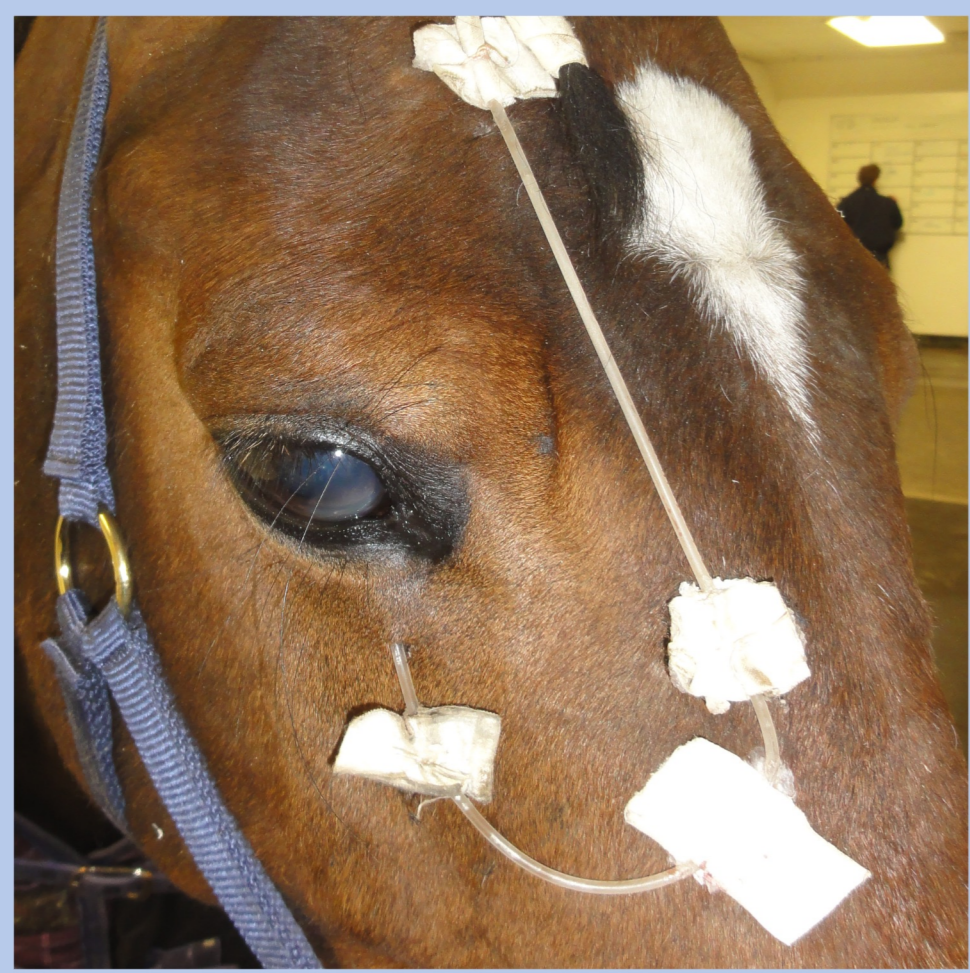


# Should SPL systems be placed in the upper or lower eyelid?

A prospective, randomised study into complications and outcomes of upper and lower eyelid subpalpebral lavage treatment systems in 66 equine eyes (2015-2023)



