"You Can Call Me Spider Man" Laurie Wolf MLS(ASCP)SBB University of Kansas Hospital

Patient Presentation 2-6-2013

> A 20 y/o male presents to the ER at another facility

- Patient explains that the previous day he thinks he was bitten by a spider while putting on an old coat
- Complains
 - Nausea
 - Vomiting
 - Pain at site
 - Red urine

Lab Values 2-6-2013

Hematology

- WBC 18.7
- Hgb 14.8
- Urinalysis
 - Large bilirubin

Chemistry

- Elevated liver function tests
- Positive EBV IgM

Diagnosis and Treatment 2-6-2013

Diagnosis

- Cellulitis of the arm presumably due to a spider bite
- Infectious mononucleosis

Treatment

- Admitted for observation
- Cephalexin regimen
- Ibuprofen as needed

Discharged on 2–10–13

- Hgb 11.1
- Bilirubin 6

Couldn't Stay Away... 2-11-2013

- Comes back to the ER complaining of weakness
- Lab Values
 - Hgb 5.8
 - Hpt <10
 - Bili 18.6
 - UA
 - Large blood, moderate bilirubin, light yellow in color

Couldn't Stay Away... 2-11-2013

- Blood Bank Serology
 - DAT weakly positive with anti-IgG and anticomplement reagents
 - Negative eluate
- Diagnosis
 - Hemolysis
 - Cellulitis
 - Discontinue cephalexin

Transfer to KUMC

KUMC Patient Presentation 2-11-2013

- Confused, lethargic
- Lab Values
 - Hgb 3.3
 - Hpt 5.0
 - Bili 13.8
 - UA
 - Brown, large blood, bilirubin
- Deteriorated quickly, required ventilation, admitted to the ICU, Infectious Disease and Hematology consulted

So, Where Do We Start?

- Causes of the hemolysis
 - Autoantibody?
 - BB serology
 - Previous hospital found DAT +
 - Drug induced hemolytic anemia?
 - Cephalexin, ibuprofen
 - Infectious mono?
 - Transient, potent anti-i
 - Undiagnosed sickle cell anemia?
 - No sickle cells noted on peripheral smear
 - Spider bite?
 - Most probable

Blood Bank Serology

Special Report Worksheet

THE UNIVERSITY OF KANSAS HOSPITAL



| ABO/RH | Cell Typing | | | | | | | | Reverse Typing | | | | |
|----------------|-------------|--------|--------|----------|--------|--------|-----------|----------|----------------|----------|--|--|--|
| Interpretation | Phase | Anti-A | Anti-B | Anti-A,B | Anti-D | Anti-D | Mono Cont | A1 Cells | B Cells | A2 Cells | | | |
| ADOS | | 44 | 0 | 1 | 44 | | 0 | 0 | 44 | | | | |
| | | | | ' | | | | | | | | | |
| | | | | | | • | | | | | | | |

| | Antibody Detection | | | | | | | | | | | | |
|------|--------------------|-----|------|--|--|--|--|--|--|--|--|--|--|
| Cell | Echo | Gel | WASH | | | | | | | | | | |
| I | | | 0 | | | | | | | | | | |
| 11 | | | 0 | | | | | | | | | | |
| ш | | | | | | | | | | | | | |
| AC | | 245 | | | | | | | | | | | |

| Direct Antiglobulin | | | | | | | | | |
|---------------------|-----|-----|--------|--|--|--|--|--|--|
| Poly | IgG | C3 | Saline | | | | | | |
| 14m | 14m | 1+a | 0 | | | | | | |

| Other Cell Typings | | | | | | | | | | |
|--------------------|----------|-------|-------|-------|-------|--|--|--|--|--|
| Anti- | Anti- | Anti- | Anti- | Anti- | Anti- | | | | | |
| | 1. A. A. | | | | | | | | | |
| Phenot | ype: | | | | | | | | | |

