


History of Contraception in Dogs and Cats


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Surgical Castration



- ☑ Many millennia
Documentation in 7-6000 BC
- ☑ Reliable
- ☑ Permanent
- ☑ Not documented in early literature for husbandry of dogs – Breeding, Management, Health Care
*1575 book on hunting mentions castration giving no technical details
- ☑ Sharp contrast to amount of literature of castration of male and female horses and mules

Early History



- ☑ Over 3 millennia
No apparent attempts for contraception
Neither temporary or permanent
- ☑ Exception – Induction of abortion
13th Century – oral mixture with vaginal deposition of ash paste
- ☑ France – 19th and early 20th Century – mismating cases referred to a Veterinarian (details not available)
- ☑ Low status of animals – may not be worthy of human methods for contraception or abortifacients

Second Half of 20th Century

- ☑ Efforts began to control reproduction non-surgically
- ☑ 1960 – “The Pill” for women became available
Spawned efforts to control animal reproduction
- ☑ Concern grew about over-population and unplanned offspring – horror of destruction of increasing numbers of animals
- ☑ In Europe – first pill marketed (1963)

Oral Progestins

Compound	Dog or Cat	Market	Introduction/ Withdrawal
MAP ¹	D, C	EU	1963
MGA ²	D, C	EU USA/Canada	1970 1975
MIB ³	D	USA/Canada	1978/1990
NET ⁴	D	EU	1963/1980

¹Medroxyprogesterone acetate, tablets
²Megestrol acetate, tablets
³Mibolerone, solution
⁴Norethisterone, tablets


Injectable Progestins

Compound	Dog or Cat	Market	Introduction/ Withdrawal
MAP ¹	Dog Dog Cat	USA/Canada EU EU	1964/1966 1968 1968
CAP ²	Dog	EU	1966/1980
DMA ³	Dog	EU	1970
PRO ⁴	Dog Cat	EU EU	1975 1975

¹Medroxyprogesterone acetate
²Chlormadinone
³Delmadinone
⁴Proligestone

Problems Encountered

- ☑ In the United States, injectable depot progestin Promone® - medroxyprogesterone acetate
 - Duration – 6 months
 - Results were predictable
 - Side effects – catastrophic
 - cystic endometrial hyperplasia
 - pyometra
- ☑ Withdrawn after 2 years




Realizations

- ☑ Knowledge on canine cycle was grossly insufficient
- ☑ No longer could we assume dogs were “little cows”
- ☑ Small animal practitioners (USA) had lost confidence in hormone-based contraception
- ☑ Mibolerone acceptance suffered (1978 introduced)
 - Withdrawn in 1990

Mibolerone

- ☑ Marketed in the United States
- ☑ Oral daily use required
- ☑ Put in canned dog food - unsuccessful
- ☑ Undesirable side effects - androgenic
 - Clitoral enlargement
 - Vaginal discharge
 - Behavioral changes
- ☑ Did raise awareness of the need for contraception
- ☑ Still used through compounding pharmacies



Cultural Differences

- ☑ In the USA, surgical methods became preferred
 - Better anesthetic drugs became available
 - Benefit of permanent resolution
- ☑ In Europe, surgical methods were not preferred
 - Resistance for unnecessary surgeries
 - Promoted development of new compounds and strategies for contraception
 - Decreased dose, Defined timing


Racing Greyhounds

- ☑ Small segment of the US dog population
- ☑ Testosterone used for estrus control
 - Oral tablets
 - Injectable esters
- ☑ Effective
- ☑ Side effects – virilization
 - Desirable in the athlete
 - Undesirable in pet populations





Contraception - Mismating

- ☑ Disruption of pregnancy
 - Early – prevention of nidation
 - Late – elective abortion of litter
- ☑ Estrogen – given during estrus to prevent pregnancy
 - Available since 1930-40's
 - Effective if used at proper time and dose
 - Safety issues – pyometra, bone marrow suppression




Prostaglandin and Prolactin Inhibitors

- ☑ Prostaglandin – available in 1980
 - ☑ Luteolysis
 - ☑ Uterine contraction
 - ☑ Multiple doses required to eliminate pregnancy
 - ☑ Dose related side effects – limit use
- ☑ Prolactin inhibitors
 - ☑ Bromocriptine, cabergoline
 - ☑ Ergot derivatives
 - ☑ Prolactin luteotropic in dog and cat
 - ☑ Used to lysis the CL – disruption of pregnancy
- ☑ Used together – more effective than either alone

GnRH analogs – New approach

- ☑ Decapeptide and nonapeptide
- ☑ Occupy GnRH receptors at pituitary level
- ☑ Short stimulation period followed by suppression
 - ☑ Renders receptor insensitive to endogenous GnRH
 - ☑ Receptor Down Regulation
 - ☑ Reversible
- ☑ Lupron® (leuprolide) – human use – expensive
- ☑ Suprelorin® (deslorelin) – promising
- ☑ Gonazon® (azagyl-nafarelin) - promising



Male Contraception

- ☑ General resistance to male sterilization
- ☑ Surgical castration meets greatest resistance
- ☑ Zinc glutamate – Neutersol®
 - ☑ Safe and effective
 - ☑ Intratesticular injection
 - ☑ Irreversible

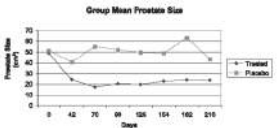



ImmunoContraceptive Vaccines

- ☑ Anti-zona pellucida vaccines
 - ☑ Effective in a variety of species – safe, reversible
 - ☑ Ruminants, horses, seals, elephants
 - ☑ Derived from porcine oocytes
 - ☑ Ineffective in the queen
 - ☑ Caused ovarian pathology in bitch
- ☑ GnRH vaccines
 - ☑ Promising alternative
 - ☑ Needs appropriate adjuvant
 - ☑ Male or female uses

GnRH Vaccines

- ☑ Commercially available
 - ☑ Improvac® - Swine, boar taint
 - ☑ Bopriva® - Cattle – bull behavior
 - ☑ Canine GnRF® - benign prostatic enlargement
- ☑ Multiple uses
 - ☑ Male
 - ☑ Female
- ☑ Booster injection needed



Future of Non-surgical contraception

- ☑ Many possibilities
- ☑ Desire from the pet owning population
 - ☑ Safety
 - ☑ Efficacy
 - ☑ Reversibility
- ☑ Feral populations
 - ☑ Desperate need
 - ☑ Single dose
 - ☑ 100% efficacy
 - ☑ Inexpensive

Thank you

