

Epitheliogenesis imperfecta in a day-old Landrace piglet in Payangan, Gianyar, Bali

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ABSTRACT: One of the six Landrace piglets was born without skin on their thighs. Physical examination showed that the piglets had a birth weight of 1.32 kg, temperature of 39.1°C, absence of skin on the back of the right (4.2 × 7.1 cm) and left (5.1 × 5.3 cm) thighs and the base of the tail, and open wounds. Based on signalment, case history, and physical examination, the piglets were diagnosed with epitheliogenesis imperfecta (EI). The therapy administered was procaine antibiotics and benzathine penicillin G at a dose of 1 ml/10 kg body weight (BW) once injection. Diphenhydramine HCl at a dose of 1 mg/kg BW was given once. Wound cleansing was performed daily with 0.9% NaCl infusion solution, and a 10% povidone-iodine antiseptic was administered for 14 days. The wound was left open without dressing. On the 3rd day after birth, piglets were supplemented with Ferdex® Plus at 2 ml/piglet once. Piglets were left with their sows during the treatment. Treatment results showed healing starting from the formation of a scab on day three and slowly sloughing off until day 8 (remaining ± 10% of the scab). The skin had fully grown, and the wound had completely healed by day 15 after the piglets were born.

Keywords:

aplasia cutis congenita, congenital defect, *Sus scrofa domesticus*, treatment

■ INTRODUCTION

Epitheliogenesis imperfecta (EI) is a rare inherited disorder characterized by localized or widespread skin discontinuities (Ogunro *et al.* 2016). EI has been reported in several animal species and humans, and is thought to be inherited in an autosomal recessive manner (Benoit-Biancamano *et al.* 2006; Kuemmet *et al.* 2020). The incidence of EI in pig farms can cause significant economic losses owing to increased piglet mortality and has implications for animal welfare (Zhou *et al.* 2023). Moreover, the incidence of EI in pigs on pig breeding farms in Indonesia is quite common; however, its prevalence rates and written case reports have not yet been reported. This case report aimed to document the incidence and management of EI in one-day-old Landrace piglets in Payangan, Gianyar, Bali, Indonesia.

■ CASE

Anamnesis and Signalment: A one-day-old male Landrace piglet in the Payangan sub-district, Gianyar, Bali, was born to a sow who had given birth several times and mated naturally. The sow gave birth to six litters, four females, and two males, with an average birth weight of 1.42 kg. Piglets were uniform in weight and size. The owner complained that one male piglet showed no skin on the thigh (Figure 1A). This was the first time that a sow had given birth to litter under this condition.

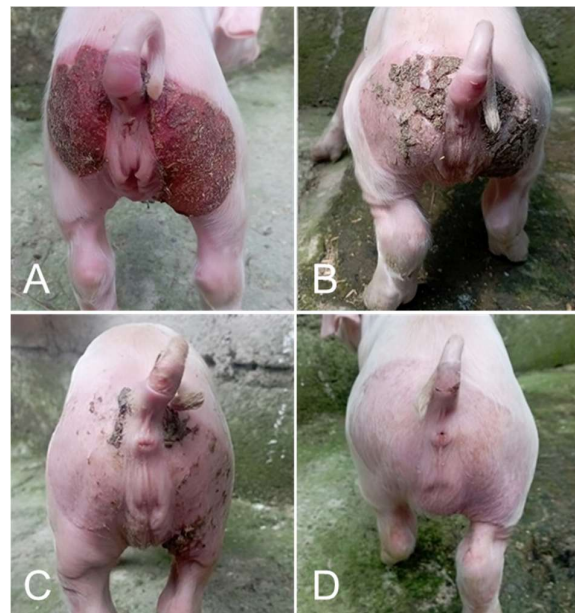


Figure 1. Wound healing progression in a day-old Landrace piglet with epitheliogenesis imperfecta. (A) day 2, (B) day 6, (C) day 8, and (D) day 15

