Cutaneous and renal glomerular vasculopathy (CRGV) or ‘Alabama Rot’ in the UK

CRGV in the UK
In the past five years there has been emergence of a condition referred to as cutaneous and renal glomerular vasculopathy (CRGV). Greyhounds with this condition, previously referred to as ‘Alabama rot’, were first described in the 1980s. Initial clinical presentation includes skin lesions of variable severity either alone or in combination with acute kidney injury.

Between November 2012 and March 2018, 153 histopathologically confirmed cases have been documented. Although, cases initially appeared to be localised to the New Forest area, this is no longer the case with affected dogs originating from throughout the UK.

Clinical signs
Dogs with CRGV most often present with a cutaneous lesion(s) affecting the distal limbs which may be as innocuous as a small cut, abrasion, bruise or area of redness typically <5cm but in some cases larger, often ulcerated lesions have been identified not only affecting the limbs but also face, muzzle, tongue and ventrum.

As in the early reports of this condition, approximately 75% of dogs show only skin lesions without further progression of clinical signs. However, there is reason to propose that some of these dogs with only skin lesions may have evidence of pre-azotaemic acute kidney injury (AKI) illustrated by careful serial monitoring of renal function. However, unfortunately a proportion of dogs with CRGV develop azotaemic AKI which is typically identified between 1-9 days (median five days) after the skin lesions are first noticed. Progression of AKI in these patients can be variable, with some improving with supportive care, whilst other progress to develop anuric renal failure.

Histopathology from skin and renal tissue from confirmed cases reveals evidence of thrombotic microangiopathy (TMA) characterised by inflammation and damage to the vascular endothelium that can result in platelet activation and widespread formation of microthrombi with resultant consumptive thrombocytopenia and microangiopathic haemolytic anaemia. Similar conditions resulting in TMA have been reported in humans and the condition which perhaps most closely represents CRGV in dogs is atypical haemolytic uraemic syndrome (aHUS).

Aside from skin lesions, approximately 50% of dogs with CRGV present or develop thrombocytopenia which is believed to be the consequence of platelet consumption. Other common clinicopathological abnormalities include anaemia, neutrophilia and hyperbilirubinaemia. Abdominal imaging is typically unremarkable although renal cortices have been reported to be hyperechoic in some cases. Secondary complications associated with any AKI e.g. systemic hypertension, may be identified. A definitive diagnosis of CRGV
requires histopathology of renal tissue and skin although, depending on the clinical status of the patient, such investigations are not always feasible and in all confirmed cases to date diagnosis has been made at post-mortem examination.

**Aetiology of CRGV**

Despite investigations, the aetiology of this condition remains unknown. Common causes of AKI in dogs (e.g. leptospirosis and ethylene glycol) have been excluded. Recent data (pending publication) supports that hounds and gundog groups may be at increased risk of developing CRGV with over-represented individual breeds being flat coat retriever, Hungarian Vizsla, whippet and English springer spaniel.

Although concerns have been raised in the press relating to walking in particular types of land (e.g. forest) and also feeding of particular diets (e.g. raw diets) these comments are unsubstantiated. However, there has been a predisposition for cases of CRGV to be identified in winter/spring months with the majority of cases occurring between November and May. There are no known preventative measures for CRGV, although washing of limbs on a regular basis after walks may be of benefit if it serves to increase owner awareness of new skin lesions developing.

**Treatment recommendations for patients with CRGV**

Based on current knowledge, patients with unexpected skin lesions, should be identified and, where an obvious aetiology is not apparent, CRGV should be considered as a differential. However, there are many more common differentials than CRGV for skin lesions (e.g. cut pad). These should treated as deemed appropriate based on your assessment (e.g. consideration for antibiotics and analgesia). However, caution is advised around the administration of non-steroidal anti-inflammatories if there is concern relating to CRGV and the potential for AKI.

For those patients where there is clinical or owner led concern for CRGV but where only cutaneous lesions have been identified it may be pertinent to perform baseline monitoring of renal function (creatinine, SDMA, electrolytes and full urinalysis (specific gravity, dipstick, sediment examination). For any patient where either pre-azotaemic or azotaemic AKI is identified, investigations to exclude other more common causes of AKI should be performed and standard treatment for AKI implemented. Advice may be sought from specialist centres where there is concern about possible CRGV or in relation to management of patients with AKI.

Even in humans, management of patients with TMA is incompletely understood. In certain situations advanced therapies such as plasma exchange (plasmapheresis) and dialysis (renal replacement therapies) may play a role. These modalities of therapy have been performed on a small number of patients with CRGV at the Queen Mother Hospital for Animals although the evidence base is limited. Should you wish to discuss management of a suspected CRGV patient please contact qmhreception@rvc.ac.uk where we will be able to put you in touch with either a member of the Emergency and Critical Care or Renal Replacement team.

**Prognosis for dogs with CRGV**

The prognosis for dogs with CRGV that develop oligoanuric AKI has been guarded to grave. However, some dogs with the combination of both skin lesions and AKI where urine output has been maintained have made a good recovery with intensive supportive care but sadly this has not been the case for other dogs. Studies are on-going to try and improve our knowledge and understanding of this condition.
Ongoing research and fundraising
In 2017 a CRGV steering group was established with both clinicians and epidemiologists from the RVC involved. Further research is required to try and understand the epidemiological influences on this condition and to identify the underlying aetiology. Research is costly both in terms of time and finance. Please direct any owners with an interest in fundraising to the Alabama Rot Research Fund.

Alternatively, donations can be made to the RVC Animal Care Trust to support the work that we are doing.

Peer reviewed publications to date:

Publications in review: