

### Question

Which of the following does not typically cause ventral midline dermatitis in horses?

- Onchocerciasis
- Haematobia irritans
- Culicoides hypersensitivity
- Chorioptes equi

**Explanation** - The correct answer is Chorioptes equi. Chorioptes is a mange mite that is usually found **around the foot and fetlock**. It causes a pruritic dermatitis that can cause the formation of papules, crusts, thickened skin, as well as alopecia. The mites are often found in the **feathered hair around the fetlocks of draft horses**. As with other mites, **ivermectin** is the treatment of choice. Culicoides, Haematobia irritans (the Horn fly) and onchocerciasis often cause dermatitis at the ventral midline of horses.

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### Question

A 2-year old mare presents to you several weeks after recovering from a mild upper respiratory infection. She now presents with edema and sloughing of the legs (see image), chest and abdomen as well as mucosal petechial hemorrhages. She is sore and reluctant to move. Biopsy of the skin lesion is consistent with **aseptic necrotizing vasculitis**. What is the most likely diagnosis?



- Cantharidin toxicity
- Purpura hemorrhagica
- Type I hypersensitivity
- Bastard strangles
- Idiopathic thrombocytopenia

**Explanation** - This is the clinical and histologic appearance of purpura hemorrhagica. It is a type-III hypersensitivity which is when antigen-antibody complexes accumulate, leading to disease.

Purpura hemorrhagica most commonly occurs **2-4 weeks after exposure to certain infectious agents or vaccines**. This condition is most commonly seen subsequent to infection with *Streptococcus equi* subsp. *equi* or vaccination against it but it can also be associated with other pathogens, particularly respiratory pathogens including other streptococcal species and equine influenza.

Regardless of the cause, purpura hemorrhagica results from accumulation of antigen-antibody complexes that deposit on blood vessel walls and activate a strong immune response (**vasculitis**). The leaky blood vessels lead to hemorrhage and edema.

Primary immune-mediated thrombocytopenia (sometimes called idiopathic thrombocytopenia) can be seen in horses but is not consistent with the necrotizing vasculitis described in the case.

Type I hypersensitivity reactions are immediate reactions (such as urticaria) invoked by an antigen or allergen.

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### Question

Two pet horses on a ranch are presented for extreme pruritus at their ventrum. The owners report the pruritus has gotten worse during the summer, and they notice increased numbers of small flying insects around at dusk and dawn. Examination of the horses reveals excoriations, alopecia, and thickening of the skin at the ventrum. One of the flies collected in the field by the owner is a small fly with mottled wings. What is your most likely diagnosis?

- Mosquito hypersensitivity
- Tabanus fly bites
- Culicoides hypersensitivity
- Onchocerciasis
- Chrysops fly bites

**Explanation** - The correct answer is **Culicoides hypersensitivity**. Culicoides hypersensitivity is extremely pruritic and is also known as "**sweet itch**". Horses can be affected on their ventrum or dorsum, depending on the species of the fly. The horse develops a **type 1 hypersensitivity** to the flies' salivary antigens and develops excoriations, alopecia, and thickened skin as a result of scratching. The flies are more prevalent during the **warmer seasons** and are **most active during dusk and dawn**. Treatment includes controlling the

fly population. Stabling the horses at dusk is often helpful because the flies rarely enter barns. Insecticides, stable blankets, and fans for circulating air in the stables may also be useful.

The **extreme pruritus and seasonality** of the clinical signs is often enough to differentiate the Culicoides hypersensitivity from other skin diseases.

Onchocerciasis is vectored by Culicoides, but is not seasonal and is not nearly as pruritic.

Mosquitoes can be an annoyance and, more importantly, are vectors for more serious diseases such as the equine encephalitides. Tabanus flies and Chrysops flies cause pain to horses by lacerating them with their mouth parts to feed on their oozing blood. They do not cause pruritus and can be differentiated by their large, robust size.

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### Question

A 5-year old gelding is presented for a nodular mass lesion on its lateral neck region. A biopsy of the regions reveals collagen degeneration and granulomatous inflammation with eosinophils. Which of the following is not a reasonable treatment option for this horse?

- Surgical excision of the mass
- Systemic antibiotics
- Sublesional steroid injections
- Chlorhexidine scrub and warm compressing

**Explanation** - The correct answer is chlorhexidine scrub and warm compressing. The described lesion is an **equine eosinophilic granuloma**, also known as **nodular necrobiosis of collagen**, or **collagenolytic granuloma**. The lesions are nodular, non-ulcerative, and are not pruritic. The masses are histologically similar to **eosinophilic granulomas in cats**. The etiology of the lesions is believed to be associated with insect bites, trauma, or multifactorial causes. Treatment may include systemic antibiotics, surgical excision, or sublesional corticosteroid injections.

