What is the effect of spaying on mammary tumours in dogs?

Database: CAB Abstracts <1990 to 2014 Week 07>

Search Strategy:
1  (spay* or neuter* or spay* or ovariotom* or gonadect*).mp. [mp=abstract, title, original title, broad terms, heading words]
2  (mammar* or breast).mp. [mp=abstract, title, original title, broad terms, heading words]
3  (tumor* or tumor* or cancer* or neoplas*).mp. [mp=abstract, title, original title, broad terms, heading words]
4  (dog or dogs or bitch* or canine).mp. [mp=abstract, title, original title, broad terms, heading words]
5  1 and 2 and 3 and 4

Selected references


Title
Effect of ovariohysterectomy at the time of tumor removal in dogs with benign mammary tumors and hyperplastic lesions: a randomized controlled clinical trial.

Source
Journal of Veterinary Internal Medicine; 2013. 27(4):935-942. 27 ref.

Abstract
Background: Nonmalignant mammary tumors (NMT) are common in intact female dogs. Little is known about the clinical significance of these tumors, and the effect of ovariohysterectomy (OHE) on their development. Hypothesis: Ovarian hormone ablation through OHE decreases the risk of new tumors and thereby improves long-term prognosis for dogs with NMT. Animals: Eighty-four sexually intact bitches with NMT. Methods: Dogs were allocated to undergo OHE (n=42) or not (n=42) at the time of NMT removal in a randomized clinical trial. Tumor diagnosis was confirmed histologically in all subjects. Information about new tumor development was collected via follow-up phone calls and recheck examinations. Separate survival analyses were performed with the endpoints new tumor development and death. Cause of death was classified as related or unrelated to mammary tumor. In addition to OHE status, the influence of age, body weight, breed, tumor size, tumor number, tumor duration, type of surgery, and tumor histology was investigated. Results: New mammary tumor(s) developed in 27 of 42 (64%) intact dogs and 15 of 42 (36%) ovariohysterectomized dogs (hazard ratio 0.47, P=.022). Nine of the 42 dogs (21%) which developed new tumors were euthanized because of mammary tumor. Survival was not significantly different between the 2 treatment groups. In the intact group, nine dogs subsequently developed ovarian-uterine diseases. Conclusion: Ovariohysterectomy performed at the time of mammary tumor excision reduced the risk of new tumors by about 50% among dogs with NMT. Survival was not significantly affected. Adjuvant OHE should be considered in adult dogs with mammary tumors.

Publication Type
Journal article.
Elective gonadectomy of dogs and cats, most commonly performed as ovariohysterectomy (OHE) of females and castration of males, is one of the most common veterinary procedures performed in the USA. Increasingly, dog owners and veterinarians throughout the world have questioned the optimum age for these surgeries or whether they should even be performed as elective surgeries. This review considers the scientific evidence that can be used by veterinarians to counsel clients on this issue. It is concluded that animals housed at humane societies should be treated as a population. Societal benefit resulting from gonadectomy of stray dogs and cats in the USA outweighs all other concerns, and male and female dogs and cats should be spayed or castrated before being offered for adoption. For pets, they should be considered individually as population control is a less important concern than health of each animal. Dogs and cats should be maintained as household pets. The behaviour of most sexually intact male cats makes them undesirable or dangerous as pets. Because castration substantially reduces these sexually dimorphic behaviours, it is recommended that all male cats not intended for breeding be castrated before puberty and that all breeding males be castrated as soon as their use as a breeding male has ceased. For female cats and male and female dogs, veterinarians and owners must consider the benefits and detriments of gonadectomy for each animal. Factors to be considered include incidence of various conditions associated with gonadectomy; degree of morbidity, with substantial morbidity defined as a condition prevalent in > 1% of the population, associated with > 50% of the malignancy or mortality rates, or not easily controlled by non-invasive treatments or good husbandry; breed; and intended working or breeding life of each animal. For example, an 8-week-old female Labrador Retriever not intended for breeding, would benefit from OHE before her first oestrus as a means of preventing mammary gland tumours. The veterinarian should advise and educate the owner on the increased risks of cranial cruciate ligament (CCL) injury, haemangiosarcoma, and obesity. To minimize the potential for development of urinary incontinence, the veterinarian may choose to wait to perform the OHE until after the dog has reached 3 months of age.
A commonly-stated advantage of neutering bitches is a significant reduction in the risk of mammary tumours, however the evidence for this has not previously been assessed by systematic review. The objectives of this study were to estimate the magnitude and strength of evidence for any effect of neutering, or age of neutering, on the risk of mammary tumours in bitches. A systematic review was conducted based on Cochrane guidelines. Peer-reviewed analytic journal articles in English were eligible and were assessed for risk of bias by two reviewers independently. Of 11,149 search results, 13 reports in English-language peer-reviewed journals addressed the association between neutering/age at neutering and mammary tumours. Nine were judged to have a high risk of bias. The remaining four were classified as having a moderate risk of bias. One study found an association between neutering and a reduced risk of mammary tumours. Two studies found no evidence of an association. One reported "some protective effect" of neutering on the risk of mammary tumours, but no numbers were presented. Due to the limited evidence available and the risk of bias in the published results, the evidence that neutering reduces the risk of mammary neoplasia, and the evidence that age at neutering has an effect, are judged to be weak and are not a sound basis for firm recommendations.

