Dermoid sinuses are congenital abnormalities, present from birth, that are located along the dorsal midline. These tubular blind sacs extend from the skin ventrally into the underlying tissues that consist of hollow tubular indentations of the skin that penetrate down into the tissue below. They create problems because they are prone to infections. The depth these penetrate into the tissue below varies between individuals. The type that pose the greatest (life-threatening) risk are those, called category IV sinuses, which connect with the spinal cord and risk infections of this delicate nervous tissue. In some animals, these sinuses penetrate through the vertebral lamina and into the dura mater, predisposing the animal to infection and neurologic abnormalities.
The ridge of Rhodesian Ridgebacks is caused by a mutation resulting in duplication of a length of DNA coding for three growth factor genes. This mutation, which has an autosomal dominant pattern of inheritance also causes Dermoid sinuses.

Approximately 5.9% of all Rhodesian puppies born are diagnosed with Dermoid Sinus. D.S. is the leading cause of death in Ridgebacks. A staggering 3.6% of Ridgeback puppies born are euthanized due to the presence of D.S. All ridged dogs, specifically Rhodesian Ridgebacks with a ridge are predisposed. D.S. has not been found in Ridgeless Ridgebacks. The prevalence of different categories of sinus is unknown.
Unfortunately, because Dermoid Sinus is predominately found in the Rhodesian Ridgeback breed and because the Ridgebacks are relatively uncommon in the United States, it often times can go undiagnosed by the unfamiliar eye of various professionals.

A preliminary diagnosis is made by visual examination and palpation (touch) and the category of sinus is confirmed using contrast radiography (x-rays).

Most educated Ridgeback breeders are familiar with the abnormality and are vigilant in looking for it. Chances are that they, or their trusted veterinarian will have found it and not sell the pup.

Because it is so difficult to diagnose, if your pup does have Dermoid Sinus that appears after you bring it home, check with your breeder. Most breeders have a health guarantee that insures the pup from congenital defects such as Dermoid Sinus
The presence of sinuses is life-long unless they are surgically removed. Surgery can be quite costly, depending on what level of sinus your pup has been diagnosed with. All have potential to become infected. Infections can last for days to weeks. However, if the spinal cord is involved and becomes infected animals may have permanent after effects, die or need to be euthanized.

Check with your breeder prior to performing any surgery. Although they may guarantee the pup, chances are they will not cover the expense of the surgery. Breeders often request euthanasia of affected Ridgeback puppies—whether or not the sinus is actually causing clinical problem—because dermoid sinus is classified as a “serious defect or fault” by the RRCUS Code of Ethics.22

This diagram roughly corresponds to a Type 1 sinus.

Dogs with dermoid sinuses extending to the dura mater may present with ataxia, posterior paresis, and other neurologic abnormalities associated with myelitis or encephalitis.
The worst scenario occurs with a category IV sinus becoming infected, leading to infection of the central nervous system. This can lead to severe illness, paralysis and acute pain, and possibly death.

Other sinus infections lead to mild-moderate discomfort and pain. Currently, it is the policy of some breeders to euthanize affected puppies shortly after birth.

Dermoid sinuses can penetrate the tissues below the skin to a variable extent and are classified according to the depth they penetrate and as to whether they still have an opening with the surface skin. Currently there are five categories in the classification.
Type I extends ventrally as a cylindrical sac attached to the supraspinous ligament.

Type II consists of a sac-like portion that is more superficial than that of type I and is attached to the ligament by a fibrous band.

Type III is made up of a superficial sac with no attachment to the supraspinous ligament.

Type IV extends to the spinal canal and is attached to the dura mater.

Type V no connection to the skin surface. No definite location in a specific tissue.

For types I, II, III and IV there are one or more openings on the skin although they may only be identified by close examination. They often have characteristic tufts of hairs protruding. By scraping the tufts with a fingernail, you may find a dry brown substance. Type V has no opening onto the surface skin.
In short, Dermoid Sinus is a genetic condition found primarily in the Rhodesian Ridgeback. Additionally, it has been discovered in various breeds including the Thai Ridgeback. The Dermoid Sinus is a neural tube defect—it is a hollow tube extending from muscle, the spinal cord or the vertebra up to the surface of the skin. Although the tube is often extremely narrow, it does contain hair, sebaceous glands and other attributes of the outer skin itself. As it is open to the surrounding environment at the surface of the skin, dirt and debris can accumulate inside the tube thus causing infection or an abscess. If the Dermoid Sinus is grounded in the spinal cord, dirt and debris travelling down the tube can enter the spinal fluid thereby causing such conditions as myelitis, encephalitis or meningitis. Some, but not all, Dermoid Sinuses can be surgically removed. Not all veterinarians are adept at this surgery so care should be taken to have the condition accurately diagnosed and treated. Dermoid Sinus are not always easy to find, they are rarely visible to the eye, and are sometimes confused with a vaccine reaction if there is a telltale lump on the dog's neck. Dermoid Sinus are found along the ridge line from head to tail although rarely has it been found in the actual ridge area on a ridged dog. Dermoid Sinus is the primary cause of death in Ridgebacks. 3.6% of all Ridgeback puppies under 6 months are euthanized due to this congenital abnormality. Approximately 5.9% of all Ridgebacks born have Dermoid Sinus.