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Case Study: Management of Abscess in Friesian Holstein Dairy Cattle at the Limpakuwus Farm Balai Besar Pembibitan Ternak Unggul dan Hijauan Pakan Ternak (BBPTU-HPT) Baturraden

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ABSTRACT. An Friesian Holstein cow with an eartag of 5917 at Limpakuwus Farm Balai Besar Pembibitan Ternak Unggul dan Hijauan Pakan Ternak (BBPTU-HPT) Baturraden was found to have swelling in the muscle tissue around the caudal dexter extremity metatarsal. Clinical examination showed that the cow had swelling in the metatarsal caudal dexter extremity which was filled with fluid and the cow showed pain when palpated. Based on the results of the anamnesis and clinical examination, the cow was diagnosed with an abscess. The treatment is to make an incision in the abscess to remove the existing fluid, then clean the inside of the tissue using it before closing the wound again. Administering a combination of neomycin and cloxacillin antibiotics was given to cow abscesses as much as 5 ml by giving in the morning and evening.

A. INTRODUCTION

Dairy cows are specially bred cattle because they have the ability to produce large amounts of milk. The breed of cattle bred in Indonesia is the Friesian Holstein (FH), the FH type of cattle is a dairy cattle breed that is almost spread all over the world, because of its ability to adapt and be able to produce lots of milk (Amri *et al.*, 2020). Based on data from the Central Bureau of Statistics, it is stated that the total population of dairy cattle in Indonesia in 2021 will be 578,579 heads (BPS, 2022). This number has increased compared to the previous year and is expected to increase every year (Zuroida and Azizah, 2018).

One of the threats that often attacks dairy cows is abscess. An abscess is a buildup of pus in a cavity in a part of the body after being infected with bacteria. Abscesses are generally caused by *Staphylococcus aureus*, although they can be caused by other bacteria, parasites or foreign bodies (El Tawab *et al.*, 2019). Other bacteria that can cause abscesses are, *S. epidermidis*, *S. hycus*, *Arcanobacterium pyogenes*, *Klebsiella pneumoniae*, *Vibrio vulnificus*, *Pseudomonas aeruginosa*, *Actinomyces bovis*, *E coli*

and *Salmonella spp* (Al-Tuffly and Shekhan, 2012). The bacteria enter the body through hair follicles or through cuts or wounds that puncture or break the skin. When bacteria enter the body, white blood cells attack the bacteria and some of the nearby tissue dies, creating a hole which then fills with pus to form an abscess. The pus contains a mixture of dead tissue, white blood cells, and bacteria. The abscess can become larger and more painful as the infection progresses and more pus is produced (Fesseha and Yonas, 2020).

Most abscesses are harmless and go away without treatment. The main therapy of the abscess is surgery, drainage and administration of antibiotics. With antibiotics to clear up the infection, and pus may need to be drained through the incision. This is usually done by making drainage holes and rinsing thoroughly with clean water to help the pus slowly drain (Khanday, 2021). Therefore, this final project describes the handling of cases of abscesses on the right hind leg that occur in dairy cows at the Balai Besar Pembibitan Ternak Unggul dan Hijauan Pakan Ternak (BBPTU-HPT) Baturraden.

B. CASE DESCRIPTION

1. Anamnesis

A Friesian Holstein dairy cow with eartag 5917 at Limpakuwus Farm BBPTU-HPT Baturraden, Central Java, experienced swelling of the muscle tissue around the metatarsal of the caudal dexter extremity. Based on the results of anamnesis with officers at BBPTU-HPT Baturraden where the cow was traumatized when moving from the pen, and the condition of the base of the cage where the cow was occupied was uneven and there was a broken iron support which usually caused open wounds on the legs of the existing cows in barn B. This condition causes a large possibility of abscesses or open wounds in cattle



Figure 1. Abscess on the right leg of a cow with eartag 5917

2. Clinical Examination

At the time of inspection it was found that the caudal dexter extremity of the cow was swollen, and when palpated and pressed it was found to have an abscess or accumulation of pus. In some circumstances the cow was found difficult to walk.

3. Diagnosis

Based on physical examination and clinical findings, Friesian Holstein dairy cattle with eartag 5917 at Limpakuwus Farm BBPTU-HPT Baturraden, Central Java, had an abscess on the caudal dexter extremity of the metatarsal area.

4. Handling Procedures

The treatment carried out in this cow is to remove the fluid that is in the swollen tissue. This is done by making an incision in the part of the leg that is experiencing swelling, then removing the fluid in the tissue. After that clean the inside of the tissue using iodine before closing the wound again. After that, 5 ml of a combination of neomycin and cloxacillin antibiotics were given which were bactericidal in the morning and evening. This is the same as the treatment given to cows in the case report journal conducted by Fesseha and Yonas (2020), where they make an incision to remove pus and clean the inside of the tissue using iodine, and give penicillin and

dihydrostreptomycin sulfate. The duration of therapy in cows with abscesses varies quite a lot, depending on the cause of the abscess, the environment and the site of the abscess. According to Basha *et al* (2016), swelling in abscesses will decrease with consecutive therapy for 14 days.



