

ORAL APPROACH TO SURGICAL ‘SILENCING’ (DEVOCALIZATION) IN DOGS AND ITS HUMANE FACTUAL CONSIDERATIONS

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A total of seventeen pure bred dogs were subjected to ventriculocordectomy via oral approach under general anaesthesia. Preoperative and postoperative antibiotic and analgesic therapy was given for all the dogs. All the animals tolerated the procedure and the muting rate was found to be satisfactory. The oral approach for ventriculocordectomy was found to be relatively easy, economic, and simple to perform. Postoperative complications were not noticed in any of the dogs for a period of four months. Even though the technique could considerably reduce the intensity of the sound produced, any alteration in the behavior and motivation to bark were not observed. In this context, the humane factual consideration for surgical devocalization in dogs on ethical background has also been overviewed.

Introduction

Surgical silencing or devocalization, also known as ventriculocordectomy, refers to the surgical removal of vocal cords (Holt, 1998 and MacPhail, 2013). Presently, with the views on evolving humane treatment of animals and the zero medical benefits, devocalization surgical techniques are given little emphasis in Veterinary Teaching Hospitals. Also, most of the practicing veterinarians seldom, or refuse to, perform this non-therapeutic procedure. However, the procedure has to be considered, less often, as a final resort when the behavioral and management methods to suppress the motivation to bark fail and the noise really becomes a nuisance. Currently, an oral and a ventral laryngotomy approach have been described for ventriculocordectomy, though less practiced, with variable success rates and associated complications (Holt, 1998; Monnet, 2003 and MacPhail, 2013). In this study, the postoperative outcome of the oral ventriculocordectomy performed in dogs was assessed and the efficacy was evaluated. Also, the humane factual consideration for surgical devocalization of dogs on ethical background is overviewed.

Materials and Methods

A total of 17 pure bred dogs of different age and sex, which failed to respond to different behavior modification training and management methods adopted, that showed excessive barking and concluded to be noisy, were subjected to oral ventriculocordectomy. Pre-operatively, ceftriaxone (Intacef, Intas pharmaceuticals, Ahmadabad, India) at the rate

of 30 mg/kg bodyweight along with the analgesic tramadol (Tramazac, Cadila health care limited, Ahmadabad, India) at the rate of 2 mg/kg bodyweight were administered to all the dogs intravenously. All the dogs were premedicated with atropine sulphate (Atropine sulphate, Hindustan Pharmaceuticals, Barauni, India) at the rate of 0.045 mg/kg body weight, followed by xylazine hydrochloride (Xylaxin, Indian Immunologicals Ltd., Hyderabad, India) at the rate of 1 mg/kg body weight, given intramuscularly. General anaesthesia was induced with propofol (Neorof, Neon laboratories limited, Mumbai, India) at the rate of 5 mg/kg body weight intravenously. Maintenance of anaesthesia was achieved by the continuous infusion of a combination of propofol with normal saline (NS, Nirma limited, Gujarat, India) at a ratio of 1:9 by volume, administered at the rate of six drops per kilogram body weight per minute intravenously.

The dogs were positioned in ventral recumbency with the neck extended. The mouth was manually held fully open by a veterinary assistant and the tongue was drawn outwards holding the tip layered with wet cotton gauze. With the help of a laryngoscope, the epiglottis was held ventrally and the laryngeal area was illuminated to expose the vocal cords on both the sides. The cheeks were retracted laterally to improve visualization. A long handled forceps, the Gruenwald nasal punch forceps, was used to resect the central margin of the vocal cord and was extended along the cord dorsally and ventrally into the laryngeal lumen preferably, using a long handled Metzenbaum scissors (fig. 1). The

incisional wound was left to heal by second intention. The bleeding from the site was controlled by minute pressure using cotton gauze held by a long artery forceps, swabbed

either with tincture benzoin or haemocoagulase drops (Botroclot, Juggat Pharma, Bengaluru, India).

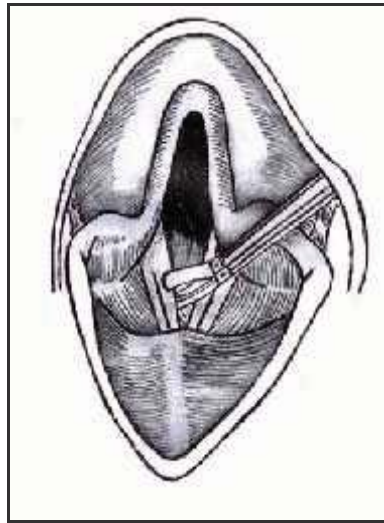


Fig.1: The resection of vocal folds in oral laryngotomy

Postoperatively, antibiotic (ceftriaxone) and analgesic (tramadol) therapy were continued for six more days. Animals were fed with soft food for one week postoperatively and continuously monitored for a minimum period of four months.