Publication Type
Journal article.

<32>
Accession Number
20113409524
Author
Hofmann, S. G.; Sechser, F. K.; Wehrend, A.
Title
Veterinary counselling concerning the spaying of bitches - a survey of veterinary practices and clinics in Germany. [German]
Source
Kleintierpraxis; 2011. 56(12):633...641. 29 ref.
Publisher
Schlutersche Verlagsgesellschaft mbH & Co. KG
Location of Publisher
Hannover
Country of Publication
Germany
Abstract
Spaying is one of the most common surgical procedures carried out in veterinary practice. When deciding about an elective castration of a bitch, it is essential to calculate between the expected benefits and the possible risks of adverse reactions. The veterinary surgeon has the duty to inform the owner and to advise him/her properly to provide a basis for the owner's own decision in favour or against this intervention. To report the actual status of the advisory service in Germany, a pet owner called 59 veterinary practices and 35 veterinary clinics all over Germany to solicit advice about the castration of her female dog. Overall, 40% (n=38) of the callees refused a consultancy over the phone, while 60% (n=56) gave evaluable advice. A questionnaire about the castration of female dogs, which covered the most important points concerning the advisory service in this field, was answered during the call and evaluated afterwards. Three quarters of the callees started to inform the pet owner without further request, but only 51% automatically referred to any possible adverse effects. Important secondary effects, such as urinary incontinence or general anaesthetic risk, were mentioned only in 60% (n=34) and 35% (n=19) of the calls, respectively. The context between castration or age at castration and the risk for developing mammary cancer was explained correctly by 80% (n=37) of the callees. 67% (n=35) advised the owner to castrate her dog, 25% (n=13) said that the decision had to be made by herself and 8% (n=4) advised against the intervention. Some individual counselling sessions were very detailed and accurate but in the main, the advisory service was not satisfactory concerning integrity and neutrality towards the owner.

Publication Type
Journal article.

<50>
This study presents the results of ovariectomy as an associated method in mammary cancer treatment. Palliative ovariectomy increases the survival period with 64%, depending on age and tumoural morphologic aspects. Ovariectomy associated to mastectomy in the advanced mammary cancer increases the survival period on the average with 73%. Ovariectomy should precede mastectomy with 3 weeks in an associate treatment. Regarding metastasis prophylactic treatment, these two surgical interventions should not be done concomitantly.

Mammary cancer in bitches - a study of 30 cases in Mumbai.

A total of 30 bitches suffering from mammary gland neoplasms were studied at various private clinics (Goregaon Polyclinic and B.S.D.P. Hospital) in Mumbai city. Detailed data of these cases were collected for analysis. The data were recompiled according to age, breed, reproductive status of bitches (mated or unmated and spayed or non-spayed) and histological differentiation of the tumours. The incidence of mammary cancer in bitches increased at 7 to 9 years of age (63.33%). The Pomeranian/Spitz breed (43.33%) was the most affected followed by mongrels (30.0%). The frequency of occurrence of an adenocarcinoma (60.0%) was greater than an adenoma (23.3%), mixed tumour (13.33%) or myoepithelioma (3.33%). Ovariohysterectomy (17.34%) greatly reduced the occurrence of mammary cancer.
Murphy, S.

Title
Mammary tumours in dogs and cats.

Source

Publisher
British Veterinary Association

Location of Publisher
London

Country of Publication
UK

Abstract
Companion animal mammary gland neoplasias are common conditions seen in general practice. Most can be managed by surgical resection and there is usually no need for referral. The majority of mammary tumours in bitches are benign, while those in cats tend to be malignant and the prognosis is consequently guarded in this species. Overall, mammary tumours are less common in cats than dogs, which is probably related to the fact that most cats are neutered at a young age. Although general features such as the lesion being well circumscribed, slow growing and not fixed to underlying tissues suggest a lesion is benign, surgical biopsy should be conducted to definitively determine whether a mass is benign or malignant. This article describes canine and feline mammary tumours, highlighting the risk factors, diagnosis, treatment and prognosis.

Publication Type
Journal article.

Accession Number
20083120789

Author
Shek-Vugrovecki, A.; Bacic, G.