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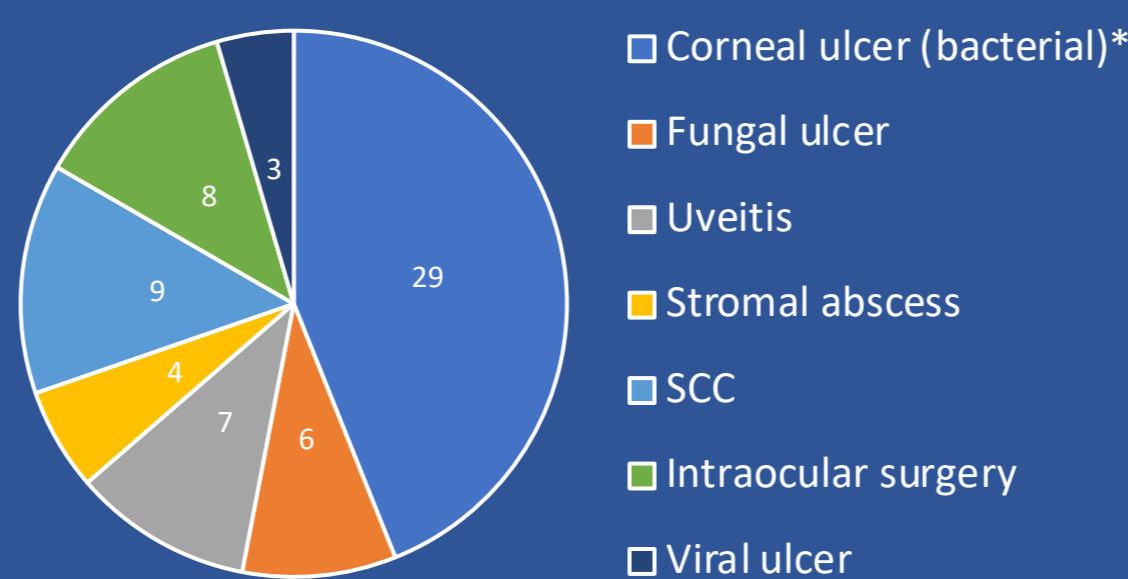
## Complications recorded

Major complications (required early removal of SPL)	Minor complications
Displacement of footplate from the fornix	Eyelid swelling
	Subcutaneous swelling/infection
	Loss of suture
Loss of footplate	Loss of injection port
Eyelid infection / abscess formation	Leakage / tube rupture

## Results

65 horses with 66 SPLs. Mean age 12.1yrs (range 7m to 24yrs); mix of breeds.  
 - SPL in 36/66 upper eyelids, and 30/66 lower eyelids.  
 - SPL placed by interns 14/66; residents 44/66; and 8/66 specialists.  
 - Median duration SPL in place - 10 days.