Figure 2. Abscess management in cattle

C. DISCUSSION

Abscess is a problem that often occurs in dairy cows. An abscess is a localized accumulation of purulent exudate originating from degenerative inflammatory cells that are frequently found on the surface of the body (Sogebi *et al.*, 2020). Abscesses can be caused by bacteria (*Staphylococcus aureus*, *Streptococcus pyogenes*, *Klebsiella pneumoniae*, *Vibrio vulnificus*, *Pseudomonas aeruginosa*, *Actinomyces bovis*, *E coli* and *Salmonella spp*), parasites (*Schistosoma mansoni* and *Toxocara canis*) or foreign substances that most often cause bacterial infections (Buba *et al.*, 2019). In the cases obtained, the possible causes of cows having abscesses are cages with uneven bottoms and broken iron supports that can cause wounds, where these wounds can become places of infection.

Symptoms and signs of skin and subcutaneous abscesses are pain, heat, swelling, tenderness, redness and systemic symptoms, especially fever, anorexia and weight loss (Biswas *et al.*, 2020). If it is incised and pressed firmly, pus will come out. This indicates that the wound has been contaminated by microorganisms (Hassan *et al.*, 2019). These clinical signs are the same as those found in cattle 5917 which had an abscess where swelling was found in the metatarsal section of the caudal dexter extremity in cattle where the abscess was red and when pressed the cow showed pain.

Diagnosis of skin and subcutaneous abscesses can be done by carrying out a physical examination, namely inspection and palpation to see swelling and whether the swelling contains pus or not and to make sure it can be done to see the contents of the swelling incision (Khanday, 2021). Meanwhile, for deeper

abscesses such as those in organs, a diagnosis can be made using ultrasound and radiography (Athar *et al.*, 2010). On physical examination of cow 5917, red swelling was found in the metatarsal section of the caudal dexter extremity of the cow, accompanied by pain when palpating the swelling.

Actions that can be taken to treat the condition of the abscess is to perform surgery. Surgery is performed by making a hole or drainage in the abscess area and then cleaning the abscess cavity from dead tissue using iodine (Sahoo and Subha, 2015). Skin abscesses that are classified as mild can heal by themselves, or dry up and disappear without treatment, however, large abscesses often require antibiotic treatment to fight infection (Khanday, 2021). Antibiotics that are often used in the treatment of abscesses are broad-spectrum antibiotics such as those carried out by Hassan *et al* (2019), which use tetracycline antibiotics which are broad-spectrum antibiotics and can also use a combination of antibiotics as used by Fesseha and Yonas (2020),

The treatment is the same as that done on cow 5197, where an incision is made to remove pus in the abscess and then it is cleaned using iodine before closing the wound again. After that, Neomycin and cloxacillin antibiotics were given to the cow abscess by giving it in the morning and evening. Neomycin and cloxacillin are broad spectrum bacteria that are bactericidal. Neomycin is an aminoglycoside class of antibiotics that works by preventing protein synthesis from bacteria and is effective on gram-negative bacteria such as *E. coli*, *Klebsiella*, *Pasteurella*, *Salmonella* and *Haemophilus spp.* While Cloxacillin is a penicillin class of antibiotics that works by inhibiting cell wall synthesis and is effective against gram-positive bacteria such as *Staphylococcus aureus* (including penicillinase forming enzymes).

D. CONCLUSION

Abscess is pus that is localized due to infection. An abscess was found in limpakuwus farm Balai Besar Pembibitan Ternak Unggul dan Hijauan Pakan Ternak (BBPTU-HPT) Baturraden. The cow found with an abscess was a cow with an eartag 5917, clinical examination showed that there was a swelling in caudal dexter extremity which contained fluid, and when palpated caused cow to felt pain. The treatment given ti the cow was to perform an incision on the abscess and removed the fluin. Then clean the

inside tissue using iodine before closing the incision. Administering a combination of *neomycin* and *cloxacillin* antibiotics was given to the cow as much as 5 ml which is given in the morning and evening

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RIWAYAT HIDUP



Penulis dengan nama lengkap Andi Muh Zulkifli, lahir pada tanggal 28 Juli 1999 di Watansoppeng, Sulawesi Selatan, merupakan anak ke 3 dari pasangan Ayahanda Hasanuddin M. S.Sos, MM. dan Ibunda Hj. Andi Susiani Santi. Penulis menempuh pendidikan dari TK Pertiwi Soppeng kemudian melanjutkan ke jenjang sekolah dasar di SDN 3 Lemba, lalu ke tingkat sekolah menengah di SMPN 1 Soppeng. Penulis menyelesaikan pendidikan di SMAN 16 Makassar pada tahun 2017 kemudian diterima di Program Studi Kedokteran Hewan, Fakultas Kedokteran Universitas Hasanuddin pada tahun yang sama melalui jalur SBMPTN. Penulis melaksanakan tugas akhir strata sarjana dengan judul penelitian **“Pengaruh Suhu Penyimpanan Terhadap Kualitas Fisik Telur Ayam Ras”** dan tugas akhir strata profesi dokter hewan dengan judul **“Studi Kasus: Penanganan Abses Pada Sapi Perah Friesian Holstein Di Farm Limpakuwus Balai Besar Pembibitan Ternak Unggul Dan Hijauan Pakan Ternak (BBPTU-HPT) Baturraden”**.