AUDEVARD CLINICAL CASE COMPETITION-

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BLEOMYCIN ELECTROCHEMOTHERAPY AS A NOVEL THERAPEUTIC APPROACH FOR AN EQUINE NASAL MUCOSA SARCOID: CASE REPORT

Equine sarcoid is the most common skin tumour among equids, classified as a benign, non-metastatic, locally invasive and highly recurrent tumour.[1] Its importance relies on its prevalence, being also the main cutaneous reason for equine euthanasia.[2] Available treatments are multiple, although none is clearly superior. Conventional approaches include surgical excision or topical medications, while newer therapies comprise immunotherapy and electrochemotherapy, among others.[3-4] Electrochemotherapy combines chemotherapeutic agents with high-voltage electric pulses that transiently increase cell membrane permeability, enhancing drug uptake.[5] Widely used in human oncology,[6] it is gaining protagonism in equine medicine, though still only some agents have been reported. The objective of this case report is to address the use of electrochemotherapy with intralesional bleomycin as a novel therapeutic tool in equine sarcoid.

A six-year-old gelding was referred in June 2025 with a 3,5x2x1 cm mass located on the medial nasal mucosa of the left nostril. Histopathological examination confirmed sarcoid diagnosis. Fitness for general anaesthesia was reassured by a complete presurgical exam, including bloodwork and electrocardiography, in which the only findings were compatibility with a stress leukogram and a II-Degree AV blockage which disappeared after increasing the heart rate by exercise. Treatment involved pre-operative systemic anti-inflammatory, and intralesional administration of bleomycin and electrochemotherapy pulses under short-term completely intravenous general anaesthesia. A dose of 1500UI/cm^3 of intralesional Bleomycin was used. Electroporation of the margins was done firstly, followed by the centre of the mass, in order not to disseminate the tumoral cells. Three weeks later, the lesion showed marked regression, absence of inflammation, and progressive mucosal healing, with no signs of recurrence. Growth regression stabilized 6 weeks after the first session.



(A) (B)

Figure 1. Mass measurement in the first session (A), with a tumoral volume of 3cm^3; Mass follow-up after first session until growth stabilization at 6 weeks post electrochemotherapy (B).

After 7 weeks, in the second session, size of the lesion was 2x1,5x1cm; which accounted for a volume consisting of half of the previous registered one. The procedure was repeated with the same phases, for the exception of the dosage of bleomycin, which was augmented to 3000UI/cm^2. The following days, the nostril presented mild inflammation which improved with cold treatment. The following week, the horse was remitted again, as due to complicated behaviour cleaning of the zone was not possible and a myasis of the inflammated lesion was occurring. Thorough cleaning was performed, and systemic anti-inflammatory treatment was once again prescripted (NSAIDs). Before discharge, a small part of the remaining lesion was resected with electrocautery to facilitate the surface regularity for the cleaning duties to the owner and field veterinarian.

During follow-up, the lesion showed marked regression, absence of recurrence and absence of new mass formation. No new recurrence episodes or growth were noted within one year from the second session.

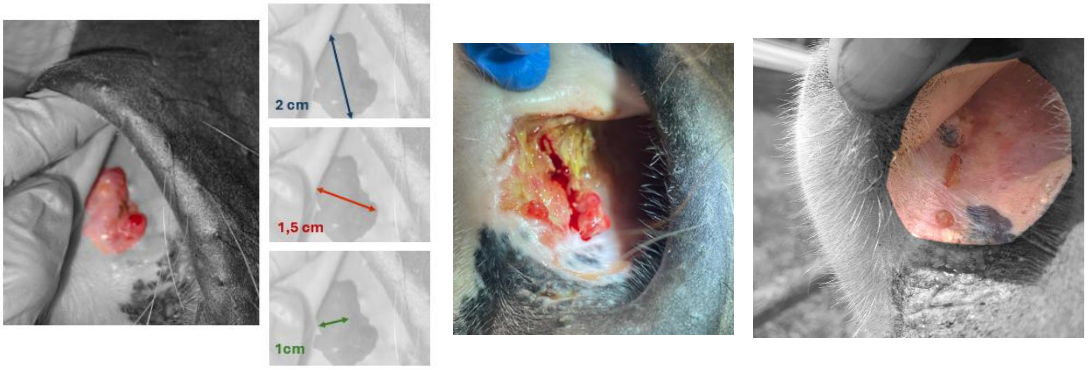


Figure 2. Mass volume measurement prior to second session (7 weeks after the first), of 1,5cm³(A); Gross appearance after myasis cleaning (B); Long-term follow-up with no regression after 1 year from the second session (C).

Reported electrochemotherapy success rates range from 94% to 100% in large studies,[7] although the optimal number of treatment sessions remains uncertain. This case is particularly noteworthy because it describes, to our knowledge, the first use of bleomycin for electrochemotherapy in an equine sarcoid, representing a novel therapeutic approach in this species. While cisplatin has traditionally been the drug of choice for equine sarcoids, electroporation enhances its cytotoxicity approximately 100-fold, compared with up to a 700-fold increase for bleomycin.[8] Furthermore, bleomycin is the most widely used chemotherapeutic agent for electrochemotherapy in other species, where it has demonstrated an excellent balance between efficacy and safety due to its greater selectivity for tumour cells and reduced toxicity to surrounding healthy tissues. The successful outcome observed in this case suggests that bleomycin may represent a highly promising alternative to cisplatin and supports its consideration as a potential first-line agent for equine sarcoids. Further prospective studies are warranted to establish its efficacy, optimal treatment protocol, and long-term outcomes in horses.

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