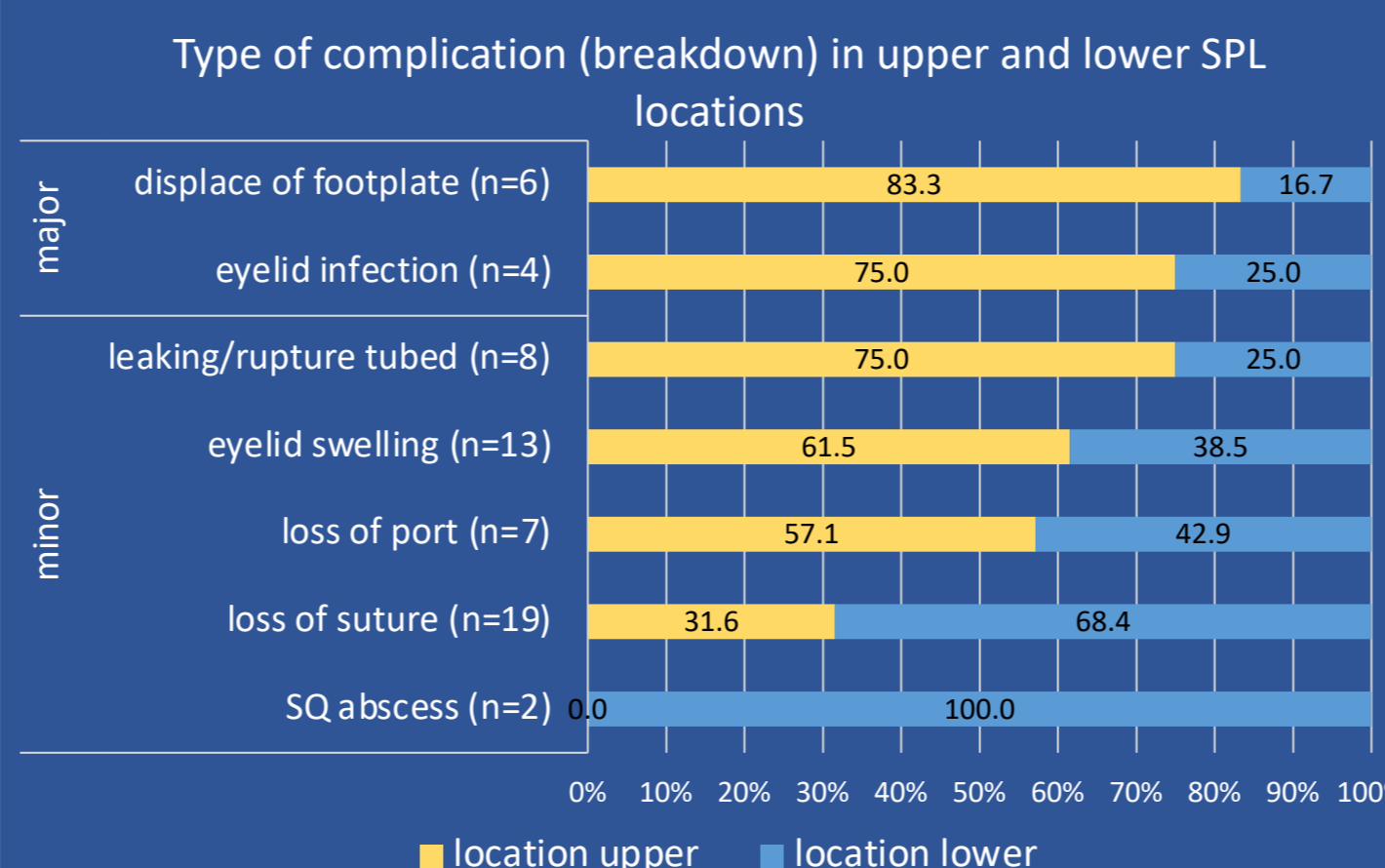
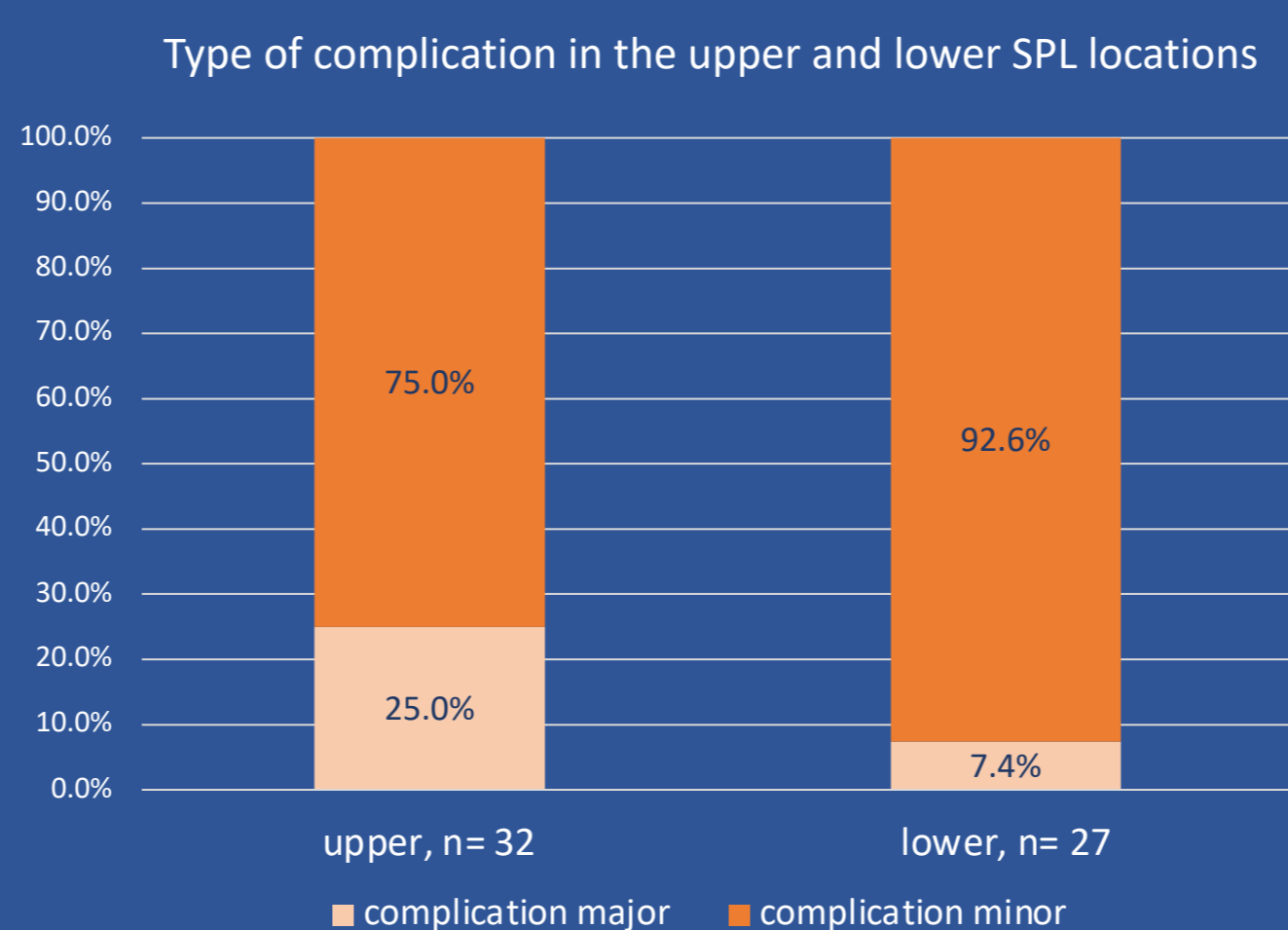
Indication for SPL placement



