oocysts in material contaminated by cat feces

Exists as a congenital infection acquired after maternal primary infection during pregnancy

Congenital Toxoplasmosis (*Toxoplasma gondii*)

Most *frequently* passed to fetus when Mom becomes infected during third trimester

Most *devastatingly* acquired when the infection occurs during first trimester

Rarely, the fetus may acquire the infection when *Toxoplasma* is reactivated in immunocompromised mothers

Risk of congenital infection is 15-20% in first trimester, 60-65% in the third

Overall incidence is 1:1000 of which some result in stillbirth, abortion, early neonatal death

70 - 90% of congenitally infected infants are *asymptomatic*

Congenital Toxoplasmosis (*Toxoplasma gondii*)

Long-term sequelae of untreated congenital toxoplasmosis includes chorioretinitis, developmental delay, learning disabilities, mental retardation

Congenital manifestations include hepatosplenomegaly, lymphadenopathy, hydrocephalus, microcephaly, rash, jaundice, thrombocytopenia and anemia

HUS or head CT may show dilated ventricles or calcifications (scattered as opposed to the periventricular calcifications of congenital CMV)

Congenital Toxoplasmosis (*Toxoplasma gondii*)

If the diagnosis is suspected, the infant should have cranial imaging, ophthalmologic examination and auditory evaluation

Serum samples are evaluated for IgG, IgM, IgA, IgE antibodies to *Toxoplasma*.

CSF should be sent for cell count, protein, glucose and *Toxoplasma* PCR

(IgA and IgE levels become negative sooner than IgM giving you some insight into the timing of the maternal infection)

Congenital Toxoplasmosis (*Toxoplasma gondii*)

Treatment is:

Sulfadiazine (100 mg/kg) div q6h

Pyrimethamine (2mg/kg/day X 3 days to 1mg/kg/day)

Leucovorin

Consideration to adding corticosteroids for “select neurological cases”

Treatment for congenital toxoplasmosis is ~1 year