| | | | | | Antil | body Ic | lentification | | | | | | | | | | |
|-------------------------|-----------|----------|-----------------|----|-------|---------|-------------------|-----------|-------|-----|----|----------|-------|------|----------|--------------|--------|
| Source OR-1740 | PLASA | Phase | Source OKTHO | EU | Phase | | Source IMMRCOŘ | Phase | | | So | Source | Phase | | | | |
| Lot # 1/RA 198 | GEL | | Lot # VRA 118 | Ga | | | Lot # 01140 | 5" R:T | 3040 | •. | | Lo | ot # | | | | |
| 1 | 0 | | 1 | 0 | | | I | 0 | 315 | | | | | | | \square | |
| z | 0 | | 2- | 0 | | _ | T | 0 | 345 | | | | | | ļ | \vdash | |
| 3 | 0 | | 3 | 0 | | | AC | 0 | 345 | | | | | | | \vdash | |
| 4 | 0 | | 4 | 0 | | | | <u> </u> | | | | _ | | | | \vdash | |
| 5 | 0 | | 5 | 0 | | | "O" CORD * | 0 | 315 | | | | | | | \vdash | |
| 6 | 0 | | 6 | 0 | | | | | ļ | | | | | | | \vdash | |
| 7 | 0 | | 7 | 0 | | | | | | | | | | | | \vdash | |
| 8 | 0 | | 8 | 0 | | | | 1 | | | | _ | | | <u> </u> | \vdash | |
| 9 | 0 | | 9 | 0 | | | * MR 1308133 | J. | | | | | | _ | | \vdash | |
| 10 | 0 | | 10 | 0 | | | | а. Х | | | | | | _ | | \vdash | |
| 11 | 0 | | // | 0 | | _ | | , | + | | | <u> </u> | | | | ├ ──┤ | |
| , | | | | | | | | | | | | | | _ | | | |
| | | | | | | | | | | | | | | | | | |
| Diagnosis | | I | | | | | Antibody | v Reg | istry | FND | | | 4 | NFND | | Ent | ered [|
| Transfusion I Report | Hx/Med | ications | | | | | | | | | | | Tech | 11 | u | | |
| Additional Bi | lling: AA | BI | AGIS Other | | | | | | | | | | Date | 21 | 12/ | 13 | |
| 2. 3.1. 03/12 | | | | | | Rev | viewed by | | | | | Date | e: | | | | |

Summary of Serology

- No alloantibodies to common blood group antigens detected
- Pos DAT with anti-IgG and anti-complement reagents
- Negative eluate
 - No warm autoantibody
- Cold reactive autoantibody that was equally reactive with regards to I/i antigens
 - EBV most likely not a cause of hemolysis
- Patient received 6 rbcs over the next 36 hours

Drug Induced Possibility

Hemoglobin



0700 1543 1656 0335 0550

Drug Induced Possibility

- Unless drug testing is performed, never know for sure
- However, most likely not the cause
 - Patient noted red urine prior to administration of cephalexin or NSAIDS
- Hemolysis persisted following the discontinuation of the drugs
 Supported with transfusion

And The Winner Is? Most Likely This Guy!!



http://www.desertusa.com/desertanimals/brown_spider.html

Loxosceles species

- Found globally, especially South and North America
- At least six Loxosceles species are known to cause numerous incidents
 Common culprit is L. reclusa—brown recluse
- Loxosceles spiders emit only a few tenths of microliters of venom
 - Venom contains an important enzyme, sphingomyelinase D
 - Dermonecrotic lesions
 - Massive imflammatory response
 - Increased susceptibility to complement-mediated hemolysis

Loxosceles species

- Cutaneous manifestations
 - Pain, edema and plaque which later develops into a necrotic scar
- Systemic manifestations—16%
 - Hematuria and hemoglobinuria are always observed
 - DIC
 - Intravascular hemolysis, complement mediated
 - Cases reviewed include positive DAT with anti-complement reagents and usually anti-IgG reagents, negative eluates
 - FVP raises the question of sphingomyelinase D perhaps alters the RBC membrane such that IgG binds nonspecifically.
 - Supported by work done by Beck and Hardman in 1983

Infectious Disease Consultation

- Suspected Loxoscelism given the patient history
 - Hemolytic anemia secondary to bite
- No evidence of animal exposure
- No travel for endemic disease exposure
- No GI symptoms suggestive of enterohemorrhagic *E. coli*
- Couldn't rule out Staph or Strep toxic shock but highly unlikely

Treatment

Patient was in ICU on a ventilator for one day

- 6 units of RBCs due to hemolysis
- Aztreonam
- Vancomycin
- Discharged on 2–17–2013
 Hgb 9.1

"You Can Call Me Spiderman"



"You Can Call Me Spiderman"



"You Can Call Me Spiderman"



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