Title
Neoplasia of mammary gland in bitch. [Croatian]

Source
Hrvatski Veterinarski Vjesnik; 2006. 29(3):217-221. 23 ref.

Publisher
Hrvatsko Veterinarsko Drustvo (Croatian Veterinary Society)

Location of Publisher
Zagreb

Country of Publication
Croatia

Abstract
Mammary neoplasms are the second most common tumour type reported in bitches. Usually they are diagnosed in female dogs older than 8.5 years with greater incidence in intact female dogs. In more than 50% of the cases they are found to be malignant, in which the most common case was adenocarcinoma. The risk of developing mammary tumours can be reduced by ovariohysterectomy performed at a younger age and the risk is even prevented if ovariohysterectomy is preformed before the bitch's first oestrus cycle. The recommended therapy however is still the surgical removal of tumors.

Publication Type
Journal article.

Accession Number
20083059632

Author
Santos, L. C. dos; Rodrigues, B. de A.; Oliveira, R. T. de; Rodrigues, J. L.

Title
Mammary gland tumors in bitches. [Portuguese]

Source
Mammary gland tumours are the most common neoplasms in dogs. Up to 50% of mammary gland tumours are malignant and the average age at diagnosis is between 8 and 10 years. The aetiology of canine mammary gland tumours is uncertain, but some factors have been associated with the high incidence of these tumours in dogs. These factors include advanced age, intact reproductive organs, progestagen treatment, obesity and low quality home-made diet. The treatment of choice for mammary gland tumour is surgical excision and relapse is not influenced by the extent of glandular removal by surgical procedure. Chemotherapy is not commonly used as an adjuvant to surgery. Nevertheless, in some dogs with inoperable tumours and inflammatory carcinoma, this form of therapy has been tested. Ovariectomy and ovariohysterectomy at early age are the major alternatives to decrease the risk of mammary gland tumour. Examination of the mammary gland should be performed routinely for early diagnosis and treatment. The incidence, risk factors, prognosis, clinical signs, diagnosis, treatment and prevention of canine mammary gland neoplasms are reviewed in this paper.
Mammary gland tumours are the most frequently occurring neoplasms in bitches and between 25 and 50% are affected at age group of 6-10 years old. The tumours are malignantly aggressive and metastasized to the regional lymph nodes, spleen, lungs and liver. Tumours distribution are primarily localized on the second abdominal mammary region and secondarily on the chest and inguinal mammary area. Ten types of most frequently occurring mammary gland tumours in bitches are malignant (80%) and benign (20%), wherein, mammary gland carcinoma (91%) as the dominant tumour. Serum enzyme activities of aspartate aminotransferase, alanine aminotransferase, creatinine and TP, along with progesterone and oestrogen are monitored before the surgical operation. Ultrasonic radiography of the mammary gland neoplasms and lungs are significant in the prognosis of the disease. It is suggested that ovariohysterectomy of the bitches before the first oestrous cycle is important in mammary gland neoplasms prevention.

Abstract

Benefits, risks and myths: is early neutering best option for bitches?

Title

Source

Veterinary Times; 2006. 36(24):16-17.

Publisher

Veterinary Business Development Ltd

Location of Publisher

Peterborough

Country of Publication

UK

Publication Type

Journal article.

Abstract

Association between ovariohysterectomy and feline mammary carcinoma.

Source

The etiopathogenesis of feline mammary carcinoma is not well understood. Although putative, risk factors include breed, reproductive status, and regular exposure to progestins. An association between age at ovariohysterectomy (OHE) and mammary carcinoma development has not been established. Therefore, a case-control study was performed to determine the effects of OHE age, breed, progestin exposure, and parity on feline mammary carcinoma development. Cases were female cats diagnosed with mammary carcinoma by histological examination of mammary tissue. Controls were female cats not diagnosed with mammary tumors selected from the same biopsy service population. Controls were frequency matched to cases by age and year of diagnosis. Questionnaires were sent to veterinarians for 308 cases and 400 controls. The overall questionnaire response rate was 58%. Intact cats were significantly overrepresented (odds ratio [OR] 2.7, confidence interval [CI]=1.4-5.3, P<.001) in the mammary carcinoma population. Cats spayed prior to 6 months of age had a 91% reduction in the risk of mammary carcinoma development compared with intact cats (OR 0.9, CI=0.03-0.24). Those spayed prior to 1 year had an 86% reduction in risk (OR 0.14, CI=0.06-0.34). Parity did not affect feline mammary carcinoma development, and too few cats had progestin exposure to determine association with mammary carcinoma. Results indicate that cats spayed before 1 year of age are at significantly decreased risk of feline mammary carcinoma development.

Publication Type
Journal article.

