

# What's Eating You? Update on the Sticktight Flea (*Echidnophaga gallinacea*)

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## PRACTICE POINTS

- The sticktight flea (*Echidnophaga gallinacea*) attaches to its host by embedding its head in the skin for days at a time.
- Unlike other fleas that bite and run, the sticktight flea can be identified dermoscopically.
- The sticktight flea serves as a vector for plague as a carrier of *Yersinia pestis*, rickettsial infections, and other diseases.

The sticktight flea (*Echidnophaga gallinacea*), a carrier of plague (*Yersinia pestis*), rickettsial infections, and other diseases, can be found in warm climates. The flea attaches to a host by embedding its head in the skin for days at a time. Most human infestations occur in individuals who handle infested animals. The sticktight flea can cause delayed erythema of the skin surrounding the embedded head. Common treatments include oral or topical antihistamines or a topical corticosteroid applied to the affected area.

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Fleas (order Siphonaptera) are vectors for various diseases, such as plague (as carriers of *Yersinia pestis*) and rickettsial infections.<sup>1-4</sup> The sticktight flea (*Echidnophaga gallinacea*) commonly is seen on birds and mammals, including ground squirrels, dogs, cats, and rodents, and can attach to its host for days at a time by burrowing its head into the skin. Similar to other fleas, the sticktight flea needs a blood supply to reproduce.<sup>5</sup> Therefore, it is important to study the sticktight flea, its

habitat, and infection patterns to improve public health and prevent infestation.

## Identification

*Echidnophaga gallinacea* is named for the female flea's behavior—it "sticks tight" to the surface of the host by embedding its head into the skin for days at a time.<sup>5</sup> The sticktight flea and the rat flea (*Xenopsylla cheopis*) can be differentiated by the sticktight's reduced thorax and lack of a pleural rod (the vertical ridge that divides the mesosternum above the second pair of legs) (Figure, A and B). The sticktight flea can be differentiated from the dog flea (*Ctenocephalides canis*) and the cat flea (*Ctenocephalides felis*) by its lack of genal ctenidia (horizontal combs in the mustache area) and pronotal ctenidia (vertical combs behind the head) (Figure, B and C).<sup>6,7</sup> Other defining features of *E. gallinacea* include 2 pairs of large postantennal setae (hairs) on its anteriorly flattened head; a C-shaped reproductive organ known as the spermatheca; and broad maxillary lacinia (Figure, C).<sup>8</sup>

## Habitat, Seasonality, and Behavior

*Echidnophaga gallinacea* commonly infests the comb, wattles, and surrounding ears of chickens; the flea also has been found on dogs, cats, rodents, and other species of birds.<sup>9</sup> The sticktight flea is more prevalent in summer and autumn, which may explain its predominance in warmer climates, including California, Florida, Mexico, Egypt, Africa, and Iran.<sup>1,9-11</sup>

When a female sticktight flea begins to feed, it stays on the host for days at a time, waiting for a male.<sup>5</sup> The female deposits its fertilized eggs in nests on the host or in lesions caused by infestation. Eventually, eggs

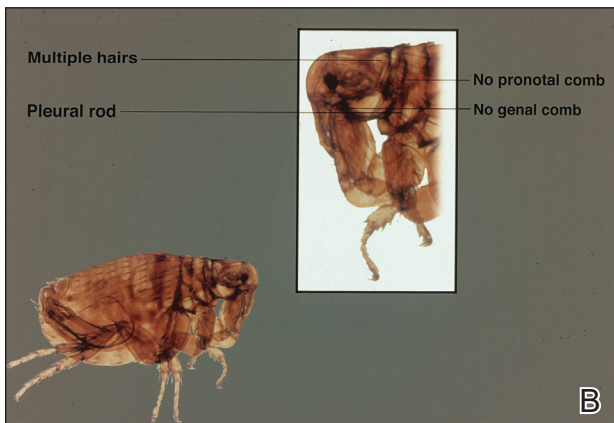
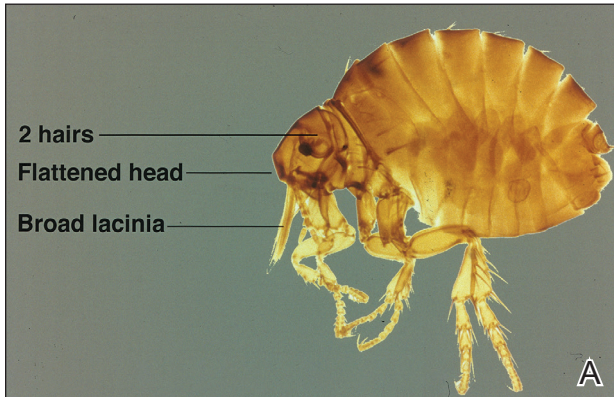
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A–C, Anatomy of the sticktight flea (*Echidnophaga gallinacea*), rat flea (*Xenopsylla cheopis*), and cat flea (*Ctenocephalides felis*), respectively. The rat flea has a pleural rod and the cat flea has genal and pronotal ctenidia (combs), which are absent in *E. gallinacea*.

hatch and fall into soil, where they lay dormant or grow to adulthood.<sup>5</sup>

### Cutaneous Reaction to Infestation

Flea bites cause a hypersensitivity reaction, with pruritic pustules and erythematous papules that have a central punctum.<sup>12</sup> In a reported case in Los Angeles, California, a female sticktight flea buried itself into the cheek of a young boy for more than 12 hours. The lesion was not marked by surrounding erythema, tenderness, pruritus,

or swelling; however, several days after the flea was removed, erythema developed at the site then spontaneously resolved.<sup>7</sup> In a study of dogs that were infested with *E. gallinacea*, the flea never disengaged to attach to a human; when the flea was deliberately placed on a human, it fed and left hastily.<sup>11</sup>

### Management

Because *E. gallinacea* burrows its head into the skin, the best removal method is applying slow gentle traction under sterile conditions to ensure removal of mouthparts.<sup>7</sup> An oral antihistamine can be administered or a topical antihistamine or corticosteroid can be applied to the affected area.<sup>12</sup> Flea infestation should be treated with an insecticide. Affected animals should be treated by a veterinarian using a pesticide, such as fipronil, selamectin, imidacloprid, metaflumizone, nitenpyram, lufenuron, methoprene, or pyriproxyfen.<sup>13</sup>

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