



A case report: Bilateral Transverse Hemimelia of the Hind Limbs in a Lamb

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Abstract: This case report describes a congenital limb defect in a one-year-old crossbred lamb presenting hemimelia, defined as congenital agenesis of the distal limb structures. The malformation involved partial absence of both distal hind limbs, consistent with distal transverse hemimelia. Despite this, the lamb exhibited remarkable adaptability, moving efficiently using its forelimbs while maintaining normal feeding and social behavior. The animal was clinically monitored for one year, with detailed assessment of general health, locomotor adaptation, and radiographic evaluation using lateral and medial projections. No other congenital malformations were observed in the flock, making this an isolated case. This report contributes to the limited literature on congenital limb reduction defects in small ruminants and highlights the adaptive potential of affected animals under farm conditions, offering insights relevant for veterinary management, breeding programs, and early diagnosis of similar anomalies.

• Introduction

Congenital limb defects in sheep provide insight into breed susceptibility and environmental influences. Maternal factors such as high temperature, poor nutrition, exposure to teratogenic plants (e.g., *Veratrum*, lupines, alfalfa phytoestrogens), viral infections (Akabane, NSD), and certain drugs can disrupt embryonic development, leading to skeletal malformations and growth retardation.

• Material and method

The lamb was clinically monitored on-farm since the first days of birth (Fig.1) and during its first year of life to evaluate general health, locomotion, and adaptation. Thermal imaging (FLIR E8) was used to assess surface temperature and detect inflammatory signs. Radiographs of the pelvis and hindquarters were obtained at the Aristotle University of Thessaloniki using lateral and medial projections. Photographs and morphological comparisons with healthy flock mates supported visual assessment.



Fig.1 Clinical aspect of the lamb in the first week of life



Fig.2 Clinical aspect of the lamb one year later

• Results and discussions

Clinical evaluation of the one-year-old lamb revealed the overall body aspect as standing in oblique manner cranio-caudally, all due to absence of the distal end of the hind limbs (Fig.2). Special attention was given to the soft tissue of the hind limb region, where there was observed alopecia, keratinized tissue and superficial ulcerative lesions, resulting from the dragging of the posterior legs as an adaptability mechanism

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for locomotion. To assess the presence of inflammation, thermal camera was used, revealing differences of temperature, an average of 29.2°C but with temperature spikes suggesting ongoing inflammatory process (Fig.3)

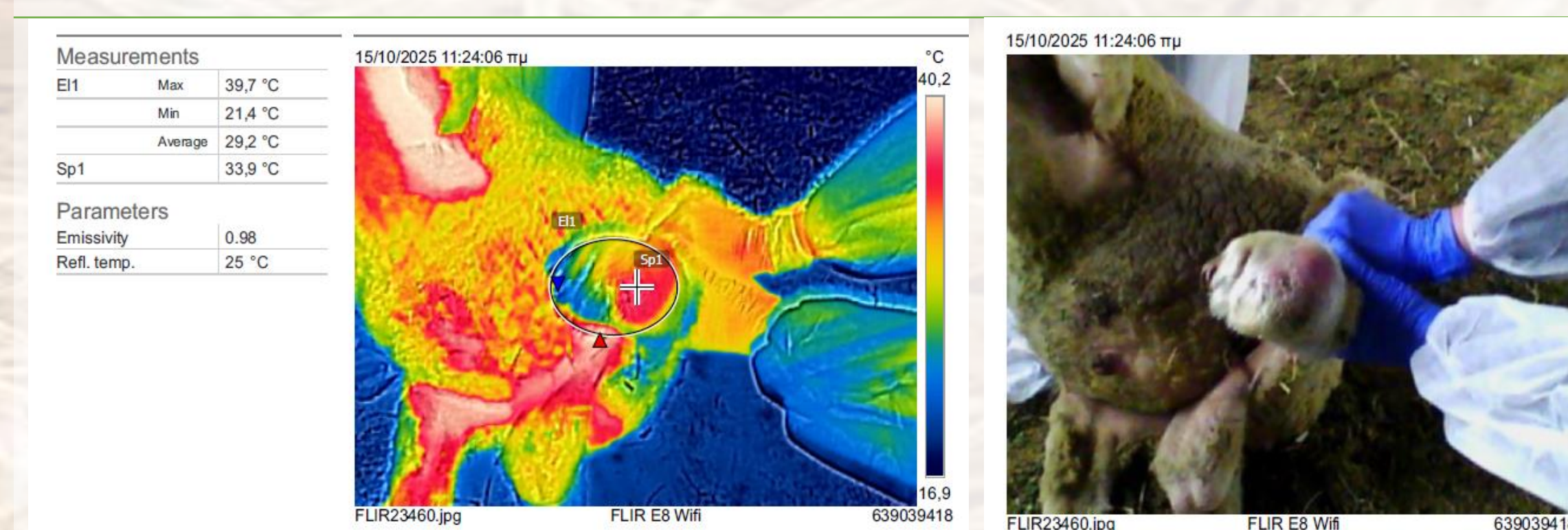


Fig.3 Thermal camera aspect of one of the affected limbs

Radiographic examination of the hind limbs was conducted and revealed bilateral, fairly symmetrical skeletal abnormalities. On the left lateral projection (Fig.4) there was a complete absence of the metatarsal and phalangeal bones, with a rudimentary osseous structure visible proximally. On the right side (Fig.5) similar findings were observed, in distal region of the limbs, most likely undefined hoof structures. These radiographic findings are consistent with a developmental defect rather than an acquired one, based on clinical history, congenital transverse bilateral hemimelia.



Fig.4 Lateral projection of the right hind limb



Fig.5 Lateral projection of the left hind limb

• Conclusions

Rare congenital hind limb malformation in a lamb with bilateral absence of metatarsal and phalangeal bones and rudimentary structures. Etiology is unknown, possibly hereditary, sporadic, or due to in utero teratogenic/viral exposure. Highlights the value of clinical and radiographic evaluation of limb defects in small ruminants.