

Introduction

- Pasturella multocida* is a gram-negative, anaerobic coccobacillus commonly found in the oropharynx of healthy cats and dogs.
- Human infection is almost always associated with an animal bite or scratch, although cases where no animal contact has occurred are described.
- P. multocida* infection in those without a clear history of skin-puncture is most commonly seen in patients with significant comorbidities or who are otherwise immunocompromised
- Consent was obtained from the patient for presentation and discussion

Case

51-year-old female presented to hospital with a 2-week history of sweats, fatigue and neck pain with upper and lower limb weakness

- Initial symptoms included a sore throat, sweats and fatigue.
- Over the following five days, the patient experienced worsening neck pain, radiating to both shoulders, with ongoing malaise.
- Within 24 hours, the severity of pain prompted a referral to a secondary centre by the GP for further assessment. The patient noted subjective loss of power and paresthesia in the upper limbs but was discharged home with normal x-ray imaging.
- Over the subsequent week, the patient experienced progressive weakness and altered sensation in upper and lower limbs. The patient reported drenching night sweats and intermittent fevers with debilitating neck pain, prompting immediate hospitalisation.
- Past medical history was non-contributory

- Of note, the patient had a pet dog that had been unwell with multiple open leg wounds. The patient had been dressing these wounds for over two weeks.
- At presentation, the patient was clinically unwell with a tachycardia 118 beats per minute and a fever of 38.1 degrees Celsius.
 - ❖ **Power** was 5/5 bilaterally in the lower limbs however, it was 3/5 in the LUL and 4/5 in the RUL
 - ❖ **Sensation** was reduced in the regions of C5-7, with left more affected than the right
 - ❖ **Reflexes:** all right-sided reflexes were hyper-reflexive, with all the left-sided hypo-reflexive
 - ❖ The patient was tender to palpation over C7 and had limited flexion and extension of the neck
 - ❖ The patient demonstrated an unsteady, tandem gait
- Admission bloodwork noted a C-reactive protein of 315 mg/L and an erythrocyte sedimentation rate of 135.
- Blood cultures (three sets) yielded no growth
- MRI Cervical Spine demonstrated discitis at C6-C7 with white signal change to C6 and C7 vertebral bodies

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Reactive Protein	23.7 ↑	40.4 ↑	62 ↑	69 ↑	135 ↑	172 ↑	169 ↑	199 ↑	202 ↑	315 ↑
Sodium	136	138	137	137	136	135 ↓	135 ↓	133 ↓	140	137
Potassium	5.3 ↑	5.4 ↑	5.1	5.4 ↑	5.2 ↑	5.3 ↑	5.3 ↑	4.5	4.1	4.4
Chloride	101	102	101	100	100	101	100	98	103	100
Urea	3.5	3.6	3.3	3.4	4.3	4.2	5.4	6.4	5.2	4.2
Creatinine (Enz)	71	65	64	65	53	48 ↓	60	52	59	57
eGFR	85	GT90	GT90	GT90	GT90	GT90	GT90	GT90	GT90	GT90
Total Protein	68		71						60 ↓	66
Albumin	38 ↓		38 ↓						30 ↓	32 ↓
Total Bilirubin	3		4						<3	<3
ALP	85		87						99	117 ↑
ALT	12		11						12	15
GGT	23		27						39	44 ↑

Table 1; laboratory results during hospital admission



Management

- The patient was managed surgically with a C6 corpectomy and cage instrumentation and a C6-C7 discectomy. Intraoperatively, there was visible pus which was sent for C&S, along with disc and vertebral samples.
- Post-operatively the patient was commenced on IV vancomycin and IV ceftriaxone.
- Day 7 post-operatively the intraoperative samples flagged positive for culture, with all 3 samples (bone, pus and tissue) yielding growth of *P. multocida*, sensitive to cotrimoxazole and penicillin and resistant to ciprofloxacin.
- A transthoracic echocardiogram did not identify any vegetations.
- The patient was treated with eight weeks of IV ceftriaxone 2g OD, facilitated with the OPAT service.
- All metalwork was removed four months later and intraoperative samples at that time yielded no growth.

Discussion

Transmission

- P. multocida* is a component of the normal upper respiratory tract flora of fowl and mammals. Cats and dogs have the highest carriage rate at 70% to 90% (cats) and 20%-50% (dogs)¹.

