

Perioperative surgical risks and outcomes of early-age gonadectomy in cats and dogs at People for Animals, Inc.

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Objective – To determine short-term results and complications of gonadectomy performed at an early age at People for Animals, Inc. high volume spay/neuter clinics.

Design – Internal Retrospective Cohort study

Animals – 963 cats and dogs from animal shelters, rescue groups and TNR efforts.

Procedure – Animals that underwent gonadectomy at ages 56 – 124 days between January 1, 2011 and December 10, 2012 at People for Animals Inc.'s clinics were followed for 10 days postoperatively.

Results – Rates of major complications and mortality were low and these instances were not directly associated with surgery; all mortalities were related to acquired infectious disease or trauma. Minor complications were infrequent and generally resolved spontaneously or with oral medication.

Conclusions and Clinical Relevance – Early age spay/neuter at People for Animals clinics is safe and is not associated with significant postoperative complaints. Shelter felines at this age appear to be at greater risk of developing URI postoperatively and should be carefully monitored with early veterinary intervention administered if needed. DAPP or FVRCP vaccination is also strongly recommended before exposing patients with naïve immune systems to congregations of animals in the high-volume clinic setting.

People for Animals, Inc. frequently receives inquiries from rescue, shelter, and TNR organizations regarding the safety of spay/neuter surgery at our clinics when performed at an early age (2-4 months of age). These animal welfare groups have a desire to neuter animals prior to adoption to ensure that they do not contribute to the pet overpopulation problem in New Jersey. The importance of neutering before adoption is even more critical for organizations that are importing animals from shelters outside of NJ. Adoptability is greater for younger animals, therefore, the safety of neutering at a young age is an important consideration in achieving 100% compliance with the organizations' policies to neuter all animals before they are placed in adoptive homes.

Materials and Methods

Animals – Cats and dogs included in the study were from animal shelters, rescue organizations and TNR efforts and underwent ovariohysterectomy or castration at People for Animals, Inc. low cost high volume spay/neuter clinics in Hillside and Robbinsville, NJ. Ages at the time of surgery for all animals were between 56 and 124 days of age.

Study design – Client information was obtained from medical records of People for Animals, Inc. Clients were contacted by telephone or email and were asked to report any behavioral or physical concerns which occurred within 10 days of the surgery date using a standardized spreadsheet. Appetite and behavioral symptoms that resolved spontaneously within 24 hours of surgery were considered attributable to expected post anesthesia recovery and were not considered complications. Information for animals that were adopted earlier than 10 days following surgery was provided by the rescue or shelter organization when available.

Complications were classified by severity (major or minor). Major problems were those that resulted in mortality or otherwise threatened the life of the animal, required hospitalization or intensive medical/surgical intervention. Minor problems were those that resolved spontaneously or with oral medical treatment. Examples of minor problems include anorexia or lethargy lasting more than 24 hours after surgery, bruising at the surgical site, localized surgical site infections and respiratory symptoms (coughing, sneezing, URI).

Because rescue groups and shelters may treat their animals without a formal visit to a veterinarian's office, any surgical site infection or dehiscence was listed as having required veterinary intervention whether or not it was reported that a visit was made to a veterinarian. Similarly, reports of respiratory symptoms from shelters and rescue groups were recorded as requiring veterinary treatment.

Mortalities were evaluated based on client-reported cause of death.

Data was compiled to determine overall complication rates, as well as complication rates by species, client type, sex, and age at the time of surgery. The most commonly reported complications were evaluated for trends in all categories.

Results

2130 records were available for patients

undergoing gonadectomy between the ages of 56 and 124 days old during the study period (January 1, 2011 – December 10, 2012). Questionnaires were sent by email to clients or conducted by telephone. Responses were received for 1016 (48%) patients. Respondents indicated information was not available for 53 of these patients which were adopted or released earlier than 10 days after surgery and therefore lost to follow up.

Sample Composition - There were 963 patients included in the study with information supplied from 36 animal welfare groups and individuals. 778 (80%) were cats, 185 (20%) were dogs. 201 (21%) patients were from animal shelters, 569 (59%) were from rescue organizations, 142 (15%) were from organized TNR groups and 51 (5%) were from individuals doing independent rescue work and/or TNR. Average age at the time of surgery was 92.6 days.