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### Question

You diagnose a horse with sarcoptic mange (*Sarcoptes scabiei*). What should you do next?

- Treat the horse with antibiotics
- Vaccinate the horse
- Euthanize the horse
- Report the infection to authorities

**Explanation** - The correct answer is **report** the infection to authorities. Sarcoptic mange is a reportable disease in horses. It causes severe itching, skin thickening, and crusting, usually around the head, neck, and ears. Diagnosis is based on clinical signs and response to therapy, since skin scrapings are often

unrewarding because the organism is found very deep in the skin. Treatment includes quarantining the animal and administering ivermectin parenterally, or organophosphates or lime sulfur topically.

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### Question

A 1-year old Appaloosa mare presents with a history of rubbing her tail. On physical exam, there are no significant findings except for regions of alopecia around the tail and perineal region. What is the most likely diagnosis?

- Parascaris equorum
- Anoplocephala magna
- Habronema muscae
- Oxyuris equi

**Explanation** - The correct answer is **Oxyuris equi**. Female **pinworms** will crawl out to the anus and cement eggs all around the perineal region. This larvae then hatch and cause discomfort to the horse resulting in pruritus. Eggs can sometimes be retrieved by performing a **scotch tape preparation**.

Habronema muscae is the stomach worm. Stomach worms in large numbers will result in gastritis and, depending on the species, potentially mass-like necrotic lesions in the stomach. Parascaris equorum infestations may result in lethargy, depression, and respiratory signs. Occasionally, they result in intestinal obstruction and subsequent perforation. They do not cause any pruritus of the perineal region. With a heavy infestation of Anoplocephala magna, there may be gastrointestinal disturbances and ulceration. Horses may also become unthrift and anemic as a result.

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### Question

You observe the lesions seen in the photograph while examining an equine patient. Which of the following is a risk factor for this disease?



- Quarter Horse breed
- Previous administration of corticosteroids
- Male gender
- Extended exposure to ultraviolet light
- Gray coat color

**Explanation** - The correct answer is **gray coat color**. This is a melanoma, which is one the most common tumors in horses (about 10% of all neoplasms), and gray horses are predisposed with a high risk of around 80%. They can occur anywhere but appear most frequently in the **perineal region and ventral tail**, as is evident in this horse. In horses, they are **usually darkly pigmented**, as opposed to **dogs where amelanotic melanomas occur somewhat commonly**. UV light is not thought to play a significant role in development of these tumors as they tend to occur in the area where the sun does not shine. Quarter Horses are not predisposed; some have speculated that Arabians and Percherons may be at increased risk, but this is thought to be primarily due to the many gray horses within those breeds. Quarter Horses are at the highest risk of developing another common tumor in horses called a sarcoid.

### Question

You are asked to recommend treatment for a 12-year old Thoroughbred mare that has seasonal insect hypersensitivity affecting a large percentage of the body (see image). Which of the following treatment is NOT likely to help with this problem?



- Oral administration of prednisolone
- Liberal and frequent application of fly repellent
- Parenteral administration of dexamethasone
- Hyposensitization injections
- Weekly application of topical (anti-pruritic) shampoo

**Explanation** - Multiple therapies are commonly needed to control this problem. Certainly steroids (oral or parenteral) will alleviate the hives and decrease the pruritus, and fly spray will help cut down the

frequency that the horse is exposed to fly bites. Hyposensitization injections may help for long-term control but are not always efficacious. However, topical shampoos are not likely to do anything.

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### Question

A 2-year old Arabian gelding presents for acute cutaneous lesions and restlessness after coming in from the pasture. The cutaneous lesions are elevated, flat-topped, and range in size from 2cm to 8cm in diameter. The lesions are scattered multifocally all over the horse. What is the most appropriate treatment at this time?

- Intravenous diphenhydramine
- Parenteral dexamethasone
- Procaine penicillin
- Cephalexin

**Explanation** - The correct answer is parenteral dexamethasone. The horse is suffering from urticaria or hives. Urticaria in horses is commonly caused by an allergic reaction. Toxins, plants, insect bites, medications, chemicals, heat, sunlight, stress, and genetic abnormalities are just a few of the factors that can cause an outbreak of urticaria. The lesions are caused by localized edema in the dermis. Treatment for an allergic reaction with urticaria includes parenteral fast-acting steroids such as **dexamethasone**. Diphenhydramine can be given as well, but not intravenously. IV administration of diphenhydramine can itself cause urticaria and hypotension. There is no indication for antibiotics.

