Management of EM/SJS/TEN: veterinary perspective

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Although there is controversy about the pathogenesis of these conditions, and the relationships between them, the treatment strategy for managing these patients in veterinary medicine is essentially the same. The two main objectives are to:

- Stop the disease process
- Treat the damage that has already been done

Precisely what treatments are required will be dependent on the severity of the condition, and the clinical and histological findings.

**Stopping the disease process**

This may involve:

- Stopping previous medications
- Checking for, and treating, triggering infections
- Checking for, and treating, systemic diseases
- Possibly treating with drugs

Stopping previous medications is considered an essential step in the management of EM/SJS/TEN, especially considering that many such cases in animals are considered to be drug eruptions. When deciding whether or not to stop any medications the patient is receiving, the clinician needs to ask themselves what the impact will be of stopping those medications. For example, it may be feasible to safely stop a course of antibiotics without any major consequences. However, a dog that is receiving multiple drugs for the management of congestive heart failure is not likely to do well if those drugs are suddenly discontinued. Similarly, a dog that is receiving non steroidal anti-inflammatory drugs to treat chronic arthritis is not likely to have a good quality of life if it has to live without them. Hence, the decision to stop medications must be based on a careful analysis of the severity of the new problem (the drug eruption) compared to the severity of the problem for which the patient was actually receiving the medication.

Checking for triggering infections is also important when managing these patients. At a simplistic level, the patient should be assessed for any obvious infections that could be detected on a physical examination e.g. ear infections, anal sac infections, oral infections, abscesses. However, such infections have rarely been implicated as a cause of EM/SJS/TEN, and even if they are present, it is difficult to ascertain if they are the primary cause of the skin disease. In many cases, it will be the antimicrobial agents that have been used to treat the infection that will have triggered the disease. In humans, although bacterial infections are known to be potential causes of EM, it is more typical for this condition to be triggered by viral (herpes) or mycoplasma infections. Detection of such infections in animals is more problematic without resorting to sophisticated tests that are not commercially available. Even with advanced methodology such as immunohistochestrometry, it may not be possible to detect the viral fragments that can trigger the immune reaction in the skin.

Checking for systemic diseases is important for all these conditions. This is likely to involve blood tests and diagnostic imaging. If a suspected cause is found (e.g. a neoplasm), then prompt management may help the ongoing immune mediated damage to stop.

If an underlying cause can be found (drug, infection, tumour) and the condition is relatively mild, it may be acceptable to wait for spontaneous resolution to occur. However, for severe cases, specific intervention with drugs may be indicated. In humans, corticosteroids are not indicated for the treatment of EM, and their use in SJS and TEN is still controversial. Most authorities believe that they lead to increased morbidity and mortality in the more severe phenotypes. In animals, other factors need to be considered. The pathogenesis of these conditions in animals may not be the same as in people and the same contraindications may not apply. In cases of canine EM, there is often a T cell rich, interface dermatitis infiltrate into the superficial dermis. In the absence of a proven viral aetiology, the use of glucocorticoids would appear reasonably sensible. Also, the cost of these drugs may make them an attractive option for pet owners with a limited budget. In the more severe phenotypes, the use of glucocorticoids is harder to justify, especially if there is extensive ulceration and a cell poor infiltrate on histopathology. Clinicians must make a decision by
balancing the potential benefits (stopping the immune mediated reaction) against the potential risks (predisposing the animal to sepsis, reducing re-epithelialisation).

In the author’s opinion, cyclosporine would be the preferred option for the treatment of EM/SJS/TEN because it specifically inhibits the T cell mediated damage and is less likely to predispose to infection and inhibit epithelialisation. There is also some evidence that it is beneficial for the treatment of TEN in people. Pentoxyfylline can also be used for its immunomodulatory effects, either alone or in conjunction with cyclosporine or glucocorticoids.

In addition to targeting the lymphocyte infiltration, it may also be possible to inhibit the apoptosis that characterises EM and SJS. The administration of intravenous immunoglobulins can help to inhibit FAS ligand mediated apoptosis, thus reducing further disruption to epithelial integrity. Its use in animals suffering from EM or SJS has been reported. Cyclosporine may also have this beneficial effect.

**Treatment of the damage that has already been done**

This may involve:

- Correction and prevention of fluid losses
- Maintenance of adequate nutrition
- Treatment, and prevention, of secondary infection and sepsis
- Treatment of ulceration
- Provision of pain relief

Patients with extensive ulceration are at risk of severe metabolic complications. Intravenous fluid therapy and parenteral nutrition may be required. Prevention of secondary infection and sepsis is critical to ensure the patient’s survival. This is only necessary when there are large areas of epidermal loss. Antibacterial baths are indicated if the patient is well enough to withstand them. Systemic antibiotics are also likely to be needed in veterinary patients. Drugs such as fluoroquinolones or ticarcillin with activity against gram negative bacilli are indicated.

In human patients with TEN, the only intervention that has been proven to improve survival rates is transfer to a dedicated burns unit. These units have specific expertise in the management of metabolic complications and infection, as well as specialized dressings that are required to aid re-epithelialisation. In most cases, dressings combining Intrasite and Acticoat are used (both made by Smith & Nephew). Acticoat dressings contain a form of elemental sulphur that is gradually released from the dressing over time. This is highly effective in preventing colonization and infection by pathogenic bacteria. The application of Silver sulphadiazine cream may have a similar effect, but the sulphadiazine component may be contraindicated in patients with TEN if a drug eruption to sulphonamides is a possibility. In veterinary patients, the cost implications of adopting similar treatment strategies may be prohibitive for some owners, and a sub-optimal treatment regime may have to be accepted. In such cases, high mortality rates are likely to be the outcome.

The historical mortality rates in humans are approximately 5% for SJS and 40% for TEN. Sepsis and respiratory distress are the most common complications and ultimately the direct causes of death. Various factors influence the prognosis including the percentage loss of body surface area (BSA), age, persistent neutropenia (defined as neutropenia lasting >5 d), hypoalbuminemia (usually <2 g/dL), and persistent azotemia. However, with the advent of the newer dressing techniques, survival rates are improving, even with extensive areas of epidermal loss.

**Further reading**


