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Bacterial Contamination Associated With Abdominal Surgeries In Pets (Dogs and Cats)

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B.V.Sc, Faculty of Veterinary Medicine, Cairo University (2006)

In the partial fulfilment of:

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Abstract

Various impacts can be attributed to SSIs. Some, such as patient morbidity, patient mortality and increased treatment costs, are readily quantifiable. Others, such as client frustration and grief, veterinary frustration, potential liability and negative public perceptions may be very important but difficult to evaluate.

Swab samples for bacteriology testing were taken from thirty pets (7dogs and 23 cats) during different abdominal operations (15cesarean section,10 ovariohysterictomy, and 5 hernia) for detection of bacterial contamination associated with abdominal surgeries in pets. Infection rate was 53.3%(16 positive cases out of 30) and different nine isolates were identified *Escherichia coli* was the most prevalent finding (6/16 [37.5%]), followed by coagulase- negative staphylococci (5/16 [31.25%]),then *Aerococcus viridians* (3/16 [18.75%]),and *Klebsiella pneumonia* (3/16 [18.75%]),then *Streptococci (mitis and acidominimus)* (2/16 [12.5%]),also *Enterobacter aerogens* (2/16 [12.5%]), *Staphylococcus aureus* (1/16 [6.25%]), *Enterococcus faecalis*(1/16 [6.25%]) and *Pseudomonas aeroginosa* (1/16 [6.25%]).All isolates were subjected to antibiogram sensitivity and determination of only one *Staphylococcus aureus*(MRSA), 11 ESBL (extended-spectrum beta-lactamase) producing strains of *Enterobacteriaceae*, and also 5 MDR isolates were identified.

DEDICATION

TO

MY MOTHER

TO

MY HUSBAND &MY KIDS

ALSO TO

MY ONLY SISTER

FOR

THEIR SACRIFICING&

DEVOTION SUPPORTING ME TO DO MY

BEST

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List of Abbreviations

Abbreviation	Scientific meaning
A. viridans	*Aerococcus viridans*
AK	Amikacin
AMC	Amoxicillin-clavulanic acid
AMP	Ampicillin
ARE	Ampicillin Resistant Enterococci
ASA	American Society of Anesthesiology
ATM	Aztreonam
BHI	Brain Heart Infusion Agar
C	Chloramphenicol
Cat. no	Catalog number
CAZ	Ceftazidime
CDC	Centers for Disease Control and Prevention
CFP	Cefoperazone
CFR	Cefadroxil
CIP	Ciprofloxacin
CLSI	The Clinical and Laboratory Standards Institute
CRO	Ceftriaxone
CTC	Cefotaxime-clavulanic acid
CTX	Cefotaxime
CVMA	Canadian Veterinary Medical Association
CXM	Cefuroxime
CZC	Ceftazidime-clavulanic acid
DA	Clindamycin
E	Erythromycin
E. aerogenes	*Enterobacter aerogenes*
E. coli	*Escherichia coli*
E. faecalis	*Enterococcus faecalis*
EPA	Environmental Protection Agency
ESBL	Extended-Spectrum-Beta-Lactamase

F.	Family
FEP	Cefepime
FOX	Cefoxitin
GM	Gentamicin
HLA	Human leukocyte antigen
I/M	Intramuscular
I/V	Intravenous
ICU	Intensive care unit
ID	Identification
IPM	Imipenem
K. pneumoniae	*Klebsiella pneumoniae*
KZ	Cefazolin
LIA	Lysine iron agar
MDR	Multi drug resistant
MIO	Motility indole ornithine
MRSA	Methicillin-resistant *Staphylococcus aureus*
MRSP	Methicillin-resistant *Staphylococcus pseudintermedius*
NNIS	National Nosocomial Infections Surveillance
O_2	Oxygen
ODC	Ornithine decarboxylase
OHE	Ovariohysterectomy
OR	Operating Room
P	Penicillin
P. aeruginosa	*Pseudomonas aeruginosa*
P. mirabilis	*Proteus mirabilis*
P/O	Per Os
PFGE	Pulsed field gel electrophoresis
PJI	Prosthetic joint infection
PYR	L-pyrrolidonyl-β-naphthylamide
R	Resistant
RA	Rifampicin
RCT	Randomized Controlled Trial
S	Sensitive

S. acidominimus	*Streptococcus acidominimus*
S. aureus	Staphylococcus *aureus*
S. mitis	*Streptococcus mitis*
S/C	SubCutaneous
SAM	Ampicillin/Sulbactam
SCCmec	Staphylococcal chromosome cassette mec
Spp.	Species
SSI	Surgical site Infection
SSIs	Surgical site Infections
SXT	Trimethoprim/sulfamethoxazole
TE	Tetracycline
TPLO	Tibial Plateau Leveling Osteotomy
TSI	Triple Sugar Iron
TZP	Piperacillin-Tazobactam
U.S. CDC	United States Centers for Disease Control and Prevention
US	United States
UTI	Urinary tract infections
VA	Vancomycin
VRE	Vancomycin Resistance in Enterococci

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1. INTRODUCTION

Nosocomial infections are hospital acquired infections which may be localized or systemic form acquired by the patient who was admitted for reasons other than infection, because of the existence of an infectious agent or its toxin which was not present or incubating at the time of hospital admittance **(Horan *et al.*, 2008).**

The occurrence of nosocomial infections in veterinary hospitals has not been well established and in nascent stage **(Morley, 2004; Smith, 2004; Traub-Dargatz *et al.*, 2004; Morley and Weese, 2008).**

Surgical site infections (SSIs) are among the most common nosocomial infections in human patient populations, accounting for 16% of such infections in all patients and 38% of nosocomial infections among surgical patients in the United States **(Mangram *et al.*, 1999).**

Although similar reporting of nosocomial infections does not exist in the veterinary field, SSI has been described as a complication of 0.8% to 18.1% of small animal surgical procedures, with significant variation associated with surgery type **(Vasseur *et al.*,1985;Vasseur *et al.*,1988;Whittem *et al.*,1999; Beal *et al.*,2000;Eugster *et al.*, 2004;Weese *et al.*, 2006;and Weese , 2008).**