### Differential diagnoses for lumpy skin disease

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

<table>
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<th>Differential diagnosis</th>
<th>Description of lesions</th>
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| **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) |
| **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) |
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| 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](image1) |
| 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](image2) |
| 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](image3) |
| 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](image4) |
| 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](image5) |
| 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 |