

## TOTAL INTRAVENOUS ANAESTHESIA FOR EYEWORM RETRIEVAL IN A HORSE

R. Pooja<sup>1</sup>, P. Sankar<sup>2\*</sup>, Varsha Pradeep<sup>3</sup>, M. Sabarinathan<sup>4</sup>,  
A. Kumaresan<sup>5</sup>, S. Dharmaceelan<sup>6</sup> and S. Kathirvel<sup>7</sup>

*Department of Veterinary Surgery and Radiology  
Tamil Nadu Veterinary and Animal Sciences University  
Veterinary college and research Institute  
Namakkal -637 002*

### ABSTRACT

*Intraocular parasitic infestation in horses requires effective anaesthesia for successful surgical management. This communication describes the efficiency of total intravenous anesthesia using xylazine, butorphanol, diazepam and ketamine in a 1.5 years old Marwari yearling presented with an intraocular worm in the right eye. The protocol provided satisfactory sedation, akinesia, eyeball fixation and smooth recovery without regional nerve blocks during needle paracentesis.*

**Keywords:** Horse, intraocular worm, xylazine - butorphanol - diazepam - ketamine, Needle paracentesis

Received : 01.06.2026

Revised : 11.08.2026

Accepted : 14.08.2026

### INTRODUCTION

Equine ocular setariasis is a vision-threatening ophthalmic condition caused by ectopic parasitism of *Setaria spp.* in the ocular structures of horses (Radwan *et al.*, 2016). Localization of worms in the anterior chamber of eye of equines leads to constant irritation and the condition is

very painful (Kumar *et al.*, 2011). Infected animals usually display signs of lacrimation, photophobia, corneal opacity, conjunctivitis and impaired vision (Buchoo *et al.*, 2005). Surgical removal of the parasite is often necessary to prevent further ocular damage and associated complications. Ophthalmic procedures in horses require adequate sedation, analgesia and akinesia for precise surgical manipulation. Regional nerve blocks are commonly employed, however, total intravenous anesthesia protocols can provide satisfactory immobilization and recovery while minimizing procedural complexity. The present report describes the successful use of a xylazine, butorphanol,

<sup>1</sup>M.V.Sc. Scholar,

<sup>2</sup>Associate Professor,

\*Corresponding Author: Email : sansurvet@gmail.com

<sup>3</sup>M.V.Sc. Scholar,

<sup>4</sup>M.V.Sc. Scholar,

<sup>5</sup>Professor

<sup>6</sup>Professor and Head

<sup>7</sup>Professor and Head, Veterinary Clinical Complex

diazepam and ketamine protocol for surgical management of an intraocular parasitic worm in a Marwari yearling without the use of local nerve block.

## CASE HISTORY AND CLINICAL EXAMINATION

A 1.5 years old male Marwari yearling weighing 153 kg was presented to the Veterinary Clinical Complex, Namakkal, with a history of a worm observed in the right eye for the previous five days. On clinical examination, motile worm was noticed in the anterior chamber of the right eye and corneal edema was also present. Based on the ophthalmic findings, surgical removal of the intraocular worm through needle paracentesis was planned. Preoperative hematological and serum biochemical parameters were within normal physiological limits (Hb:14 g/dL, PCV: 38.5%, RBC:  $9.95 \times 10^6/\mu\text{L}$ , WBC:  $12.22 \times 10^3/\mu\text{L}$ , total protein: 7.01 g/dL, albumin: 3.54 g/dL, blood urea nitrogen : 15 mg/dl, creatinine: 1.3 mg/dl, calcium: 11.5mg/dl, phosphorus: 7.55 mg/dL and glucose: 95mg/dL).

## ANAESTHETIC PROTOCOL AND SURGICAL MANAGEMENT

Tetanus toxoid ( $\geq 5$ – $\leq 25$  Lf/0.5 mL), 2 mL IM was administered prophylactically prior to the procedure. Total intravenous anesthesia was induced using xylazine hydrochloride @ 1.1 mg/kg body weight IV, butorphanol @ 0.01 mg/kg body weight IV, ketamine hydrochloride @ 2.2 mg/kg body weight IV (Mourijavagar *et al.*, 2025)

and diazepam @ 0.05 mg/kg body weight IV. Topical anesthesia was achieved using 0.5% proparacaine ophthalmic solution. Following sedation, the animal was restrained in lateral recumbency. Adequate akinesia and eyeball fixation were achieved, facilitating surgical intervention. Needle paracentesis was performed using a 16 gauge needle and the intraocular worm was successfully removed (Mourijavagar *et al.*, 2025). Postoperatively, streptopenicillin @ 20,000 IU/kg IM and flunixin meglumine @ 1.1 mg/kg IV were administered. The owner was advised to continue streptopenicillin and flunixin meglumine for three days along with topical ophthalmic medications (Hydroxypropyl Methylcellulose (Hicool), Gatifloxacin (0.3% w/v) and Flurbiprofen (0.03% w/v) eye drops). Oral ivermectin therapy was also advised (Muhammad and Saqib, 2007).

## RESULTS AND DISCUSSION

The xylazine, butorphanol, diazepam and ketamine protocol provided satisfactory sedation, analgesia, muscle relaxation and akinesia required for ophthalmic surgical manipulation. Adequate fixation of the eyeball was achieved without the use of regional ocular nerve blocks, thereby simplifying the anesthetic management. The animal exhibited smooth anesthetic recovery, attaining sternal recumbency approximately 25 minutes after the procedure and standing position within 5 minutes thereafter. No anesthetic complications were observed during the perioperative period. xylazine, an alpha-2 adrenergic agonist, provided sedation and muscle relaxation, while

butorphanol enhanced analgesia (Lionel Dawson, 2019). Diazepam contributed additional muscle relaxation (Shini, 2000) and ketamine ensured dissociative anesthesia. The present report suggests that the xylazine, butorphanol, diazepam and ketamine total intravenous anesthesia protocol can be effectively utilized for short duration ocular surgical procedures in horses with satisfactory anesthetic and recovery characteristics.

## CONCLUSION

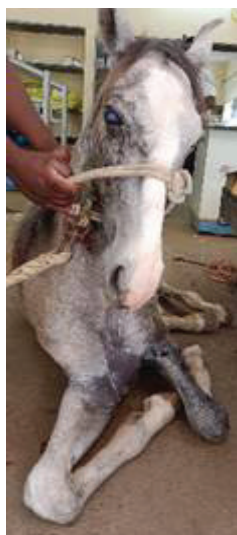
The present case demonstrated that total intravenous anesthesia using xylazine, butorphanol, diazepam and ketamine along with topical proparacaine provided effective sedation, akinesia and smooth recovery during surgical management of an intraocular parasitic worm in a horse. The protocol proved suitable for short duration ophthalmic procedures without the need for regional ocular nerve blocks.



**Fig.1. Yellow arrow depicting the intraocular worm present in the right eye**



**Fig.2. Retrieved Intra ocular worm**



**Fig.3. Sternal recumbency during recovery**

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