Major vs. Minor Complications – Respondents indicated there were no complications in 939 cases (97.5%). One or more complications were reported in 24 cases (2.5%).

Minor complications which resolved spontaneously or with medication occurred in 16 animals (1.7%). These included ten (1.0%) reports of coughing/sneezing/URI in cats, three (0.3%) of which were associated with lethargy; appetite changes in four (0.4%) cats, one of which was associated with bruising at the surgical site, one associated with surgical wound infection, and two (0.2%) were unassociated with other problems; and three (0.3%) minor surgical wound infections (2 cats, 1 dog), in one cat this was associated with appetite changes.

Major complications were reported in eight animals (0.8%), all of which were feline. Five (0.5%) mortalities occurred as a result of these complications. Causes of death for these five cases as reported by respondents were as follows: two bacterial pneumonia (one reportedly confirmed by necropsy and both from same shelter); two feline panleukopenia (one was euthanized); and one cat was euthanized following traumatic evisceration of surgical incision. The remaining three major complications were reportedly feline panleukopenia infections which recovered with veterinary intervention. All five feline panleukopenia infections originated from a single rescue group in the same month; four were littermates.

Results by Species - One of 185 (0.5%) canines studied was reported to have one or more complications. The single canine complication, a localized surgical wound infection which resolved

without further difficulty, was classified as minor. No major complications were seen in canines. Twenty-three (23) of the 24 reported cases of complications were feline. Among felines, 23 of 778 (3.0%) reported one or more complications. 18 (2.3%) required treatment, eight (1.0%) were considered major, and 15 (1.9%) were minor complications that resolved spontaneously or with oral medical treatment. Significantly, five of the major complications among cats were reportedly feline panleukopenia; all five of these cases occurred in animals presented by the same rescue group in the same month; four were littermates whose infections followed the first mortality (nine days between surgery dates for the two groups). The remaining three major complications consisted of one cat which suffered traumatic evisceration of the surgical incision and was euthanized, and two cat mortalities attributed to bacterial pneumonia.

Results by Client Type – Clients were classified by type into one of four categories; Animal Shelter, Rescue Organization, TNR Group or Individuals (i.e., individuals engaging in rescue or TNR work not associated with an organization).

Eleven (5.5%) of 201 patients (average age 95.8 days) originating from and returning to animal shelters had reported complications. Ten of these were respiratory symptoms/infections resulting in a 4.9% incidence of respiratory complications in shelter animals following surgery. Seventy percent of these infections occurred in animals over 13 weeks of age. Two of these respiratory infections were reportedly bacterial pneumonia and resulted in mortality. There was one (0.5%) reported surgical wound infection in shelter animals.

Complication rates for rescue organizations were significantly lower with ten (1.8%) reported concerns in 569 patients (average age 91.1 days). The most frequently occurring complication among rescue organizations was “Other Health Concern” with five (0.9%) reports of feline panleukopenia; however, these cases all originated from a single rescue group in the same month. The second most commonly reported complication from rescue organizations was appetite changes, with three (0.5%) cases reported. The remaining two complications reported consisted of one (0.2%) traumatic evisceration (euthanized), and one (0.2%) minor surgical wound infection.

No complications (0%) were reported in 142 patients (average age 95.5 days) from organized TNR groups.

Individuals engaging in independent rescue and/or TNR work reported three (5.9%) cases of postoperative concerns in 51 patients (average age 92.7 days) in the study group. The most common

complaints were respiratory symptoms and lethargy in two patients from the same individual. One (1.9%) surgical site infection was seen in this group.

Results by Gender – Patients were divided into two groups by gender. There were 479 female patients and 484 male patients. One or more minor complications were reported in equal frequencies in both male and female subjects (8 cases, 1.7%). Among females, three (0.6%) reported surgical site infections while none were reported in the male population. Respiratory symptoms were equally prevalent among both populations (both groups had 5 cases = 1.0%). One (0.2%) instance of bruising at the surgical site was reported in a male patient while none were seen in females. Appetite changes and lethargy were reported more frequently in male patients with three (0.6%) and two (0.4%) reported respectively, while in females only one report for each of these symptoms was reported (0.2%).

