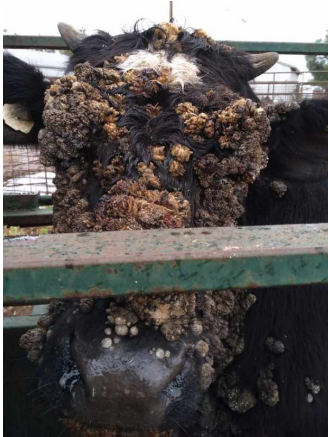




Differential diagnoses for lumpy skin disease

NOTE: this list only includes differential diseases endemic to Australia.

Differential diagnosis	Description of lesions	Confirming diagnosis	Image
Bovine Herpes Virus 2 (Pseudo-Lumpy Skin Disease/Bovine Herpes Mammillitis)	- Firm, round, raised nodules with flat surface and depressed centre - Lesions appear suddenly - Lesions all over the body, but in Australia lesions are mostly found on teats - Lesions slough after 1–2 weeks leaving 1–2cm circular alopecia patches resembling ringworm - Lesions disappear in a few weeks - By contrast, lumpy skin disease lesions are ulcerative, necrotic and usually cause permanent scarring	Virology and histology of skin biopsies	 Lesions on teat of a cow with Bovine Herpes Virus 2. (Source: David Beggs, University of Melbourne)
Bovine Papillomavirus (Warts)	- Papillomas of varying form and size - Located anywhere on the body - Most frequently seen on head, neck, shoulder and brisket - Typically affects young cattle <2 years	Histology of skin biopsies	 An unusually severe case of papillomas. (Source: Jeremy Rogers, PIRSA)  Cow with papillomas. (Source: David Beggs, University of Melbourne)
Bovine Papular Stomatitis (Parapoxvirus)	- Raised, red papules - Erosions and ulcers - Affects the muzzle, nose, oral mucosa, oesophagus, and rumen - More common in animals <2 years of age	- Electron microscopy of secretions or tissue scrapings - Immunofluorescence or neutralisation of tissue cultures - Histopathology of tissue biopsies - Agar-gel precipitation, immunofluorescence or ELISA to look for viral antibodies	 Cow with parapoxvirus. (Source: David Beggs, University of Melbourne)
Dermatophilosis (Rain Scald)	- Scabs in matted hair - Alopecia where scabs are pulled/rubbed off - Affects areas of the body that are wet for prolonged periods “Strawberry” appearance when scabs peeled off	Microscopic identification of organism in scabs/scrapings/biopsy samples	 Cow with rain scald. (Source: Jeremy Rogers, Department of Primary Industries and Regions)

Differential diagnosis	Description of lesions	Confirming diagnosis	Image
Ectoparasites (e.g. mites, ticks)	Clinical signs will depend on which ectoparasite is affecting the animal	- Will depend on which ectoparasite you are suspecting - E.g. diagnosis of mites is generally by microscopic detection of mites in skin scrapings or in nodules excised from the skin	 Parasite hypersensitivity (Source: Constantin Constantinoiu, JCU & QDAF)
Onchocercosis	- Can vary depending on species of Onchocerca - Nodules are located intradermally and are easy to locate by palpation of the skin - Depending on the species of Onchocerca, nodules may be located on the brisket, udder or abdominal wall - Most nodules are 2.5–3.5cm in diameter - Usually <4 nodules per brisket	- Biopsy of lesions - Microscopic demonstration of microfilaria - Generally 1 female and 1+ male worms coiled together per nodule	 Nodules on abdominal wall of cow with onchocercosis. (Source: Alfons Renz, University of Tübingen)
Photosensitisation	- Non-pigmented, sun-exposed skin most affected (e.g. face, ears, muzzle, udder and along back) - Skin may be itchy, red, swollen and blistered - Scabs may develop	- Clinical signs and access to toxic plants - Blood tests, liver function assessment and post mortem examination	 Cow with photosensitisation. (Source: David Beggs, University of Melbourne)
Pseudocowpox	- Initially appears as small, red, raised sores on teats and udders - Progresses to vesicles, scabs and nodules - May form a ‘ring’ or ‘horseshoe’ of scabs, over the course of several weeks	- PCR test on blood, swab of lesion, or scab - Clinical signs	 Sores on teats of a cow with pseudocowpox. (Source: David Beggs, University of Melbourne)
Dermatophytosis (ringworm)	- Circular hairless lesions, up to 3cm diameter, may coalesce to form larger patches - Head and neck most affected - Skin initially moist and red, progressing to dry, scaly and grey	- Ringworm sits near the hair follicle so deep skin scrape or biopsy not needed. Rather a hair sample can be placed in a culture – there are even specific agars which will change colour if Ringworm (Dermatophytosis) is present - Microscopic demonstration or isolation of the organism	 Circular hairless lesions on a cow with dermatophytosis. (Source: David Beggs, University of Melbourne)
Skin allergies (e.g. urticaria)	- Acute-onset of haired, dome-shaped wheals that may crust - Angioedema in severe cases - Lesions can appear anywhere on the skin	- History of acute onset of lesions - Lesions subside after glucocorticoid is administered	