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### Question

Several weeks after sustaining a wound to one of the distal limbs of a horse, the owner brings the animal in for exuberant tissue formation at the site. What is your diagnosis?

- Proud flesh
- Sarcoïd
- Squamous cell carcinoma
- Phycomycosis

**Explanation** - The correct answer is proud flesh. **Proud flesh** is a benign formation of exuberant granulation tissue. Diagnosis of proud flesh is based on history and clinical signs. The key to answering this question is the **history of a previous wound** at the distal limb. The cause of proud flesh is unknown, but it results in inhibition of epithelialization. Treatment includes **excision, skin grafts, irradiation**, etc, but all are of questionable efficacy.

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### Question

An adult horse presents to you for crusting lesions along the ventral midline. The lesions are relatively not pruritic and are very round and focal. What is the most likely cause of these lesions?

- Haematobia
- Habronema
- Hypoderma
- Onchocerca
- Culicoides

**Explanation** - The correct answer is Haematobia. Haematobia irritans is a bigger problem in cattle than horses (they reproduce in cow feces) but **can affect horses, especially ones that are near cattle**. It typically causes **ventral midline dermatitis with wheals with a central crust that progress to alopecia** and ulceration with **fairly focal lesions, rather than more diffuse lesions caused by culicoides**.

**Onchocerca** can cause dermatitis in the horse due to hypersensitivity to dying microfilariae. Lesions include alopecia and scaling of the ventral midline, face, and pectoral region. Often lesions are diamond shaped, and there may be a ""bull's eye"" lesion on top of the head. Onchocerca is nonseasonal, in contrast to culicoides hypersensitivity, and variably pruritic. Ocular lesions can also occur with Onchocerca including uveitis, conjunctivitis, and keratitis.

**Culicoides hypersensitivity**, also referred to as sweet itch, occurs due to allergy to the saliva of the gnat. It recurs seasonally in the warmer months and tends to worsen with age. Typically, horses are pruritic and develop lesions on the poll, mane, and tail from self trauma, although ventral midline dermatitis can occur as well. More chronically, scarring can occur. Treatment is to decrease exposure to the gnat and to treat with steroids.

**Habronemiasis** is a condition where the larvae of the stomach worm migrate and emerge creating granulomatous lesions, usually around the eye, male genitalia, or lower extremities. Inside the granulomas, you can find dead larvae.

Lastly, **Hypoderma** is a bigger problem in cattle but can occur in horses and typically creates nodules on the back that have a pore on top.

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### Question

A 1-year old Appaloosa gelding presents for generalized crusting lesions around the mucocutaneous junctions of its head and along its ventrum. A biopsy of the lesions shows acantholytic cells and a diagnosis of Pemphigus foliaceus. What is the treatment for this disease?

- Systemic anti-fungals
- Immune suppressive doses of corticosteroids
- Penicillin
- Anti-inflammatory doses of corticosteroids
- Topical anti-fungals

**Explanation** - The correct answer is **immune suppressive doses of corticosteroids**. Pemphigus foliaceus is an autoimmune disease in which antibodies are formed against the intercellular adhesion proteins. In horses, this disease causes crusting lesions of the head, limbs, and ventrum. Definitive diagnosis is found on biopsy of the skin showing acantholysis. There are two forms of the disease in horses. The juvenile form may result in spontaneous remission and carries a good prognosis. The adult form of the disease carries a worse prognosis.

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### Question

An adult horse presents to you for multiple skin lesions. There are patchy areas of erythema, scaling, and alopecia along the ventral midline. There is a diamond-shaped lesion of erythema and scaling along the forehead. According to the owner, the lesions are not pruritic. What is the most likely cause of these lesions?

- Habronema
- Culicoides
- Onchocerca
- Haematobia
- Hypoderma

**Explanation** - The correct answer is Onchocerca. Onchocerca can cause dermatitis in the horse due to hypersensitivity to dying microfilariae. Lesions include alopecia and scaling of the ventral midline, face, and pectoral region. Often lesions are diamond shaped and there may be a "bull's eye" lesion on top of the head. Onchocerca is nonseasonal, in contrast to culicoides hypersensitivity and variably pruritic. Ocular lesions can also occur with onchocerca including uveitis, conjunctivitis, and keratitis.