Results by Age at Surgery – Patients were divided into three groups based on age at the time of surgery. Group 1 consisted of 207 animals ages 56-69 days (under 10 weeks); Group 2 consisted of 407 animals ages 70-98 days (10-14 weeks); Group 3 consisted of 349 animals ages 99-124 days (14-18 weeks).

199 (96.1%) of 207 animals in Group 1 had no complications. The mortality rate in Group 1 was 0.5% (one animal) and was attributed to feline panleukopenia infection. In all, the four (1.9%) major complications occurring in Group 1 were reportedly feline panleukopenia occurring in a single litter of kittens ages 58 days. In addition, four (1.9%) minor complications were reported and consisted of two (1.0%) feline URI's, one (0.5%) appetite changes, and one (0.5%) surgical wound infection.

399 (98.0%) of 407 animals in Group 2 had no reported complications. Two (0.5%) major and six (1.5%) minor complications were reported in this group. The mortality rate in this age group was 0.5% (two animals); one was attributed to feline panleukopenia (euthanized) and the other was attributed to bacterial pneumonia. Of the six (1.5%) minor complications reported, five (1.2%) were feline URI's, and one (0.3%) had reported appetite changes associated with surgical site bruising. Seven of the reported complications in Group 2 occurred in animals 91 days or older.

341 (97.7%) of 349 animals in Group 3 had no reported complications. two (0.6%) major and six (1.7%) minor complications were reported. The mortality rate in Group 3 was 0.6% (two animals); one was euthanized following traumatic evisceration and the other was attributed to bacterial pneumonia. Of the six (1.7%) minor complications reported, three

(0.9%) were feline URI's, two (0.6%) were minor surgical wound infections, and one (0.3%) had appetite changes. Complications in Group 3 occurred in animals aged 99 – 123 days.

URI was most commonly seen in animals 13 weeks or older, with seven of ten URI's occurring in this age range.

Discussion and Recommendations

Spay/neuter surgeries at People for Animals, Inc. clinics are safe in animals as young as two months of age. Excluding the single case of trauma to the surgical site, the risk of direct surgical complications is low (4/963 0.4%) and all such concerns were minor, resolving spontaneously or with oral medication. Furthermore, the risk in canine patients is significantly lower than feline patients. PFA recommends early age neuter to rescue organizations, animal sheltering organizations and TNR workers to facilitate neutering before adoption and achieving 100% Neuter Before Adoption.

No mortalities were directly attributable to the surgical procedure. One traumatic evisceration occurred after discharge to the home. It was not known whether this was self-trauma or accidental trauma. The cat was found after having escaped from its crate and was ultimately euthanized after veterinary evaluation. All other mortalities among patients in this study were related to respiratory and other infections presumably acquired secondary to exposure to environmental pathogens either in their environment of origin or from exposure to other animals in the high volume clinic setting.

Feline patients appear to be more reactive to stresses as a species than are canines. In this age group, results indicate felines are at most risk of developing respiratory infections following surgery. Though usually minor and easily treated with oral antibiotics, these respiratory infections can progress to more serious lower respiratory infections and should be treated as early as possible. URI risk is especially high in shelter animals, possibly related to more prolonged exposure to larger numbers of animals in the shelter environment. URI in felines was most commonly seen in cats over 13 weeks of age and was relatively uncommon in younger cats. PFA recommends careful observation and early intervention for respiratory symptoms in cats following surgery, especially those in a shelter environment.

Feline panleukopenia was seen in five patients in the study, all originating from the same rescue organization in the same month. None of these

patients had been vaccinated before being presented to PFA for surgery. Because of the risk of exposing young animals with naïve immune systems to congregations of other animals potentially harboring pathogens, PFA recommends vaccinating patients for DAPP or FVRCP at least one week prior to surgery.

No complications were reported for animals originating from organized TNR efforts; however, this may have been affected by lack of ability to closely observe unsocialized animals. Disposition of animals following spay/neuter was not examined so it is not known what proportion of trapped kittens included in the study group were socialized and adopted after surgery vs. those that were returned to their original environment.

**People for Animals, Inc.
Complication Rates in Early Age Gonadectomy
in Cats & Dogs 2011-2012**

