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## SWEET ITCH- AN ITCH THAT NEEDS SCRATCHING.....OR NOT!!

Sweet itch is by far the most common cause of itchiness in horses, leading to hair loss and chronic skin damage. It can be a very frustrating disease to control, but it is manageable. Prevention is also better than cure! Preventing sweet itch can be a challenge, but certain management protocols and veterinary input can keep you one step ahead of the game.

### What causes Sweet Itch?

Sweet itch is caused by a hypersensitivity reaction to bits from **Culicoides** flies. Other flies have been documented to also cause reactions (black, horn and stable flies) but by far the most common culprit is **Culicoides**. There are over 1000 different species of **Culicoides** with many different nick names including **midges** and **punkies** (!). There is a growing body of evidence that suggests that there is a hereditary factor involved in sweet itch, therefore breeding from horses and ponies with sweet itch needs to be considered carefully.



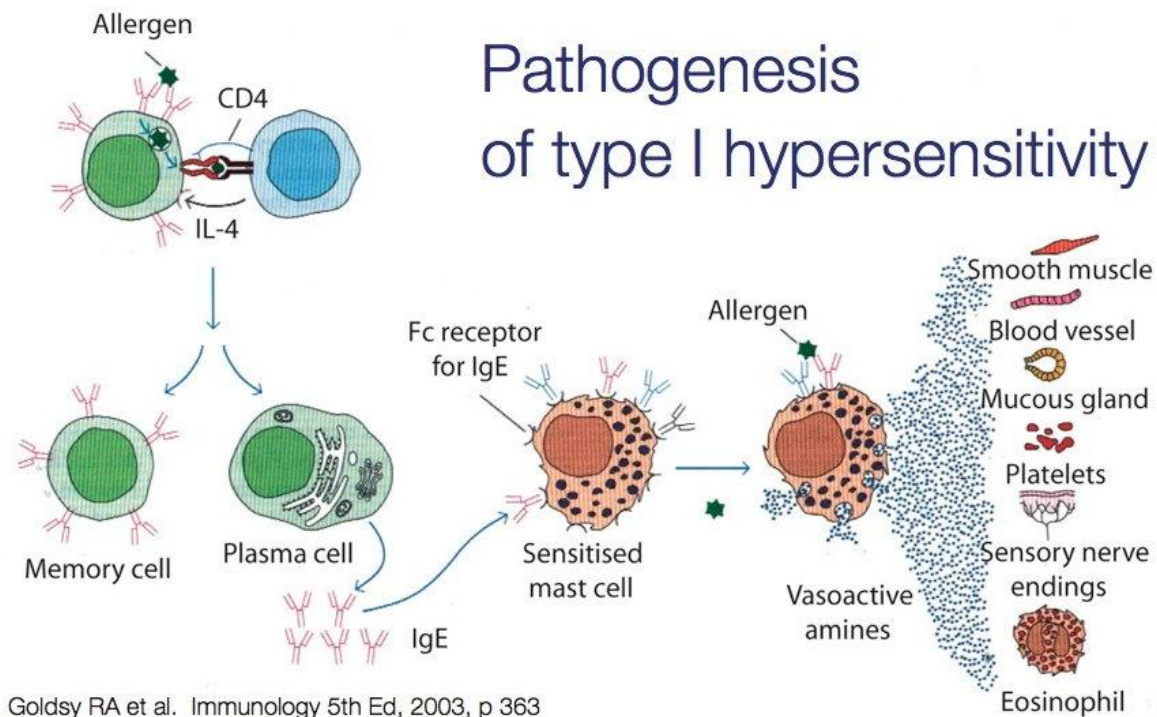
The allergic reaction is thought to be a combination of type 1 hypersensitivity (immediate) and type 4 (delayed) to the saliva of the midges.

### What is an allergic reaction?

Hypersensitivity refers to excessive, undesirable (damaging, discomfort-producing and sometimes fatal) reactions produced by the normal immune system. Hypersensitivity reactions require a pre-sensitized (immune) state of the host. This explains why Sweet Itch gets worse with age. Hypersensitivity reactions can be divided into four types: type I, type II, type III and type IV, based on the mechanisms involved and time taken for the reaction. Frequently, a particular clinical condition (disease) may involve more than one type of reaction.

## TYPE I HYPERSENSITIVITY

Type I hypersensitivity is also known as immediate or anaphylactic hypersensitivity. The reaction may involve skin (urticaria and eczema), eyes (conjunctivitis), nasopharynx (rhinorrhea, rhinitis), lung tissues (asthma) and gastrointestinal tract (gastroenteritis). The reaction may cause a range of symptoms from minor inconvenience to death. The reaction usually takes 15 - 30 minutes from the time of exposure to the antigen, although sometimes it may have a delayed onset (10 - 12 hours).

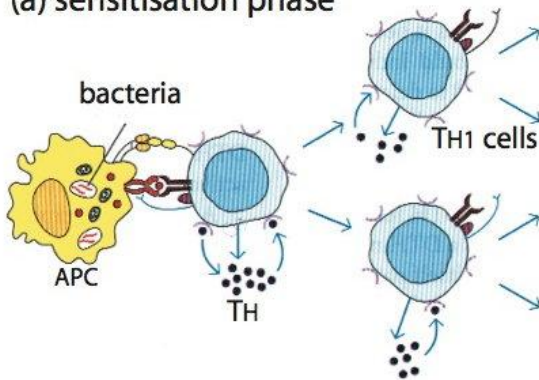


## TYPE IV HYPERSENSITIVITY

Type IV hypersensitivity is also known as cell mediated or delayed type hypersensitivity. The classical example of this hypersensitivity is the tuberculin test. Type IV hypersensitivity is involved in the pathogenesis of many autoimmune and infectious diseases (tuberculosis, leprosy, toxoplasmosis, leishmaniasis, etc.) and granulomas due to infections and foreign antigens. Another form of delayed hypersensitivity is contact dermatitis (poison ivy (figure 6), chemicals, heavy metals, etc.).