Clinical Presentations

Bone and joint infections

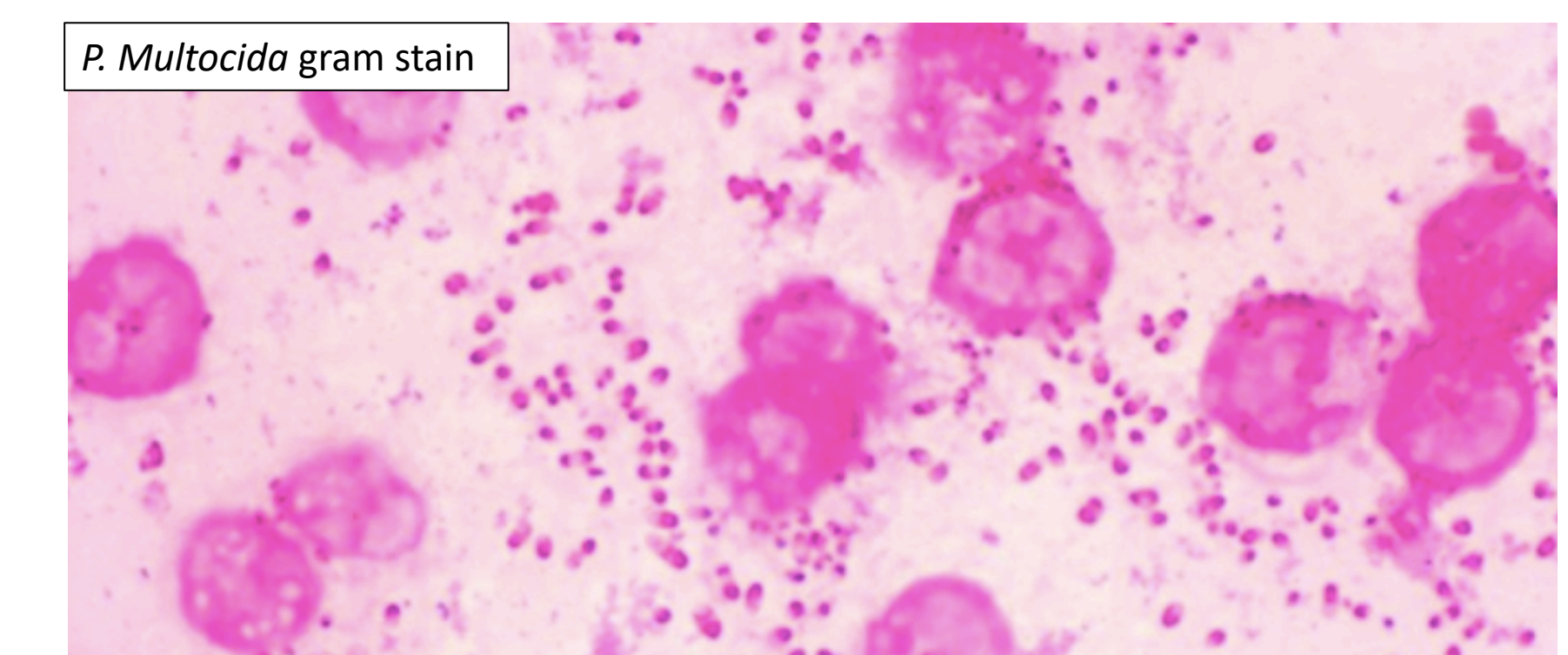
- P. multocida* can cause septic arthritis and/or osteomyelitis. Most cases of septic arthritis involve a cat or dog bite distal to the involved joint. Infection is more common in prosthetic joints or joints damaged by rheumatoid arthritis or degenerative joint disease². Cat bites are more likely to lead to bone infection than are dog bites, presumably due to their smaller, sharper teeth.

Bacteraemia

- Bacteraemia with *P. multocida* usually accompanies a localized infection, most commonly cellulitis. Bacteraemia occurs in 25 to 50% of patients with pneumonia, meningitis, and septic arthritis due to *P. multocida*².

This case has several learning points, the most notable of which are:

- ✓ Listen to the patient
- ✓ Absence of a bite does not out-rule zoonosis
- ✓ Do not underestimate a comprehensive social history



References

- Pasteurella infections: David J Weber, MD, MPH; Sheldon L Kaplan, MD; Section Editors: Stephen B Calderwood, MD; Morven S Edwards, MD; Deputy Editor: Elinor L Baron, MD, DTMH https://www.uptodate.com/contents/pasteurella-infections?search=pasteurella%20multocida&source=search_result&selectedTitle=1~25&usage_type=default&display_rank=1
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