\* Confirmed or suspected

59 complications recorded in 38/66 eyes:  
 - Upper lid 32/59 (54.2%)  
 - Lower lid 27/59 (45.8%)

**Major complications 10/66 eyes (15.2%)**



## Results, continued

Most commonly 3 medications were given via SPL.

- Chloramphenicol (44/66; 66.7%)
- EDTA (29/66; 43.9%)
- Atropine (27/66; 40.9%)

Univariable analysis identified the following variables with P<0.25:

- Duration of placement
- Operator: intern
- Sex: mares
- Breed: WB/WBx
- Right eye
- Lower lid

**However, of the above variables, no significant variables were identified on multivariable logistic regression models.**

## Limitations

Small sample size. Pre-study power calculations based on other studies = 110 horses needed (for 80% power, alpha 0.05, beta 0.2).

Given the higher complication rate than previously reported, post-hoc power calculations estimated 762 cases would be needed for 80% power (alpha 0.05, beta 0.2).

## Conclusions

Complications were recorded more frequently than previously reported (due to prospective study design). There was no statistically significant difference in complications between upper and lower locations.

**Although the upper eyelid is not significantly more likely to see complications, upper lid complications more often required early SPL removal in the upper lid.**

Institutional ethical approval was obtained. The authors had no conflicts of interest.

## Introduction

- Subpalpebral lavage systems (SPL) are placed in upper or lower eyelids.
- There is weak evidence to recommend either location.
- Currently, site is based on:
  - clinician preference
  - location of the ocular lesion
  - degree of eyelid inflammation

One retrospective study has compared complication rates using a MILA SPL kit in upper vs lower lid and there was no significant difference.

## Aims

The first prospective, randomised treatment trial to:

- describe and compare complications associated with SPLs in hospitalised horses between upper and lower eyelids.

Hypothesis: the upper eyelid SPL would not have a greater incidence of complications compared to lower lid.

## Materials and methods

Data collected February 2015 - March 2023.

- Recruited if ocular pathology did not determine SPL location.
- SPL location was determined by a coin toss.
- MILA commercial kit used for all SPLs
- Placed in a routine manner by a boarded specialist, resident or intern.
- All secured using tape butterfly stents.
- SPLs assessed at every drug administration & by MRCVS daily.
- Data collected included: age, breed, sex, reason for treatment, duration of SPL placement, medication used.