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Is an Anchoring or Pocket Technique Best for Surgical Repair of Cherry Eye in Dogs?

A Knowledge Summary by

Jim Connah BVSc MANZCVS[1]

[1] Tasmanian Animal Hospitals, 29-31 Clarence St, Bellerive TAS 7018 Australia
[*] Corresponding Author (jimconnah@bigpond.com)

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Reviewed by: **Victoria Arbona (DVM, MS) and Kazuya Oikawa (DVM)**
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KNOWLEDGE SUMMARY

PICO question

In dogs undergoing surgery for repair of a prolapsed gland of the third eyelid (cherry eye), is a pocket technique superior to an anchoring technique in preventing recurrence?

Clinical bottom line

For surgical treatment of a prolapsed gland of the third eyelid (cherry eye), there is currently no evidence to suggest that either an anchoring technique or a pocket technique is significantly better than the other when comparing recurrence rates. In practice, and until randomised controlled trials are carried out, veterinary surgeon preference and previous experience would be the relevant factors in choosing which operation to perform.

Clinical Scenario

You are presented with a 1-year-old Beagle with a unilateral cherry eye. It has been present for two months and is not bothering the dog. The owner wants to know what to do. You ring the two veterinary ophthalmologists in the local area for advice. One routinely performs an anchoring technique, whilst the other has had good results with a mucosal pocket technique. Having only two expert opinions to go by, you decide to look for any available higher level evidence.

The evidence

There is no evidence to suggest that one technique is superior to another. Whilst all the cited studies compared techniques, and reported excellent outcomes for both, only one (Multari et al., 2016) conducted any statistical analysis. This latter article did not show any significant difference in rates of recurrence. It was limited, however, by comparing a pocket technique with a pocket plus anchor technique.

Summary of the evidence

Morgan, Duddy & McClurg (1993)	
Population:	Case records of dogs presented with either unilateral or bilateral cherry eye.
Sample size:	125 eyes in 89 dogs.
Intervention details:	The medical records of dogs with a prolapsed gland of the third eyelid between June 1980 to June 1990 were examined. Four groups of dogs: Excision of the gland (43 eyes), Gross & Blogg tacking (anchoring) technique (Gross, 1983) (59 eyes), Morgan pocket technique (18 eyes) and no treatment (5 eyes). Follow up period: 2–10 years.
Study design:	Retrospective cohort study.
Outcome studied:	1. Development of keratoconjunctivitis sicca (KCS). 2. Recurrence of prolapse (anchoring and pocket groups).

Main findings: (relevant to PICO question)	1. High recurrence rate in anchoring group (30/51), usually within 1–8 weeks after the initial surgery (eight dogs were lost to follow up). 2. Only 1/17 prolapses recurred with the pocket technique (one dog was lost to follow up).
Limitations:	1. No statistical analysis provided, so no direct comparisons of treatment efficacy could be made. 2. No indication of how long the follow up period was for determining recurrence in all dogs. 3. Nine animals lost to follow up. 4. Retrospective study, which is lower in evidence hierarchy. 5. The anchoring technique used in this paper is outdated, no longer recommended and therefore less relevant to the PICO question. 6. The Morgan technique was developed by the authors due to the high failure rate of the Gross technique – the Discussion notes that the Kaswan anchoring technique (Kaswan & Martin, 1985) was tried but the cosmetic results were unacceptable (there was no recurrence). There is no record of this in either the Methods or Results sections and indeed if these dogs were reoperated on.
Lin & Lin (2003)	
Population:	Dogs presented with either unilateral or bilateral cherry eye.
Sample size:	Seven eyes in five dogs.
Intervention details:	Two groups of dogs: Morgan pocket technique (Morgan et al., 1993) (6 eyes) and Kaswan anchoring technique (Kaswan & Martin, 1985) (1 eye). Follow up period: 6–12 months.
Study design:	Prospective non-randomised cohort study.
Outcome studied:	1. Detection of KCS. 2. Re-prolapse of the gland.
Main findings: (relevant to PICO question)	1. During the follow up period, there were no cases of KCS or recurrence of prolapse. 2. Noted in discussion that the pocket technique was easier to perform.
Limitations:	1. Small sample size. 2. No indication why different techniques were employed, and under what criteria dogs were allocated to groups.
Gupta et al., (2016)	
Population:	Dogs presented with either unilateral or bilateral cherry eye.
Sample size:	16 eyes in 10 dogs.
Intervention details:	Three groups of dogs: removal of gland (8 eyes of five dogs), Kaswan anchoring technique (Kaswan & Martin, 1985) (4 eyes of three dogs) or modified Morgan pocket technique (Morgan et al., 1993) (4 eyes of three dogs).