Results and Discussion

Ventriculocordectomy for devocalization in dogs is performed mainly to reduce the volume, intensity and sharpness of the bark. In small animal practice, ventriculocordectomy is primarily suggested for the treatment of laryngeal paralysis and resection of vocal fold masses (Holt, 1998; Schofield *et al.*, 2007; Zikes and McCarthy, 2012 and MacPhail, 2013). The British Veterinary Association Animal Welfare Foundation (BVAAWF), Fund for the Replacement of Animals in Medical Experiments (FRAME), Royal Society for the Prevention of Cruelty to Animals (RSPCA), Universities Federation for Animal Welfare (UFAW) Joint Working Group on Refinement (2004) oppose surgical devocalization and suggests different other methods to reduce noise in kennels and home stays. However, many international veterinary organizations including the American Veterinary Medical Association, American Animal Hospital Association and the Canadian Veterinary Medical Association suggests

ventriculocordectomy as a convenient final alternative, to relinquishment or euthanasia, after behavioral modification efforts and management methods to correct excessive vocalization have failed (AVMA Backgrounders, 2013). Also, the technique has to be performed only by a qualified, licensed veterinarian under general anaesthesia. Presently, the legislation to ban surgical devocalization of dogs is underway in some countries.

In dogs, barking remains as the most used forms of acoustic signals for interspecies and dog-human communication (Pongracz *et al.*, 2010). The structure and size of the vocal tract of dogs obviously affect the acoustics of barking except the inter-barking interval and tonality (Yin, 2002). Even though some researches opined barking as a byproduct of selection process during the early phase of domestication and hence lacked functional value, progressive investigations pointed out the selective role of the human environment interaction (Coppinger and Feinstein, 1991 and Feddersen-Petersen, 2000). The natural silencing among feral and stray dogs is thought to be the result of breakage of this interaction and relationship (Boitani and Ciucci, 1995). Interestingly, the dogs bark in a wide range of circumstances compared to the other wild canids accompanying many defensive and warning signals and possibly, an indicator of

animal welfare in shelters (Pongracz *et al.*, 2010). This has been identified as a significant matter of concern for many owners having either one or multiple dog breeds (Beaver, 1994). Several corrective techniques like environment manipulation; behavior modification training and medication therapies have been suggested (Juarbe-Diaz, 1997 and Stafford, 2007). Remote forms of punishment including anti-barking devices like collars, especially the citronella spray collar and electric shock collar, or freestanding devices have been used in an attempt to decrease excessive barking (Juarbe-Diaz and Houpt, 1996; Juarbe-Diaz, 1997 and Wells, 2001). All these punishment methods are aimed towards reducing the quantity of barking and are considered humane by many owners. In fact, it is not the quantity but the reduction in quality the surgical preventive measures bring about. However, the surgical intervention has to be considered, at times, when the behavioral and management interventions fail. The procedure might often prevent relinquishment or a harsh decision for inhumane euthanasia. Also, it might reduce the noise pollution and damage to human hearing especially in large kennels.

The oral approach for ventriculocordectomy was found to be relatively easy, more economic, and a quiet simple technique to perform. The dogs selected for devocalization included pure bred breeds mainly Doberman (8), Afghan hound (4), Fox terrier (3), Saluki (1) and Giant schnauzer (1) of either sex ranging from 6 months to 6 years of age. Compared to the ventral laryngotomy approach, the oral approach consumes only a very little time and does not require additional procedures like ventral laryngotomy and temporary tracheostomy. But, the ventral laryngeal approach provides better surgical exposure for more accurate vocal cord dissection compared to vocal fold dissection by oral approach. Also, it has showed to produce a higher percentage of muting compared to the oral approach (Monnet, 2003; Fattahian *et al.*, 2008 and MacPhail, 2013). However, both the approaches require general anaesthesia that has inherent risks. All the animals tolerated the oral approach of ventriculocordectomy and the muting rate was found to be satisfactory. The reported potential complications associated with ventriculocordectomy included bleeding, inflammation, infection, subcutaneous emphysema and aspiration pneumonia in

addition to glottis stenosis and laryngeal webbing that might cause dyspnoea, stridor and exercise and heat intolerance (Holt, and Harvey, 1994; MacPhail and Monnet, 2001; Fattahian *et al.*, 2008; Mehl *et al.*, 2008; Mercurio, 2011 and MacPhail, 2013). In the present study, no such short term or long term postoperative complications were noticed during an observation period of four months in any of the dogs that underwent surgery and all the dogs recovered uneventfully. The technique did not show any interference with the dog's ability to bark but reduced the level of noise and the intensity of the sound produced. However, any alteration in the behavior and motivation to bark were not observed and hence, identification of the underlying cause remains essential for targeted therapies.

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