# Pathogenesis of type IV hypersensitivity

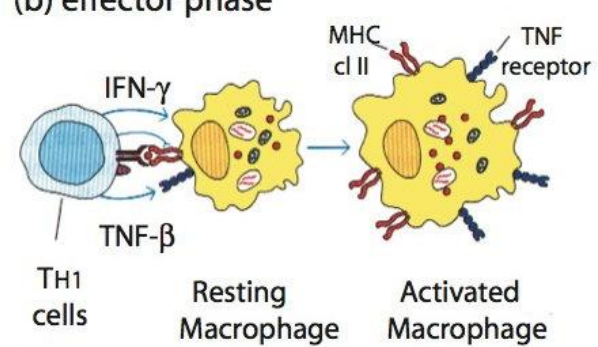
(a) sensitisation phase



APCs:  
Macrophages

DTH Cells:  
TH1

(b) effector phase



TH1 products:  
IFN- $\gamma$ , TNF- $\beta$ , IL-2, IL-3,  
IL-8, MCAF, MIF

Macrophage activation:  
MHC class II, TNF receptor,  
oxygen radicals, nitric oxide

Goldsy RA et al. Immunology 5th Ed, 2003, p 384

## Signs of Sweet Itch

Sweet itch can occur in any age or breed of horse or pony, but certain breeds seem to be over represented and it seems to get worse with age. Typically your horse or pony will become itchy in the spring time as the midges appear and start biting. Through autumn and winter as the midges regress, the condition often improves. The most common sites for itchiness/pruritis are along the back, mane, rump and tail base. The itching leads to skin damage, hair loss and the formation of crusts and scabs. Your horse may start to self mutilate. In some cases the temperament can change with the horse becoming very nervous and erratic. Secondary bacterial infection worsens the situation with further itchiness, redness, soreness and discharge with crusting and scabs. As the damage continues and the condition becomes chronic, the skin will thicken and form 'ridges'.

Urticaria or 'Hives' is an uncommon manifestation of sweet itch.







### **How will the vet diagnose Sweet Itch?**

Sweet itch is fairly easy to recognize from its signs and seasonal occurrence. Ticks, mites and other causes of dermatitis will need to be ruled out.

Intradermal skin testing can be done which involves the injection of certain allergens to determine what exactly is annoying the horse's skin. These results can sometimes be difficult to interpret as normal horses will often have positive reactions. Occasionally a skin biopsy may need to be taken and cultures performed if there is severe secondary bacterial infection.

### **How can Sweet Itch be treated?**

#### **1. PREVENTION IS BETTER THAN CURE!!!**

Decreasing exposure to the midges is the main stay of management.

If possible stable your horse at dawn and dusk.

Avoid stagnant water.

Clean water troughs regularly.

Mosquito 'Dunks' can be added to water troughs. These contain a bacterium called *Bacillus*. This bacterium releases a protein which when ingested by the midge, becomes larvicidal therefore killing the midge larvae.

These Dunks can be purchased on Ebay and Amazon.



Mosquito Dunk

Place fans in stables. Use fly screens over stable doors. Use fly sheets/ rugs.



Daily application of fly repellent (2% permethrin) should be performed. Sunscreen should be firstly applied to areas of white skin as the exposure to sunlight will break down the fly repellent and stop it working. When using a new product on your horse always test a small area first to avoid large adverse reactions.

## 2. VETERINARY HELP

In some cases, the horse's immune system, which is causing the hypersensitivity reactions, needs dampening down. This is done with the use of **corticosteroids**. Your vet will prescribe the most appropriate steroids. Choices include tablets (prednisolone) and injectable preparations (dexamethasone, flumethazone). The injectable preparation of dexamethasone does also work when given orally, if given at a higher dose rate. In repeat cases where the problem flares up each season, the injection of a long acting steroid **BEFORE** the itching starts can be very beneficial and prevent the onset of the sweet itch. In these cases your vet will ask for a full history of your horse regarding the possibility of previous laminitis, Cushings syndrome and/or metabolic syndrome as these ailments affect the use of corticosteroids. Further blood tests may need to be run to rule out metabolic syndrome/insulin resistance and Cushings prior to starting steroid therapy.

The application of **benzyl benzoate** lotion seems to help in some cases. **Omega 3 and omega 6 oils** have also been proven to be beneficial to healthy skin. **Cod liver oil** is an easy way to supply high amounts of these substances.

It has been shown that **MSM (Methylsulfonylmethane)** can also help with skin problems. This is a naturally occurring sulphur compound and has many health benefits.

Antihistamines do not seem to work well in sweet itch cases.

If **secondary bacterial skin infection** develops then your vet will need to prescribe a suitable course of **antibiotics**.

## 3. VACCINATION

The use of allergen specific immunotherapy can also be considered. This involves your vet taking a blood sample from your horse which is sent to a special laboratory where the 'vaccine' is produced. Best results are obtained if the horse is off all corticosteroid treatments and the horse is at its 'worst' when the bloods are taken. This ensures the highest chance of finding the allergen and the blood containing the most antibodies against the midge saliva.

**Should you would like more info/advice on immunotherapy the please call the practice on 0215523450 and ask to speak to Dr. Emma Alsop.**