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Physical Examination: Rectal temperature 39.1°C, birth weight 1.32 kg. Physical examination revealed absence of skin on the backs of the right and left thighs, and an open wound was observed (Figure 1A). No swelling or skin prominence was observed during the initial stages of the lesion. The lesions were oval, measuring 5.1 × 5.3 cm on the left thigh and 4.2 × 7.1 cm on the right thigh. The absence of skin at the base of the tail was also observed, but the anus and scrotum were normal. **Diagnosis:** Epitheliogenesis imperfecta (EI). **Differential diagnosis:** Epidermolysis bullosa. **Prognosis:** Fausta. **Treatment:** The antibiotics procaine penicillin G (150,000 IU) and benzathine penicillin G (150,000 IU) (Procaben® 400 LA) at a dose of 1 ml/10 kg body weight q72h were administered as a single injection of Diphenhydramine HCl (Vetadryl® Inj 20 mg/100 ml) at a dose of 1 mg/kg body weight to prevent anaphylactic effects due to penicillin. Wound cleansing was performed every other day for 14 days using a 0.9% NaCl infusion solution and povidone-iodine 10% antiseptic. The wound was left open without dressing. On the 3rd day after birth, Ferdex® Plus supplement (each ml contained 100 mg Fe-dextran, 1 mg vitamin B6, 50 µg vitamin B12, and 0.5% phenol) was administered at a dose of 2 ml/piglet dose. Piglets were left with their sows during the treatment.

■ RESULTS AND DISCUSSION

In this case, the EI lesions were oval in shape, located on the right and left thighs, and asymmetrical between lesions on the right and left sides. The lesions were shiny red in newborn pups on the first day and dry up after the second day. The margins of the lesions did not fold, and showed clear boundaries. The depth of the lesions at the periphery was lower than that at the center of the lesion. Ogunro *et al.* (2016) reported EI in piglets on the dorsal caudal part of the body with an area of 60 cm². The shape resembled shiny red raw meat, well demarcated, asymmetrical, skinless patches, oval shape, and folded edges. Girish *et al.* (2023) reported the incidence of EI in two herds of Large Yorkshire White sows in Hassan district, India has also been reported. Of the two herds, 18 of the 26 piglets developed EI from the two herds. The piglets showed symptoms of anorexia, weakness, anemia, and ataxia. Piglets with EI are prone to conditions, such as arthritis, diarrhea, and pneumonia, which can lead to death. Benoit-Biancamano *et al.* (2006) stated EI cases were more common in the caudal part of the body, male piglets were more commonly affected, and only one piglet in the litter was observed to have EI. This finding was similar to that of a previous case report.

The treatment in this case involved wound care and antibiotics (procaine and benzathine penicillin) without wound closure using a bandage. Girish *et al.* (2023) also used similar antibiotics to treat EI in 6 piglets. The antibiotics used were procaine penicillin G and streptomycin sulfate for five days, administered once daily by intramuscular injection. The wounds were treated with chloroxylenol and povidone-

iodine ointments for 10 days. However, in the therapy performed by Girish *et al.* (2023), a wound dressing was used. Ogunro *et al.* (2016) used penicillin ointment of 100,000 IU but applied it for 2 weeks. Wound cleansing was performed using 0.05% chlorhexidine, natural honey once daily, and fly repellent (0.1% cyfluthrin). Radhakrishnan *et al.* (2024) used 0.05% chlorhexidine for wound cleansing and lorexane cream, proflavine hemisulfate, and cetrimide twice daily for two weeks, but they did not apply wound dressings. Wound dressing was not performed in this case, as the bandage could be bitten and eaten by sows and other piglets. In this case, wound healing began with the formation of a scab that started on day three and slowly peeled off until day eight, leaving approximately 10% of the scab (Figure 1B-C). Skin growth and wound healing occurred 15 d after birth (Figure 1D). A wound healing time of 10–21 days has also been reported by Ogunro *et al.* (2016), Radhakrishna *et al.* (2024), and Girish *et al.* (2023), in EI cases in piglets with different locations and severities.

■ CONCLUSION

One-day-old Landrace piglets diagnosed with EI were treated with penicillin-benzathine antibiotics, diphenhydramine, and wound cleansing with 0.9% NaCl physiological fluid and 10% povidone-iodine for 14 days, and recovered 15 days after birth.

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