Accession Number
20033118005

Author
Schafer-Somi, S.; König, G.; Aurich, J. E.

Title
Juvenile and prepubertal neutering of dogs and cats. [German]

Source

Publisher
BWK Public Relations - Brigitte Weber-Kraus

Location of Publisher
Wien

Country of Publication
Austria

Abstract
This article reviews studies on the gonadectomy of juvenile and prepubertal dogs and cats. It discusses why juvenile dogs and cats are pre-disposed to infections after neutering, if they have a bad constitution and insufficient immunisation. During castration, juveniles are at higher risk of injuries than pre- or postpubertal animals due to high fragility of the tissues. In both male and female puppies and kittens, gonadectomy before puberty delays growth plate closure of the radius and ulna. In female dogs, juvenile and prepubertal gonadectomy may be the cause of the early development of peri- and postpubertal dermatitis, and in addition, the occurrence of persistent juvenile vaginitis. In comparison to non-gonadectomized animals, the incidence of urinary incontinence in prepubertal castrated dogs is lower, but the clinical symptoms are more severe. The causes for mammary tumours are manifold, but some authors describe that juvenile neutering, and others that gonadectomy until the age of 2.5 years, decreases the risk of the development of mammary tumours markedly. In the dog, food intake, body mass gain, back-fat depth and subcutaneous fat distribution are not influenced by gonadectomy, irrespective of the animal's age at castration. With diet and exercise, obesity can be prevented. In contrast, both male and female cats are pre-disposed to postoperative body mass gain, and a strict diet is effective in female animals only. Castration of tom cats before puberty does not influence the incidence of urine spraying and aggressive behaviour.

Publication Type
Journal article.

Accession Number
20033043525
The purpose of this study was to determine if specific host factors, such as age at diagnosis, obesity, and hormone status, influence the prognosis of canine mammary gland carcinomas and to confirm if previously reported risk factors (i.e., histological subtype, tumor size, and World Health Organization [WHO] stage) were important in a large series of affected dogs. 99 female dogs with mammary gland carcinomas, no previous therapy, an excisional biopsy, and known cause of death were studied. No significant association with survival was noted for age at diagnosis (chronological or physiological), obesity, or hormone status (i.e., spayed vs. intact, regardless of time of being spayed). Of the tumor factors analysed, the histological subtype anaplastic carcinoma (P=0.02), WHO stage I (P=0.01), evidence of metastasis at the time of diagnosis (P=0.004), and tumor size of 3 cm or smaller (P=0.005) all significantly influenced survival. Dogs that were classified as having tumor-related mortality had a shorter postoperative survival compared to dogs that died of other causes (14 months vs. 23 months; P=0.03). It is concluded that histological subtype, WHO stage, and tumor size remain important prognostic factors in canine mammary gland tumors. Further study of other prognostic factors is needed to determine which tumors are adequately addressed with local therapy only and which dogs may require adjuvant treatment with chemotherapy.

Publication Type
Journal article.

Accession Number
20023173094

Author
Stolla, R.

Title
Spaying before or after first heat? Pros and cons. [German]

Source

Publisher
Schattauer GmbH

Location of Publisher
Stuttgart

Country of Publication
Germany

Publication Type
Journal article.

Accession Number
20023109159

Author
Buff, S.; Vargas Cheuiche, A. J. de

Title
Early neutering of dogs and cats: numerous advantages. [Portuguese]
The risk of developing mammary gland tumours in dogs is significantly decreased by ovariohysterectomy at an early age. However, previous studies have not found a benefit to ovariohysterectomy concurrent with tumour removal in dogs with established mammary gland tumours, suggesting that the progression of these tumours is independent of continued oestrogen stimulation. This study evaluated the effect of spaying and of the timing of spaying on survival in dogs with mammary gland carcinoma. Signalment, spay status and spay age, tumour characteristics, treatment, survival, and cause of death of 137 dogs with mammary gland carcinoma were analysed.

The dogs were classified into 3 groups according to spay status and spay time: intact dogs, dogs spayed less than 2 years before tumour surgery (SPAY 1), and dogs spayed more than 2 years before their tumour surgery (SPAY 2). Dogs in the SPAY 1 group lived significantly longer than dogs in SPAY 2 and intact dogs (median survival of 755 days, versus 301 and 286 days, respectively, P=.02 and .03). After adjusting for differences between the spay groups with regard to age, histological differentiation, and vascular invasion, SPAY 1 dogs survived 45% longer compared to dogs that were either intact or in the SPAY 2 group (RR=.55; 95% CI .32-.93; P=.03). This study reveals ovariohysterectomy to be an effective adjunct to tumour removal in dogs with mammary gland carcinoma and that the timing of ovariohysterectomy is important in influencing survival.