Culicoides hypersensitivity, also referred to as sweet itch, occurs due to allergy to the saliva of the gnat. It recurs seasonally in the warmer months and tends to worsen with age. Typically, horses are pruritic and develop lesions on the poll, mane, and tail from self trauma, although ventral midline dermatitis can occur as well. More chronically, scarring can occur. Treatment is to decrease exposure to the gnat and to treat with steroids.

Habronemiasis is a condition where the larvae of the stomach worm migrate and emerge creating granulomatous lesions, usually around the eye, male genitalia, or lower extremities. Inside the granulomas, you can find dead larvae.

Haematobia irritans is a bigger problem in cattle than horses (they reproduce in cow feces) but can affect horses, especially ones that are near cattle. It typically causes ventral midline dermatitis with wheals with a central crust that progress to alopecia and ulceration with fairly focal lesions, rather than more diffuse lesions caused by culicoides.

Lastly, Hypoderma is a bigger problem in cattle but can occur in horses and typically creates nodules on the back that have a pore on top.

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### Question

You are examining a 13-year old Paint mare for a 2-week history of inappetence and mild weight loss. On closer examination, you observe the following lesions on the white areas of the horse (see image). What condition should you consider?



- Primary insect hypersensitivity
- Dermatitis secondary to renal failure
- Dermal necrosis secondary to NSAID administration
- Photosensitization secondary to hepatic disease

**Explanation** - Horses may demonstrate **photosensitization from liver disease** because the chlorophyll in the diet is usually converted to phylloerythrin and excreted by the liver. With hepatic disease, the phylloerythrin is deposited in the skin; UV light reacts with it and results in dermal damage. Skin lesions are not seen with NSAIDs and renal disease, whereas insect hypersensitivity is usually associated with urticaria.

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### Question

An adult horse presents to you for recurrent seasonal pruritus during the summer months that seems to be worsening. On physical examination, you find multiple excoriations along the poll, mane, and tail. What is the most likely cause of this horse's pruritus?

- Habronema
- Culicoides
- Hypoderma
- Onchocerca
- Haematobia

**Explanation** - The correct answer is Culicoides. Culicoides hypersensitivity, also referred to as sweet itch, occurs due to allergy to the saliva of the gnat. It recurs seasonally in the warmer months and tends to

worsen with age. Typically, horses are pruritic and develop lesions on the poll, mane, and tail from self trauma, although ventral midline dermatitis can occur as well. More chronically, scarring can occur. Treatment is to decrease exposure to the gnat and to treat with steroids.

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### Question

An 8-year old horse presents for evaluation of ear lesions. On examination, you note coalescing depigmented and hyperkeratotic plaques on the inner (concave) surface of the pinna bilaterally. Which of the following treatments is most likely to result in regression of the lesions?

- Systemic antibiotics
- Systemic glucocorticoids
- Topical imiquimod (Aldara)
- Environmental insect control

**Explanation** - **Aural plaques** in horses are caused by **papillomavirus** and are **mechanically spread by insects** such as black flies. Lesions do not typically regress but a 2010 study (Veterinary Dermatology; 21(5) 503-509) showed that topical application of **imiquimod cream** was efficacious in causing resolution of the lesions. Environmental insect control is also a wise recommendation in this case but would not lead to regression of the lesions. Systemic antibiotics or glucocorticoids would not be effective against this viral lesion but glucocorticoids are sometimes used to control clinical signs (pruritus) seen concurrently with these lesions.

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### Question

You are examining an 8-year old Quarter Horse gelding for a 2-week history of diffuse raised skin lesions (hives) and pruritus (see image). The owner states that a similar episode occurred last year in which the hives started in May and resolved in November. The lesions primarily involve the ventral aspect of the horse. What is the most likely diagnosis?



- Contact hypersensitivity
- Dermatophilus congolensis (Rain Rot)

- Bacterial dermatitis
- Insect hypersensitivity

**Explanation** - Insect hypersensitivity is the most common pruritic skin disorder in the horse. Clinical signs are seasonal in temperate climates (spring through fall) and lesions may be distributed over the dorsum, the ventrum, or both. Treatment involves **insect control** and **anti-pruritic medications** (i.e. steroids).

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### Question

An 8-year old Thoroughbred horse presents to you for evaluation of skin lesions. On exam, you see the lesions shown in the photo. Which of the following toxins is most likely responsible for these lesions?