Study design:	Prospective non-randomised cohort study.
Outcome studied:	1. Recurrence of prolapse. 2. Detection of KCS in all techniques.
Main findings: (relevant to PICO question)	1. No cases of recurrence with the anchoring technique, although there was one case of persistent protrusion of the third eyelid. 2. No cases of recurrence with the pocket technique.
Limitations:	1. No indication of how long the follow up period was. 2. No indication why different techniques were employed, and how dogs were allocated to groups.
Multari et al., (2016)	
Population:	Case records of dogs presented with either unilateral or bilateral cherry eye.
Sample size:	420 eyes in 353 dogs.
Intervention details:	The medical records of dogs undergoing surgical repair of a prolapsed gland of the third eyelid between January 2002 and June 2013 were examined. Two groups of dogs: Morgan pocket technique (Morgan et al., 1993) (234 eyes) and Morgan pocket technique combined with a modified Stanley and Kaswan anchoring technique (Stanley & Kaswan, 1994) (186 eyes).
Study design:	Retrospective cohort study.
Outcome studied:	Recurrence of prolapse.
Main findings: (relevant to PICO question)	1. There were recurrences in 12/234 eyes with the Morgan pocket technique and in 9/186 eyes with the combined technique (no significant difference, P = 0.892). 2. Recurrences were generally 1–2 months postoperatively. 3. The techniques were compared within some breeds, but only statistical analysis was provided for the Cane Corso (no significant difference, P = 0.66).
Limitations:	1. No comparison between a pocket technique group and an anchoring alone technique group. 2. No indication of times of follow up for any of the dogs. 3. Retrospective study, which is lower in evidence hierarchy. 4. The study was non-randomised: dogs had been selected for the combined technique if the surgeon had thought the pocket technique alone would fail (chronic cases, large glands, and dogs with poor temperament).

Appraisal, application and reflection

There are many published studies which purport the efficacy of various individual surgical treatments for repair of prolapsed glands of the third eyelid (cherry eye). These were excluded from the search as they did not compare the efficacy of any new surgical approaches to older ones. White & Brennan (2018) have

recently reviewed the surgical techniques for the correction of prolapsed glands of the third eyelid. There was insufficient evidence to recommend one technique over another with regards to recurrence rates or development of KCS. A meta-analysis performed for studies reporting outcomes of the Morgan pocket and anchoring techniques, however, showed that there was a similar surgical failure rate (2–3%) between the two techniques (White & Brennan, 2018).

The Morgan pocket technique was developed by Morgan, Duddy & McClurg (1993) because an outdated tacking technique resulted in too many treatment failures. There was no statistical analysis performed, but the former technique appeared to be more efficacious.

Whilst cohort studies generally appear higher in the hierarchy of evidence based veterinary medicine, the two included in this Knowledge Summary (Lin & Lin, (2003); Gupta et al., (2016)) suffered from having no control groups. Another cohort study (Gökçe, 2001) which compared removal of the gland (8 eyes of five dogs), the Kaswan anchoring technique (4 eyes of three dogs) and the modified Morgan pocket technique (4 eyes of three dogs) was only available in English as an abstract. It noted, however, that there was a higher recurrence rate with the anchoring technique (no statistical analysis was available).

Only one study (Multari et al., (2016)) compared recurrences after two techniques with statistical analysis, but no significance was found (P = 0.892). Unfortunately, this study compared the Morgan pocket technique with a combined Morgan pocket and Stanley and Kaswan anchoring technique. This made the study less relevant to the PICO question.

There is clearly a need for randomised controlled studies to determine the answer to the PICO question. Large numbers of eyes need to be treated across multiple institutions with multiple veterinary surgeons. An especially useful group of dogs may be those which present with bilateral cherry eye: an anchoring procedure could be performed in one eye and a pocket in the other. Outcomes could then be compared in the same animal.

Methodology Section

Search Strategy	
Databases searched and dates covered:	1. CAB Abstracts on Ovid platform 1973 to 2018 Week 15 2. Medline on Ovid platform 1946 to April Week 2, 2018 3. Web of Science Core Collection 1900–present
Search terms:	CAB Abstracts and Medline: (dog OR dog* OR canine OR canis OR exp dogs/) AND (surg* OR repair OR replacement) AND (cherry eye OR eyelid adj3 prolaps* OR third adj3 prolaps* OR nictita* adj3 prolaps* OR gland adj4 prolaps* OR gland adj4 third OR gland adj4 eyelid OR gland adj4 nictita*) AND (pocket techni* OR tacking OR anchor* techni* or mucosa* adj3 pocket OR anchor* adj4 orbital OR anchor* adj4 rim OR imbricat*) Web of Science: (dog OR dog* OR canine OR canis) AND (surg* OR repair OR replacement) AND (cherry eye OR eyelid near/3 prolaps* OR third near/3 prolaps* OR

	nictita* near/3 prolaps* OR gland near/4 prolaps* OR gland near/4 third OR gland near/4 eyelid OR gland near/4 nictita*) AND (pocket techni* OR tacking OR anchor* techni* or mucosa* near/3 pocket OR anchor* near/4 orbital OR anchor* near/4 rim OR imbricat*)
Dates searches performed:	24 April 2018

Exclusion / Inclusion Criteria	
Exclusion:	Only one technique performed (i.e. only anchoring OR mucosal pocket) within the study group Full article not available in English Wrong species Wrong disease Book chapters
Inclusion:	Both anchoring and mucosal pocket techniques used amongst the study group Full text articles available in English Dogs only

Search Outcome

Database	Number of results	Excluded – only one technique performed	Excluded – not in English	Excluded – wrong species	Excluded – not relevant to PICO question	Excluded – book chapters	Total relevant papers
CAB Abstracts	26	17	2	0	2	1	4
Medline	6	3	0	1	1	0	1
Web of Science	15	6	1	4	2	0	2
Total relevant papers when duplicates removed							**4**

CONFLICT OF INTEREST

The authors declare no conflict of interest.

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