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Case Report

Breast implant infection with *pasteurella canis*: First case-report ☆,☆☆

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ARTICLE INFO

Article history:

Received 2 February 2019

Accepted 16 July 2019

Available online 29 July 2019

Keywords:

Animals

Domestic

Pasteurella

Zoonoses

Pasteurella infections

ABSTRACT

Zoonotic infections represent an uncommon phenomenon. Few people with pets realise the infectious risk this entails. This case describes a *Pasteurella canis* infection of a breast implant following close contact between a patient and her cat.

A 59-year-old woman developed infection of her breast implant 7 months after implantation. Surgical revision was performed after failure of conservative treatment with antibiotics. Perioperative samples from the periprosthetic fluid were positive for *P. canis*, a Gram-negative coccobacillus that is present in the oropharyngeal commensal flora of cats and dogs. History revealed that the patient owned a cat for 2 years.

This case highlights the possible risk of zoonotic infections in humans with prostheses following close contact with a cat. Antibiotic therapy and surgical revision, with or without removal of the prosthesis constitute the cornerstone of treatment in such cases.

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☆ Presentation: This paper was not presented anywhere at the time of submission.

☆☆ Financial Disclosure Statement: The authors have no financial interest to declare in relation to the content of this article. No funding was received for this article.

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Case report

A 59-year-old woman presented with active nipple discharge from the right breast, associated with pain and redness. She had a right breast invasive ductal carcinoma treated with mastectomy, axillary dissection, and adjuvant tamoxifen 17 years previously. Twenty-months later she had a reconstruction with a tissue expander and a symmetrising implant to the left breast.

Both implants were repositioned and the expander refilled 12 years later. After 24 months, the expander was changed for a definitive prosthesis and the left implant removed.

Seven months after revision surgery the patient attended the emergency room. The history revealed that her complaints had started 2 months earlier with pain, swelling, and redness of the right breast which was treated empirically with amoxicillin/clavulanate. The inflammation initially improved but complete resolution was not achieved. Though antibiotic therapy was extended, she again developed pain, swelling, and redness of the right breast associated with nipple discharge. This was 60 days after initial onset of symptoms. Physical examination revealed a painful, swollen, and erythematous plaque on the right breast with active purulent nipple discharge. There was no fever or chills. Upon admission, laboratory investigations revealed elevated C-reactive protein level, fibrinogen level, and erythrocyte sedimentation rate. White blood cells were normal. A pus swab was done at the time of admission.

Immediate implant removal was indicated but postponed for 4 days at the patient's request. Perioperative samples of the periprosthetic fluid were obtained for microbiological analysis.

The implant pocket was thoroughly cleaned and irrigated with saline and povidone-iodine. A drain was placed. The patient was given intravenous amoxicillin/clavulanate preoperatively, then oral medication on discharge. She was discharged on the day of the operation. On day 3, she felt better and the signs of infection had receded. The wound was clean and dry, allowing removal of the drain. Sutures were removed after 10 days.

Intraoperative samples confirmed a pure growth of *Pasteurella canis*. The preoperative smear was negative. Upon questioning our patient again, she explained that she adopted her daughter's cat 2.5 years prior to onset of symptoms. She had never been directly scratched or bitten on her breast but could not exclude scratches or superficial bites on other sites.

Discussion

To the best of our best knowledge, no previous case of breast implant infection by *P. canis* has been reported. *P. canis* infection is rare, especially in association with a prosthesis. *Pasteurella* are Gram-negative, nonmotile, aerobic or facultative anaerobic coccobacilli.¹ *Pasteurella* species are usually found in the oropharyngeal flora of healthy animals, such as cats and dogs. Human *Pasteurella* infections mostly occur after animal contact¹ but sometimes no source of "entry" can be identified.² *Pasteurella* species appear to be the most common pathogens in dog and cat bites.³

Escande et al.⁴ published a retrospective study of 958 cases of *Pasteurella* infections wherein *P. multocida* (59%) and *P. canis* (9.5%) were the main species causing infections among humans. Cutaneous infections related to animal wounds represented the main form (66%) of infection. Respiratory tract diseases and bacteraemia/septicaemia were the predominant infections unrelated to animal wounds.

To date, there have been four cases of breast implant infections by *P. multocida*^{5–8} but none with *P. canis*. All four cases had close contact with dogs or cats. Mondon et al.⁹ reported the first case of *P. canis* infection involving a total knee arthroplasty. The infection started after the postoperative period, with positive samples for *P. canis* 2.5 years after surgical revision of the knee implant. The patient had been bitten on the left hand by a dog 3 years before symptom onset, suggesting a latency period between exposure and onset of the prosthetic infection.

Conclusion

Our case highlights the possible relationship between breast prosthesis infection by *P. canis* and close contact with cats. The patient's environment, including pets and contact with them, should be accurately recorded. Patients should be educated on the risk of zoonotic infections, especially in case

of injury, close contact, or during postoperative periods, and maintaining proper hygiene in such conditions. Antibiotic therapy and surgical revision, with or without removal of the prosthesis constitutes the cornerstone of treatment in such cases.

Declaration of Competing Interest

The authors have no conflict of interest to declare in relation to the content of this article.

Funding statement

No funding was received for this study.

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