- Blue-green alga
- Cantharidin
- Slaframine
- St. John's wort

**Explanation** - This image shows a horse with skin sloughing due to cutaneous photosensitization. **St. John's wort** acts as a **primary photosensitizer** and **can lead to photophobia, conjunctivitis, sloughed skin, and icterus**. Blue-green algae cause sudden death. Slaframine causes hypersalivation and cantharidin causes colic.

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### Question

During your examination of an 18-year old horse, you observe what is shown in the photograph. Based on the location and appearance of this lesion, what is the most likely diagnosis?



- Squamous cell carcinoma
- Melanoma
- Cuterebra
- Habronema
- Sarcoid

**Explanation** - The correct answer is melanoma. **Melanoma** is one of the most common tumors in horses (about 10% of all neoplasms) and gray horses are at high risk of around 80%. They can occur anywhere but appear most frequently in the perineal region or ventral tail as is evident in this horse.

In horses, they are usually darkly pigmented (as opposed to dogs where amelanotic melanomas occur somewhat commonly). In horses, most are slowly growing but can be locally invasive. Many treatments are out there, but there is no standard of care treatment. Depending on location and extent, consider surgical removal, benign neglect, chemotherapy (systemic or intralesional) and immunotherapy.

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### Question

A 3-year old mare is presented for multifocal, round, crusty lesions on her ventral abdomen, which are not particularly pruritic. The owner complains of an increased number of flies around the mare as well as the nearby cattle. What is the most likely diagnosis?

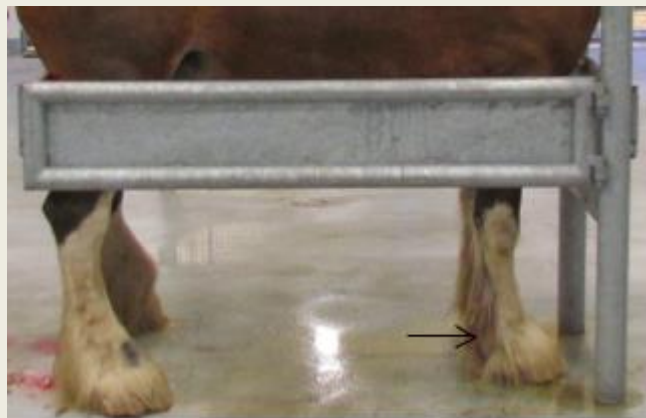
- Culicoides hypersensitivity
- Haematobia irritans

- Dermatophytosis
- *Sarcoptes scabiei equi*

**Explanation** - The correct answer is *Haematobia irritans*. This fly is commonly known as the horn fly. It causes ventral midline dermatitis, as described in the question, on horses housed near cattle. They are often found around the horns, back, and sides of cattle on cooler days, and will affect the ventral abdomen on hot sunny days. Horn flies feed on blood and cause great economic losses in cattle. It can also serve as an intermediate host to *Stephanofilaria stilesi*, a filarial parasite that causes plaque lesions on the ventrum of cattle. Treatment and control of the flies is relatively easy with insecticide sprays, dust bags, or insecticide feed additives. *Sarcoptes scabiei* infections and *Culicoides* hypersensitivity are extremely pruritic. Dermatophytosis is a good differential also, but *Haematobia* is a better choice, since the horses are affected by flies and are housed near cattle.

### Question

An 8-year old Clydesdale gelding presented to you for a 7 day history of pruritus of the distal limbs, particularly the feathered areas of the leg (see image). Upon further examination, you observe irritation, scabbing, and alopecia of the fetlock region likely due to self-induced trauma secondary to pruritus. The horse is restless and bites at the distal limbs frequently. What is the most likely diagnostic test to lend a diagnosis in this case?



- Intradermal skin testing to detect *Onchocerca* hypersensitivity
- Skin scraping and microscopic examination of affected areas to detect *Chorioptes*
- Elimination diet to detect food allergy
- Skin punch biopsy to detect pemphigus foliaceus
- Intradermal skin testing to detect insect hypersensitivity

**Explanation** - The correct answer is skin scraping to identify the *Chorioptes* mite on microscopic examination. Chorioptic mange is caused by infestation with *Chorioptes equi*; this mite typically affects the distal limb region but can also extend to the ventral abdomen. Draft horses are particularly susceptible because of their long feathered hair coat of the distal limbs. *Chorioptes* is more common in the winter months and causes intense pruritus.

