Castration of dogs: reviewing the options

CASTRATION of dogs in the United Kingdom has been a commonly performed surgical procedure for many years (Stockner, 1991; Brodbelt, 2008). For most practices in the UK, ovario-hysterectomy are surgical procedures which are carried out daily. They are viewed along with vaccination, worming and flea prevention as one of the mainstays of preventive treatment within a practice, hence they are often viewed as the “bread and butter” of a practice’s income. Many veterinary surgeons and members of the public consider it to be a routine elective procedure.

Reasons for neutering in the UK include, but are not limited to, population control, medical reasons and/or behavioural reasons. The age at which dogs are normally neutered varies but veterinary surgeons in the UK have tended to advise castration at around six months of age or once puberty has been reached (Diegel et al., 2010).

In recent years there has been a developing trend towards early neutering, from as early as eight weeks of age: this has been seen in countries such as the USA, Australia and New Zealand. Debates are on-going with regards to the potential impact of early neutering on the long-term health of an animal with particular reference to orthopaedic disorders and incidence of certain neoplastic conditions (Torres et al., 2013; Duval et al., 1999).

The practice of routine surgical castration in the UK, USA and Australia contrasts markedly with a number of European countries. In Northern Europe particularly, the majority of the canine population is not neutered; in Sweden, Norway and Denmark, surgical neutering is seen as a mutilation and must only be carried out for medical reasons. If a vet disregards this, he or she would be found guilty of professional misconduct.

So what do our European neighbours do with all of their uncastrated male dogs there? A vast proportion are chemically castrated using a lipid implant impregnated with the GnRH super-agonist deslorelin. It is licensed in the UK as Suprelorin (Figures 1a and 1b).

This product is one of the biggest selling reproduction products in many European countries; in Germany the product ranks second only to companion animal vaccine sales and in Denmark it is the number one companion animal product for the company (Virbac data on file, 2013).

In the UK, veterinary surgeons will most commonly only consider chemical castration as a “road test” for surgical castration. Did the use of a medicine such as deslorelin confer the desired effect for the owner? In many cases surgical castration would then follow.

In Europe, however, a vast proportion of these dogs would then be re-implanted on a regular basis with the deslorelin-impregnated lipid matrix. The product has been a licensed medicine since 2001 in Australia and has had a marketing authorisation from the EMA since 2007. It is recognised that repeat implantation does not increase the incidence of side-effects; in fact, other than the potential for swellings or inflammation at the implantation site, side-effects are not recognised.

There are no known drug interactions either. Deslorelin has a proven safety profile and provides an efficacious method of temporarily inducing infertility in the dog, conferring all of the physiological effects of surgical castration.

A lipid matrix is impregnated with the GnRH superagonist and this is implanted using an implanter subcutaneously into the loose skin on the back between the neck and lumbar area. Once implanted, it acts by suppressing the function of the pituitary-gonadal axis as it is applied in a low, continuous dose.

This suppression results in the failure of treated animals to synthesise and/or release follicle-stimulating hormone (FSH) and luteinising hormone (LH), the hormones responsible for the maintenance of fertility (Figure 2). After an average of 10-14 days, normal testosterone production falls rapidly. Down regulation will then occur and testosterone production ceases to be functional. An initial stimulation phase will always occur as the pituitary initially responds to the increase in circulating GnRH. This results in a LH and FSH surge and lasts for an average of 7-10 days, but in some dogs could last for up to three weeks.

It results in an increase in circulating testosterone. This should always be discussed with owners as very occasionally behaviour may be seen which could be attributed to the surge. Down regulation will then occur and testosterone production falls rapidly.

Infertility has been demonstrated from six weeks post-implantation using the 4.7mg implant and eight weeks with the 9.4mg. Measurement of plasma concentrations of testosterone has been performed on dogs and cats with BRCACA1 and BRCACA2 genes, and the genes designated BRCACA1 and BRCACA2 are significantly associated with the development of such tumours. The authors sequenced the relevant genes from 25 dogs with mammary tumours and 10 healthy animals. They identified for the first time in this study, two separate single nucleotide polymorphisms present in each of these genes which appear to be associated with the development of mammary tumours.

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Castration Curtis, BVMS & MRCVS, graduated from Edinburgh in 2004 before spending three years in mixed practice in the UK and New Zealand. On returning home, she moved into small animal practice in the Lake District where she developed a particular interest in medicine and dermatology cases. Since 2011, she has worked for Virbac UK as a technical adviser.

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A radiolucient line superimposed on the tibial plateau has occasionally been observed on post-operative radiographs. As one case with this feature developed catastrophic implant failure, preventive post-operative immobilisation has been standard for those dogs with this feature treated at the authors’ centre. However, on retrospective examination of records from 80 dogs, they found that this feature was a spurious fracture line created by the medial margin of the tibial osteotomy. Confounding factors such as tibial misalignment may explain the higher complication rate apparently associated with this feature. Veterinary Surgery 43 (2): 150-154.

Genetic variation in BRCACA1 and BRCACA2 genes in dogs with mammary tumours Sinem Enginler and others, Istanbul University, Turkey

Mammary tumours are the most common type of neoplasm found in female dogs. In hitches, as in women, couples, the genes designated BRCA1 and BRCA2 are significantly associated with the development of such tumours. The authors sequenced the relevant genes from 25 dogs with mammary tumours and 10 healthy animals. They identified for the first time in this study, two separate single nucleotide polymorphisms present in each of these genes which appear to be associated with the development of mammary tumours. Veterinary Research Communications 38 (1): 21-27.
It is now commonly recognised that dogs with nervous behavioural disorders may have low circulating testosterone and surgically or chemically castrating these dogs will often exacerbate behaviours rather than improve them. Surgical and medical castration should always be undertaken with caution in dogs with behavioural disorders as there are always a number of factors which will be involved. Behavioural modification should be the mainstay of therapy. It is well recognised that increasing client footfall increases revenue within a practice (Lambert, 2009). Hypothetically speaking, if a veterinary practice started using deslorelin as an alternative to surgical castration, it could increase the footfall of a single client on an average 10 to 20 times if the dog lived to 10 years.

A number of clients often sit on the fence with regard to surgical castration and may only elect to do it because they feel it is common practice or is the only option discussed by the vet: if 10 of these clients opted for deslorelin this could increase footfall 100-200 times within the practice. The client gets all the physiological benefits of surgical castration from a product which is proven and known to be safe when used long-term.

The benefits to the practice would be the additional revenue every year from the sales of the deslorelin, complemented with all the other benefits of seeing the animal more regularly and the resultant increased footfall (Lambert, 2009).

So perhaps it could be said that, unlike in Europe and here in the UK, by not discussing the alternatives to surgical castration with our clients we are missing an obvious opportunity not just to increase revenue through product sales but also to significantly increase footfall in our practices.

Food for thought, some may say…

References


PDSA animal welfare report (PAW) 2013: pp1-33.


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