Correspondence

Dermatitis & conjunctivitis in workers on an ostrich farm following thrips infestation

Sir,

Thrips (Order: Thysanoptera; Family: Thripidae) are insects that suck epidermal lymph after biting and are endowed with rasping-sucking mouthparts. They live in huge niches and include phytophagous, fungivorous and predacious species. Thrips are often overlooked as they are small in size, move rapidly and are light in colour. However, thrips may become a nuisance when they swarm and land on exposed areas of skin. Attacks on people usually occur in hot, sultry weather when large numbers of migratory thrips alight on bare skin. Itching and pricking sensations result from thrips activity in seeking moisture from the skin or they may be attracted to volatile compounds in perspiration. If they land on bare skin they “rasp” the skin, causing a sudden burning sensation at the bite site. Rashes and dermatitis have been reported following thrips bites. In some people, a red wheal may develop with an itching sensation persisting for several days. I report the density of flies alighting on exposed areas of skin and describe subsequent allergic reactions in workers of an ostrich farm in Eastern Europe.

A report was received by the Physiology department at the University of Central England (UCE), Birmingham, UK, of swarms of biting insects on an ostrich farm and resulting skin and eye discomfort to workers. Specimens thereof were collected in Eppendorf tubes, sealed and air-freight couriered to the UCE Birmingham. Digital photographs were taken under a dissection microscope (Zoom Stereo Microscope ZTXE; JNOEC, Nanjing, China) at 10x magnification in a specialist Entomology laboratory in Egypt. Identification of thrips was concluded as those belonging to the Genus: Limothrips; Species: Limothrips denticornis. Permission was sought from the owner to examine the workers more closely.

The farm, having 125 breeding ostriches, was managed by two persons and tasks thereon were delegated to 25 workers. All workers had been affected by the thrips. The apparent densities of thrips per cm² of skin on the neck, head, chest, arms and legs was determined using photographs of these areas taken at 0600, 1200 and 1800 h over 3 days and counted using stereological point-counting with a transparent sheet 10 cm², adapted from previous studies. Both eyes of workers were examined using a portable Gowllands OP002 Mini Fiston Opthalmoscope (Medscope Quality Diagnostic Medical Equipment, Maidstone, Kent, UK) principally to examine the frontal aspects (cornea, conjunctiva and eyelids) of both eyeballs. The Opthalmoscope was a battery powered maylight type with ten positive degrees (up to 40 x) and nine negative degrees of magnification, respectively. The minimum sample size based on visual sampling (0.20 precision) was 30 thrips per 100cm². Statistical analysis was performed using repeated measures ANOVA (Analyse-It Software, Ltd., Leeds, UK) and results were presented as mean ± standard error (SE) at 95 per cent CI (significant at $P<0.05$). Counts of thrips on the skin and in the eyes of workers at 1200 and 1800 h
were compared statistically with counts at 0600 h, considering multiple pairwise (non-orthogonal) comparisons of means using Tukey’s Studentized Range Test for equal treatment sample sizes (Analyse-It Software, Ltd., Leeds, UK). Counts of thrips on the neck were compared with other areas at 0600, 1200 and 1800 h, respectively. Aggregated mean ± SE were computed for thrips present in the left and right eyes.

Thrips caused irritation to workers’ skin resulting in localized inflammation with the appearance of 1 mm raised small pink, pinpoint-like itchy papules on exposed areas confirming observations in previous reports\(^1\,\!7\). Counts of thrips (mean ± SE) were: head 113.3±1; neck 175.4±1; chest 152.2±0.9; arms 102.1±0.9; and legs 97.5±1/10 m\(^2\), respectively. Thrips on the neck were significantly (\(P<0.05\)) higher. The number of thrips entering the eyes did not differ significantly between right and left eye throughout the experimental period. However, the number of thrips in both eyes was highest at 1200 h (35±1) than at 0600 h (24±1) or 1800 h (20±1), respectively. Watery discharge and periorbital cellulitis were observed in 17 workers. In all cases, both sclerae were variably reddish and many workers were rubbing their eyes. Allergic conjunctivitis was diagnosed as there was pale watery swelling of the conjunctiva and occasionally the entire eyelid, with aropy, non-purulent mucoid discharge. Fortunately there was no evidence of pyogenic bacterial conjunctivitis. Fifteen workers had rhinitis as a consequence of thrips entering nostrils.

The life cycle of thrips is such that it mates in large swarms. It is well-adapted for flight and the claws allow it to grip the skin. Thrips were attracted to the moist exposed skin areas of workers, particularly the neck and chest. Inadvertently they entered the eyes. As the conjunctivitis was severe, non-steroidal anti-inflammatory medication and antihistamine eye drops were applied to both eyes. Applications of steroid creams to affected skin areas were prescribed where appropriate. Further studies of the entomological effects of thrips on ostriches\(^8\) are warranted.

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References