In regard to the other answers, intradermal skin testing is sometimes used to detect insect hypersensitivity, but insect hypersensitivity typically affects the trunk or ventral abdomen. Food allergies are not a major cause of dermatologic diseases in the horse and pemphigus is a generalized disease. Onchocerca can cause pruritus, but is diagnosed via skin biopsy or response to ivermectin therapy.

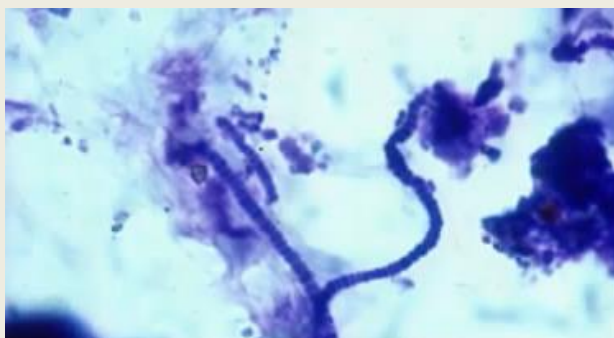
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### Question

What would you expect to see cytologically on a direct smear of exudate from a skin lesion caused by *Dermatophilus congolensis*?

- Single scattered rods
- Bipolar yeast
- Pairs of linked coccobacilli
- Long chains of branching cocci
- Branching fungal mycelia

**Explanation** - The correct answer is **long chains of branching cocci**. *Dermatophilus* has a classic "railroad track" appearance on cytology due to the long branching chains of gram positive cocci.



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### Question

A distressed owner presents to you because she notices numerous annular lesions of alopecia and scaling on the face and neck of her horse. You treated the horse with ivermectin and the lesion resolved. What was the most likely diagnosis?

- *Onchocerca cervicalis*
- *Culicoides* spp.
- *Borrelia burgdorferi*
- *Habronema muscae*

**Explanation** - The correct answer is *Onchocerca cervicalis*. Clinical signs result from hypersensitivity to dying microfilariae. However, most infected horses will remain asymptomatic. Lesions include patchy to diffuse alopecia, erythema, and scaling. The lesions are **usually not pruritic**. A "bull's eye" or circular

lesion in the center of the forehead is highly suggestive of onchocerciasis. Ventral midline dermatitis is also commonly associated with the disease.

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### Question

Anal pruritus in the horse can be associated with an infestation of this parasite.

- Anoplocephala
- Habronema muscae
- Oxyuris equi
- Strongylus analis
- Parascaris equorum

**Explanation** - The correct answer is *Oxyuris equi*. This is the equine pin worm, which will infest the perineal region and result in perineal irritation after eggs are laid. A frequent diagnostic test performed when visualizing damaged perineal regions is a scotch tape preparation. *Strongylus analis* is meant to be a distracter and is a fictional parasite.

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### Question

An adult horse presents to you for skin lesions on the dorsum. You find that he has sticky matted hair on the dorsum with multiple crusts that have purulent exudate under them. What is the most likely diagnosis?

- Staphylococcal cellulitis
- *Dermatophilus congolensis*
- *Pemphigus foliaceus*
- *Trichophyton equinum*

**Explanation** - The correct answer is *Dermatophilus congolensis* infection. The description and distribution of these lesions makes *Dermatophilus* most likely. *Dermatophilus congolensis* is a gram positive branching bacteria. It typically enters skin that is damaged by wetness during rainy seasons and causes suppurative crusts, usually along the dorsum of horses.

Staphylococcal cellulitis is uncommon and usually causes severe acute swelling dissecting along fascial planes and devitalizing the overlying skin.

*Trichophyton equinum*, or ringworm infection, usually causes multifocal lesions with alopecia and some crusting, usually around the head, neck, and shoulders.

*Pemphigus foliaceus* is an autoimmune skin disease and results in vesicles, erosions and ulcerations, especially around mucocutaneous junctions.

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### Question

A 6-year old Quarter Horse presents with the lesion seen in the photograph. Which of the following is true regarding equine sarcoids?



- Papillomavirus is believed to play a role in the pathogenesis.
- Metastasis is common with advanced lesions
- Surgical excision is nearly always curative
- They usually regress spontaneously without treatment

**Explanation** - Papillomavirus is believed to play a role in the pathogenesis. Sarcoids are one of the most common tumors in horses. They are considered non-metastatic tumors in virtually all cases. For this reason, small lesions are sometimes treated with benign neglect, but they are not expected to regress. More advanced lesions or tumors in certain sites do need to be treated more aggressively. Unfortunately, no single treatment is universally effective. Recurrence rates after surgical excision are approximately 50%. Although there is still controversy surrounding this issue, either bovine papillomavirus or an equine variant is thought by many to play a role in development of these tumors.

