

Treating Tuberculosis on the Navajo Nation

Jonathan V Iralu, MD, FACP

Navajo Area Indian Health Service

Infectious Disease Consultant

Case Presentation

- The patient is a 68 year-old woman presenting with mid-epigastric abdominal pain and constipation. She has a past history of DM and HTN and received 9 months of INH in 1990 for a positive PPD.
- On physical exam she had a tender right lower quadrant of the abdomen. Blood tests were ordered.
- Before results came back, the patient insisted on leaving the clinic without further evaluation. She subsequently sought the care of a medicine man.

Case Presentation

- The patient finally appeared in internal medicine clinic one month later. On exam she had no palpable inguinal nodes. Her abdomen was non-tender and the stool was guaiac negative.

Case Presentation

- Needle aspirate revealed AFB on staining and nucleic acid amplification confirmed the diagnosis of TB. She was placed on 4 drug therapy for TB and did well.

Navajo Culture

- The Dine are a tribe who speak a language related to Apache and the Athabaskan languages of Canada and Alaska.
- They have an ancient, rich and beautiful culture and live in the American Southwest in the four corners region (Arizona/New Mexico/ Colorado/ Utah)

Navajo Cosmology

- Navajo origin stories point back to an emergence from four previous worlds into this, the Glittering World.
- First Man and First Woman were created by the Holy People, supernatural beings who taught The Dine how to survive in a world full of both beauty and danger.

Navajo Cosmology

- Religious practice focuses on restoring health and ensuring survival.
 - By following the rules, one stays safe
 - Navajos were taught the healing ceremonies by the Holy People
 - The ultimate goal is to restore “Hozho” or balance

3 causes of sickness for the Diné

- Retribution from the Holy People for a broken taboo (lightning, snakes, etc) or omission (not thinking and speaking positive)
- Contact with ghosts- the malignant part of a dead person
- Witches- malevolent people place a curse on the patient and they fall ill

Navajo Medicine

- Diagnosis is made by a diagnostician
 - Star gazing
 - Crystal gazing
 - Hand Trembling
- Cures are made by a Singer who performs a ceremony:
 - Singing
 - Sand painting
 - Prayers
 - Herbal medicine

Navajo Medicine

Treatment: Ceremonials

- Holy Way Chants

- Beauty Way

snake cure

- Shooting Way

lightening cure

- Mountain Top Way

bear cure

- Life Way Chants

bodily injuries

- Evil Way Chants

ghost sickness

Navajo Medicine

Treatment: Ceremonials

- Tuberculosis:
 - Navajo word for Tb, *jei di* means “disappearing heart”
 - Tb is caused by contact with lightning-struck wood
 - Cured by the shooting way ceremony by a medicine man who is expert in this ceremony
 - The whole goal is to achieve harmony

Navajo History

- Early Period: prior to 1626
 - Lived in Dinétah with an agrarian lifestyle
- Spanish Period (1626-1846)
 - Spanish took Pueblo land and Navajos migrated West.
- American Period (1846-)
 - Attacked by General Kearney
 - Barboncito, Manuelito Zarcillos Largos boldly resisted
 - Kit Carson in 1863 ordered to destroy their land

Navajo History

Western anthropologist's view:

- Under Carson's attacks, Navajos starving by 1864 .
- Ordered to surrender at Fort Defiance and forced on Long Walk 300 miles south east to Ft. Sumner
- Chiefs Manuelito and Barboncito resisted capture
- Remainder were forced to farm unfamiliar crops in poor soil.

Navajo History and Tuberculosis

- Yellow Fever and Cholera plagued the Navajo at Ft Sumner.
- Upon return to Dinetah, the first US government physician noted “consumption” among the Navajo.
- By 1912, 10% of the Diné had TB & TB was responsible for 50% of all illness seen on Navajo

Navajo History and Tuberculosis

“the Indian office was collecting and taking children off to non-reservations schools. It was a terrible mistake for they began returning and dying of TB. I had no place to keep them.”

-an early physician

Navajo History and Tuberculosis

- In 1925 25% of reservation deaths were due to Tb.
- Hospital opened at Ft Defiance 1938:
 - 343 Tb patients → 230 deaths.
- Chairman Chee Dodge petitioned the federal government to intervene but congress focused spending on off reservation treatment of Navajos.

Navajo History and Tuberculosis

	Navajo	US all races
Tb Incidence rate 1953	1042/100,000 per year	11.2/100,000 per year
Tb Mortality rate 1950	1.9/ 1000 per year	0.2/ 1000 per year

Navajo History and Tuberculosis

- Cornell physicians under Walsh McDermott began INH trials on Navajo in the early 1950's
- The *Many Farms Demonstration Project*
 - “Comprehensive Community Health Care”
 - Utilized Navajo “Home visitors”- the precursors to the modern TB technicians and Community Health Reps

Navajo History and Tuberculosis

Annie Wauneka

- Daughter of Chee Dodge & only woman on tribal council in 1951
- Studied Tb for 4 months at the Ft Defiance Tb San to learn about “the little red worms”
- Visited Navajos in TB Sans in the 4 corners region
- Did home visits to teach her people about the “bugs that eat the body” (the Badge Lady)

Navajo History and Tuberculosis

- Annie Wauneka's accomplishments
 - The discharge against medical advice rate on Navajo dropped dramatically by 1954 through her teaching
 - She taught the Navajo medicine men about TB
 - Created the “health visitor” program of Many Farms- precursor of our current DOT TB treatment model
 - Advocated for transfer of Indian health from the BIA to the US PHS through the IHS

Navajo Nation/IHS TB Program

- In 1972 the Navajo Nation and the Navajo Area IHS began a collaboration to treat TB on the Navajo Nation using bilingual Tb workers who
 - administer DOT
 - complete contact investigations in Navajo
 - Monitor Tb screening on the reservation
- Covers a region the size of West Virginia in New Mexico, Arizona, and Utah.
- Navajo Area IHS active user population now is at 238,515

Outpatient Clinical Care

- Provide Directly Observed Therapy (DOT) to patients with active Tb.**
- Provide Directly Observed Preventive Therapy (DOPT) to at risk patients with latent Tb**

- **A major barrier to TB care on the reservation is transportation**
- The DOT trips on the reservation average 100 miles per day on roads like this:



The barrier of poverty...

- 255,543 enrolled Navajos
 - 31.9% lack complete plumbing
 - 28.1% lack a kitchen
 - 60.1% lack a telephone
 - 68% of Navajo money is spent off-reservation
 - Navajo Area IHS funded at 54% of projected need

Source: Navajo Division of Health

The barrier of poverty....

	Navajo	US
Median Age	22.3	32.9
Yearly Income	\$6,123	\$21,181
Below Poverty	56%	13%
Unemployed	43%	4.3%

Chest Clinic

- The Tb techs work with an IHS physician to see all of the patients monthly while on therapy for active or latent Tb.
 - Lab monitoring
 - Screening for HIV and viral hepatitis
 - Medication refills all covered by IHS

- Traditional healing is available at some IHS hospitals on the Navajo Nation. Tb technicians assist more traditional Navajo patients in seeking care from these resources if the patients so desire.



Tb techs coordinate collection of TB specimens for submission to the State Laboratories for testing.

Tb Technicians and IHS physicians can obtain a court order from the tribal courts to enforce treatment of patients with active Tb who are non-adherent with therapy.

Navajo Nation Tb Program Impact

- 100% of active TB cases receive DOT
- Diabetics are the main focus of DOPT on Navajo
- The TB incidence for 2005 was equal to US all races.