Pet Owners Beware? A Case of Drug-Resistant Pasteurella Multocida Infection

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Background

- *Pasteurella* spp is a facultative-anerobic, Gram-negative coccobacilli highly prevalent amongst the oral flora of many animal species.
- Most human *Pasteurella* spp infections are due to cat and dog bites.
- Clinical manifestations range from cellulitis to meningitis and septic shock[1,2].
- Treatment for animal bites with suspected *Pasteurella* spp usually entails a combination of amoxicillin and the β-lactamase inhibitor clavulanic acid[3].
  - Drug resistance in *Pasteurella* spp human infections are rarely reported in literature[4,5].

Clinical Case

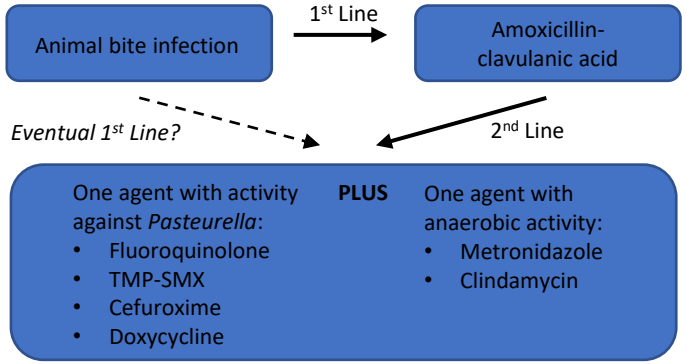
- A 24-year-old female with a past medical history of type 2 diabetes mellitus (HbA1c 10.2%) and congenital heart disease status-post surgical repair presented with a right hand abscess 1 day after a cat bite.
- Had right hand and forearm swelling, pain, and discharge draining from the puncture sites.
- Afebrile without leukocytosis.
- X-ray of the right hand/wrist/elbow showed soft tissue swelling at the wrist.
- Had incision and drainage of the wrist abscess.
- Started on ampicillin-sulbactam and then discharged on amoxicillin-clavulanic acid.

Clinical Case (cont.)

- Abscess culture later grew *Pasteurella multocida*, and disk diffusion susceptibility testing showed resistance to penicillin, ampicillin, and amoxicillin-clavulanic acid.
  - Repeat disk diffusion test with same results.
  - Cefinase test positive for the presence of β-lactamase.
- Antibiotics was switched to levofloxacin at 4 days post-discharge. Patient continued to do well after hospital discharge and did not develop any complications when seen in the outpatient clinic 8 days post-discharge.

Discussion & Conclusion

❖ Potential emergence of drug-resistant *Pasteurella* spp may alter our therapeutic approach to animal bites in the future. Figure below shows current and potential new antibiotic treatment algorithm.



Discussion & Conclusion (cont.)

❖ Infections with drug-resistant *Pasteurella* spp can increase risk for treatment failures and complications.

❖ Literature review reveals cases of amoxicillin resistance in Pasteurella infections[4-6]; however, none showed resistance to amoxicillin-clavulanic acid.

❖ Epidemiology studies in felines have shown a near 100% susceptibility to amoxicillin-clavulanic acid[7,8].

❖ Possible source of resistance could be the pet food if it contains food animal products which have been found to carry antimicrobial resistant organisms including *Pasteurella* spp resistant to amoxicillin-clavulanic acid[9,10].

❖ Need further epidemiologic studies on *Pasteurella* spp antibiotic susceptibilities in both humans and cats.

References

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