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### Question

A horse presents with a large abscess in the pectoral region approximately 10 cm in size. The abscess appears mature in nature. There are no other significant findings on physical exam. What is the most logical treatment?

- Systemic antibiotics
- Establish drainage and flush the wound daily
- Systemic corticosteroids
- Surgical excision

**Explanation** - The correct answer is establish drainage and flush the wound daily. The clinical signs described are most consistent with a *Corynebacterium pseudotuberculosis* infection. For abscesses associated with this agent, wound drainage is the most critical aspect of management. Systemic antibiotics would only be useful in horses showing systemic signs of illness which is uncommon with this condition. Corticosteroids would be contraindicated and would likely exacerbate clinical signs. Surgical excision is not necessary and would cause unnecessary expense and morbidity.

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### Question

Two mares are presented for crusting dermal lesions on their dorsum and pasterns. The lesions are "paintbrush" like lesions and have purulent material exuding from them. A direct smear of the lesion shows branching, filamentous, gram positive bacteria. What is your most likely diagnosis?

- Dermatophilosis
- Sarcoid
- *Corynebacterium pseudotuberculosis*
- Onchocerciasis
- Dermatophytosis

**Explanation** - The answer is dermatophilosis. *Dermatophilus congolensis* is a gram positive, non-acid fast, facultative anaerobic actinomycete. It causes a *crusting dermatitis* in large animals when there is high moisture on the skin as well as mechanical irritation. Horses with long, *wet haircoats* are often affected. Lesions are commonly on the *dorsum and pasterns* of horses and are classically described as *paintbrush lesions*. It can be diagnosed with a *direct smear preparation*. Treatment includes keeping the haircoat clean and dry and penicillins if the lesions are severe. Lesions typically heal rapidly.

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### Question

The gray horse in the picture is predisposed to developing melanomas. Which region of the body is the most common site of melanoma formation on gray horses?



- Prepuce
- Dorsal trunk
- Ear tips
- Perineum and tail base
- Periocular and face

**Explanation** - The correct answer is **perineum and tail base**. Melanomas occur in up to 80% of gray horses. They occur most commonly on the perineum and tail base but can arise anywhere on the body. Most melanomas of gray horses are **benign** with varying degrees of invasiveness. They have the potential to develop into malignant tumors. **Treatment includes surgery or cryosurgery**. Horses that develop one melanoma are predisposed to developing others in the future.

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### Question

A 2-year-old Quarter horse filly presents with a history of intense pruritis and alopecia in the perineal area (see image). The owners indicated that they noticed the filly rubbing her tail head and perineal area along fences for a period of one week. What diagnostic test will you use to confirm your top differential?



- A scotch tape test to confirm *Oxyuris equi*
- A fecal flotation to confirm Cyathostomiasis
- A superficial skin scrape to confirm *Chorioptes* spp.
- A fecal flotation to confirm *Oxyruis equi*
- A scotch tape test to confirm *Strongyloides vulgaris*

**Explanation** - The correct answer is a **scotch tape test** to confirm ***Oxyuris equi***, the equine pinworm. While all of these diagnostic tests are important when you suspect parasitism, the scotch tape test will enable you to observe the eggs stuck to the hair. The egg laying activity by the female worm is what causes the intense pruritis. Occasionally, eggs can be found in a flotation, which may give you a false negative interpretation if not found. A superficial skin scrape is a great alternative for this case; however, *Chorioptes* spp. tend to infest breeds with feathered legs. An infestation of *Strongyloides vulgaris* or Cyathostomes will likely cause colic, diarrhea, and lethargy.

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### Question

Which of the following is not known to classically cause crusting dermal lesions on horses?

- *Pemphigus foliaceus*
- Dermatophytosis
- Dermatophilosis
- Generalized granulomatous disease
- *Corynebacterium pseudotuberculosis*

**Explanation** - The correct answer is *Corynebacterium pseudotuberculosis*. *Corynebacterium pseudotuberculosis* is also known as **pigeon fever**. It causes an **ulcerative lymphangitis and abscesses in the pectoral region of horses**. Treatment is aimed at hot packing the swellings and draining the abscesses. Antibiotics can be administered but have been known to prolong the disease by delaying abscess formation. The other four answer choices classically present as crusting dermal lesions on horses.

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### Question

A 20-year old mare is presented for a dermal nodule on her head. An aspirate of the mass reveals that it is a mast cell tumor. What is the prognosis for this horse?

- Poor, the tumors have often metastasized by the time they are diagnosed.
- Good; the tumors are benign and excision is usually curative
- Guarded, the tumors do not metastasize, but they are locally aggressive and are difficult to excise completely.
- Grave, the tumor has already metastasized and the life expectancy of the horse is no longer than 1 month.

**Explanation** - The correct answer is good; the tumors are benign and excision is usually curative. Mast cell tumors in horses are benign. They can occur anywhere on the horse, but are often found in the dermis or subcutis of the head or legs. The tumors may also invade underlying musculature, but are often walled off by aggregates of fibrous stroma.

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### Question

Which of the following is true about onchocerciasis in horses?

- Stomoxys calcitrans is the intermediate host of Onchocerca
- The dermatitis associated with onchocerciasis is non-seasonal
- Diagnosis is based on a superficial skin scraping
- Onchocerca dermatitis is extremely pruritic
- Ivermectin is the treatment for killing the adults

**Explanation** - The correct answer is the dermatitis associated with onchocerciasis is non-seasonal. Onchocerciasis in horses causes a ventral midline dermatitis that is non-seasonal and mildly pruritic or not pruritic at all. The helminth is vectored by Culicoides. The adult lives in the ligamentum nuchae, and the microfilariae migrate to the ventral midline where they cause dermatitis from a hypersensitivity reaction to the microfilarial antigens. Ivermectin can be used to kill the microfilariae, but no treatment is effective for the adults.

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### Question

Which of these parasites causes granulomatous skin lesions that often contain small calcified dead larvae inside?

- Culicoides
- Onchocerca
- Haematobia
- Habronema

**Explanation** - The correct answer is Habronema. Habronemiasis is a condition where the larvae of the stomach worm migrate and emerge, creating granulomatous lesions, usually around the eye, male genitalia, or lower extremities. Inside the granulomas, you can find dead larvae.

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### Question

Which of these control measures would be least effective for reducing Culicoides hypersensitivity in horses?

- Insect repellents
- Corticosteroid therapy
- Placement of ceiling fans

- Antihistamines
- Pyrethrins

**Explanation** - The correct answer is antihistamines. In general, antihistamines are ineffective at reducing clinical signs associated with cutaneous hypersensitivity diseases in horses. The most important aspect of therapy is reduction of insect exposure. This can be achieved by moving horses away from breeding habitats, frequent bathing, and application of insect repellents. Corticosteroid therapy is required for management of many horses. Short acting corticosteroids should be used first.

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### Question

A 2-year old Standardbred mare presents for alopecia, erythema, and crusting of the skin around the saddle region. A KOH (potassium hydroxide) preparation shows hyphae and arthroconidia. What is the best treatment option for this horse?

- Penicillin
- Oral ketoconazole
- Cephalexin
- Topical anti-fungals
- Excision with wide margins

**Explanation** - The correct answer is topical anti fungals. The horse in the question has dermatophytosis, or ringworm. Horses are most commonly affected with *Trichophyton equinum*, *T mentagrophytes*, and *Microsporum gypseum*. *M canis*, *M equinum*, and *T verrucosum* are also sometimes the causative agents. The disease typically causes alopecia and crusting around the saddle and girth regions. Diagnosis is made by **dermatophyte test media** (DTM) or **visualization of the fungal elements on KOH preps**. Topical azole antifungals are most useful in treating the disease. Systemic antifungals are expensive and have unproven efficacy. Antibiotics such as penicillin and cephalexin are not effective against fungus. Excision of the lesions is not necessary.

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### Question

You have diagnosed onchocerciasis in a 12-year old horse that has an inflamed and alopecic area on the skin of the forehead.

What is the most effective single treatment?

- Topical corticosteroids
- Tetracycline IV
- Increasing essential fatty acids in the diet
- Ivermectin
- Antihistamines

**Explanation** - The skin lesions are caused by reaction to the migrating microfilaria of *Onchocerca cervicalis*. The adult worms live in the ligamentum nuchae. *Culicoides* midges act as intermediate hosts

and transmit the microfilaria to sites such as eyes, eyelids, forehead and ventral midline. **Ivermectin** or moxidectin generally bring about **marked improvement within 2 to 3 weeks**. Microfilaria are not killed by the other answer choices provided.

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